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Daniela Rupo
Lara Tarquinio *Editors*

Sustainability and Law

General and Specific Aspects

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Volker Mauerhofer • Daniela Ruppo
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 Springer

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Preface

This volume has been achieved by efforts of many. First, we thank two anonymous book reviewers who gave valuable instructions to the outline of structured abstracts in late winter 2019.

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The editors also thank all organizations that provided the setting for conferences and various meetings, which enabled them to bring together a variety of contributors with diverse backgrounds in this edited volume. These organizations are alphabetically in the order of their abbreviations as follows:

- The annual European Environmental Law Forum (ELFF) (<https://www.eelf.info/home-7.html>)
- The biannual legal conference track of the European Society for Ecological Economics (ESEE) (<http://www.euroecolecon.org>)
- The annual legal conference tracks of the International Sustainable Development Research Society (ISDRS) (<http://www.isdrs.org>)
- The biannual legal conference track of the International Society for Ecological Economics (ISEE) (<http://www.ecoeco.org/>)

- The Annual Colloquium of the International Union for the Conservation of Nature (IUCN) Academy of Environmental Law (<http://www.iucnael.org>)
- Diverse conference tracks conferences of Research & Degrowth (R&D) (<https://degrowth.org/>)
- Diverse meetings of the World Commission on Environmental Law (WCEL) of the IUCN (<https://www.iucn.org/commissions/world-commission-environmental-law>)

We also thank Ms. Partibane ArulVani from SPi Technologies India Private Ltd., who did – in a trustful and reliable manner – most of the actual work in this book on behalf of Springer Nature, Switzerland.

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Östersund, Sweden
Messina, Italy
Pescara, Italy

Volker Mauerhofer
Daniela Rupo
Lara Tarquinio

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Introduction



Daniela Rupó, Lara Tarquinio, and Volker Mauerhofer

1 Main Objectives

Sustainability as a central topic in the roadmap for economic growth has been around for several decades, but the theme still remains a key issue in many scientific and political debates, covering diverse areas of interest for both scholars and practitioners.

Given the urgency to translate ethical and academic stance in real action, it is questionable how much coherent is human behavior to a sustainable ecosystem, and what role can the law, in all its various forms, play in pursuing such compatibility.

The edited volume is aimed to explore and discuss on the link between law and sustainability, moving from the assumption that regulation is necessary at a global as well at a regional level to achieve sustainable goals, intended by the UN Agenda (2015) as “an urgent call for action by all countries – developed and developing – in a global partnership”.

The Agenda established the importance to achieve by 2030 17 Goals, including those related to poverty, inequality, climate change, environmental degradation, peace and justice. These goals address the global challenges we face and are the blueprint to achieve a better and more sustainable future for all. The 17 Goals are

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intended in a systemic view to be all interconnected; thus, in order to leave no one behind, it is important that we achieve them all.

In this vein, the edited volume intends to deepen the interrelations between law and sustainability adopting a multidisciplinary approach. A broad variety of themes, all connected with such association, is presented. The structure of the book combines, in a wide spectrum, contributions coming from academic authors, both young and senior scholars, with contributions on specific topics related to practical experience, presented by young as well as expert professionals. The geographical variety of subjects of analysis is another source that enriches the debate on this field, thus assuring the exchange of viewpoints on similar themes.

In this multifaceted way, the volume is capable of making rooms for original ideas together with works that feed into the debate on well-known theoretical frameworks.

2 Main Themes

The book's main themes are law and sustainability. Both themes are covered in a very broad sense respectively. Apart from the introduction and conclusions, the book contains thirty-four contributions. All of them address sustainability and law together. All the contributions are allocated within one of the two larger parts on general and specific aspects respectively. A not negligible role in defining this framework is played by policies, here intended as all kinds of enforceable interactions between the public and the private sector stipulated in and based on the law (Mauerhofer 2016, p. 2). The connections between law and sustainability are investigated, according to a horizontal approach, for topics in which the connecting issues are not related to a particular part of the natural assets. Neither are the issues country-specific or sector-specific ones. Thereby, in the sub-part related to specific aspects, each contribution takes a different geographic and/or thematic angle. These sub-parts will respectively enter deeper into the respective theme. Furthermore, they partly indicate cross-connections with other themes of one or both larger parts of the book.

3 Structure

This book is structured in two main parts related to general and specific aspects of sustainability and law. The part about "General Aspects" spread over five parts with in total 19 chapters. Each of the parts is addressing a horizontal topic respectively. It starts with "Basics of a Sustainable Development Law" where overall questions related to the scope of the term are discussed. Afterward, questions related to the environmental carrying capacity are address and a chapter titled "Overconsumption, Rebound Effects, Degrowth and Planetary Boundaries". The part about "General

Aspects” then continues with two parts related to economic aspects and discusses here especially questions of Corporate Sustainability. The last ‘general” parts covers the horizontal topics of Human Rights from different angles, Non-Governmental Organizations and Public Participation in Environmental Matters, and thereby elaborates individual as well as collective rights.

The part about “Specific aspects” spread over five parts with in total 15 chapters. The first two parts deal with biodiversity and oceans, highlighting aspects ranging from their sustainable use by indigenous people to invasive alien species. The next part is focussing on climate policy and related energy management. The next two parts explore the concept of ecosystem services and particularly food, water, and energy issues.

4 Issues Assessed Within the Thirty-Four Chapters

4.1 Issues Related to General Aspects

The first main part of this edited volume starts with the analysis of general aspects of Sustainable development law and covers five smaller parts with in total 19 chapters.

In Chapter 2, “[Sustainable Development Law in \(Only\) One World: Challenges and Perspectives for Governance And Governments](#)”, Volker Mauerhofer differentiates among stakeholders as the “players of the game” and institutions as the “rules of the game” and adds to these “rule-focused instruments” two further types of instruments, namely economic-incentive focused and information focused one. The Author presents and discusses interventions through rule-focused, economic-incentive-focused, and information-focused instruments for three overall types of stakeholders, that is (1) governmental ones, (2) for-profit ones and, (3) not-for-profit ones.

In Chapter 3, “[Designing Law for Sustainability](#)”, Massimiliano Montini addresses the issue of how to design law for sustainability. The author explores the historical and theoretical roots of sustainability, highlights its ecological core and then analyses the evolution of the concept of sustainability to show how its ecological core has been gradually forgotten and almost lost over time. Then, the focus shifts on the role that sustainability might play in the realm of regulation showing that only considering the preservation of the health and integrity of ecosystems as a priority, it will be possible to put in place a regulatory regime truly inspired by sustainability.

In Chapter 4, “[The Laws of Sustainable Development](#)”, Geert Van Calster provides an overview of the international laws of sustainable development, with the aim to introduce the reader to the overall international legal framework which accompanies policies on sustainable development. The paper shows how an international policy, developed on the premise of individual principles, risks being tripped up on the implications of the set of principles as a whole. Therefore, for a fruitful roll-out of sustainable development strategies a coordinated approach is required.

In Chapter 5, “[Reducing the European Union’s Environmental Footprint Through ‘Territorial Extension’](#)”, Joanne Scott, highlights that the EU, among tools to tackle its environmental footprint, has started to enact legislative measures in the environmental domain that gives rise to ‘territorial extension’ in that they seek to regulate the way in which imported products have been harvested or produced in third countries. This includes measures relating to forests, fisheries, climate change, and waste. Scott analyses the case-law of the Court of Justice of the EU and of the World Trade Organizations’ Appellate Body, showing that if carefully designed, measures of this kind may be lawful.

In Chapter 6, “[Resilience: Is Sustainability Dead?](#)”, Trevor Daya-Winterbottom wants to evaluate whether, in the New Zealand and transnational contexts, sustainability is dead. The Author assesses what the guiding ethic for New Zealand environmental law should be using critical law as “engineering” and law as “transformative technology” perspectives. The analysis suggests that resilience, adaptation, and risk assessment could provide a more coherent framework to guide defensible and enduring environmental outcomes grounded on ecological integrity.

Overconsumption, Rebound Effects, Degrowth, and Planetary Boundaries are discussed in the third part structured into three chapters.

In Chapter 7, “[What Does the Rebound Effect Tell Us? Reflection on Its Sources and Its Implication for the Sustainability Debate](#)”, Joëlle Saey-Volckrick investigates the phenomenon of the rebound effect enhancing the theoretical foundations of this phenomenon, developing a comprehensive classification that distinguishes the different levels of the rebound effect and the mechanisms at play and analyzing the implications for the sustainability debate.

In Chapter 8, “[Regulating Our Consumer Culture: What Role Can the Law Play in Addressing Excessive Consumption?](#)”, Melissa Gorrie explores the role of states in addressing personal consumption using the Canadian legal landscape as a case study.

In Chapter 9, “[Biodiversity, Climate Change and Finnish Forest Regulation](#)”, Minna Pappila underlines the relevance of forests for the protection of biodiversity in Finland and for their role in climate change mitigation. The Author argues that existing legislation has been insufficient to halt biodiversity decline over the last 20 years and the situation is becoming more critical due to the increasing amounts of logging in Finland.

The fourth and fifth parts focused on corporate responsibility. The fourth part explores the corporate responsibility practices and product policy. The fifth one clarifies the emerging concept of the political corporate social responsibility and outlines the effects of law on sustainability reporting.

In Chapter 10, “[‘The Chemicals Between Us’. The Use and Discharge of Chemicals in the Life Cycle of a Pair of Jeans – From Legal Theory to Practice](#)”, Bosman Martine, Lambooy Tineke, Oral Elif, and Jansen Bart provide an analysis of the adverse impacts in each phase of the entire life-cycle of a pair of jeans (‘jeans’). The Authors evaluate the legal standards applicable to the use and discharge of (hazardous) chemicals in each of these phases and then, the legal standards are

compared with industries' best practices that emerged from the gathered information in a case study concerning a specific pair of jeans.

In Chapter 11, "[Fiscal Policy for Sustainable Development: The Italian Way to Promote Innovative Entrepreneurship According to European Union Rules](#)", Patrizia Accordino seeks to fill the existing gap in literature on the synergy between specific fiscal policies introduced in favor of innovative entrepreneurship in line with EU State Aid rules, development, and sustainability. She proposes an overview of Italian legislation to clarify why it is considered compatible with the European rules followed by a proper analysis which clarifies its remarkable outcomes.

In Chapter 12, "[Planned Obsolescence and Criminal Law: A Problematic Relationship?](#)", Emanuele La Rosa evaluates whether the use of "criminal law" can be considered such dissuasive measure against Planned Obsolescence, according to the provisions of Motion for a European Parliament resolution *«on a longer lifetime for products: benefits for consumers and companies»* (2016/2272). The author outlines that the use of criminal law has advantages in terms of general prevention, however, it is a problematic option, if we consider the general principles ruling criminal law (principle of strict legality and principle of offensiveness).

In Chapter 13, "[Political Corporate Social Responsibility and the Role Of Companies. Evidence from Novo Nordisk](#)", Stefania Carolina Posadas, Lara Tarquinio, and Michele A. Rea investigate the emerging and less investigated concept of Political Corporate Social Responsibility and analyze the political role taken on by corporations to fill regulatory gaps due to weak or insufficient social and environmental standards and norms. The focus of the research is on Novo Nordisk A/S. Using Scherer and Palazzo's framework of five characteristics that define Political Corporate Social Responsibility, the Authors demonstrate that Novo Nordisk exhibits those characteristics and well describes the changing role of corporations as political actors.

In Chapter 14, "[Italy Towards Mandatory Sustainability Reporting. Voluntary Corporate Social Responsibility Disclosure of Italian Companies and Legislative Decree 254/2016 Statements. A Quantitative Analysis of the Last 10 Years](#)", Federica Balluchi, Katia Furlotti, and Riccardo Torelli, investigate the role of company characteristics in influencing voluntary disclosure. The analysis focused on voluntary Corporate Social Responsibility Disclosure (2007–2016) implemented by Italian listed companies in the 10-year period and shows that in a non-mandatory context the number of Corporate Social Responsibility reports published grew steadily. The Authors explore the voluntary behavior of Italian companies before the implementation in Italy of the Directive 2014/95/EU on Non-Financial Information.

In Chapter 15, "[Non-financial Performance Indicators: The Power of Measures to Operationalize the Law](#)", Domenico Raucci, Lara Tarquinio, Daniela Rupo, Salvatore Loprevite explore the effects produced by the 254/2016 Legislative Decree, on Sustainability Performance Indicators (SPIs) disclosed in non-financial reporting produced before and after the Legislative Decree (2015–2017 financial years) by a sample of Italian companies belonging to the "sensitive sectors".

The last part related to general aspects deals with human rights highlighting the role of Non-Governmental Organizations and analyzing human rights from different angles.

In the Chapter 16, “[Collaborative Regulation: Preventing Regulatory Capture in Multi-stakeholder Processes for Developing Norms for Sustainability Conduct](#)”, Karin Buhmann analyses the theory of collaborative regulation to prevent regulatory capture by actors in multi-stakeholder regulatory processes.

In the Chapter 17, “[Right to Development and Right to Environment: Sustainable Development Perspectives](#)”, Ivana Savic wonders about the presence of a conflict between the right to environment and the right to development. The issue of conflict of rights is relevant in the context of the implementation of SDGs, as human rights provide the conceptual and technical framework for the implementation of the SDGs, but also for the de-politicization of international development. The author proposes a brief overview of the different types of environment-development conflicts, as well as an overview of the different types of human rights conflicts, and concludes that there is no actual conflict of rights.

In the Chapter 18, “[Peace as a Right of Humanity](#)”, Iryna Ivankiv offers a new concept of the right of humanity to peace presented through its co-dependence with human rights and sustainable development. The Author provides a broad analysis of the international documents, which had changed the legal definition of peace recognizing it as a human right. Moreover, Ivankiv argues in favor of recognition of humanity as the subject of the right to peace, along with its connection with sustainable development.

In the Chapter 19, “[NGOs as Loudspeakers: Potential Role of NGOs in Bridging the North-South Gap in International Environmental and Sustainable Development Law Making Process](#)”, Kokila Konasinghe states that there is a gap in the international law-making forums in how north and south collaborates and contributes to the development of international laws and policies. The author underlines that in addition to the states, the non-state actors are increasingly becoming an important voice in balancing the scales of international politics and international lawmaking. Konasinghe provides for justification and rationale for legitimizing the NGO participation in international environmental law and sustainable development in order to make it more participatory, equitable and just.

In the Chapter 20, “[Claims in Environmental Civil Public Interest Litigation in China: Problems and Solutions](#)”, Tianbao Qin and Xuemin Chen, adopting a case study approach documented the status quo of environmental civil public interest litigation in China. The year 2013 is a watershed for the plaintiff’s claims, because, before 2013, more claims were to require the defendant to cease the infringement, eliminate the danger, compensate for the loss, and other forms of traditional tort liabilities. After 2013 more claims focus on ecological restoration, and meanwhile, the compensation requirements become more concrete. The Authors, based on the principle of “reasonable separation of functions of courts, administrative organs, and social organizations”, propose clarifying the limitation of disposition of claims, distinguishing judicial and administrative power in this regard and relaxing the court’s reliance on the inquisitorial system.

4.2 *Issues Related to Specific Aspects*

The second part of this edited volume regards the analysis of general aspects of Sustainable development law and covers five smaller parts, from the seventh to the eleventh smaller part, with in total 15 chapters.

The seventh smaller part is about Biodiversity & Biofuels – Access and Benefit Sharing, Indigenous Peoples’ Knowledge, and Local Implications, and contains three chapters.

In the Chapter 21, “[Rules and Practices of International Law on Benefit-Sharing for Sustainable Development](#)”, Jorge Cabrera and Frederic Perron-Welch examine the principle of benefit sharing in international law and thereby establish the important linkage between benefit sharing and sustainable development.

In the Chapter 22, “[Sustainable Use of Indigenous Ecological Knowledge: A Case Study for Implementing the Nagoya Protocol](#)”, Natalie Stoianoff analyses the Garuwanga Project considered the best legal structure of governance for Indigenous Australians to manage their traditional knowledge and culture, including their ecological knowledge, and enabling Australia to comply with the Nagoya Protocol.

In the Chapter 23, “[Jatropha Cultivation in South India – Policy Implications](#)”, Lakshmi Gopakumar examines the gaps of the *Jatropha* program, introduced in India with great expectations regarding India’s self-sufficiency in biofuel production. The Author underlines the failure of this program due to a lack of proper implementation at different levels.

The eighth part focuses on invasive alien species and ocean and is articulated in three chapters.

In the Chapter 24, “[Invasive Alien Species – The Eradication or Use of Invasive Alien Species under EU Law](#)”, Felix Frommelt provides an overview of the Invasive Alien Species Regulation and discusses the Union list, the listing criteria as well as the restrictions set forth. The concept of ecosystem services is addressed as it is newly introduced in an EU legislative act.

In the Chapter 25, “[The Limited Contribution of Environmental Law to the Sustainable Management of Marine Resources in Brazil: The Need for an Integrated Approach](#)”, Carina Costa de Oliveira, Gabriela G. B. Lima Moraes and Priscilla Pereira de Andrade criticize the Brazilian environmental law because it was not specifically designed for the management of marine resources and so far does not contribute to the sustainable integration, throughout its principles, rules and instruments, of different sectors such as mining, oil exploitation, navigation and fishing. In addition to this, environmental law does not provide for an institutional framework where environmental agencies are at the center of the management of marine resources.

In the Chapter 26, “[International Environmental Law and Law of the Sea: Analysis of Legal and Political Aspects of Institution Interaction](#)”, Ekaterina Vasilenko and Ekaterina Bliznetskaya, seek to find the legal base for interplay management in the sphere of land-based sea pollution between these conventions. The Authors focus their research on the analysis of the sources of sea pollution and on the global legal framework of setting restrictions upon these sources in order to

find the justification for the necessity of cooperation between the relevant conventions. A case study was carried out on how and with what effects the relevant international institutions cope with the gap in the regulation of land-based sea pollution.

The ninth part focuses on climate and energy and is articulated in three chapters.

In the Chapter 27, “[From Global to Local: A Multilevel Approach to the Local Implementation of Climate Policies in Japan](#)”, Hitomi Roppongi investigates how the global climate framework has been incorporated at the national level in Japan, and to what extent the national climate laws have been implemented at the subnational level. Therefore, the Author provides an overview of domestic legislation that incorporates multilateral climate agreements at the national and sub-national levels. Second, the state of local implementation is assessed by reviewing government-disclosed data and policy documents. The concept of multilevel governance is used to guide the legislative review and analysis of local implementation.

In the Chapter 28, “[Integrating Sustainability in Governance and Legal Framework for a Sustainable Builtscapes in Kenya: Towards a Global Approach](#)”, Ruth Onkangi and Yvonne Getugi explores the adequacy of Kenya’s subsidiary legislation to support a transition towards enforceable sustainable construction regulations. Informed by the Green Legal Theory and Legal Theory of Sustainable Development it provides an international comparison between Kenya and United Kingdom regarding legislation and implementation of legal principles of sustainability in the construction industry. It particularly examines in this way the level of fusion of sustainability in laws governing the construction sector in Kenya.

In the Chapter 29, “[Towards a Low/Zero Carbon Society for the Asia-Pacific Region: Policy and Legal Development for Carbon Capture and Storage \(CCS\) in Japan](#)”, Kenchiro Yanagi and Akihiro Nakamura, take part to the discussion about Carbon Capture and Storage (CCS) considered as one of the significant approaches to mitigating a large amount of CO₂ from the global atmosphere. In particular, the Authors aim at identifying a number of key approaches to developing the existing CCS policy and legal framework in Japan to commercialize CCS deployment, based on ongoing research.

The tenth part is related to ecosystem services and consists of three chapters.

In the Chapter 30, “[Framing Ecosystem Services for sustainability?](#)”, Alexandra Langlais analyses current literature in order to provide a reflection on the usefulness and modalities of taking into account ecosystem service (ES) to guide decisions towards greater sustainability. She examines two approaches. The first, which is classic in law, is focused on the legal qualification of ES and more specifically through the relevance of a dedicated legal category. The second, less traditional, wants to demonstrate that an approach based on the legal qualification of ES is not the only possible or most relevant legal approach.

In the Chapter 31, “[Mainstreaming Ecosystem Services as Public Policy in South East Asia, from Theory to Practice](#)”, Huu Loc Ho, Kim N. Irvine, Asan Suwanarit, Pakorn Vallikul, Fa Likitswat, Alisa Sahavacharin Chansopheaktra Sovann and Song Ha Le explore achievements and barriers, to mainstreaming ecosystem service

(ES) within the environmental public policies of Southeast Asia. In particular, the authors examine four Southeast Asian nations (Singapore, Thailand, Cambodia, and Vietnam) using the case study method.

In the Chapter 32, “[Payment for Ecosystem Services in the Congo Basin: Filling the Gap Between Law and Sustainability for an Optimal Preservation of Ecosystem Services](#)”, Blaise-Pascal Ntirumenyerwa Mihigo and An Cliquet explore the laws related to Payment for Ecosystem Services (PES) in force in the Democratic Republic of Congo (DRC) in order to obtain a more sustainable preservation of ecosystem services. The Authors analyze four ecosystem services (namely, carbon sequestration and storage, biodiversity protection, watershed protection, and landscape beauty) and explore the criteria applied to assess the potential of the DRC PES laws to promote sustainable preservation of ecosystems and ecosystem services.

The last part on specific aspects of sustainability and law is titled “Specific Aspects: Food – localized rights, transboundary water/energy nexus with groundwater and urban gardens” and contains three chapters.

In the Chapter 33, “[Municipalities, Social Innovations, and the Co-development of Localized Food Rights](#)”, Paula Fernandez-Wulff states that two contemporary trends in food systems’ work have not received sufficient attention within the discussion on municipal policy-making for sustainable development, namely: recent developments within the human right to food at the international level, and the exponential growth in comprehensive local food strategies. Therefore, the Author analyses, firstly, the achievements of the main actors and institutions working on the right to food at the international level, with an eye to what lessons may be drawn from those processes for the collective implementation of food rights at the local level. Secondly, through two case studies based on semi-directed interviews with actors involved in local collective action experiences with food policy-making in the European Union and the United States, Fernandez-Wulff shows how social initiatives navigate the legal system and the administrative State to craft their strategies, using and pushing for the use of rights’ language strategically.

In the Chapter 34, “[Water-Energy-Food Nexus and Groundwater: Can the Nexus Support the Sustainable Management of Transboundary Aquifers?](#)”, Imad Antoine Ibrahim reflects on the possibility that the Water-Energy-Food (WEF) Nexus concept can be legally implemented in the framework of international groundwater law and whether doing so would actually strengthen the global groundwater regulatory framework. Moreover, he wants to verify if the incorporation of the Nexus concept into international and transboundary water conventions and instruments dealing with groundwater resources, can provide new means of preventing the depletion of transboundary aquifers.

In the Chapter 35, “[Establishing Urban Gardens on Vacant Land While Considering International Good Practices: A Legal Case Study from Portugal](#)”, Alexandra Ribeiro, Raquel Carvalho, and Livia Madureira review the current literature on good practices adopted in different countries on vacant land restorations for urban sustainable development. Afterward, the Authors use five Portuguese Municipal Master Plans as empirical data to support the design of a new legal and regulatory framework. The goal is to enhance the sustainable destination of vacant land by converting them into urban gardens.

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Part I
**General Aspects: Basics of a Sustainable
Development Law**

Sustainable Development Law in (Only) One World: Challenges and Perspectives for Governance and Governments



Volker Mauerhofer

1 Introduction

Overconsumption by humans in particular from the Global North and a logarithmical human population increase on the planet has led the world to the edge of self-destruction (Huesemann 2001; Hamilton et al. 2015, see also recent details with UNEP 2019, 486ff). The unchangeable biophysical limitations of the planet to sustain all kinds of species (including humans) enshrine multiple challenges also for governance and regulation within an anthropocentrically oriented global society. This society currently lives – indicated by the ecological footprint (Rees 2002; Wackernagel 2009; Lin et al. 2018) – from the biophysical stocks (and not anymore only from the flows), exceeding already multiple limits planetary (Rockström et al. 2009) and regionally (Steffen et al. 2015). That society is meanwhile considered the most pressing driver of such biophysical changes (Crutzen 2002), it continuously reduces the source and sink capacity of the earth system widely in absolute terms, despite some relative decoupling improvements (e.g. Ward et al. 2016; IRP 2019, 8). Trade-offs between robustness and fragility of the environment as well as among short-term interests of this society and long-term overall necessities have been pointed out (Carpenter et al. 2015; Anderies 2015). This comes alongside in particular related to the increasing global interrelations among causes and impacts negatively effecting socio-ecological systems (e.g. Adger et al. 2008; Jiborn et al. 2018). These interrelations are nowadays increasingly summarized under the term “telecoupling” (e.g. Liu et al. 2013; Hull and Liu 2018) and even lead to underuse of certain socio-ecological systems with similar impacts like overuse (Mauerhofer et al. 2018).

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The long-term protection of the environment is not primarily considered a problem to be solved by technics but rather a social and moral problem that can only be solved by drastically reducing the strong influence of materialistic values being the main driving force for both overpopulation and overconsumption (Huesemann 2001). Consequentially, a quest for a sustainable degrowth inevitably follows (Schneider et al. 2011; Mauerhofer 2013a; Kallis 2018). Such a degrowth needs to be sustainable in environmental, social and economic terms. It has to take in particular into consideration Global North – Global South disparities (e.g. Rodríguez-Labajos et al. 2019) and all kinds of yet disadvantaged stakeholders including future human and non-human generations (Hubacek and Mauerhofer 2008).

This is not achieved yet through continuously setting list of global goals such as the Millennium Development Goals (UN 2000) or the SDG's (UN 2015), if they result in the fact that some of the countries with the highest Ecological Footprints – which seriously affect the global environment as the basis for planetary wellbeing of society and economy – are considered in related indices as the overall most sustainable countries due to equally weighting of the goals (see e.g. by Sachs et al. 2019, X and 20; critical e.g. also Janoušková et al. 2018). The necessary new balance among environmental, social and economic interests can neither be achieved through such an – equally weighted – integration of SDGs that ignores clear dependencies, nor through “integration” and “balance” that are mainly stated on paper (UN 2015, p. 1 *“The 17 Sustainable Development Goals and 169 targets . . . are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental.”*). The pure selection of certain – admittedly partly quite ambitious – goals cannot replace an apparent substantive lack of guidance about balancing and integrating of the SDGs (and their targets) as they reflect multiple conflicting interests (see e.g. Spaier et al. 2017). Rather approaches and concepts should be envisaged and fostered which promote preliminary but flexible priority settings and which also recognize basic dependencies among environment, society and economy as well as a precautionary approach (Mauerhofer 2008, 2019), while enabling choices without economic valuation (Vatn and Bromley 1994) and realizing inconvenient trade-offs (McShane et al. 2011).

The contribution therefore frames around regulation and governance for (only) one world where norms related solely to (technical) quality of products and services without addressing the growth of the total numbers of these products and services are less equipped to mainly stem this sustainability challenge. This chapter assesses which kind of law is needed to address these challenges of only one world. It in particular analyzes in how far law can be a tool to foster degrowth and to reduce the rebound effect (Binswanger 2001; Saey-Volckrick *this volume*) in the over-consumptive Global North in terms of voluntary as well as prescribed behavioral change. Of particular interest are thereby mixes of policies (Rogge and Reichardt 2016) and of instruments (Ring and Schröter-Schlaack 2011; Ring and Barton 2015).

This chapter starts in the following with a short introduction into 3-D Sustainability as its conceptual assessment framework and describes as further part of the analytical framework the differentiation between institutions and organizations. The

findings will discuss first the need for substantial inter-national and intra-national fine-tuning when it comes to the allocation of resources and the related wealth among and within nations. Then, a rough overview on organizations and related mixes of instruments as well as of policies for sustainable governance is provided. Afterwards a multilevel view on instruments of “governments” follows. The findings end with an analysis of sustainability governance for national governments towards absolute reductions of the source and sink capacities and relevant instruments. A summary of main findings and the related conclusions finalize the chapter.

2 Theoretical Framework and Methodology

The contribution bases upon the idea of a Sustainable Development consisting of balancing and integrating multifaceted interests within and among its environmental, social and economic dimensions such as enshrined in the famous “Brundtland Report” (WCED 1987) and reconfirmed recently in the Rio + 20 outcome documents (UN 2012) and its following Sustainable Development Goals (UN 2015) such as already described above. It tries to identify future pathways in regulation and governance through institutional and organizational innovation in substance and procedure of decision-making systems on all societal levels and the trade-offs therein, given the obvious existence of only one world in bio-physical terms and the dependence of all species (incl. humans) thereon and embedding therein. The contribution therefore employs a wide range of inductive and deductive, theoretical and practical approaches and methods, especially but by far not exclusively a decision support concept called “3-D Sustainability” (Mauerhofer 2008, 2019). This concept strives to translate environmental, social and economic capital and (carrying) capacity realities into practically applicable new sustainable regulation and governance solutions (Fig. 1).

3-D Sustainability starts from an embedding theory (Mauerhofer 2008). Therein, environmental assets form the safety “web of life” (Capra 1997) in the sense of the basic system where the social system is embedded in as well as dependent upon and where the economic system is embedded in and dependent upon both of them, such as also intensively reflected in the 2019 Corona crisis. The social system is represented in this concept as social/human capital (the “stock”) and the social capacity (the flow, incl. its limits expressed as social carrying capacity; for an pictorial expression of this carrying capacity see Mauerhofer 2013b). Important for this chapter’ analysis, 3-D Sustainability provides a preliminary but flexible hierarchy among six criteria for decision-making (Fig. 1, left side). The first four of these criteria (namely sufficiency, ecological equity, eco-effectiveness, socio-effectiveness) are particularly equipped to support the further assessment of tools for the implementation of absolute reduction goals in this chapter.

This contribution also employs as theoretical background Noble Prize winner Douglass C. North’s (1990) differentiation within governance between institutions (as “rules of the game”) and organizations and their entrepreneurs (as “players of the

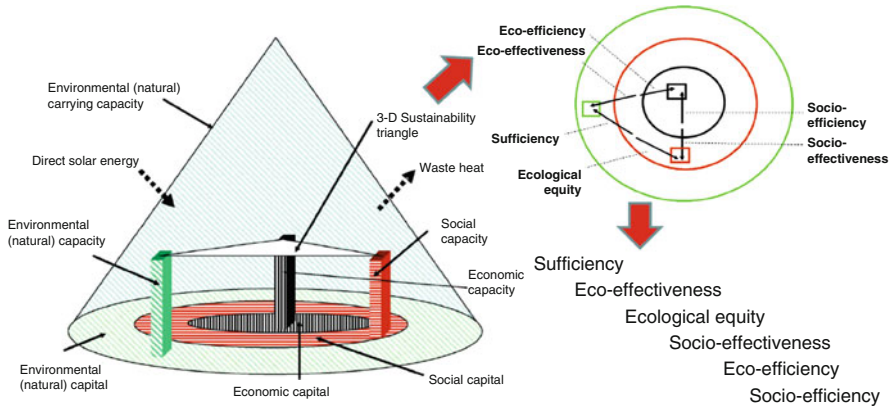


Fig. 1 3-D Sustainability in detail and from above. (Adapted from Mauerhofer 2008:498ff, 2016a:38ff; triangle based on Dyllick and Hockerts 2002)

game”). It extends latter from the coverage of solely entrepreneurs of collective players to all kinds of individual players and uses the overall term “stakeholders” (sometimes also called “agents”) for all types of players. Bevir (2009) briefly describes about 50 concepts of governance. This chapter applies none of them particularly, but uses instead what they all have in common and what was mentioned above, namely this multifaceted interaction between stakeholder and instruments to implement political goals.

3 Findings and Discussions

The findings start with a short analysis of the levels of the geopolitical scope and of the measures necessary to address the absolute reductions mentioned. The larger part afterwards assesses the interplay between stakeholders, legal institutions and other available tools.

3.1 Substantial Inter-national and Intra-national Fine-Tuning

Inequality in terms of use and accumulation of environmental source and sink capacities is a global phenomenon between and within continents and nations. The unequal consumption of Earth’s biocapacity among continents and countries (Lin et al. 2018) requires substantial international fine-tuning. While the unequal distribution of income within countries expressed for example by the varying Gini coefficients (UNDP 2019) is calling for substantial intra-national fine-tuning.

Even in regions of the world, where fine-tuning among nations takes place in a much-institutionalized way, such as in the EU through its Cohesion Policy (EU 2019a), the approach and the results are questionable from a global viewpoint of sustainability. Because bringing economically poorer regions of EU – Member States closer up to a certain EU-Member State average, does – as a purely relative measurement – not exclude (but even increases the likeliness of) an higher global ecological footprint of those regions and the EU as a whole at the end of each cohesion period. The popular principle of inclusiveness (“to leave nobody behind”), enshrined also in the SDG Resolution (UN 2015 preamble and paras. 4, 26 and 48) can lead – if it is understood only in relative terms and if no overall limits or reduction goals particularly for affluent nations are set and obeyed – to the same outcome regarding the global ecological footprint.

In the following, the contribution shows situations where intra-national and international fine-tuning are essential in order to address a sustainable development, especially towards degrowth and towards a reduced or fully excluded rebound effect.

3.2 Organizations and “Policy/Instrument Mixes”

Policies and their purposes influence the development through concretely related instruments (Rogge and Reichardt 2016, p. 1624). Rule-focused instruments such as the law can foster also the use and effectiveness of economic-incentive-focused instruments or information-focused instruments in order to modify values and behavior that deteriorate environmental carrying capacities. These three sets of instruments are often simply referred to as “sticks”, carrots” and “sermons” with manifold interrelations (e.g. Vedung 1998; Serbruyns and Luyssaert 2006; Mauerhofer 2018b).

The availability of these three types of instruments is crucial for the implementation and success of policies towards a sustainable development. However, the extent to which different main stakeholder groups can make use of these instruments is structurally varying (Fig. 2).

Figure 2 schematizes a crucial relationship in an admissible rather general manner. However, this generality is supposed to provide a larger and overall picture while many differentiation and exemptions naturally exist and occur in a global setting of increasingly privatized power and resources.

In general, all kinds of governments have all the three types of instruments mentioned above available. These instrument types can each alone, together with one other type of instrument or altogether change values of other stakeholders, their behaviour or both. Thereby, governments act on one or more levels of the geopolitical scale (Cash et al. 2006) and multilevel interactions are rather the rule than the exemption. Governments are – due to legal frameworks – the only of the three stakeholders who can create rule-based instruments which are individually or generally binding and which are enforceable by the own public authority of this government. Company standards, in the sense of e.g. quality prescriptions within supply chains, could also be considered as norms as they are obliging delivering







Main stakeholder Triology (but overlaps)	Instruments available to change values & behaviour		
	Information- focused	Economic- incentive-focused	Rule-focused
“Government” (supranational, national,subnational)			
For-Profit Stakeholders (e.g. all sort of companies)			
Non-Profit stakeholders (e.g. NGO’s)			

Fig. 2 Rough overview on organizations and instruments for sustainable governance

companies to stick to certain minimum criteria. While for many of these suppliers this compliance is essential for their economic survival, the compliance is – in comparison to public laws – at least in theory voluntary and subject to negotiation. The reasons for the recognition of these kinds of company standards are therefore rather originated in and based upon the economic incentive. Thus, governments are unique in the sense that they are the only ones that have also rule-focused instruments, besides the other two types of instruments. In many if not all areas, rule-focused instruments show relations to the other two types of instruments, when governments apply them. Because, at least in democracies, each information-focused and or economic-incentive focused activity or omission of a government shall have its basis in a rule-focused instrument. Examples are manifold and prominent in this regard, e.g. public procurement laws or even more in general budget laws. Later can prescribe for instance itself or by thereon based other public laws and regulations, which public funding is available for the public sector to implement information campaigns in the public interest.

These findings are valid, non-withstanding that some for-profit stakeholders (in particular global enterprises) and non-profit stakeholders (such as well-funded foundations) have also economic-incentive focused instruments available. These instruments outnumber in quantity multiple times the available financial resources of certain governmental stakeholders including budgets of nations (for instance the budgets of numerous “Least Developed Countries”). Especially those for-profit and not-for-profit stakeholders are able – individually or collectively – in the following also to influence in qualitative terms the values and behaviour of governments at all geo-political levels. A recently widely discussed example in this regards is the legislative introduction of special decision-making bodies (besides regular courts) in the sense of rule-focused instruments including the creation of new related bodies, which decide about investment conflicts between governments, and enterprises (see e.g. Dromgool and Ybarra Enquix 2016).










Governmental stakeholder (examples)	Instruments available (overall view)		
	Information-focused	Economic-Incentive-focused	Rule-focused
"Governments" National (all)			
"Governments" Regional Integration (e.g. EU, ASEAN, AU)			
"Governments" International (e.g. UN)			

Fig. 3 Multilevel view on instruments of “governments” (AU African Union, ASEAN Association of Southeast Asian Nations)

Governmental stakeholders occasionally also transfer the application of one rule-focused instrument through another rule-focused instrument to other stakeholders. Thereby, an entrusting with duties and legal implementation rights (partly including enforcement) takes place. The extent of involvement of the entrusted stakeholder in the initialisation and preparation of this entrustment can spread widely, from active intervention to receive this public power to being obliged against its will to execute it. These transfers constitute a minority of situations. Hence, for-profit as well as non-profit stakeholders usually do not have such entrusted powers.

Non-profit stakeholders – due to their values and often-explicit description by law – usually do not even have these economic incentive focused instruments – also outlined in Fig. 1 – available. However, they widely depend on information-focused instruments in order to change behaviour and values. Notable exemptions are e.g. well-funded private philanthropic foundations.

Among the non-profit organisations, a crucial differentiation can be made between those with mandatory and those with voluntary membership. The organization form earlier mentioned has the right to ask for payment of membership fees (as the financial basis of the organization) and to enforce this right, both provided for by rule-focused instruments (such as many trade unions, chambers of commerce etc.). Organizations of the form latter indicated, do not have the right to ask for this payment until anybody has voluntary agreed upon to become member.

Both types of those non-profit organizations work with similar information-focused instruments (such as public campaigns, lobbying with politicians . . .) to change values and behaviour.

The unique nature of governments and their rule-focused instruments was already pointed out. In the following, structural differences among governments of different geopolitical levels regarding rule-focused instruments are shown in an, admissible again, rather general manner; this should similarly provide a larger and overall picture while many differentiations and exemptions naturally exist and occur within the global setting (Fig. 3).

The size of the symbols in Fig. 3 roughly indicate the quantitative extent of applications of instruments of the respective government type. Due to the number of national governments all over the world, this extent is with that type cumulatively by far highest. Comparing regional with international level in Fig. 3, already the EU with about 60,000 civil servants and a budget of €148 billion (2019 figure; EU 2019b) for implementing actions through instruments outnumbers the UN by far. The UN had by the end of 2018 a staff number of 37.505 in all its global Secretariats (UN 2019a) and Member States' contributions to the United Nations regular budget are envisaged for the year 2019 to the extent of US\$ 3,06 billion (UN 2019b; besides contributions to peacekeeping and international tribunals).

In comparison, the shape as well as the filling of the forms in the last column indicate qualitative differences in comparison to national governments. The shape of the form indicates a qualitative difference. In comparison to national governments, "governments" of regional integration and international governments usually do not have court systems in place that are able to effectively sanction member states. One notable exemption is the Court of Justice of the European Union. That court of an organization of regional integration can for example impose fines on member states (e.g. examples in CJEU 2019a, p. 34), annul certain legal acts of EU organizations, impose interim measures also on Member States (see e.g. CJEU 2019b 221ff and for a practical environmental case e.g. CJEU 2017) and sanctioning EU organizations based upon actions for damages (see in general CJEU 2019c). On the international level, the role of a judgement concerning states is limited to more a "blame and shame" role. For example, judgments delivered by the International Court of Justice – ICJ (or by one of its Chambers) in disputes between States are binding upon the parties concerned (ICJ 2014, p. 78). In this context, Article 94 of the United Nations Charter provides in paragraph 1 that "[e]ach Member of the United Nations undertakes to comply with the decision of [the Court] in any case to which it is a party" (UN 1945). However, mechanisms of sanctions comparable to those described above for the CJEU are not foreseen there. Although, paragraph 2 of this Article broadly opens sanction options by stating: "If any party to a case fails to perform the obligations incumbent upon it under a judgment rendered by the Court, the other party may have recourse to the Security Council, which may, if it deems necessary, make recommendations or decide upon measures to be taken to give effect to the judgment." Given this background on the international level, continued discussions in science about the necessity of an own international environmental court are not surprising (e.g. Pauwelyn 2005; Pedersen 2012).

The lack of filling in the symbols in Fig. 3 of the international and regional integration "governments" indicates the lack of competence to raise own taxes by tax legislation as a rule-focused instrument. These governments derive their budgets from contributions of their members. Besides, efforts towards harmonization, coordination and cooperation in tax matters exist particular in several organizations of regional integration (for a brief overview see e.g. Quak 2018, p. 17).

National governments (incl. subnational ones with own tax raising authority) can therefore be globally considered paramount and central in the collection and allocation of financial means while the role of for-profit-stakeholders (companies and

single entrepreneurs) in increasing added value by creating goods and services is acknowledged.

In the following, the particular role of national governments will be closer assessed and different instruments explored when it come to the implementation of general policies towards concrete laws. This will be mainly done on the example of policies which envisage absolute reductions of pressures on sink and source capacities in a voluntary or mandatory manner in countries with an Ecological Footprint beyond the available world biocapacity (Lin et al. 2018; Wackernagel et al. 2019), thus mainly countries of the Global North.

Absolute Sustainability Governance for National Governments

Rule-focused instruments can be considered a sort of “last resort” when it comes to the change of values and behavior in order to implement the so-called public interest. This is in particular valid in cases where information-focused and economic incentive focused instruments alone or together are not leading to the intended effect of absolute reductions; or when the application of economic incentive-focused instruments is simply not affordable. Therefore, information-focused measures that may lead to voluntary changes of values and behavior should be primarily considered.

Mauerhofer (2008, 2019) has introduced by means of 3-D Sustainability a decision support concept that introduces flexible trade-offs mechanism through the precautionary principle and a reversal of the burden of proof with a preliminary priority given to (voluntary) measures based on sufficiency (Fig. 1).

This trade-off mechanism is applied – concerning the environmental, social and economic dimensions of sustainable development – on the embedding among capitals (Mauerhofer 2013c, 2018a) as well as on the interrelation among six criteria connected to capacities (Mauerhofer 2008, 2019). In the following, the legal implications of four out of the six criteria shall be stronger outlined on the concrete example of a national government (Table 1).

Table 1 Legal instruments available to national governments to address absolute reductions of pressures on environmental sources and sinks

	SD-instruments available to national government towards absolute improvements		
Criteria	Information-focused e.g.	Incentive-focused e.g.	Rule-focused e.g.
Sufficiency	Public campaigning, education	Economic subsidies	“Enabling laws” e.g. public participation in environmental matters,
Eco-effectiveness	Public campaigning, education	Economic subsidies	Prohibitions, no-go areas, full restoration, enforced mitigation
Ecological equity	Public campaigning, education	Economic subsidies	Taxes (national/international), representatives of the future
Socio-effectiveness	Public campaigning, education	Economic subsidies	Working time restriction (absolute)

Sufficiency is – similar to Fig. 1 – also in the left column of Table 1 – the criterion on the top of the decision support ladder introduced by 3-D Sustainability. It has been already widely discussed as a tool contributing to the implementation of sustainable development (see earlier Dyllick and Hockerts 2002; Alcott 2008; Schneidewind and Zarnt 2014). Sufficiency is here defined as “individual’s decision to consume/produce no unit (more) or even unit’s less” and characterized regarding its reduction objective as “(A)bsolute, quantitative and/or qualitative, but sustainability depends on current consumption/production level” (Mauerhofer 2016a, p. 39, 2019, p. 352).

Enabling laws related to public participation in environmental matters allow citizens and Non-Governmental Organizations (NGOs) to access information, to participate in administrative procedures and to have access to justice (see e.g. Bruch and Czerbiniak 2002; Cichowski 2006; Mauerhofer 2016b). These rights are often exercised in order to voluntarily engage against additionally planned environmental deterioration or to even reduce an existing one (see e.g. Okubo 2016; Gu 2016; Li 2016). Such enabling laws mentioned in Table 1 can be already introduced on the transcontinental level such as in Principle 10 of the Rio Declaration in 1992 (UN 1992) and in the “Arhus Convention” (UNECE 1998; see e.g. Wates 2005; Pallemmaerts 2006). Latter develops already through an own non-judicial compliance mechanism some information-focused “blame and shame” influence (see e.g. Koester 2007). These transcontinental enabling laws then develop further influence and effectiveness in certain cases already 1. by their judicial implementation and even enforcement through regional governments such as the EU (e.g. Jendrośka 2011; Mauerhofer and Larssen 2016) or 2. by encouraging similar conventions on the regional level, such as the 2018 concluded Escazú Agreement on Access to Information, Public Participation and Justice in Environmental Matters (ECLAC 2018). These instruments can enable sufficiency in the sense of a voluntary participation of individuals and NGO’s arguing for absolute reductions of environmental pressures such as mentioned above.

Other examples for sufficiency instruments – additionally to the ones exemplified in Table 1 – are laws that implement “framing, enabling shaping and orienting policies” (Schneidewind and Zarnt 2014, p. 159). These authors consider them as

1. Framing: measures of prosperity, competition policy, infrastructure and distributional policy,
2. Enabling: Employment policy, education policy, health policy, consumer policy
3. Shaping: mobility, construction/housing/planning, food
4. Orienting: less speed, less property, less distance, less market.

While in this list clear overlap exist and while the allocation of a topic to one of the four issues is not always fully comprehensible, this list does give a first idea in which fields the law could initiate and support more voluntary behavior.

In all those fields, the law might do so by obliging other stakeholders to a certain complementary behavior or take away an advantage from those stakeholders. An example for the former is the creation of a new bicycle lane on an existing road which takes away the right from car holders to drive there in the future. An example

for the latter is the removal of public subsidies from or imposition of taxes on fossil fuels, which both make it relatively seen more financially attractive – for car-holders and non-car holders to select other non-fossil modes of individual transport.

This shows the close connection of sufficiency-oriented measures implemented by law to eco-effectiveness and socio-effectiveness oriented measures, which are implemented in a non-voluntary manner.

The characteristic aspect of eco- and socio-effective measures has been defined as the capacity of an action to absolutely achieve its ecological and societal goals respectively (e.g. Mauerhofer 2019). While ecological equity has been understood as “Intra- & intergenerationally acting under ‘veil of ignorance’” in the sense of John Rawls’ theory of justice (Rawls 1971; see also e.g. Norton 1989) wherein stakeholders need to make decision without knowledge in which human generation their negotiation positions are located. Ecological equity extends this “veil of ignorance” in the widest sense in time and space, and includes – besides the positions of human stakeholders – also the ones of non-humans (Mauerhofer 2008; Hubacek and Mauerhofer 2008).

In all these three criteria (eco-effectiveness, socio-effectiveness, ecological equity), the characteristic of their objectives was an absolute improvement without rebound effect respectively (e.g. Mauerhofer 2019). This implies in many cases that a systemic approach needs to be taken instead of a solely product and service oriented marginal approach which does not control for the number of products and services.

In comparison, measures addressing eco-efficiency and socio-efficiency (such as mentioned in Fig. 1) are not included in Table 1. Because these measures are only related to one product unit or one service unit, but do not control for the growth of the number of these units in production and consumption. Thus, they can be considered to establish only relative improvements and to neglect rebound effects inevitably upcoming in the case of continuous growth of these numbers.

4 Conclusions

The contribution takes its starting point from the relevance of all types of stakeholders and all kinds of policies and instruments when it comes to implement in the Global North the necessity of an absolute reduction of the throughput in terms of the use of environmental source and sink capacities in order to achieve a sustainable development. It introduces then the differentiation between international and intranational fine-tuning. Both needs to be implemented in absolute terms and substantially, instead of focusing on solely relative efficiency-related improvements per product or service while hoping that no rebound effects will occur through an increases in the numbers of those products and services.

The chapter then makes a main differentiation among stakeholders into governmental, for-profit and not-for-profit stakeholders and allocates in a generalized manner available instruments to them. These information-focused, economic-

incentive-focused and rule-focused instruments are all capable to change values and/or behavior. From the examples provided, it also becomes obvious that governmental stakeholders are the only stakeholders which regularly have all the three instruments available, especially also the rule-focused instruments in the sense of binding legal approaches. This makes governmental stakeholders unique and tax laws raising money are thereby a central means to financially support politically agreed information-focused and economic-incentive-focused instruments towards the absolute reductions mentioned. For-profit and non-profit stakeholders only exceptionally have rule-focused instruments available when they are explicitly entrusted with them. It would be an interesting field of further research if at all or under which circumstances such entrusted stakeholders are capable to perform better than governmental stakeholders regarding the absolute source and sink use reductions. Research in the similar direction could be done by comparing the performance of non-profit stakeholders with or without a legally granted right of membership fees.

The chapter further explores the relationship between these three types of instruments and governmental stakeholder of three levels of the geopolitical scale. Governments from the national level, the supranational level of regional integration and the transcontinental international level are assessed. An overall view shows that national governments are the ones with the largest financial means available, which is clearly due to their tax raising authority, which the other two government types do not have available. This can be seen as result of political power negotiation where the nations practically deny such a right to the supranational (regional integration or international) organizations wherein they are (often founding) members. Such a partial or full transfer of tax-raising authority and, alongside, a high level of (even financial) independency of these supranational governments is not preferable to the national governments. Governments of the supranational level of regional integration sometimes outnumber in terms of their financial means in total at least the ones of the transcontinental international level. Independently from the financial means, governments of the level of regional integration as well as of the international level do usually have less effective sanction mechanisms regarding their courts' judgments (including the practical enforcements). One notable exemption is a court system of a regional integration organization system, namely the European Union. Due to for instance financial sanctions and interim measurer available to the Court of Justice of the EU, this court comes quite close to sanction mechanisms available to national courts.

The chapter further elaborates a wide number of concrete examples out of the three categories of instruments that are available to national governments in order to implement the mentioned absolute reductions in the sense of an "absolute sustainability governance". These examples can further be structured into instruments that implement sufficiency, eco-effectiveness, ecological-equity and socio-effectiveness, respectively, in the sense of 3-D Sustainability. The interplay among these differently goal-oriented instruments is also identified as an interesting field of further research. Hence, it is for example shown in this contribution how rule-focused instruments that enable sufficiency-oriented voluntary behavior can influence in a binding way other stakeholders and thereby implement eco-effectiveness.

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Massimiliano Montini

1 Introduction

In the last few years, sustainability has become a buzzword, which is constantly present, in the public debate as well as in political and legal agenda of the international community. However, the recurrent reference to sustainability is often not accompanied by a proper understanding of its original meaning and its possible impact on regulation. The aim of this contribution is to ascertain how the concept of sustainability can be better understood in order to design a regulatory system, which aims at steering economic activities towards sustainable development patterns.

In the light of the above, in paragraph two, the historical and theoretical roots of the concept of sustainability will be explored, in order to show its correct meaning. In such a context, evidence will be provided of its cultural origin and its fundamental ecological core.

In paragraph three, the analysis will shift on the evolution of the concept of sustainability. It will be shown how its ecological core has been gradually forgotten and almost lost over time. It will be observed that this may be related to the progressive conflation of sustainability with the concept of sustainable development and it will be proposed how to promote and reinstate a correct understanding of the two concepts of sustainability and sustainable development, following a two-step approach. Finally, it will be shown that the quest for sustainability is essentially a quest for the achievement and maintenance of a dynamic equilibrium of the ecosystems that may guarantee continued support for any form of life on the Planet.

In paragraph four, the focus will shift on the role that sustainability might play in the realm of regulation. To this respect, the analysis will try to determine whether

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and why a regulatory system for sustainability is needed. The answer to this question will be based on a twofold analysis. Firstly, it will be assessed whether and why a regulatory system aimed at promoting sustainability is necessary. Secondly, it will be determined what is the exact meaning of regulation “for” sustainability.

The analysis will show that if sustainability ought to be one of the leading objectives of our contemporary society, the whole regulatory system should be assessed and revised accordingly. In order to promote sustainability, the entire regulation of human activities should be inspired by this objective. It will be shown that only by embracing the preservation of the health and integrity of ecosystems as a priority objective, it will be possible to put in place a regulatory regime truly inspired by sustainability.

As a consequence, in paragraph five, the question of how to design a regulatory system for sustainability will be addressed. In this section, the fundamental changes that should be made in order to design a regulatory system for sustainability will be presented. The main changes proposed will be grouped under the following five headings: beyond reductionism; beyond anthropocentrism; beyond positivism; beyond short-termism; beyond deregulation.

2 The Historical and Theoretical Roots of Sustainability

In order to determine what is the original meaning of sustainability it is necessary first of all to have a look at its historical and theoretical roots. Generally speaking, it should be noted that the idea of sustainability finds its roots in the most ancient civilisation, which have been developing and flourishing on our Planet. As noted in the literature, such cultures shared a common understanding of a cosmovision under which no separation existed between human beings and nature. Therefore, humans tended to respect nature and life was generally conducted in harmony with nature (Bosselmann 2016; Grober 2012). This traditional approach which was common to the most ancient civilisations has been well expressed by Judge Weeramantry, in his Separate Opinion on the *Gabcikovo-Nagymaros* case, decided by the International Court of Justice in 1997 (ICJ 1997). In such a context, Judge Weeramantry held that: *“It would not be wrong to state that the love of nature, the desire for its preservation, and the need for human activity to respect the requisites for its maintenance and continuance are among those pristine and universal values which command international recognition”* (Weeramantry 1997, p. 105).

During the Middle Age, the idea of sustainability, in the meaning that humans should respect all other beings and live in harmony with nature was strongly advocated by St. Francis in the *Canticle of the Sun* (*Cantico delle Creature*) written in 1224 (Grober 2012). His vision was quite revolutionary for its times, and at odds with the traditional idea of human dominance over nature which has been embraced through the centuries by the mainstream Christian culture. Unfortunately, such a vision based on a dominance culture still persists today, despite strong voices raising to the contrary, asking for the need to reconsider such an approach and promote a

harmonious relationship of humans with Nature. Among such voices, a ground-breaking innovative and quite revolutionary position has been recently taken by Pope Francis in its 2015 Encyclical Letter *Laudato Si' (On Care for Our Common Home)*, which was clearly inspired by St. Francis *Canticle of the Sun*. In the Encyclical Letter, Pope Francis strongly rebutted the traditional interpretation of the Genesis and advocated for a new attitude of humans towards nature, focusing on promoting harmony instead of dominance, in praise for sustainability (Montini and Volpe 2016).

While the idea of sustainability is so ancient and deeply rooted in human culture, the term itself appeared much later (Grober 2012; Bosselmann 2016). As reconstructed by the accurate analysis provided by Grober on the historical and cultural roots of sustainability, the term was firstly used in the XVIII century in the context of forestry management by Hans Carl Von Carlowitz, a scientist and Head of Royal Mining Office in the Kingdom of Saxony. Von Carlowitz referred for the first time to the term “sustainable” (*nachhaltig*, in German language) in the context of *Sylvicultura Oeconomica*, its treatise on the correct forestry management, published in 1713. In its magisterial work, the author advocates for forestry practices based on the maintenance of forests in a long-term perspective, as opposed to the observed tendency to (over-)exploit timber so as to obtain profits within a short-term perspective. According to Von Carlowitz the “*conservation and cultivation of wood*” *should be organised so as “to enable continuous, steady and sustaining use”* (“*nachhaltende Nutzung*”) (Grober 2012, p. 83). According to the research conducted by Grober, this is the first time that the term sustainable/sustainability was “*used in its modern meaning*” (Grober 2012, p. 83), albeit within an economic rather than an ecological dimension, related to the identification of correct forestry management practices.

Since the publication of Von Carlowitz’s work, the term sustainability has become a reference concept in forestry management and has greatly influenced policies, laws and practices in this field all over the world. However, although the term was firstly used by Von Carlowitz in 1713, the historical analysis conducted by Grober and other authors show that the duty to apply a sustainable approach to forestry management, aimed at promoting a wise use of forestry resources, in order to make sure that they could be preserved for future generations, had been advocated and experimented much earlier, in other countries and contexts within the European territory (Marquardt 2003, 2006; Grober 2012; Montini and Volpe 2015). To this effect, among all existing examples, three noteworthy cases may be mentioned and examined in greater detail here. They relate to the Republic of Venice, England and France and range from the XV to the XVII century.

The first case regards the Republic of Venice, where forestry management was a major concern for the legislature, insofar timber was the main raw material for both the foundations of the Venetian houses built on the canals and for the construction and maintenance of the Venetian fleet. As a consequence, it is not a surprise that forestry management was a major concern for the Venetian institutions. Two most relevant dates should be recalled here (Grober 2012). The first one is 1458, when the Senate instituted the office of “*Provveditori sopra boschi*” (Officers in charge of

forests) and the second one is 1476, when the same institution adopted the first comprehensive legislation on forestry management and the regulation of the use of timber in the mainland under Venetian control (Grober 2012).

The second case refers to England, where the introduction of correct forestry management practices was due to John Evelyn, an intellectual and founding member of the *Royal Society* (*Royal Society of London for Improving Natural Knowledge*, established in 1660). Evelyn changed the English approach to forestry management with the publication of *Sylva* (or a *Discourse of Forest Trees and the Propagation of Timber*), a treatise on forestry management and the correct use of timber. One the main aim of Evelyn's work was to advocate a better management of English forests, so as to prevent a shortage of timber, which may endanger the maintenance of the Royal Fleet of England. To this end, he called for a systematic and orderly planting of trees, aimed at increasing the stock of available timber over time, with a view to produce benefits for future generations (Grober 2012).

The third case concerns France, where Jean Baptiste Colbert inspired the issuance in 1669 by Louis XIV (the Sun King) of a comprehensive legislation on water and forestry management, named *Ordonnance sur le fait des Eaux et Forêts*. The new legislation promoted by Colbert explicitly aimed at stopping and repairing the disorder in forestry management observed in France, so as to avoid timber shortage and introduce correct management practices for the benefit of present and future generations. Colbert's driven French reform showed a certain tendency to advocate for a managerial approach to forestry management, which did not share nor rival the broader and higher vision shown by Evelyn's English reform. However, it succeeded in promoting the introduction of wise and sustainable forestry practices designed for enhancing the capacity of forests to regenerate for the benefit of posterity (Grober 2012).

As it can be noted from the above-mentioned examples, all dealing with the "sustainable" management of forestry, the concept of sustainability in such a context tends to be characterized by an economic approach, which is related to the wise management of forests and timber and is not explicitly focused on ecological considerations. It should be noted to this respect that an innovative scientific view on this issue has recently proposed to trace back the legal roots of the concept of sustainability in Roman Law (Soentgen 2016). In particular, according to such a theory, the concept of sustainability would have been inspired by the Roman law concept of "*usus fructus*", which is defined in the Code of Justinian as such: "*Usus fructus est ius alienis rebus utendi fruendi salva rerum substantia*" (Code of Justinian, Book 2, IV). This may be referred in modern English as the "*the temporary right to the use and enjoyment of the property of another, without changing the character of the property*" (Encyclopaedia Britannica 2018). This is a quite interesting theory, which might change the usual narrative about the historical and theoretical roots of sustainability.

3 The Ecological Core of Sustainability

The analysis of the historical and theoretical roots of sustainability has shown that the concept bears a fundamental ecological core. Since Von Carlowitz's first use of the term, the concept gradually evolved from the forestry management sector to becoming a keyword for most activities carried out in our contemporary society. As noted in the literature, the original notion of sustainability, where the ecological dimension prevailed, has been gradually overcome by other extensions such as "*social sustainability, political sustainability, financial sustainability, cultural sustainability and on and on*" (Daly 1996, p. 9). This tendency to a overstretch and misuse of the term has been rightly expressed in stronger terms by Engelmann, which refers to our current age as "*the age of sustainababble, a cacophonous profusion of uses of the word sustainable to mean anything from environmentally better to cool*" (Engelmann 2013, p. 3). In order to give a correct meaning to this "*overused and misunderstood*" term (Engelmann 2013, p. 5), it is therefore necessary to recognise its ecological core and apply it to the domain of human activities. In fact, the relevance of the concept of sustainability becomes clear when it is applied to the regulation of economic activities, as it is evident in the concept of sustainable development. Therefore, sustainability should be analysed in connection with this other "*overused and misunderstood*" term of our times, namely sustainable development.

As it has been correctly shown in the literature (Bosselmann 2016), the main problem with sustainability is that its ecological core has been gradually forgotten and almost lost over time. One of the main reasons for this may be related to the progressive conflation of sustainability with the concept of sustainable development. As it has been argued elsewhere (Montini and Volpe 2017), this may be due to the fact that in recent times sustainability is normally used as an adjective rather than a noun. As a consequence, the emphasis placed on the noun development rather than on the adjective sustainable, has led to the common understanding that development as such should be sustained over time, by promoting more economic growth and GDP increase. These, in turn, should eventually help in achieving social and environmental goals. As shown above, however, such an interpretation is not correct, insofar it is not in tune with the original and right meaning of sustainability. What should be sustained, in fact, is not an enduring economic growth, which may eventually also pursue social and environmental objectives, but rather a kind of human development that is capable of promoting in integrated and harmonious terms both economic as well as social and environmental goals (Montini and Volpe 2017).

Therefore, in order to promote and reinstate a correct understanding of the two concepts of sustainability and sustainable development, a two-step approach is needed. The first step consists in the shift from a quantitative to a qualitative approach. As argued by Daly, this involves "*replacing the economic norm of quantitative expansion (growth) with that of qualitative improvement (development), as the path of future progress*" (Daly 1996, p. 1). Once the first step is made, however, it will become apparent that this is not enough. In fact, the

acknowledgement of the necessity of a qualitative approach to sustainable development makes clear that what should be sustained by sustainability is not any kind of economic development, but rather a type of human socio-economic development that is premised on the objective of maintaining the ecological integrity and health of ecosystems (Westra 2016). As rightly noted by Bosselmann, *“the concern for social justice and economic prosperity are valid and important, but secondary compared to the functioning of the Earth’s ecological systems. Ecological sustainability should be understood as a prerequisite for development and not a mere aspect”* (Bosselmann 2016, p. 58). As a consequence, the quest for sustainability essentially becomes a quest for the achievement and maintenance of a dynamic equilibrium of the ecosystems that may guarantee a continued support for any form of life on the planet (Montini and Volpe 2017).

How to make sure, however, that within the implementation of sustainable development, priority is given to the preservation of ecosystems which support life rather than to socio-economic considerations? This is a difficult task that may be pursued successfully only if accompanied by a different understanding of the relationship between the economic and the ecological (or environmental) dimensions of sustainable development. As initially proposed by Daly, a possible way out would be to recognize that the economic system is a subsystem of the ecological system. This approach stems from the recognition that the former depends on the latter for raw materials inputs and for sinks for waste outputs and cannot be considered as an isolated system, as the mainstream economic theory keeps on arguing (Daly 1996).

This implies that if the economic system is correctly understood as a subsystem of the ecological one, the humanity should be aware that *“no subsystem can expand beyond the capacity of the total system of which it is a part”* (Porritt 2006, p. 46). There are, in fact, ecological reasons why infinite economic growth on a finite planet is physically impossible (Schumacher 1973; Daly 1977; Georgescu-Roegen 1986; Daly 1996; Capra and Luisi 2014). Therefore, human socio-economic development ought to be premised on the protection of the health and integrity of the ecosystems that sustain life on the Planet. As a consequence, the limited natural resources available should be used in a way which generates value by maximising at the same time their preservation for future generations, rather than trying to extract the maximum profits from their exploitation. Only by doing so, it will be possible for humanity to flourish within the given bio-physical limits and achieve a truly sustainable human development (Jørgensen et al. 2015). This is also confirmed by the outcomes of the recent research stream on the planetary boundaries, which defines and explores the safe operating space within which humanity can live and operate safely (Rockstrom et al. 2009a, b; Steffen et al. 2015).

This finding brings me back to the issue of the need to reconstruct the correct understanding of sustainability in connection with the concept of sustainable development, by looking in particular at some key features of the evolutionary process of the latter concept in the last few decades.

The difficult relationship between the two terms (sustainability and sustainable development) is particularly evident when looking at the 1987 Brundtland Report,

which contributed to a great extent to the success of the concept of sustainability development. In fact, in the well-known definition of the concept contained in the Brundtland Report, the focus is on development that meet the needs of the present generation, while maintaining the possibility for the future generations to meet their own needs, linking an intra-generational with an inter-generational perspective (WCED 1987). As it has been noted in the literature, however, in such a definition no reference is made to the centrality of the ecological core of sustainability, nor to the necessity that socio-economic development ought to be based on the preservation of the ecosystems as the ecological basis for human development (Calicott and Mumford 1997; Griggs et al. 2013; Bosselmann 2016; Montini and Volpe 2017).

In the Brundtland Report, despite the recognition that economic growth and resource depletion are causing environmental and social problems, more growth accompanied by technological improvement is indicated as the preferred option to promote sustainable development and end poverty and degradation (Korten 1992). In the literature, it has been underlined by Bosselmann that the approach taken in the Brundtland Report fails to recognise that *“human needs can only ever be met within ecological boundaries”* and has *“opened up the possibility of downplaying sustainability”* (Bosselmann 2016, p. 5).

In fact, the possibility of downplaying sustainability to which Bosselmann refers in its analysis consists in the progressive marginalisation of the ecological core of sustainability, which has taken place in the interpretation and application of sustainable development in the last few years. This trend is apparent if one compares the original approach to sustainability, as observed in the Brundtland Report (WCED 1987) and in the Rio Declaration (UN 1992), which was essentially aimed at reconciling economic interests with environmental needs, with the tripartite structure promoted by the subsequent Johannesburg Declaration (UN 2002), later confirmed by the Rio + 20 Declaration (UN 2012) and the Resolution adopting 2030 Agenda for Sustainable Development (UN 2015). In the latter two documents, in fact, it becomes more and more evident that the environmental dimension tends to be dominated and marginalized by the other two dimensions (Montini 2015; Montini and Volpe 2017). Therefore, it should be concluded that sustainable development in the course of its evolutionary process has gradually lost its initial capacity to reflect and evoke the need of *“a latent shift in our vision of how the economic activities of human beings are related to the natural world – an ecosystem which is finite, non-growing, and materially closed”* (Daly 1996, p. 1).

4 Why Regulation for Sustainability Is Needed?

The issue to be addressed here consists in the following question: why a system of regulation for sustainability is needed? The answer to this question requires a twofold analysis. Firstly, it should be determined whether and why a regulatory system aimed at promoting sustainability is necessary in the first place. Secondly, it should be determined what is the exact meaning of regulation “for” sustainability.

In order to deal with the first issue, the starting point for the analysis should be a statement made by the legal philosopher Westerlund, according to whom “*unless law is made sustainable, it will protect unsustainable conducts*” (Westerlund 2008, p. 54). Such a statement means that the regulatory system which is used in order to direct and control human activities is not neutral with respect to the achievement of the objective of sustainability and with regard to the aim of steering economic activities towards sustainable development patterns. Westerlund argues that a pre-condition for promoting sustainability consists in verifying that the regulatory system in place within a given jurisdiction is compatible with the objectives pursued and is suitable to promote their achievement. This means that sustainability cannot be promoted if the regulatory system is not firstly proofed against a sustainability background (and if necessary aptly revised). Quite on the contrary, Westerlund’s statement implies that in case no revision of the regulatory system is undertaken in order to make it suitable to effectively promote sustainability, the regulatory system will end up pursuing opposite results, namely protecting and supporting unsustainable conducts and behaviours by relevant economic agents. Therefore, the promotion of sustainability by policy-makers and the legislature requires the adoption of positive actions and initiatives. Failure to act or mere delay in action may otherwise consist in hidden protection of unsustainable conducts and activities.

This conclusion leads us towards addressing the second issue, which consists in trying to determine what is the exact meaning of a regulation “for” sustainability. To this respect, it should be clarified that a regulatory system aimed at promoting sustainability should have as its primary goal the objective of managing economic activities in a way that they do not cause harm to the health and integrity of ecosystems, which represent the basis for the flourishing of human development (Capra and Luisi 2014; Patten and Odum 1981). In fact, the expression regulation “for” sustainability refers to a regulatory system aiming at enhancing sustainability, rather than endangering and reducing it. That’s the reason why the expression regulation “for” sustainability should be preferred to other possible options, such as for instance, regulation of sustainability or similar ones.

This leads us to the following consideration: if our society recognises the need of setting up a regime which intends to promote regulation for sustainability, it should first of all proceed to reassessing and revising the current regulatory system, which is premised on the teachings of the mainstream neo-classical economic model. The current regulatory regime is designed to promote or help promoting the maximisation of economic growth. However, by advocating a potentially limitless economic growth in spite of its negative social and environmental externalities, it inevitably clashes with the biophysical limits which are inherent to our Planet. In fact, the Earth is a finite system which cannot grow beyond its physical boundaries (Mill 1848; Meadows et al. 1972; Daly 1977; Tiezzi 1986; Daly 1987; Meadows et al. 1992; Cleveland and Ruth 1997; Meadows et al. 2004). Moreover, as it has been demonstrated by recent literature, economic development should also take into account the planetary boundaries which act as an external limit for the “safe operating space” within which human development may safely occur (Rockstrom et al. 2009a, b, 2013; Steffen et al. 2015). A possible way out for humanity might

consist in embracing a “doughnut economy” approach, whereby human activities are carried out within the “safe and just space for humanity”, which lies in the space between a social foundation, composed of twelve basic human needs, such as *inter alia* water, food, energy, health, justice and education, and an ecological ceiling, represented by the nine planetary boundaries (Raworth 2017). As to the legal relevance of the latter theory, it needs to be further investigated what are the normative implications of the “doughnut economy” approach, which calls for a new balancing exercise between the conflicting interests at stake. Such an investigation, however, falls outside the scope of the present research.

In any case, on the basis of the analysis provided above, it may be concluded that the entire system of legal and economic regulation of human activities should be reconsidered and thoroughly revised, in order to promote new patterns of socio-economic development truly pursuing sustainability.

5 How to Design a Regulatory System for Sustainability?

As stated above, a regulatory system for sustainability should be designed with a specific priority goal, that is to guarantee the preservation of the health and integrity of ecosystems which sustain life on the Planet. In order to do so, it might be useful to take into account as a reference paradigm the concept of “ecological sustainability”, which may help in steering society towards sustainable paths of development, apt to properly recognize its inherent ecological basis.

Building on the most pertinent existing literature (Callicott and Mumford 1997; Montini 2014; Bosselmann 2016), it may be held that “*the concept of ecological sustainability may be said to refer essentially to the need for the human civilization to live in harmony with nature and the eco-systems which enable life on the planet and support human development*” (Montini 2014, p. 275). This interpretation is also in accordance with the characterization of the essential core of concept of sustainability, as seen above, which has been defined by Bosselmann as “*the duty to protect and restore the integrity of the Earth’s ecological systems*” (Bosselmann 2016, p. 116).

Keeping in mind ecological sustainability as a reference paradigm, it may be argued that with respect to the current regulatory regime several fundamental changes should occur to promote the transition towards regulation for sustainability. These main changes, which are proposed in order to design a proper regulatory system for sustainability, may be grouped under the following five headings:

5.1 Beyond Reductionism

The current regulatory system is characterized by a reductionist approach, which is the direct consequence of the application of the Cartesian paradigm, which shapes

and steers our society. Such an approach, which has been promoted and structured by thinkers such as Galileo, Descartes and Newton, promotes a mechanistic vision of the world under which nature is reduced into parts, that can be analysed, understood and possibly modified through as a result of human thinking. Under the motto “*cogito ergo sum*”, Descartes developed a new research agenda that advocated the separation between mind and matter and the capacity of humans to understand all laws of nature and possibly interfere with them. Based on such a reductionist approach the unity between humans and nature was broken and nature was conceived as a machine that could be separated into several parts and studied accordingly. As a consequence, science was divided up into several specialized domains (Capra and Luisi 2014; Capra and Mattei 2015).

Under the current reductionist approach advocated by the dominant economic model the second law of thermodynamics that is the entropy law, is not taken into account (Prigogine and Stengers 1997). As a consequence, the progressive and irreversible substitution of useful raw materials with not useful waste is normally not considered within the dominant economic thinking (Georgescu Roegen 1986; Daly 1996). Therefore, the quest for sustainability requires a sharp departure from this reductionist attitude and needs to put an end to the fragmentation of science into many (almost isolated) disciplines. Quite to the contrary, in the framework of the new regulatory system for sustainability, an inter- and trans- disciplinary approach should be promoted on the basis of a new holistic view (Montini and Volpe 2017).

5.2 *Beyond Anthropocentrism*

The current regulatory system is characterized by a sharp anthropocentric approach, as it is evident in the declarations, statements and outcomes adopted at the most relevant international conferences on sustainable development, such as notably the 1992 Rio Declaration. The centrality of the human-related considerations in the approach to sustainable development is well exemplified by article 1 of the Rio Declaration, which states that “*human beings are at the centre of concerns for sustainable development*” (Vinuales 2015). This marked anthropocentric vision, recalls the same approach already present in the 1972 Stockholm Declaration and in the 1987 Brundtland Report and is confirmed by other provisions of the same Rio Declaration, such as for instance article 3, which refers to the requirement to respect the needs of both present and future generations when defining and implementing sustainable development policies (Montini 2014).

However, as I have argued elsewhere, this choice was not necessarily the only one available both in the drafting and in the implementation of the Brundtland Report, the Rio Declaration and the subsequent related documents, such as the 2002 Johannesburg Political Declaration and the 2012 Rio + 20 Outcome Document, named *The Future We Want* (Montini 2014). In fact, the reference to the duty to take into account and respect the needs of future generations could have been interpreted in a different way, as the need to protect and promote at the same time both the human

and the ecological dimension. This could have been done by recognizing and implementing a duty for the present generation to preserve “*the quality of the Planet*”, or in other words the health and integrity of the ecosystems which support life, in order to leave to the future generations the same favorable conditions that have been experienced by the previous and current generations (Brown Weiss 1990; Montini 2014).

Therefore, the quest for a new regulatory system for sustainability should consider reassessing and revising the limited anthropocentric attitude experienced so far, in order to explore a more balanced approach, which may blend anthropocentric and ecocentric views and approaches into a new cosmovision able to tackle the challenges of the XXI century.

5.3 *Beyond Positivism*

The approach to sustainable development and environmental protection law and policy experienced in the last decades has been substantially shaped by a rigid positivist attitude, which tends to focus more on the formal application of the letter of the law, rather than to the substance of the protected interests (Montini 2014; Capra and Mattei 2015; Montini 2017). This has paved the way to a very narrow-minded approach towards the creation and implementation of law related to environmental protection and sustainable development, which often runs the risk of lacking effectiveness (Montini 2014, 2017).

In order to overcome such a major shortcoming, it has been argued that the safeguard of the health and integrity of ecosystems should be promoted as the basic norm (*grundnorm*), upon which the new regulatory system for sustainability should be premised (Bosselmann 2016).

The idea of advocating the adoption of such a basic norm is based on the proposal to replace the current legal attitude based on the rigid positivist approach based on a Kelsen’s view, according to which the basic norm is seen as an epistemological premise of a norm, with a Kantian view, that considers a basic norm as a natural law premise of a norm, which ought to be based on reasonableness, so as to prevent arbitrary action by the legislature (Kim and Bosselmann 2015; Bosselmann 2016; Montini 2015).

5.4 *Beyond Short-Termism*

The current regulatory system is characterized by a sharp short-termism, which tends to influence and steer all major economic and normative choices. In the field of sustainable development and environmental protection such a short-term attitude gives rise to the tendency to prefer the adoption of “emergency-solving” legislation instead of trying to promote a proper planning of legislative interventions.

This tendency to short-termism has been indicated in the literature as a severe shortcoming of the current regulatory regime and as one of the main reasons for the observed lack of effectiveness of environmental law which has been experienced in recent times (Bodansky 2010; Montini 2014). The same reasoning may be applied also to failure to create a significant impact by most legislation inspired by sustainable development considerations. In order to overcome and invert such a tendency to short-termism, one of the basic requirements for the establishment of a new regulatory system for sustainability should consist in trying to promote and pursue sustainability in a medium- to long-term perspective.

5.5 *Beyond Deregulation*

The last few decades have been characterized by a tendency to gradually revise and sometimes dismantle existing policies and legislation on the basis of a deregulatory agenda. This trend has been extremely evident in the field of environmental protection, where traditional command and control instruments have often given way to market based instruments (Bosselmann and Richardson 1999; Vatn 2018). However, from an environmental point of view, this tendency has not necessarily brought positive results in terms of an improved environmental protection or a higher quality of environmental media (Montini 2014, 2017). The reason for the progressive substitution of command and control instruments with market-based instruments is mostly related to the obsession of the neo-classical economic model for the increase of growth and the maximization of profits, irrespective (or with scarce consideration) of the possible negative social and environmental consequences.

The traditional approach to the regulatory instruments choice, profoundly influenced by the deregulatory agenda, is certainly not satisfactory from the point of view of sustainability. Therefore, the introduction of a new regulatory regime for sustainability should be accompanied by a process of complete reassessment and revision of all the current regulatory instruments. Such a process should be aimed at determining whether and to what extent the existing instruments may be considered fit for the purpose of promoting the priority goal of the preservation of the health and integrity of ecosystems which sustain life on the Planet. This does not mean that most of the existing regulatory instruments will need to be phased out or completely changed. It rather means that they will need to be revised and reoriented so as to make them suitable to pursue sustainability as their overall objective (Montini 2014; Bosselmann and Taylor 2017).

6 Conclusion

The analysis conducted above has shown that sustainability has an ecological core and that in order to properly promote sustainability a regulatory system for sustainability should be designed. Such a regime should be based on a specific priority goal that is to guarantee the preservation of the health and integrity of ecosystems, which sustain life on the Planet and should use as a reference paradigm the concept of ecological sustainability.

Drawing from the ecological sustainability paradigm, several fundamental changes should be made to the current regulatory regime, with a view to promote the transition towards regulation for sustainability. The main changes proposed may be grouped under the following five headings: beyond reductionism; beyond anthropocentrism; beyond positivism; beyond short-termism; beyond deregulation.

Beyond reductionism means that the new regulatory system for sustainability requires a sharp departure from the reductionist attitude which characterizes our society and from the related fragmentation of science into many disciplines. Under the new regime an inter- and trans- disciplinary approach should be promoted on the basis of a new holistic view.

Beyond anthropocentrism calls for a reassessment and revision of the current anthropocentric approach, in order to explore a more balanced approach, which may blend anthropocentric and ecocentric views and approaches into a new cosmovision able to tackle the challenges of the XXI century.

Beyond positivism ask for the safeguard of the health and integrity of ecosystems to be chosen and promoted as the basic norm (*grundnorm*) for the new regulatory system. Such a basic norm should be intended in a Kantian way, as the natural law premise, which should shape and steer the whole regulatory system for sustainability.

Beyond short-termism refers to the need to overcome and invert the present tendency to short-termism and try instead to promote and pursue sustainability in a medium- to long-term perspective, as a basic requirement for the new regulatory system for sustainability.

Beyond deregulation requires that the new regulatory regime for sustainability goes along a process of complete reassessment and revision of all the current regulatory instruments, with the aim of determining whether and to what extent they are suitable for contributing to the priority goal of the preservation of the health and integrity of ecosystems, which sustain life on the Planet.

The proposed five changes presented above do not represent by any means an exhaustive agenda, but they are meant to be a sketch of what ought to be done in order to create the conditions for a successful design of a new regulatory system for sustainability. Time will tell whether, when and to what extent the advocated changes might materialize.

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The Laws of Sustainable Development



Geert van Calster

1 Introduction

By way of introduction, the following three scenarios could help give the reader a feeling for the type of legal issues involved in this chapter.

Scenario 1. Kyoto tax. The European Union (EU) ratified the Kyoto Protocol (UN 1997) to the United Nations Framework Convention on Climate Change – UNFCCC (UN 1994), tying it to strict emission limits for so-called greenhouse gases. It has also ratified (or is in the process of doing so) all subsequent relevant international treaties, including the Paris ‘Agreement’. As a result of its commitments, the EU has imposed a series of measures which entail certain costs on behalf of industry. After lobbying by European trade associations, a number of Members of the European Parliament (MEPs) now want the European Commission to introduce a so-called Climate (previously called ‘Kyoto’) tax. This tax (probably in truth a customs duty, or ‘tariff’, or Border Tax Adjustment) would be designed to offset climate compliance costs incurred by European industry. After all, so the argument goes, those who do not comply with international climate law produce unsustainably, hence the principle of sustainable development ought to allow such measure. *Would such tax be acceptable from a legal point of view? Would the principle of sustainable development come to the rescue?*

Scenario 2. Sustainable fisheries. Fencyland accuses Ogreland from depleting fish-stocks, in particular of the *Yummie* and *Gosh*, in the high seas just outside the territorial waters of these two neighbouring countries. It has been trying to convince its neighbour to conclude a treaty which would limit catches of the fish in line with sustainable fisheries management, to be decided by a joint Fisheries Committee. Ogreland refuses point blank to enter into the agreement.

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Is such obstinate refusal acceptable from a legal point of view? Would the principle of sustainable development come to the rescue?

Scenario 3. Access to nano-cells. *Sunshine!*, a K.U. Leuven spin-off, has developed hyper efficient photovoltaic cells, employing nanotechnology. *Stains & Kicks* is a small island group of nations, which has simply copied Sunshine's patent-protected technology, claiming that Sunshine's insistence that it pay royalties in order to use the technology, is an infringement of the law of sustainable development. *Stains & Kicks* are a small, impoverished nation and they need the technology to reach their Kyoto Protocol (UN 1997) commitments. *Is such use of the technology without respecting patent rights acceptable from a legal point of view? Would the principle of sustainable development come to the rescue?*

Below I review in introductory fashion the main 'principles' of international environmental law, using i.a. the so-called Rio Declaration (UN 1992) as a first port of call. 20 years after the birth of this declaration a variety of documents was produced at the 'Rio + 20' summit (UN 2012) however none of these challenge the relevance or authority of the Rio Declaration. Sustainable development is part of these principles, however, limiting the law of sustainable development purely to the very principle that bears it name, would amount to a very narrow legal scope.

Legal scholarship and especially philosophy of law has for some time debated the exact impact of the nature of 'principles' (e.g. De Sadeleer 2002) however one can suffice here by saying that environmental principles both inspire the creation of international environmental law (see e.g. the role of the prevention principle in international chemicals law, or the concept of common but differentiated responsibility and the layered obligations of Parties to the erstwhile Kyoto Protocol, UN 1997), and entail legal obligations in themselves. It is noteworthy that for almost all of the principles reviewed below, international environmental law does not have one, undisputed definition. That in itself should not diminish their value, nor indeed should it endanger their binding character. Many principles of international human rights law, for instance, are likewise subject to differing definitions, however this has not endangered their binding character.

2 The Principle of Sustainable Development

Principle 3 of the Rio Declaration (UN 1992) states:

The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

The origin of the principle is well-known, at least in its most visible format, as emanating from the World Commission on Environment and Development, better known by reference to its chair, Dr. Gro Harlem Brundtland, as the *Brundtland Commission*. The Commission was asked by the United Nations in 1983 (UN 1983) to address "*the accelerating deterioration of the human environment and natural*

resources and the consequences of that deterioration for economic and social development.” Its work led to the definition of sustainable development as development “*that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (WCED 1987 p. 8). Although not all that evident from the *Brundtland* report, the sustainable development principle is thought of as a three-tier concept, encompassing ecological, social and economic development.

In international environmental law, sustainable development arguably is broken down in four constituent parts (Sands 1995):

- The principle of *intergenerational equity*, which amounts to the need to preserve resources for the benefit of future generations.
- The principle of *sustainable use* refers to a more immediate concern to use resources wisely, appropriately, rationally, prudently.
- *Intra-generational equity* implies the balanced use of the world’s resources by the various parts of the world.
- Finally, the *integration* principle implies that environmental considerations are taken into account in economic and development objectives, and that development objectives are taken into account in deciding environmental projects.

The fourth element which Sands (1995) identified as being part of the principle of sustainable development may seem somewhat uneasy. The way in which the integration principle is defined in international law is arguably too explosive or, alternatively, self-evident, depending on how one defines its true direction. If the integration principle ‘simply’ requires all of its constituent three elements to be included in concrete policy, then it amounts to nothing more than a tautology. If on the other hand it is more akin to the European Union’s (EU) version of the integration principle, then it would raise controversy. Article 11 of the Treaty on the Functioning of the European Union – TFEU (EU 2012) reads

‘Environmental protection requirements must be integrated into the definition and implementation of the Union policies and activities, in particular with a view to promoting sustainable development.’

Article 168 TFEU (EU 2012) includes a similar proviso for public health considerations, as does Article 169 TFEU (EU 2012) for consumer protection. However while the integration principle for public health and consumer protection are included in their specific titles within the Treaty, the integration of environmental protection is included in the overarching ‘*Principles*’ Title, to which it was promoted from having previously been included in the environmental Title only. This apparent higher place in the pecking order for environmental protection, while not suggesting an unquestionable priority for environmental issues (see thorough analyses e.g. with Dhondt 2003 and Vedder 2003) does suggest that environmental protection has somewhat of a higher calling amongst the EU’s objectives.

Such higher pecking order for environmental protection would be unacceptable in the current understanding of the principle of sustainable development in the international legal order. Particularly in the 1990s, the principle of sustainable

development was often understood in a condensed meaning. Politicians and international negotiators alike (let alone the public at large) effectively equated sustainable development with environmental protection. This led to an explosion in international environmental treaties in the 1990s, and eventually to a re-orientation at the 2002 *Johannesburg summit on sustainable development*.¹ The Action Plan adopted at the *Johannesburg* summit, under pressure from developing countries, firmly took the more or less exclusive focus on environmental protection as had occurred during the 1990s, back to the three pillar approach as initially intended (UN 2002).

3 National Sovereignty Over Natural Resources

Principle 2 of the Rio Declaration (UN 1992) reads as follows:

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

3.1 Territory, Sovereignty, and “The Global Commons”

Perhaps surprisingly for a principle of *international* environmental law, national State sovereignty over its own natural resources remains a cornerstone of the international legal regime. ‘Sovereignty’ and ‘jurisdiction’ are linked to a State’s territory. Territory is simultaneously a condition for a State to exist (together with the government and population within its frontiers: see Brownlie 1996 p. 107; see also UN 1933 which quotes a “defined territory” as one of the indispensable attributes of statehood, thereby reflecting customary international law), and a limitation to its rights. In principle, a State is sovereign and has jurisdiction only within its territory. Jurisdiction is not a synonym of State sovereignty, although the relationship between them is close: a State’s title to exercise jurisdiction rests in its sovereignty (PCIJ 1927; Jennings and Watts 1996 p. 51). Sovereignty in regard to a portion of the globe has been described as the right to exercise therein, to the exclusion of any other State, the function of a State (UN 1928). The Island of Palmas arbitration indicated: “Sovereignty in the relations between States signifies independence. Independence in regard to a portion of the globe is the right to exercise therein, to the exclusion of any other State, the functions of a State” (UN 1928 p. 838).

¹Called 10 years after the 1992 *Rio de Janeiro* conference which can rightly be seen as the cradle of a large part of current international environmental agreements.

Kingsbury (1998 p. 599) states “*The traditional normative concept of sovereignty is strained and flawed, but in the absence of better means to manage inequality, it remains preferable to any of the alternatives on offer.*” To the extent that concepts such as the global commons (see below) develop into a regime recognised by international law, they could offer a viable alternative to territorial sovereignty for part of the world’s resources. Outside that specific context, however, territorial sovereignty remains the best safeguard against unbridled, in the long run unsatisfactory, unilateralism.

However, even undisputed sovereignty has its limits. The maxim *sic utere tuo ut alienum non laedas* has been used to describe the duty of States to exercise their sovereignty in such a way, so as not to cause damage to the territory of other States – this is also the notion explicitly included in Principle 2 of the Rio Declaration.

Environmental issues challenge the classic theory of international law regarding territory and State’s sovereignty, in those cases where measures protecting the environment relate to a relatively new area of States’ sovereignty, namely the protection of “the global commons”. Public international law traditionally distinguishes between three regimes *vis-à-vis* jurisdiction (Kindred 1993 p. 324).

- The majority of the Earth is subject to territorial *sovereignty*.
- *Res nullius* are those parts of the Earth which are capable of lawful national appropriation/sovereignty, but which are as yet unclaimed (nowadays a very rare regime).
- *Res communis* are shared by all nations and cannot not be placed under State sovereignty. The latter category consists of the high seas and outer space (Brownlie (1996) adds a fourth regime, territory not subject to the sovereignty of any State(s), possessing a status of its own. He cites UN mandated territories as an example (note 8 above). Generally, this regime is classified as a (weakened or shared) form of State sovereignty).

In recent years, a new variety of territory has been recognised, referred to as the “Common Heritage of Mankind” (e.g. Gorove 1972; Larschan and Brennan 1982), or “the global commons”. This category is so far ill-defined and open to discussion. The global commons include the seabed, the ocean floor and the subsoil thereof, as well as, arguably, the moon and other celestial bodies (Kindred 1993). As for the latter, they seem to have shifted from *res communis* to global commons.² Originally the prototype of something which was not susceptible to States’ sovereignty, one now has to take account of the technological progress. Planets like Mars seem to head in the same legal direction. Especially in the environmental area, the concept of “global commons” is promising. The ozone layer, for instance, would seem a prime candidate for such regime (*see below*).

²See the recurrent anecdotes at the time of any high-profile mission to the moon or other celestial bodies. Descendants from a German Army officer have sustained their claim that the moon was handed over to their ancestor by the Prussian Emperor, whilst an Oman family claims comparable rights over Mars. The latter led to the subpoenaing of NASA at the time of the *Sejourner* and *Pathfinder* mission to Mars. The writ was based on trespass.

The distinction between *res communis* and global commons is particularly relevant. “Under the regime of *res communis*, as long as a State respects the exclusive quasi-territorial jurisdiction of other States over their own ships, aircraft and spacecraft, general international law allows it to use the area (...) as it wishes, including the appropriation of its natural resources.” (Cheng 1980 p. 337). By contrast, the global commons’ management and possible exploitation are subject to approval by the international community, and are not left to the initiative or discretion of individual States or their nationals (Cheng 1980 p. 337). This concept of international management is for instance apparent in the New York Agreement governing the activities of States on the moon and other celestial bodies and the Antarctic Treaty (UN 1959) contains similar ideas.³

Crucially, the challenge for the international community is to find a way to adjudicate regulatory power over the global commons which

- alleviates veto concerns: i.e. the global commons by definition impacting on all of us, one cannot assume that complete international consensus is required for action to be taken to protect it. Indeed was this the accepted approach, every State would effectively hold veto power over the management of the global commons; whilst
- at the same time showing deference to national sovereignty. Unbridled unilateralism or even selective multilateralism indeed would risk rewarding co-ercion.

Interestingly, there may be a way forward in this debate, in the shape of a form of ‘effects’ doctrine such as employed in anti-trust relationships between the EU and the US. In anti-trust law (or as Europeans would call it, competition law), management decisions made in one State may have an impact on free competition (designed to protect the consumers) in another State. Hence even if, say, two large companies, incorporated in the United States, wish to merge their activities (something for which they would need regulatory approval if the companies have a large enough market share, as the combined market share may increase the risk of anti-competitive behaviour), the EU’s competition authorities may still want a say in the matter, to the degree the companies involved have activities in the EU. In order to reconcile these two potentially competing claims, US and EU courts and the respective Governments have developed a practice which recognises jurisdiction for the countries where the effects of anti-competitive behaviour are direct, substantial, and foreseeable, whilst at the same time providing for regular contacts between the competition authorities to as to ensure that no overriding reasons of foreign or economic policy are overlooked in the exercise of regulatory authority.

³In this Treaty, however, it is stressed that the principles of international co-operation which the Treaty encompasses, should not be interpreted as a renunciation of any territorial claim by any of the Parties (Article IV). Moreover, the Antarctic Treaty has only a limited number of Parties, and is protected against the claims of other States only by the principle of Article X that the Parties will do their best to convince other States not to engage in any activity in Antarctica that would run against the principles of the Treaty.

The EU and US approach of jurisdiction in anti-trust matters especially (Dodge 1998 p. 169), may be usefully employed elsewhere (and indeed also for environmental matters, see below). The effect that could trigger States' jurisdiction, would have to be direct, substantial, and foreseeable. The burden of proof would lie with the authorities or individuals who allege the existence of jurisdiction. The interests of other States would have to be taken into account – US case-law refers to this as international 'comity'. *"The basis of the assessment should be the extent to which the conduct at issue is in accordance with the policy or interests of the State where it is carried out (...)"* (Roth 1992 p. 277).

3.2 Territory, Jurisdiction and Environmental Policy

Principle 12, *in fine* of the Rio Declaration:

Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.

Just as today's economies are increasingly interdependent, so too are environmental considerations. In international economics, this is the result of the invisible hand of the market, leading to the globalisation phenomenon. In international ecologism, this stems from the very visible characteristics of nature. The interdependence of the world's environments challenges the classic territorial approach in three ways. *First*, damage to the environment in one country may have an effect on another State. *Second*, part of the world has been categorised under the "global commons". *Finally*, ethical issues have entered the environmental debate.

3.3 Environmental Damage in One State Affecting the Territory of Another State

Damage to the environment in one country may have an effect on another State. In some obvious cases, jurisdiction issues may easily be handled through "pure" territorial considerations. The classic examples are transboundary rivers, severe air pollution is another. In such cases, tension may nevertheless occur where the States involved simultaneously exercise their jurisdiction, in an incompatible manner. Other events might however lead to less obvious, some would say negligible, cases of pollution. Here, a question arises which is very similar to the effects issue in competition law: should all effect lead to jurisdiction, or should one handle the scales of qualified effect? If the latter is the case, how should the scales be tuned?

The theory of qualified effects, as it has been developed with respect to competition laws and summarily discussed above, might come to the rescue. The EU's

approach in competition law is that the effect should be direct, immediate, reasonably foreseeable and substantial. Such a test could also be applied to environmental damage such as in the situation under consideration here.

3.4 *Damage to the “Global Commons”*

As noted above, part of the world has been categorised under the “global commons” or “common heritage of mankind”. Jurisdiction needs to be determined with respect to the global commons. International management is inherent in its definition, however failing international agreement, as is currently the case for an important part of environmental issues with respect to the global commons, a State may well be tempted to consider it its duty to protect the commons, if only out of pure self-interest. This has led to multilateral initiatives such as the Vienna Convention (UN 1969) and Montreal Protocol to protect the ozone layer (UN 1987), the Antarctic Treaty (limited in its environmental aims) (UN 1959), and the action in the UN Convention on the law of the seas (UN year). All of these treaties enjoy a high number of signatory States. They remain, however, binding between the Parties only.

Apart from these multilateral initiatives, States may take resort to unilateral measures in order to protect the global commons. *Prima facie*, from a jurisdiction point of view, such unilateral measures fit in quite well with the territorial doctrine. Indeed, if the global commons are a new type of subject, the well-being of which is beneficial for the entire globe, then all States would have a legitimate interest in taking action to preserve it. Individual claims, however, clash with the principle that the global commons are to be managed internationally. The need for the global commons to be internationally managed, enshrined in its definition, thus might grant States less jurisdictional rights over it than they would have, through the effects doctrine, over each other’s territory. This is unacceptable. It would in effect make the management of the global commons dependent upon international unanimity. In other words, one single country would be able to keep the entire world at ransom, stifling international action with respect to the global commons.

I am in favour of a criterion of jurisdiction, dependent upon the existence of a multilateral initiative, through the appropriate bodies, coupled with a duty of support. International unanimity is an unacceptable criterion for the management of the global commons. Unilateral action based on the assertion that the global commons are in everyone’s interest would be damaging in the long term. International consensus through the appropriate channels would seem to be the only viable option. The appropriate “channel” would have to fulfil a number of basic conditions. It would have to be truly multinational in its aims and organisation. It would have to comprise a scope going beyond strict environmental issues. It would have to be open to anyone wishing to adhere. The prime candidate for such action is the United Nations, the UN Environment Programme in particular. Since the proper management of the global commons requires a minimum of participating countries,

decision-making at the international fora needs to be coupled with the appropriate financial and technical support for those States, which are not able to provide for the necessary means to sustain environmental programmes. This is especially true for those threats to the global commons, which are situated in a limited number of countries.

It may be noted that a number of the remarks made above, with respect to the global commons, may also hold true for issues which are strictly speaking subject to national sovereignty, whether exclusive or shared sovereignty. The management of international streams, for instance, requires multilateral action, coupled with the necessary mutual support. Other issues ask for international management, by their scale or nature. For instance, waste management has always had international implications, due to economic principles and market forces. Here as well, there is a need for international initiatives, open for anyone wishing to adhere.

3.5 *Environment and Ethics*

New “environmental” issues have emerged, which find their roots in ethical and political considerations, rather than in principles of classic environmental management. They include such issues as animal rights, and the preservation of the culture and the traditions of indigenous people. Above I reported how States and the international community, are working out a response to the challenges of modern economic law. The theory of qualified effect determines jurisdiction for States, depending on the effect on their economy of the conduct of individuals/companies not normally within their jurisdiction. Following the rules of economic accountancy, these effects may be calculated or at least neutrally assessed in objective terms. For the kind of environmental issues as mentioned above, calculation of effects would have to take place in moral and emotional terms, rather than in objective ones. Latter would seem a sheer impossible task and, judging by the reaction of States faced with other States’ action against ‘unethical’ hunting practices, for instance, may not be the right way forward.

3.6 *Environmental Damage Purely Situated Outside a State’s Territory*

Where the environmental interest which legislation seeks to protect, is located *entirely* outside the State’s territory, public international law does not offer an opening for the assumption of jurisdiction. The argument that the environment of all States is in effect interconnected, does not strike a convincing cord with public international law. Even if one were to apply the effects doctrine, one would have to agree that, just as in the case of environment and ethics (above), the interests of the

State where the environmental degradation or danger is located, would outweigh that of the other State.

3.7 Conclusion

Through the territoriality principle, a number of environmental initiatives may be assessed under international law. This would seem to grant legislative jurisdiction in cases of shared resources, and where the impact of a State's (in)action on the environment of another State is clear. The pursuit of the protection of the "global commons" poses more difficulties, and would not be properly tackled through granting States jurisdiction to take action unilaterally. Having to wait for unanimity in the international community is however equally unacceptable when it comes to protecting the global commons. Which legal regime ought to be developed to settle jurisdiction in these matters is open to debate. However it would seem that eventually the international community will have to leave its paradigm of territorial sovereignty in this (altogether limited, if important) category of global commons.

4 The Principle of Preventive Action and the Precautionary Principle

Principle 2 of the Rio Declaration:

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Principle 15 of the Rio Declaration:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

The prevention principle (principle of preventive action) obliges the authorities to take action at the earliest possible stage, if at all possible prior to any damage occurring, to prevent known risks from being realised. There is no undisputed definition of the precautionary principle. It is generally defined in a negative sense, in that according to the principle, States must not defer regulatory action even if there is no conclusive scientific proof between a given (in)action and damage to human health and/or the environment. The two principles at issue can be distinguished as follows.

As for the *content* of the principles, the best method of distinguishing between them at least at a theoretical level would seem by describing them in terms of the types of risks one has to manage. The principle of preventive action deals with known risks; the link between certain activities or occurrences and environmental damage occurring, is certain, and States are at least in principle obliged to prevent the damage from occurring. The precautionary principle by contrast deals with *uncertain* risks. For the activities concerned, there is no watertight proof of any negative consequences, or indeed the precise causal chain of events may be uncertain, or, finally the exact impact an activity has may be subject to uncertainty.

Importantly, the *legal weight* of both principles also differs. The prevention principle, in its international context, is part of public international law. It is an application of *sic utere tuo ut alienum non laedas*, which is a natural limit to the sovereignty principle as set out above, and explicitly recognised for instance in the *Trail Smelter* arbitration (ICJ 1941). The legal nature of the precautionary principle, on the other hand, is disputed. A number of Treaties include the principle (even the Agreement Establishing the World Trade Organisation contains precautionary language), and it is certainly a general principle within certain regional context, such as in particular the European Union (See for a particularly lucid overview Fisher 2002). Yet whether the principle is part of public international law remains disputed.

Early 2000, the European Commission adopted a Communication on the precautionary principle, which was designed in particular to ease tensions with the United States (European Commission 2000) and which arguably remains the highest-profile exercise so far to try and translate the principle into specific guidelines. The Commission insists in this document that the precautionary principle in its European context is a justified part of risk management. The latter, the Commission insists, is not a purely scientific exercise but to a considerable degree a policy process. The Communication details that any measures taken on the basis of the principle, have to be proportionate *vis-à-vis* the level of environmental protection sought; that they must not be discriminatory in their application (in particular *vis-à-vis* the trading partners of the EU), that they have to be consistent with any measures which have already been taken; (consistency); that they have to be based on technical analysis and, where possible, economic cost and benefit analysis; and that they have to be subject to constant monitoring and evaluation, including potential review (in particular with a view to integrating potential new scientific developments).

Even where the international community has agreed to a definition, such as in the Rio Declaration, the principle is often softened by reference to cost-effectiveness etc. See e.g. Principle 15, recalled above:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. (emphasis added)

The reference to a State's capabilities, in the main refers to another principle, included below, namely the principle of common but differentiated responsibilities.

It is of course also a reflection of the very notion of sustainable development, as set out above, namely the three pillar approach, implying that state of the art environmental regulation cannot be achieved at all cost, and in particular not when the State involved has no economic cloud to back it up.

The reference to cost-effectiveness implies a notion of environmental standards generally known (especially in the EU) as ‘BATNEEC’: Best Available Techniques Not Entailing Excessive Costs, and potentially curtails the impact of the precautionary principle on developing countries (see for an expression of the same in international trade law Body, Van Calster 2007; the Panel and the Appellate Body upheld the suggestion that what is available in terms of waste management policy option for an advanced economy like the EU, is not necessarily so available to a developing nation like Brasil; Van Calster 2008a p. 305ff).

However, it is in a rather developed country that effectiveness was coupled with opposition to the precautionary principle. In the United States, the ‘no regrets doctrine’ was developed by the Bush (Sr) Administration – and taken up by the subsequent Clinton administration – in response to early European action to combat climate change (for this and the following see Cameron and Wade-Gery 1995 p. 104). Bush Sr argued that in the face of uncertainty, rather than taking precautionary action, which implies an often high degree of uncertainty, the US should only advocate taking measures, which it would never come to regret. This would include for instance energy savings measures which, if climate change were proven a fad (or uninfluenced by human behavior) would have had the certain, cost-effective benefit of saving energy and, which if climate change were proven true and man-influenced, would have been at least a partial response to the phenomenon.

At first sight, one might suspect that the precautionary principle’s varied definition in international documents does not contribute to its enforceability. The prevention principle, with its more robust definition across the various sources where it is used, in that analysis would almost naturally lead to better enforcement. However beyond the semantics, whilst the prevention principle is undisputed in its definition and legally binding character, it is actually flouted on a daily basis: indeed every and any industrial activity causes pollution, and evidently not all of that pollution is prevented or even mitigated, neither does every pollution caused by one State on the territory of another lead to action in the courts. Obviously, a *modus operandi* has been reached through which, depending on the circumstances, an acceptable level of pollution is defined in international treaties, in regional law (e.g. EU law) or indeed by implicit arrangement.

In summary, there is plenty of uncertainty in the prevention principle, too (see e.g. Duvic-Paoli 2018), however this has not hampered its development as a binding principle of international environmental law. Consequently, while the precautionary principle may usefully be quoted as a focal point for the divide between in particular the United States and the European Union, in reality the dichotomy between the United States and the EU in terms of risk analysis, goes further than that, and certainly deeper than the belief as to whether the precautionary principle is a binding principle of international law (see e.g. Van Calster 2008b).

In particular the EU and its Member States view risk analysis as a linear process, in which the various steps of a risk analysis process (risk identification, risk assessment, risk management, and risk communication), are neatly divided (see e.g. the contributions in Weimer and De Ruijter 2017). Importantly, the EU assigns the responsibility and the main lead in each of these steps to different professional groupings. Whilst the steps of risk identification and certainly that of risk assessment are a responsibility of scientists, the step of risk management is very firmly seen as a *political* step, in which elected politicians on both the national scene and the European scene, take the lead. This preponderant role of politicians in risk management makes the process prone, so its critics (e.g. Sunstein 2005) say, to being susceptible to scaremongering, and to recourse to the precautionary principle. Hence, it is more likely that the general outlook on life and risk is determinant for the regulatory approach of these States, than their belief as to whether the precautionary principle as part of the law of sustainable development is legally binding or not.

5 The Polluter Pays Principle

Principle 16 of the Rio Declaration:

National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

The “polluter pays principle” (EU 1973 part I, title II, no. 5; EU 1975; Vandekerckhove 1993) requires all environmental costs to be “internalised”, i.e. absorbed in firms’ production costs. Theoretically, full introduction of the principle would mean that environmental costs are reflected in companies’ accounts as a mere cost (and, therefore, a decrease in these costs as a benefit). The principle’s origins are typically said to be the OECD, the Organisation for Economic Co-operation and Development. Importantly, the principle in its core form takes no stance as to whether environmental pollution ought to be reduced or indeed stamped out (Lee 2005 p. 185ff). It ‘simply’ calls for there to be put a price on pollution, so that the negative environmental externality of production will be included in the companies’ (or indeed individuals’) costs structure. In a *Coase* approach (Coase 1960), this will then lead to the pollution being caused by the companies for which it brings the most benefit. Companies which, even if they have to pay for the pollution, can use the activity which causes the pollution to add significant economic value, will continue to engage in that activity (but for the ‘right’ price’, i.e. taking account of the pollution they cause).

Naturally, for activities which are considered harmful to such degree that they ought to be phased out, pricing the pollution at high levels will help encourage industry to seek less harmful alternatives.

The polluter pays principle is faced with many challenges, the most obvious one of which relates to it not being easy to calculate the economic value of pollution. This is particularly so in those instances where damage is caused which has no immediate human health impact (e.g. damage to biodiversity). Moreover, even in those instances where damage can be quantified, and has already occurred, the polluter either may not be traceable or may have gone bankrupt/wound up business. The biggest obstacle to full roll-out of the principle however remain political nerves. By way of example, the differing environmental and public health impact of road transport v rail/inland waterway transport is well documented (and one can imagine that they could actually be fairly specifically calculated) yet countries hesitate to force the full environmental costs of road transport upon the sector.

6 Common But Differentiated Responsibility

Principle 7 Rio Declaration states:

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

This principle is one of common sense, however also one of a particularly sensitive nature. For instance, the phrase ‘different contributions to global environmental degradation’, can be understood in both a historic sense and also a current, technical sense (and probably has to be applied as a mixture of both). If more emphasis is laid on the former, then countries such as China and India can rightfully claim to be in a position to postpone climate change abatement measures. If on the other hand more emphasis is laid unto the current contribution to environmental challenges, then the United States are absolutely spot on when requesting immediate action by those countries (see also e.g. Harris 1999). International financial support schemes such as via the World Bank and the Global Environment Facility are only a partial response to this challenge.

7 Conclusion

International laws of sustainable development are powerful notions, which have moved and shaken international negotiations. They may not be as clear-cut or well-defined as one could hope for, and they are often not specific enough to be able, on their own, to decide a case in the courts (whether national or international). However, international law in this area does help put pressure on those States unwilling to

address pressing environmental concerns. Coupled with the court of public opinion, international law hence undoubtedly helps pushing things forward.

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Reducing the European Union's Environmental Footprint Through 'Territorial Extension'



Joanne Scott

1 Introduction: Environmental Footprints

Recent advances in environmental accounting have allowed us to establish a better understanding of the environmental footprints of countries. There are different kinds of environmental footprints, including prominently a material footprint, carbon footprint, water footprint and land footprint (Giljum et al. 2018). While these indicators measure different aspects of the environmental pressures created by countries, they have in common the fact that they adopt a consumption-based approach. They, therefore, attribute 'upstream' environmental pressures to the country in which a product is consumed. For example, according to a consumption-based approach, greenhouse gases (GHGs) emitted in the course of producing steel in China would be included in the carbon footprint of the country in which the steel is consumed. The scope and unit of measurement of four primary environmental footprints varies (Table 1).

Drawing an analogy with the concept of the metabolism of an individual organism, it has been suggested that environmental footprints can help us to understand a society's 'biophysical structure' or its 'social metabolism' (Schaffartzik and Wiedenhofer 2018). What environmental inputs and outputs do a society need to ensure its reproduction, in light of its socio-cultural organization or 'metabolic mode' (Schaffartzik and Wiedenhofer 2018). Given that these environmental inputs and outputs and their effects may occur far away from where products are consumed, environmental footprints allow us to 'know what we cannot feel' (Schaffartzik and Wiedenhofer 2018, p. 80).

The calculation of environmental footprints requires rich information about trade flows and about the harvesting or production methods of products. As things stand,

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Table 1 Summary of scope and unit of measurement of four environmental footprints

Environmental footprint	Scope	Unit of measurement
Material footprint	Extraction of abiotic raw materials (fossil fuels, metals and non-metallic minerals) and biotic raw materials from agriculture, forestry and fisheries.	Tonnes
Carbon footprint	Emissions of GHGs	Tonnes of CO ₂ equivalent
Water footprint	Consumption of water	Cubic metres
Land footprint	Land appropriation by land type e.g. agricultural or forestry	Hectares (or km ²)

Adopted from Table 7.1 in Giljum et al. (2018)

Table 2 Quantitative summary regarding environmental pressures displaced through trade globally

	Materials	Water	Energy	Land	GHGs
1995	23%	23%	20%	20%	19%
2011	32%	26%	29%	26%	24%

Adopted from Wood et al. (2018)

there is no single harmonized method for their calculation and bottom-up, top-down and mixed methods are used (Giljum et al. 2018 p. 96). For economy-wide calculations, Global Multi-Regional Input Output (MRIO) analysis is especially important. This ‘redistributes global environmental inputs and outputs from the point of occurrence (an economic sector) to the point of consumption (e.g. final demand by households and governments)’, while taking into account differences in technologies and the environmental intensity of production between countries (Giljum et al. 2018, pp. 96–97). While MRIO is an important tool to assess a society’s resource intensity as well as its dependence upon environmental resources in other parts of the world, this methodology does have shortcomings. These have been explored in the literature, which also presents suggestions for how these can be overcome (e.g. Tukker et al. 2018). For example, it has been acknowledged that a high level of sector/product aggregation can lead to a ‘distortion of results’ (Tukker et al. 2018, p. 493).

In a recent article in *Nature Geoscience*, Wiedmann and Lenzen (2018) summarized some of the main scientific advances that have been made in MRIO analysis. As a result of these, the data underpinning environmental footprint studies can achieve a higher level of spatial resolution and provide richer information about the virtual movement of pollutants that are ‘embodied’ in traded products. Environmental pressures are considered to be embodied in products even where the associated environmental resource is not incorporated into the product itself. For example, where biofuels are derived from crops that are planted on carbon rich land, the GHGs that are emitted as a result of this land use change, are considered to be embodied in the resulting biofuels. Wiedmann and Lenzen (2018) also point to an increase in the range of environmental and social indicators relied upon in MRIO analysis, as well

as to the inclusion of 'impact' indicators that seek to evaluate the social and environmental damage associated with resource use.

Recent data show that there has been a rise in the share of global environmental pressures that are embodied in traded products and therefore displaced between countries through trade (Wood et al. 2018). Unsurprisingly, the overall direction of travel is for environmental pressures to be displaced through trade from OECD countries to non-OECD countries (Wood et al. 2018 p. 558). Wood et al. (2018) summarize the scale of the increase in environmental pressures displaced through trade between 1995 and 2011 (Table 2).

2 The European Union's Environmental Footprint

In an article published in 2016, Tukker et al. quantified the EU's environmental footprint across four indicators, namely GHGs, water, land, material (Tukker et al. 2016). While Tukker et al. rely on data from 2007, updated data for 2015 is now available in the EXIOBASE 3.4 data (updated data supplied by WU 2018). The scale of the EU's global environmental footprint compared to the global average is summarized in Table 3.

In their article, Tukker et al. (2016) also use global MRIO analysis to compare the territorial emissions and extractions of countries as compared to their consumption footprints. Their results reveal that 'the territorial impacts of Europe are significantly lower compared to the carbon, water, land and material footprint of consumption' (Tukker et al. 2016, p. 179). They also observe that 'Europe is currently living on emission and resource credits provided by other parts of the world' (Tukker et al. 2016, p. 179). Using updated data relating to 2015, an overview of the variation between the EU's territorial and consumption footprints is presented (Table 4).

In more qualitative terms, Wiedmann and Lenzen (2018) offer insights into the EU's environmental footprints. For example, in 2007 30% of primary fine particulate matter worldwide was 'embodied' in traded products, 'mainly in exports from China and India and imports to the US and Europe' (Wiedmann and Lenzen 2018, p. 315). In relation to biodiversity, EU consumption generates 'a hotspot of threats to marine species around islands in the Indian Ocean' (Wiedmann and Lenzen 2018 p. 316).

Table 3 The EU's environmental footprint in global context in 2015. (WU 2018)

	GHG emissions	Water	Land	Materials
EU <i>per capita</i>	13.2 t/cap	226 m ³ /cap	0.02 km ² /cap (2 hectares)	25.2 t/cap
Global average	5.4 t/cap	150 m ³ /cap	0.008 km ² /cap (1.3 hectares)	11.8 t/cap

Table 4 Percentage of EU's environmental footprint which originates outside the EU. (WU 2018)

Carbon	Water	Land	Materials
25%	64%	31%	38%

Also, ‘more than 50% of the EU’s consumption of cropland, grazing land and forestland in 2007 took place in other countries’ (Wiedmann and Lenzen 2018, p. 316). When it comes to water, ‘80% of the EU’s water-scarcity-weighted water consumption occurs outside of EU borders, with the largest pressure exerted in the Indus delta’ (Wiedmann and Lenzen 2018, p. 317). The EU and the US are the biggest ‘outsourcers’ of polluted water (Wiedmann and Lenzen 2018, p. 317).

In terms of the EU’s dependence on the global environment to meet its consumption demands (See generally Giljum 2016), we can take forests as a more specific example. The EU was the world’s biggest importer of embodied deforestation between 1990 and 2008. While China has since overtaken the EU in absolute terms, the EU remains the biggest *per capita* importer (FERN 2015). Moreover, a recent report suggests that the EU is one of the largest importers of products derived from illegal deforestation. A little under one-quarter of agricultural commodities from illegal deforestation in international trade are said to be destined for the EU. This includes 27 per cent of soy, 18 per cent of palm oil, 15 per cent of beef and 31 per cent of leather (FERN 2015).

3 Reducing the EU’s Environmental Footprint

A variety of different tools are available to reduce the EU’s environmental footprints. This chapter will highlight two of these, namely multilateral environmental agreements and unilateral EU initiatives. The main focus will be on the latter. The paper will not consider the role of bilateral trade agreements concluded between the EU and ‘third countries’ (third countries are countries that are not EU Member States).

3.1 *The Role of Multilateral Environmental Agreements*

The EU recognizes the importance of Multilateral Environmental Agreements (MEAs) in supporting its transition to a resource efficient economy (European Commission 2011 p. 22). To this end, it is committed to ‘support[ing] the conclusion and effective implementation of international agreements to make global consumption and production patterns more sustainable’, and ‘work[ing] towards stronger multilateral mechanisms for a global governance of public goods’ (European Commission 2011 p. 22). It is clear that MEAs can serve as a tool to reduce the environmental pressures embodied in international trade. MEAs frequently contain provisions that regulate methods for producing or harvesting goods. While these provisions can be impactful where the agreement in question sets ambitious standards, is widely ratified and properly enforced, provisions of this kind can also be reinforced by two additional kinds of instruments.

First, many MEAs include trade-related environmental measures within their scope, and prohibit Parties to the agreement from trading with non-Parties to the extent that these non-Parties do not have standards that are equivalent to those laid

down in the agreement in place. We can see this in Article 4 of the Montreal Protocol on Substances that Deplete the Ozone Layer (UN 1987) which is one of the most successful MEAs. And also in one of the most recently concluded MEAs, the Minamata Mercury Convention (UN 2013). Trade-related environmental measures (TREMs) prevent trade-related environmental pressures from being displaced from countries that have signed up to the relevant convention to countries that have not. They thereby serve to 'globalize' even those conventions that are not ratified by virtually all states.

Second, it is not unknown for MEAs to regulate the consumption of products. Again, the Montreal Protocol on Substances that Deplete the Ozone Layer (UN 1987) is exemplary in this respect. It establishes limits on parties' calculated levels of consumption, whilst permitting the transfer of any portion of its consumption that is unused to other parties (UN 1987, Article 2F and 2A(5bis)). For this purpose 'consumption' is defined in this Protocol as 'production plus imports minus exports of controlled [ozone depleting] substances' (UN 1987, Article 1(6)).

It is, however, notable that even MEAs that contain trade-related environmental measures or adopt a consumption-based approach, do not purport to regulate environmental pressures that are 'embodied' in traded products but not physically incorporated within them. For example, while the Montreal Protocol on Substances that Deplete the Ozone Layer governs the consumption as well as the production of ozone-depleting substances, it only includes controlled substances that exist alone or which are contained within mixtures. It does not extend to ozone-depleting substances that are generated in the course of manufacturing products but not contained within them (UN 1987, Article 1(4) defining the notion of a controlled substance).

Similarly, the Minamata Mercury Convention (UN 2013) regulates the export of mercury and mercury compounds on their own or when added to products, but not exports of products that have been manufactured using processes in which mercury or mercury compounds have been used; or products, such as non-ferrous metals, that are derived from point sources that release mercury to the atmosphere, land or water (UN 2013 Article 4).

In similar vein, Wiedmann and Lenzen point out that while the Convention on Trade in Endangered Species - CITES (UN 1973) regulates the direct trade of endangered animal and plant species, it does not govern threats to biodiversity which are embodied in traded products, including commodities (Wiedmann and Lenzen 2018, pp. 315–316).

It is also the case that some MEAs contain provisions that are intended to give effect to the responsibility of states not to cause damage to the environment of other states or to areas beyond national jurisdiction (for a discussion see Sands and Peel 2018, pp. 206–211). The Convention for the Protection of the World Cultural and Natural Heritage (UN 1972) contains a particularly clear example of this (see also Francioni 2008). Article 6(3) provides that parties undertake not to take any deliberate measures which might damage directly or indirectly cultural and natural heritage that is situated on the territory of another party. While the notion of indirect damage could conceivably be interpreted as including damage caused by the destruction of natural heritage as a result of environmental pressures that are

embodied in traded goods, it has not been interpreted in this manner to date. As will be discussed later in the chapter, while the concept of ‘deliberate measures’ may seem to set a high threshold for state wrongdoing, the availability of environmental footprint studies may make it easier to demonstrate that this threshold has been met (see Sect. 5).

3.2 Unilateral EU Initiatives to Reduce its Carbon Footprints: From Environmental Footprint Pilots to ‘Territorial Extension’

The EU recognizes its heavy dependence on embodied imports of environmental pressures and views this both as a ‘strategic economic issue’ and is also concerned with ‘possible negative social and environmental impacts on third countries’ (European Commission 2011 p. 6).

This concern is reflected in the recent EU initiative relating the environmental footprint of products and organizations in relation to which the EU has recently completed a number of environmental footprint ‘pilot’ studies (Environmental Footprint Pilots; European Commission 2018). The aim is to develop Product Environmental Footprint Category Rules and Organisation Environmental Footprint Sector Rules. The EU is now entering a transition phase during which it will monitor the implementation of these rules and develop additional rules (European Commission 2019).

Also relevant from a product perspective is the EU’s Eco-Design Directive (EU 2009c). This empowers the European Commission to adopt measures, which contain product eco-design requirements. In so doing, the Commission is required to consider the lifecycle of the product and all its significant environmental aspects, including the consumption of materials, energy and other resources such as fresh water (EU 2009c, Article 15). However, the scope of this measure is limited in that it only covers products placed on the EU market, which have an impact on energy consumption during use. Moreover, for a product of this kind to be subject to implementing measures, it must be demonstrated to have a significant environmental impact *within the EU* (EU 2009c, Article 15(2)(b)).

Alongside initiatives that focus on particular products or organizations, the EU has also been active in addressing the EU’s resource productivity at an economy-wide level. It has turned its attention to this issue in the context of its ambition to transition to a ‘circular economy’ (European Commission 2014). In moving towards a target for resource productivity, the EU recognizes the importance of ‘avoiding negative side effects (such as showing a positive trend simply because environmental impacts are shifted outside the EU)’ (European Commission 2014, p. 5). It therefore requires Member States to collect data for economy-wide material flow accounts which measure the material footprint of nations in the sense of the Environmental Accounting Regulation (EU 2011, Section 3; see also

e.g. Wiedmann et al. 2015). As things stand, these accounts do not include embodied water or land and there has been some recognition of the importance of developing 'a second tier dashboard of complementary macro indicators on land, water and carbon' within the EU (European Commission 2014).

Given the scale of the EU's environmental footprints, and the importance contribution that environmental resources outside of the EU make to this, trade-related environmental measures emerge as a policy instrument of great importance. Yet, this instrument is often neglected or down-played in debates about sustainable consumption. This is evident, for example, when one looks closely at the United Nations Sustainable Development Goal 12 which concerns sustainable consumption and production patterns. While this recognizes the importance of material footprints (Sustainable Development Goal 12, Target 12.2.1), trade policy instruments barely get a mention in the interventions that are identified to facilitate attainment of this goal. Indeed, the only target that implicates trade is that concerning the promotion of sustainable public procurement practices, in accordance with national policies and priorities (Sustainable Development Goal 12, Target 12.7).

Nonetheless, the EU has adopted a wide range of measures that seek to reduce the environmental pressures and impacts that are embodied in EU trade. These measures make access to the EU market, and to other advantages conferred by the EU or its Member States, conditional upon compliance with environmental standards included in EU law. This includes environmental standards that govern methods of harvesting or producing goods abroad.

These measures constitute examples of 'territorial extension' in EU law in that they use the existence of a territorial connection with the EU (e.g. market access) to gain regulatory leverage over conduct that takes place abroad (See Scott 2012 and Scott 2019). The concept of territorial extension can be illustrated by reference to a simple example. Member States can only count biofuels towards the attainment of their renewable energy targets and obligations, or provide financial support for their production, where these have been produced in a manner, which is compatible with the EU's 'sustainability standards' (Renewable Energy Directive, EU 2009a, Article 17). This remains the case regardless of whether the raw materials used to produce the biofuels has been cultivated inside or outside the EU. The sustainability criteria cover issues such as lifecycle GHG emissions and a prohibition on obtaining raw materials from land of high biodiversity value or high carbon stock (Renewable Energy Directive, EU 2009a, Articles 17(2)–17(5)). Member states shall require economic operators to show that these criteria have been fulfilled and the Commission has recognized that a number of voluntary national or international schemes setting standards for the production of biomass products can be relied upon to demonstrate compliance with the sustainability criteria (Renewable Energy Directive, EU 2009a, Article 17(4) and Naiki 2016). The most important EU measures giving rise to territorial extension in the environmental domain can be identified (Table 5).

Three features of these measures giving rise to territorial extension merit emphasis. First, a number of measures are included that govern the export of waste products from the EU to third countries. Whereas some of these instruments simply prohibit

Table 5 Summary of EU measures giving rise to territorial extension in the environmental domain

Waste	Climate	Forests	Fish
Shipments of waste (Reg. 1013/2006; EU 2006a)	Extraterritorial GHG emissions from aviation in EU emissions trading scheme (Dir. 2008/101; EU 2008a)	Legality verification of imported timber and timber products (Reg. 2173/2005, EU 2005, and Reg. 995/2010; EU 2010)	Preventing the importation of illegally caught fish (IUU) (Reg. 1005/2008; EU 2008b)
Exports of waste electrical and electronic equipment (Dir. 2012/19; EU 2012a)	Monitoring, reporting and verifying extraterritorial GHG emissions in shipping (Reg. 2015/757; EU 2015)		Excluding non-sustainability sourced fish from the EU market (Reg. 1026/2012; EU 2012b)
Recycling of EU-flagged ships including in third countries (Reg. 1257/2013; EU 2013)	Sustainability criteria for biofuels including imported biofuels (Dir. 2009/28 EU 2009a, Arts. 17–20 and Dir. 2009/30, Art 7b, EU 2009b) Reduction of lifecycle GHG emissions from transport fuels used in the EU (Dir. 2009/30, Article 7a; EU 2009b)		

the export of waste for disposal or recycling to developing countries (General Waste Shipment Regulation, EU 2006a, and Waste Electrical and Electronic Equipment Directive, EU 2012a), others seek to ensure that exported waste is managed in an environmentally sound manner that does not pose a threat to human health or the environment (e.g. Ship Recycling Directive 2013). Where waste is generated as a result of consumption within the EU, the manner in which this waste is managed has a bearing on the scale and impact of the EU's global environmental impacts.

As with the discussion of MEAs above, it is notable that while the EU is willing to prohibit or regulate the export of hazardous waste to third countries, it has not been similarly willing to make the import of manufactured products or materials conditional upon associated wastes being responsibly managed. For example, while the EU regulates in an Directive the management of waste from extractive industries within its territory (EU 2006b), it does not make the importation from third countries of mineral resources conditional upon the sound management of waste in the third country in which the mineral resources originate.

Second, some but not all of the measures included in Table 5, incorporate international standards included in MEAs. In two of the examples, these international standards are included in MEAs that have not yet entered into force (Hong Kong Convention for the Safe and Environmentally Sound Recycling of Ships, IMO 2009 and the Basel Convention 'Ban Amendment', UN 2004). There are, however, EU measures in existence, which incorporate standards that have been drawn up

unilaterally by the EU and which are not 'borrowed' from international conventions. This includes the EU's sustainability criteria for biofuels referred to above, as well as the EU Directive including extraterritorial GHG emissions from aviation within the scope of the EU's emissions trading scheme (Aviation Directive, EU 2008a). These unilateral instruments which do not serve to enforce internationally agreed standards tend to be among the most controversial EU measures giving rise to territorial extension (see Cooreman 2017).

Third, it is important to be aware that territorial extension operates at different levels in EU law, carving out narrower or broader spheres of regulatory intervention. A measure may operate at the level of an individual shipment, making importation into the EU conditional on how *that shipment* of goods has been harvested or manufactured. For example, a shipment of timber may gain access to the EU market where that shipment of timber has been verified as having been legally harvested (Timber Regulation, EU 2010). This has been labelled as 'transaction-level territorial extension' (Scott 2012).

Alternatively, a measure giving rise to territorial extension may make access to the EU's market conditional on whether the country in which the product originates has adequate or EU-equivalent laws in place. This has been labelled as 'country-level territorial extension' (see Scott 2012 also for a discussion of 'firm-level territorial extension'). An example of country-level territorial extension can be seen in EU regulation of illegal, unreported and unregulated fishing (Illegal, Unreported and Unregulated Fishing Regulation; EU 2008b). Where a third country is included on the EU's list of non-cooperating third countries (given a 'red card'), fishing vessels flying the flag of that third country are subject to a range of penalties, including a prohibition on importing fisheries products into the EU (Illegal, Unreported and Unregulated Fishing Regulation (EU 2008b), Article 38 for the full range of penalties). In this example of country-level territorial extension, fisheries products caught by a vessel flying the flag of a non-cooperating third country cannot be imported into the EU regardless of how these products have been caught. Thus, even 'innocent' products that have been caught in an environmentally sustainable manner will be excluded from the EU market because the country of origin has failed to comply with EU law.

In other examples of country-level territorial extension, the EU provides different possible routes towards compliance with EU law: offering the option of 'transaction-level' or 'country-level' compliance. For example, in the EU's timber regulation (EU 2010), individuals shipments of timber may be exempted from the EU's due diligence requirements where the timber originates in a country that has concluded a Voluntary Partnership Agreement with the EU (EU 2010, Article 3). The conclusion of an agreement of this kind offers a fast lane ('green lane') into the EU. Similarly, when the EU decided to include extraterritorial GHG emissions from aviation in its emissions trading scheme (Aviation Directive 2008; EU 2008a), it provided an exemption for incoming flights that started their journey in a country that had measures equivalent to those of the EU to reduce the climate change impact of flights. Where a flight started in a country not covered by this exemption, it was

required to surrender emissions permits to cover the GHGs emitted during the course of the flight.

As in the example of the Aviation Directive (EU 2008a), attempts by the EU to reduce its environmental footprints by regulating the ‘upstream’ environmental impacts associated with EU consumption have sometimes proved to be extremely controversial. Such was the scale of the international opposition provoked by the EU’s Aviation Directive that the EU has for the time being passed a law that has suspended the application of this Directive to flights that begin or end their journey outside of the European Economic Area (Sandbag 2013 for a good discussion of the original decision to ‘stop-the-clock’ or suspend the application of this Directive).

Less well known is the example of the EU’s Fuel Quality Directive (EU 2009b) in relation to which the EU has also backed down in the face of international opposition. This Directive requires a 6% reduction in GHG emissions from fuel for certain types of transport, including fuel used by road vehicles, from 2020 (EU 2009b, Article 7(a)(2)). It provides that this reduction is to be measured by reference to lifecycle emissions and calculated according to a methodology to be elaborated by the European Commission (EU 2009b, Recital 38 and Articles 7(a)(2)(c) and 7a(5)). The Commission’s proposed methodology established a ‘default value’ for GHG emissions from different kinds of fuel including a default value for fuel derived from bitumen (‘tar sands’) that was 22% higher than that for conventional crude oil. This reflected the higher upstream emissions associated with this fuel source due to the extra energy that is required to extract and refine bitumen. Although early in the process, the Commission was reported to have ‘faced down’ the tar sands industry (Nelsen 2011), ultimately the Commission’s methodology for calculating the lifecycle emissions of transport fuels was not adopted (Carrington 2012). While the Commission obtained substantial external support for its proposal (see letter from Froman 2013), Canada and the United States were both very active in communicating their opposition to it (Carbon Briefing 2013). As things stand, and contrary to the Commission’s proposed methodology, current EU ‘default values’ for transport fuels do not distinguish between conventional and high-carbon source fuels.

4 Is Territorial Extension Lawful?

Notwithstanding the hotly contested nature of some EU environmental measures that give rise to territorial extension, and despite frequent claims to the contrary, both the Court of Justice of the EU and the Appellate Body of the World Trade Organisation have adopted a permissive stance in relation to measures of this kind, regarding them as lawful subject to their being carefully designed. This is an important point because legal arguments are often used, including by the European Commission itself to counter demands for territorial extension in EU environmental law. It is the issue of legality that this chapter now turns.

4.1 *The Court of Justice of the European Union*

The Court of Justice of the European Union (CJEU) has upheld the validity of EU measures giving rise to territorial extension and has interpreted EU legislation as applying to conduct that takes place outside of the EU. Its judgment in the *Air Transportation of America* case is both important and well known (CJEU 2011). Here, the CJEU upheld the validity of the EU's Aviation Directive (EU 2008a) including extraterritorial GHG emissions from aviation within the scope of its emissions trading scheme. The Court concluded that the directive did not infringe the principle of territoriality in customary international law because it only applied to aircraft landing or taking off from an EU airport. Given that these aircraft are physically present within the territory of an EU Member State, they are subject to the 'unlimited jurisdiction' of the EU and its Member States (CJEU 2011 para. 124). While the CJEU emphasized that the EU's climate change objectives 'follow on' from an international agreement to which the EU is party, and that even extraterritorial GHG emissions generate effects that will be felt within the EU (CJEU 2011 paras. 128–129), it did not make it clear whether either of these factors should be regarded as necessary conditions for upholding the validity of this EU measure giving rise to territorial extension.

However, more recent cases concerning animal welfare suggest that this is not the case. For example, in the *European Federation for Cosmetics Ingredients* case (CJEU 2016), the CJEU interpreted the EU cosmetics regulation as applying not only to animal testing on cosmetics and cosmetics ingredients within the EU but also to imported cosmetics and cosmetics ingredients which have been subject to animal testing outside of the EU. Here, the EU regulations did not 'follow on' from an international agreement (though in validating and adopting alternatives, the animal testing the EU is required to pay due regard to the development of validation in the OECD) and there was no suggestion in the Court's judgment that animal testing conducted outside of the EU would generate negative environmental effects that would be felt within the EU. The Court did, however, stress that attainment of the Regulation's objective of promoting the use of non-animal alternative methods of testing, and phasing out animal testing in the cosmetics sector, would be 'seriously compromised' if manufacturers could escape the prohibitions it laid down by shifting animal testing to a location outside of the EU (*European Federation for Cosmetics Ingredients*, CJEU 2016, para. 42). The Court nonetheless limited the application of the EU Directive to circumstances in which the results of animal testing had been relied upon by a manufacturer to satisfy product safety requirements within the EU. Thus, the fact that a company had tested its products on animals in order to meet safety requirements in third countries would not preclude them from marketing these products within the EU.

4.2 *The Appellate Body of the World Trade Organisation*

Although the CJEU has not sought to curtail efforts by the EU to use territorial extension as an instrument to shape foreign conduct or foreign law, it is sometimes suggested that the World Trade Organization (WTO), with its quasi-judicial system for the settlement of disputes, has adopted a more restrictive approach. Although some legal ambiguity remains, the WTO Appellate Body has been willing to accept that regulatory measures may be lawful even where they differentiate between products on the basis of the manner in which the products have been harvested or produced (Marin Duran 2015).

This is apparent from the famous *Shrimp-Turtle* case concerning U.S. import restrictions on shrimp products that had been harvested in a manner that posed a threat to endangered species of sea turtles (WTO 1998). This dispute was brought by India, Malaysia and Thailand against a U.S. measure which imposed a ban on shrimp and shrimp products from countries that did not meet US standards regarding the use of turtle exclusion devices that are designed to ensure that turtles are not killed as a ‘by-catch’ of shrimp fishing. The measure in question gave rise to territorial extension in that it sought to govern fishing methods used outside the territory of the United States. Here, the Appellate Body adopted a permissive stance in relation to what are known as ‘non-product related production process methods’ (npr-PPMs) in trade law jargon, albeit that it laid down a number of conditions that were designed to ensure that WTO Members do not act in an abusive or arbitrary manner.

Nonetheless, the clarity of the *Shrimp-Turtle* report was diminished by the Appellate Body’s refusal to pass judgment on the question of whether npr-PPMs measures which aim exclusively to protect environmental resources outside of the territory of the regulating state may be justified under the GATT’s general exception in Article XX. The Appellate Body avoided addressing this question by observing that in the circumstances of the specific case before it, there was a ‘sufficient nexus’ between the United States and the sea endangered species of sea turtles because the species of turtle in question were known to occur in waters over which the US exercised jurisdiction (WTO 1998, para. 133). It went on to add that ‘it is not claimed that all populations of these species migrate to, or traverse, at one time or another, waters subject to United States jurisdiction’ (WTO 1998, para. 133).

At the very least, the *Shrimp-Turtle* case supports the conclusion that where transboundary or global environmental issues are at stake, carefully designed npr-PPM measures which give rise to territorial extension may be considered to be compatible with WTO law. What counts as a ‘global’ environmental issue is a question of construction rather than a question of brute fact. Biodiversity, for example, is considered to be a manner of ‘common concern of humankind’, even in respect of biological resources that are situated within the territory of a single state (Convention on Biological Diversity, UN 1992, Preamble).

In *Shrimp-Turtle*, the Appellate Report is also ambiguous about whether it would object to country-level territorial extension even where a measure is sufficiently flexible to allow for the recognition of equivalent foreign regulatory programmes,

which are comparable in effectiveness to those of the United States (WTO 1998, para. 165). However, its later compliance report in this case suggests that even carefully designed measures giving rise to country-level territorial extension may be regarded as compatible with WTO law (WTO 2001, para. 5.143).

Two more recent Appellate Body (AB) reports lend support to the argument that it is, in principle, lawful for states to enact trade-related environmental measures to protect environmental resources situated in other countries. First, in the *Tuna-Dolphin* labelling case (WTO 2012), the AB examined the lawfulness of a US measure, which laid down conditions for tuna sold in the US market to be eligible to be labelled as 'dolphin-safe'. One objective of this measure was to contribute to the protection of dolphins, 'by ensuring that the US market is not used to encourage fishing fleets to catch tuna in a manner that adversely affects dolphins' (WTO 2012, para. 337). At no point in its analysis did the AB suggest that it is not legitimate for the United States to take steps to protect dolphins occurring in waters not under its jurisdiction. While the AB conducted an exhaustive legal evaluation of the measure to ascertain whether it was discriminatory and/or more trade restrictive than necessary to achieve its objectives (WTO 2012, paras. 200–299 and 324–342) it implicitly rejected Mexico's argument that the measure should be condemned on the basis that it pursued a 'coercive objective' because it sought to 'coerce' Mexico 'to change its practices to comply with the unilateral policy of the United States' (WTO 2012, paras. 335–338).

Second, in *EC – Seals*. (WTO 2014) the AB assessed the WTO-compatibility of the EU's 'seal regime' ('Seals Regulations', EU 2009d). Subject to a number of exceptions, this regime prohibited the placing of seal products on the EU market. As in the *Shrimp-Turtle* case (WTO 1998), the AB decided to avoid addressing the question of whether there is an implied jurisdictional (territorial) limitation in the GATT's general exception, and whether it may ever be lawful for a Member to take steps in order to protect the environmental resources of other countries, particularly in situations where the exploitation of these resources does not generate transboundary or global environmental harms. In *EC – Seals*, the AB was able to avoid addressing this issue 'of systemic importance' by concluding that '[t]he principal objective of the EU Seal Regime is to address EU public moral concerns regarding seal welfare, while accommodating IC [indigenous communities] and other interests so as to mitigate the impact of the measure on those interests' (WTO 2014, fn. 1191). The AB therefore 'territorialized' the EU's objective by focusing on the moral objections of EU citizens and consumers regarding the consumption of seal products rather than upon the welfare of the seals themselves. Moreover, as others have observed (Cooreman 2017, Howse et al. 2014), the AB adopted a generous reading of the public morals exception included in the GATT's general exception in Article XX(a). For example, it not only recognized that Members 'should be given some scope to define and apply for themselves the concept of public morals according to their own systems and scales of values' (WTO 2014, para. 5. 119) but also that there is no obligation for Members to treat similar moral concerns in a similar way (WTO 2014, paras. 5.200–5.201). Thus, even if terrestrial wildlife hunts and the treatment of animals in slaughterhouses raise

moral concerns among EU citizens and consumers that are comparable to those raised by seal hunting, there is no obligation for the EU to achieve consistency in its manner of responding to these concerns.

Despite the permissive approach of the Appellate Body, there remain areas of ambiguity. As already noted, the AB has avoided addressing the question of whether a territorial nexus is required between a regulating state and its object of protection. It is also possible to argue on the basis of the *Shrimp-Turtle* report that the Appellate Body may object to country-level territorial extension where the measures are not sufficiently flexible to take account of the different circumstances prevailing in different countries.

5 Appraising Territorial Extension in EU Law: Can the Concept of Complicity Help?

The concept of territorial extension, and the cases highlighted above, raise the fundamental question of how responsibility for preventing environmental harm ought to be apportioned between states. Both the CJEU and the Appellate Body come to the conclusion that it is lawful for consumption states to take steps to reduce upstream environmental pressures that are embodied in imported goods, even where these pressures are felt in other countries. At the same time, however, neither the CJEU nor the Appellate Body take the view that consumption states should be regarded as enjoying exclusive jurisdiction in respect of these upstream environmental pressures, and they therefore favour an approach which accepts that the jurisdiction of production and consumption states may overlap.

Several arguments may be cited in favour of consumption states exercising regulatory jurisdiction over upstream environmental pressures embodied in imported goods. For example, where measures giving rise to territorial extension incorporate international standards, the consumption state can play a role in contributing to the effective enforcement of these international standards (Cooreman 2017; Suttle 2017). Equally, where there are no international standards, measures giving rise to territorial extension may serve as a catalyst to encourage their development. We have seen this in relation to EU measures concerning extraterritorial GHG emissions from international aviation and shipping (Aviation Directive 2008, EU 2008a, and Shipping Regulation, EU 2015). While it is still appropriate to criticize the low level of ambition inherent in steps taken by the International Civil Aviation Organization and the International Maritime Organization to fill the long-standing regulatory void pertaining to GHG emissions from international aviation and shipping, we are certainly further forward now that we would have been in the absence of EU initiatives giving rise to territorial extension.

However, the final section of this paper will focus on a relatively neglected argument in favour of territorial extension. Environmental footprint studies are pertinent to the elaboration of this argument which is premised upon the concept

of complicity, understood as a moral rather than as a legal category for the purpose of this discussion (on complicity as a legal category in international law see Jackson 2015).

This section relies upon the understanding of complicity developed by Lepora and Goodin (2013 p. 41) where they define this concept as 'being implicated in another's wrongdoing. In keeping with this, these authors define a complicit actor as a secondary agent who is implicated in wrongdoing that has been committed by a primary agent. According to their understanding, for an act to count as a complicit act, three elements must be present (Lepora and Goodin 2013 chapter 6). First, the action of the secondary agent must contribute or have the potential contribute to the wrongdoing by the primary agent. Second, the secondary agent must know that his or her action has the potential to contribute in this way. Third he or should must know that what the primary agent is doing is wrong. For the secondary agent to be deemed to know that what the primary agent is doing is wrong or that his or her own action has the potential to contribute to it causally, it is sufficient that he or she could and should have known. That is to say, the secondary agent 'should have invested enough time and effort to have found [these things] out' (Lepora and Goodin 2013 p. 104). Where the secondary agent performs an act involuntarily, for example, under duress, it will still count as a complicit act if these three conditions are met. However, where the act is wholly involuntary, the secondary agent will not be regarded as morally blameworthy (Lepora and Goodin 2013 p. 104–105).

For the purpose of this discussion, it is important to observe that Lepora and Goodin accept that a secondary agent may be complicit in wrongdoing as a result of an act that takes the form of an omission (Lepora and Goodin 2013, pp. 45 and 52). Thus, a failure on the part of the EU to take available steps to prevent or minimize the risk that consumption within the EU will contribute to environmental wrongdoing in third countries is capable of constituting a complicit act where the conditions set out above are met. They also consider that it is for a potentially complicit agent to make a judgment about what counts as wrongdoing. Of course, there may be disagreement about which kinds of environmental damage or harm should be regarded as wrongdoing. This is particularly the case in relation to aggregative harms such as climate change, where there is profound disagreement about how the burden of tackling climate change should be distributed between states. In light of this, it is hardly surprising that the EU will often base its measures giving rise to territorial extension on standards that are enshrined in international law. In the case of the EU's Timber Regulation (EU 2010), the relevant 'legality' standards are in the first instance drawn from the domestic law of the third country in which the timber originates.

Having regard to the conditions for complicity identified by Lepora and Goodin, it is clear that the availability of more reliable and detailed information about the EU's environmental footprints has the potential to contribute to the EU being complicit in environmental wrongdoing in third countries. In particular, this information can help to ensure that the knowledge conditions for complicity are met. Increasingly, the EU could and should know that this wrongdoing is taking place and that its failure to regulate consumption practices within its territory has the potential to contribute to it. From this perspective, the EU is playing an active role, albeit a

secondary role, in environmental wrongdoing in third countries. It is contributing to this wrongdoing rather than simply passively standing by as it takes place.

Having regard to Lepora and Goodin's thoughtful elaboration of the concept of complicity, can help us to understand better the intuition inherent in the title of a report by the non-governmental organization FERN: 'Stolen Goods: The EU's Complicity in Illegal Tropical Deforestation' (FERN 2015). Their elaboration of this concept can also assist in 'grading complicity'. This is because Lepora and Goodin (2013) identify a number of criteria to assist in determining how much blame ought to attach to a complicit agent. Several of these criteria are multi-faceted and they are often combined in an intricate way. Nonetheless, broadly the level of blame attaching will depend upon four factors. First, the 'badness factor', namely how morally bad the principal wrongdoing is (Lepora and Goodin 2013 pp. 103–104). Second, the 'contribution factor', namely whether a secondary agent's actions may a definite causal contribution or merely a potential causal contribution to the primary agent's wrongdoing (Lepora and Goodin 2013 pp. 104–107). Third, the 'responsibility factor', namely whether the secondary agent's action was entirely voluntary or merely more-or-less voluntary (Lepora and Goodin 2013 pp. 104–105). Finally, the 'shared purpose factor' which concerns the extent to which the secondary agent approves the principal agent's wrongdoing and shares his or her wrongful purpose (Lepora and Goodin 2013 pp. 107–109).

None of this is to suggest that it will be straightforward to apply the concept of complicity in assessing the extent of the EU's responsibility environmental wrongdoing associated with consumption within its territory. This will be particularly challenging in a context in which there is frequently disagreement between countries about what constitutes environmental wrongdoing and about how to strike an appropriate balance between the realization of different and sometimes competing objectives, including environmental protection, economic development and social welfare. Nonetheless, it is relevant to note that Lepora and Goodin's framework recognizes that complicit acts will sometimes contribute simultaneously to achieving good as well as bad outcomes. It is for this reason that they insist that there are occasions when being complicit will 'on balance' be the right thing to do (Lepora and Goodin 2013 pp. 112–113). Therefore, in order to determine the blameworthiness of a complicit act, it is not only necessary to 'grade' this act in accordance with the factors identified above, but also to balance the wrongdoing inherent in it with the good consequences which flow from it. Lepora and Goodin also recognise the relevance of distributive considerations, arguing that it will be easier to justify a complicit act where the good consequences caused by it accrue to the same persons who suffer the act's negative consequences (Lepora and Goodin 2013 p. 112).

This observation lends itself to one final and critically important remark. Scrutiny of the impact assessment reports prepared by the EU in advance of enacting measures giving rise to territorial extension in the environmental domain suggests that the EU is not sufficiently attentive to the negative consequences for third countries of adopting measures of this kind. The EU does not appear to make an effort to balance with sufficient care the negative and positive consequences of its interventions in order to make a well informed 'on balance' assessment of when its

role as a complicit agent may be justified and when, on the contrary, the negative consequences associated with its consumption practices clearly outweigh the positive consequences which ensue (for a fuller discussion see Hadjiyianni 2019; Scott 2019).

We can illustrate this point by reference to the example of the EU's Regulation on Ship Recycling (Ship Recycling Regulation; EU 2013). The impact assessment accompanying the Commission's proposal for this contained quite a balanced overview of the advantages and disadvantages for developing countries of ship recycling that is undertaken in poorly regulated conditions (European Commission 2012). However, in its assessment of the impacts of the different options for EU regulation, there was little emphasis upon possible negative third country impacts. When 'social impacts' in third countries were evaluated, emphasis was placed on positive impacts concerning the reduction of fatal and non-fatal accidents among workers rather than upon the social implications of declining employment opportunities for vulnerable migrant groups (European Commission 2012, Section 5.3.2.2.). There was likewise no discussion of the trade-offs between workers, villagers and fishing communities (Demaria 2010). The section on economic burdens included a discussion of the impacts on EU shipowners, the administrative burden for EU Member States, consumers, small and medium sized enterprises in the EU and the EU budget. However, it did not appraise the likely economic impacts on developing countries. While there was a recognition that all recycling facilities in third countries would have to be upgraded to comply with EU requirements, there was no discussion about how the costs of this would be met. This was viewed as presenting a potential compliance problem in that it might result in some 'international opposition' (European Commission 2012, Section 5.8.5).

In similar vein, we have criticized the EU previously for failing to reflect the principle of common but differentiated responsibilities and respective capabilities (in light of different national circumstances) into account in designing environmental measures giving rise to territorial extension (Rajamani and Scott 2012). However, as the discussion of Lepora and Goodin's elaboration of complicity makes clear, this concept is sufficiently attentive to distributive concerns and to striking an appropriate balance between the good and bad outcomes that flow from complicit acts. In this respect, while the concept of complicity may sometimes serve to justify EU measures giving rise to territorial extension, it can also serve as a launching pad to criticize and improve EU measures of this kind.

6 Conclusion

The EU is using a large share of world resources that contribute to environmental and climate degradation but this is often hidden through the offshoring of environmental pressures through international trade. It is therefore crucial to mitigate the global pressures associated with EU consumption and this can be achieved both through multilateral environmental agreements and through measures giving rise to

‘territorial extension’. The latter has been judged legal within relatively tight, but still uncertain, limits. While territorial extension has the potential to impact positively on both the resource efficiency of EU imports and on the reduction of their embodied upstream environmental consequences, it can also fail to balance these gains against economic and social costs in third countries. Using the concept of complicity might be a way to recast this debate in a way that provides an overarching framework to evaluate when and how the EU ought to intervene in this way. This concept serves crucially to situate the EU as an agent with moral responsibilities in relation to the global environmental pressures generated by consumption within its territory, but also to underscore the necessity for the EU to evaluate and take steps to mitigate the negative consequences of EU regulation for third countries. The concept of complicity can provide guidance in elaborating the procedural and substantive conditions that ought to underpin territorial extension in the environmental domain.

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Resilience: Is Sustainability Dead?



Trevor Daya-Winterbottom

1 Introduction

Sustainability emerged as a principle or concept of international environmental law during the period leading up to the United Nations Conference on Environment and Development (Rio de Janeiro 1992). Generally, the Brundtland Report (1987) provides the commonly accepted definition of “sustainable development”, namely, “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Overall, sustainable development as encapsulated in Principle 3 of the Rio Declaration (1992) reflects a broad range of procedural and substantive commitments, including, consideration of present and future generations, an acceptance of environmental limits, the need to integrate environmental considerations into all aspects of development, and the need to apply environmental law in an integrated and coherent way. These trends influenced the debate during the period 1988–1991 regarding the reform and restatement of New Zealand’s environmental statutes. This paper therefore maps (as a case study) the implementation of sustainability in New Zealand.

2 Sustainable Management

New Zealand legislated for sustainability by enacting the Resource Management Act 1991 (New Zealand Parliament 1991, in the following short “RMA”). The RMA received the Royal Assent on 22 July 1991 and came into force as law on 1 October

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1991. It restated and reformed “the law relating to the use of land, air, and water”,¹ and is the principal statute governing the New Zealand environment.² The RMA has now been in the statute book for over 27 years, but notwithstanding its pre-eminence it has been amended significantly on 17 occasions. However, the reforms have focused on process (cost and delay and simplifying and streamlining the RMA) rather than principle (Daya-Winterbottom 2004a, b). Thus notwithstanding this intense legislative and policy activity, the overarching statutory purpose in section (s) 5 of the RMA, sustainable management, has in practice remained off-limits to reform (Dawson 2016). This chapter challenges the legitimacy of this approach and asks the fundamental question: *whether sustainability remains relevant as the guiding ethic for environmental law in a changing world increasingly dominated by the effects of climate change?*

The statutory purpose of the RMA is “to promote the sustainable management of natural and physical resources”.³ “Sustainable management” is defined in s 5(2) of the RMA as meaning:

... managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while-

- (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
- (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

The statutory purpose of sustainable management in s 5 is supplemented by “a set of hierarchical principles” in subsections (ss) 6–8 of the RMA that are designed to provide “guidance” on the meaning of sustainable management (Whiting 2013, p. 290f). They provide a set of national policies designed *inter alia* to protect indigenous biodiversity, maintain freshwater quantity and quality, and recognise Maori interests in resource management. Palmer observed from the statutory language used in these provisions that they are designed to be “interpreted and applied as an integral part of achieving the overall statutory purpose defined by s 5” (Palmer 2011, p126f). Section 5 permeates the RMA and is given effect to by the preparation of a hierarchy of policy statements and plans, and when making decisions on resource consent applications. When exercising any of these functions, the relevant Ministers and local authorities are required to do so in a way that will achieve the statutory purpose of promoting sustainable management.⁴ Environmental governance is largely devolved to local authorities that, absent Ministerial intervention by preparing national policy statements, have largely been left free to administer the RMA in a policy vacuum.

¹RMA, preamble.

²Other statutes governing the New Zealand environment are listed in the schedules of the *Environment Act* 1986 and the *Conservation Act* 1987.

³RMA, s 5(1).

⁴RMA, s 45, s 56, s 59, s 63, s 72, and s 104.

2.1 The Philosophical Basis for New Zealand Environmental Law

The RMA has impeccable international antecedents. For example, Whiting (2013, p. 290f) noted that:

The Act reflects many of the international community's concerns about the environment, expressed through international conferences from the Stockholm Conference in 1972 to the Rio Declaration in 1992, including such fundamental principles as:

- sustainability;
- intergenerational equity;
- ecological diversity;
- community wellbeing; and
- recognition of indigenous rights.

Salmon (1992) also outlined the strong philosophical basis that underpins modern environmental and resource management law in New Zealand. He referred to traditional common-law approaches to environmental protection based on the law of nuisance, and observed that “what has been completely absent is the concept of mankind as an integral part of the world in which we live, of a relationship between all living things” (Salmon 1992, p. 2). Building on the work of Sax (“The Law for a Liveable Planet” 1989) in relation to an ecosystems approach to environmental and resource management law, Salmon (1992, p. 2) considered that the “challenge for the legal system of the future” is to be “creative” and “concerned with the functional integrity of the earth”. He concluded that (Salmon 1992, p. 2):

... there can hardly be a more important or responsible task than to ensure that our legal systems and the philosophies and controls that they enshrine are adequate to provide for this growing awareness of the interrelatedness between people and the earth on which we rely for survival.

2.2 The Meaning and Role of Sustainable Management

Upton (2012, p. 29) addressed the “meaning and role” of sustainable management. In particular, he focused on subparagraphs (a), (b), and (c) in s 5(2) of the RMA and expressed the strong view that they provide “non-negotiable” bottom lines that must be met in all cases. However, Upton (2012, p. 35) was careful to qualify this statement in light of criticism from the Business Roundtable that suggested that the RMA “imposes a stern, green, straight-jacket on all economic activity”. He stressed that s 5 “creates an ethic”, that its implementation will be “a matter for social and political choice”, and that it is not a “green juggernaut” that will “cause large social and economic dislocation” overnight (Upton 2012, p. 29f). Upton’s (2012) paper provoked an intense philosophical debate about s 5.

For example, Grant (2012) noted the defining architectural features of the RMA: the holistic approach to all three environmental media, air, land, and water; the substantive implementation of s 5 via the requirements in s 32 (strategic environmental impact assessment) and s 104 (decision-making criteria) so as to give effect to the statutory purpose when preparing plans and making resource consent decisions; and the focus on the management of natural and physical resources, rather than environmental protection in a more general sense. Grant then considered the specific provisions in subparagraphs (a), (b) and (c) of s 5(2) of the RMA, and observed the importance of these provisions in providing an “ethical basis” for sustainable management. He agreed with Upton, that decision-makers are “legally obliged” to consider both parts of s 5(2) contemporaneously, i.e. they constrain the manner in which people and communities are enabled to provide for their own wellbeing; but he did not agree with Upton that these subparagraphs are a fixed, non-negotiable, bottom line. Instead, Grant (2012, p. 40f) considered that:

The true position seems to me to be that it is only at an abstract level that section 5 can be said to embody a single “ethic”, and that it in fact captures a variety of different environmental values which are not necessarily in accord with each other. This means that, whilst discretionary power under the Act is not to be exercised in a vacuum, section 5 does not provide anything like a clear framework for decisions, and that trade-offs are indeed necessary when it comes to designing and implementing the necessary management strategies.

Overall, Grant concluded that sustainable management operates as an environmental ethic “at a strategic level”, that it includes a range of competing values that may not be reconciled in all cases, and that “strong commitment” will be required to implement the concept.

Grundy in contrast (writing previously) found a strong philosophical argument for a moral or ethical basis for sustainable management. However, he found a stark contrast in practice arising from the almost exclusive “effects-based” emphasis placed on addressing externalities by Upton. This observation led Grundy (1995, p. 9) to conclude that:

... by effectively denying the relevance of intergenerational equity and ecological sustainability in its interpretation of sustainable management, the neo-liberal approach threatens to emasculate the very concept of sustainability and render it devoid of any useful meaning as an intellectual construct, system of ethics, or as an object of public policy.

These papers illustrate the strong philosophical debate as to whether the extended definition of sustainable management in s 5(2) of the RMA should be read and interpreted in a conjunctive or disjunctive way. Semantic difficulty arose from the central position of the word “while”, directly in between the liberal enabling theme and the list of environmental bottom lines in paragraphs (a) to (c). Did the section require balancing between the liberal and environmental themes, or were the environmental bottom lines absolute requirements that must be met in all cases?

2.3 Overall Judgment Approach

The debate was initially resolved by the Environment Court (1997) decision in *North Shore City Council v Auckland Regional Council* where the Court was required to evaluate conflicting considerations regarding the urbanisation of the Okura Estuary, north of Auckland, in the context district plan zoning. The Court held (1997, p. 94) that:

Application of s 5 . . . involves consideration of both main elements of s 5. The method calls for consideration of the aspects in which the proposal would represent management of natural and physical resources in a way or at a rate which enables people and communities to provide for their social, economic and cultural wellbeing, health and safety. It also requires consideration of the respects in which it would not meet the goals described in paras (a), (b) and (c).

The method of applying s 5 then involves an overall broad judgment of whether a proposal would promote the sustainable management of natural and physical resources. That recognises that the Act has a single purpose . . . Such a judgment allows for comparison of conflicting considerations and the scale or degree of them, and their relative significance or proportion in the final outcome.

The decision in *North Shore* and the “overall judgment” approach articulated by the Environment Court and subsequently adopted by all other New Zealand courts as the classic definition of sustainable management in practice during the period 1997–2014 provided a neat but problematic response to this fundamental concept. For example, Grinlinton (2002, p. 26f) pursued the “difficulty” posed by the definition of sustainable management further and found that it is divided into “two main elements”:

First, a “management” function, which anticipates both utilisation and protection of resources qualified by the overall objective of enabling people and communities to provide for their social and economic needs, and for their health, safety and cultural values. Clearly, a balancing exercise is required of authorities and decision-makers in exercising policy-making, planning or consent-granting powers. This “management” function is qualified by a strong “ecological” function, incorporating a responsibility to sustain the potential of resources to meet the needs of future generations (intergenerational equity), to safeguard the present life-supporting capacity of the biosphere; and to avoid, remedy or mitigate adverse effects on the environment.

He also drew attention to the shift from “balancing” competing considerations to making a more “neutral”, “overall broad judgment”, when resolving environmental conflict; and noted the function of the principles in ss 6 and 7 of the RMA “that define and elaborate the sustainable management purpose” by reference to “a set of guidelines reflecting current government policy” (Grinlinton 2002, p. 26f).

Similar to Grinlinton, Bosselmann (2006, p. 157f) observed that s 5 of the RMA includes two principal themes: a “management function” and an “ecological function”. He found that the management function was “neutral” in terms prioritising the range of values catalogued in the definition of sustainable management, but found that the “distributive” or allocative function that permeates s 5(2) of the RMA was consistent with an “ecocentric” approach to resource management. He also found

that the link between these concepts could be grammatically confusing, and noted that (Bosselmann 2006, p. 157f):

... crucial for ... interpretation is the proper meaning of the little word “while” between management and ecological functions and the proper linking of the remaining sections (6 to 8). There has been a lot of debate whether “while” introduces the ecological functions as being superior or as being subordinate to the management functions. The former is referred to as “ecological bottom-lines”, the latter as an “overall judgment approach”.

Dovers and Connor (2006, p. 39) when considering a principled approach to “policy and institutional change” observed that the RMA was “the world’s most significant example of national-scale legislative, organisational and policy reform driven by sustainability concerns”. They noted the investment made in high quality debate during the 1988–1991 Resource Management Law Reform (RMLR) process, but expressed considerable concern about the implementation of the statute and found that (Dovers and Connor 2006, p. 40):

... the RMA’s provisions for ongoing discussion and policy development through the preparation of national policy statements were largely neglected. Instead, debate over policy values was left largely to the courts. There are other spaces in the framework for ongoing debate at the regional and local levels, but those discussions are generally uninformed because of the failure to use the higher level opportunities to articulate sustainability values. The result of the neglect of this element of the sustainability puzzle is widespread discontent with the framework. There is a tendency to blame either the drafting of the Act as ambiguous or a lack of initiative by local government, but rather the discontent stems from the lack of elaboration of agreed national values in policy statements, and the empty core of the system where discourse over values could have continued.

Dovers and Connor (2006, p. 44) also noted the paradox between the “top-down approach” implicit in the RMA hierarchy of policy statements and plans and the failure of the relevant Ministers (on the whole) to provide national guidance about “sustainability values”, and observed that this had:

... required those implementing the policy and planning system at the local level to reinvent the wheel many times and left the public confused and disappointed.

Dovers and Connor (2006, p. 46f) also noted that the “most interesting lesson” from s 5 of the RMA had been the manner in which the section was used as a vehicle for ongoing debate about “what sustainability means”, but they observed that this framework had provided the catalyst for litigation, and they concluded that contestability was “inevitable” given the “multiple values” included in s 5 and the resulting “uncertainty” about the meaning and effect of sustainable management. Williams (2012, p. 22) also concluded that while policy statements and plans could fill this vacuum, the “reality” was that “they do not”, and he observed that:

This means that competing interpretations of sustainability have to be fought out at all consents that go to a council hearing or the Environment Court.

While there remains incomplete coverage in terms of providing national direction via policy statements prepared by the responsible Ministers, the courts have arguably introduced greater certainty into RMA decision-making in the period since 2014 by returning to Upton’s conception that the requirements in paragraphs (a), (b), and

(c) of s 5(2) of the RMA provide environmental “bottom lines” that must be met in all cases. This is a distinct move away from the “overall judgment” approach. For example, in the context of a plan change appeal the Supreme Court (2014) was required in *Environmental Defence Society Inc v The New Zealand King Salmon Company Ltd* to determine whether enabling additional marine farms in an area of significant landscape value in the coastal environment was acceptable. The Supreme Court (2014, para.151) found that:

Section 5 is not intended to be an operative provision, in the sense that it is not a section under which particular planning decisions are made, rather, it sets out the RMA’s overall objective. Reflecting the open textured nature of pt2, Parliament has provided for a hierarchy of documents the purpose of which is to flesh out the principles in s5 and the remainder of pt2 in a manner that is increasingly detailed both as to content and location. It is these documents that provide the basis for decision-making, even though pt2 remains relevant. It does not follow from the statutory scheme that because pt2 is open textured, all or some of the planning documents that sit under it must be interpreted as being open textured.

Essentially, interpreting subsidiary policy statements and plans in an “open textured” way under the “overall judgment” approach could allow an applicant to circumvent the detailed implementation of sustainable management articulated in these statutory planning documents. The Court therefore found that absent invalidity, incomplete coverage, or uncertainty, policy statements and plans should be given full weight in decision-making. As a result, the Court found that additional marine farms should not be enabled in the sensitive coastal environment of the Marlborough Sounds because the relevant (higher level) policy statements required that adverse effects should be avoided.

2.4 Theoretical Framework for Resilience

US legal academics have drawn attention to irreversible biodiversity loss and climate change effects, arguing that these intractable issues bring the continued relevance of sustainability into question (Craig 2010; Craig and Benson 2013; Robinson 2015). From an ecological perspective these authors argue that the natural environment is complex and non-linear, with a resulting mis-match between the theoretical and practical elements of sustainability (e.g. preservation, restoration and impact assessment) and the delivery of ecological integrity. They conclude that “resilience and adaptation” would likely provide more useful metrics for the Anthropocene, our human dominated era, where the natural environment, and the conditions which are likely to affect it, are radically uncertain and increasingly non-stationary. New Zealand science writing also reflects a move away from linearity and an increased focus on complex systems and uncertainty about the character, intensity, and scale of adverse effects. For example, Gluckman (2016, p. 9f and 20) has argued that there is a need for a more scientifically engaged public debate to optimize the role of science in legislation and opined:

Fundamentally, with science and the law we are dealing with two very *different* epistemologies [that cannot be ignored] ...

...
Law is largely based on dealing with issues of societal and personal values ... by creating values-based rules that deal with behaviour, property and resources. Science on the other hand is a formal set of processes to develop relatively objective information about the world around us and within us. [Emphasis added]

From a different perspective, Vinuales (2016) noted that while environmental considerations feature more prominently today in international and policy agendas than hitherto, the tension between sustainability and development remains unresolved. As a result, they concluded that fresh thinking is required to move beyond sustainability (e.g. to ecological integrity), and observe that this is “the most important frontier in contemporary ... environmental law”.

2.4.1 Principles and Constitutionalism

Internationally, the impetus is to craft normative principles as catalysts for change within national jurisdictions that respond to global environmental issues. Generally, both doctrinal and theoretical writings converge on the need to develop principled approaches to environmental law more appropriate to the Anthropocene (Bosselmann 2015, p. 44). Beyond that, there is no clear mechanism for reform, with some authors (May and Daly 2017; and Palmer and Butler 2016) suggesting that transformative constitutional reform is required, and other authors (e.g. Biber 2017) drawing attention to the need to reform both environmental statutes and other related areas of law (e.g. obligations). For example, Palmer and Butler (2018, p. 163f) have proposed a written constitution for New Zealand that includes an environmental right in art 26, namely:

- (1) Everyone has the right
 - (a) To an environment that is *not* harmful to their health or well-being; and
 - (b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures
- (2) The Commissioner for the Environment *may*, if ... appropriate ... conduct or intervene in litigation ... [Emphasis added]

However, the negative definition of the right to a clean environment in art 26(1) of the proposed New Zealand written constitution is arguably weaker than its counterpart in other constitutions. For example, art 112(1) of the Norwegian Constitution (Norwegian Stortinget 1814) provides more positively that everyone “has the right to an environment that is conducive to health”. Similarly, art 112(3) of the Norwegian Constitution imposes a requirement on public authorities to implement the rights in art 112, and in contrast art 26(2) of the proposed New Zealand written constitution merely provides a discretion for the Parliamentary Commissioner for the Environment to conduct litigation where he or she considers that to be appropriate. The

boldest constitutional approach was perhaps contained in the proposed Environmental Bill of Rights for Canada (Parliament of Canada 1973) that included a right for citizen action in the courts to “defend” any part of the environment, and while the Bill was not adopted in either Canada (or California as proposed) the methods in the Bill have more recently been included in the Ecuadorian Constitution (National Assembly, Republic of Ecuador 2008, arts 71, 73, and 74) and other South American constitutions (Colon-Rios 2015, p. 120f), and other jurisdictions have developed procedural and substantive rights to a clean environment via human rights provisions (e.g. Indian Constitution, art 24 (Parliament of India 1950), European Convention on Human Rights, art 8 (Council of Europe 1950)).

While other jurisdictions have either developed or interrogated principled and sophisticated approaches to environmental law, New Zealand has (as noted above) remained stationary notwithstanding its early (leading) attempt to legislate for sustainability.

This analysis of New Zealand environmental law reveals the conundrum that although international law is the primary external influence on the development of domestic law it appears to have little practical effect notwithstanding the position of the superior courts. For example, in *New Zealand Airline Pilots Association Inc v Attorney-General* Keith J articulated the classic common law position that legislation should (wherever possible) be implemented in a way that is consistent with international obligations (Court of Appeal 1997). He found that (Court of Appeal 1997, para. 293):

We begin with the presumption of statutory interpretation that so far as its wording allows legislation should be read in a way which is consistent with New Zealand’s international obligations . . . That presumption may apply *whether or not the legislation was enacted with the purpose of implementing the relevant text* . . . In that type of case national legislation is mutually being considered in the broader international legal context in which it increasingly operates. [Emphasis added]

While domestic environmental law has been strongly influenced by the legal outcomes from the Rio Conference on Environment and Development 1992, the legal system arguably lacks coherence notwithstanding the fact that “New Zealand passed the Resource Management Act in 1991 – legislation that comprehensively reformed environmental law to make it more *coherent*” [emphasis added] (Fisher 2017, p. 46). Ideally, according to Thornton and Beckwith (1997, p. 12):

Coherence in a legal regime may be said to come from the fact that the everyday *rules* of the regime are underpinned by a set of *principles*, and that these principles are in turn underpinned by an ethical *philosophy*. [Emphasis added]

It is perhaps not surprising that domestic environmental law in common law jurisdictions with an unwritten United Kingdom style constitution (e.g. New Zealand) lacks principles when the everyday rules used in the system are derived from a “vast” field of ordinary law including (Bonyhady and Christoff 2007, p. 3):

. . . constitutional law, administrative law, property law, criminal law, contract law, tort law, corporations law, trade practices law, insurance law, human rights and civil liberties law.

But as noted by Whiting (2013), New Zealand environmental law has impeccable philosophical underpinnings as demonstrated by Salmon (2007, p. 25) who argued that sustainable development should be the organizing principle for the development of coherent environmental legislation. He stated:

It is an ethic of society as is justice. It too should inform the legislative process and the relationship of human beings and organizations with each other.

In practice, New Zealand environmental law is based on international law principles, such as, sustainable management, the prevention principle, the precautionary principle, and the polluter pays principle. The influence of international environmental law is evident from a contextual analysis of the RMA but the principles themselves are not expressly referenced in the statute. For example:

- The classic Brundtland Report (1987) definition of the sustainable development, namely, “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” is encapsulated in s 5(2) (a) of the RMA that provides for “sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations”.
- The principle of prevention, namely, that consent holders should ensure that activities within their jurisdiction and control should respect the environment enjoyed by other persons or of areas beyond their control, is reflected in s 5(2) (c) of the RMA that requires that any adverse effects of activities should be avoided, remedied, or mitigated.
- The precautionary principle provides that where “there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation” (Rio Declaration 1992, principle 15). This principle is incorporated in s 32 of the RMA. It applies at a strategic level when the relevant Ministers or local authorities prepare policy statements or plans, and requires them to “assess the risk of acting or not acting if there is uncertain or insufficient information”. The principle is also applied at a subsidiary regional level, for example, Objective 2.5.2(f) of the Vision and Strategy for the Waikato River (Waikato Regional Council 2010) provides for:

The adoption of a precautionary approach towards decisions that may result in significant adverse effects on the Waikato River, and in particular, those effects that threaten serious or irreversible damage to the Waikato River.

- The polluter pays principle provides for the “internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution” (Rio Declaration 1992, principle 16). This principle is implemented via pt. 12 of the RMA that provides for declarations, enforcement (both civil and criminal), and ancillary powers.

2.4.2 The Global Pact for the Environment

Article 16 of the Global Pact for the Environment (UN 2017) provides for the principle of resilience, namely:

The Parties shall take necessary measures to maintain and restore the diversity and capacity of ecosystems and human communities to withstand environmental disruptions and degradation and to recover and adapt.

In response to the Global Pact for the Environment the UN General Assembly requested the Secretary General to prepare an “evidence based report that identifies and assesses possible gaps in international law and environment-related instruments with a view to strengthening their implementation” and submit it at the 73rd session in 2018 (UNGA 2018). The report identified a number of international environmental law principles, including, prevention, precaution, polluter pays, environmental democracy, cooperation, right to a clean and healthy environment, sustainable development, common but differentiated responsibilities and respective capabilities, and non-regression and progression – but did not identify “resilience” as a general principle of international environmental law (UN Secretary General 2018, p. 8f).

Notwithstanding this position, the Note on the UN Secretary General’s Report prepared by the working group of independent experts (welcoming the report) focused on resilience from the perspective of climate change and natural disasters. The note stated (Working Group 2018, p. 4):

Natural disasters are not new, but they are becoming more severe and more people are in harm’s way . . . Recognizing an international Principle of Resilience could animate States to adopt more effective national policies to avert, or prepare for and recover from natural disasters.

Consistent with the conclusion of the working group of independent experts, s 6 (h) the RMA provides “the management of significant risks from natural hazards” in the list of examples of what may be relevant for implementing sustainable management. To give effect to this principle the RMA also provides for effective policies to be put in place:

- by including “the avoidance or mitigation of natural hazards” in relation land use controls and controls on planting in river beds as part of the functions delegated to local authorities;⁵
- by requiring local authorities to keep “records of natural hazards” as part of their environmental monitoring functions;⁶
- by enabling local authorities to address the avoidance or mitigation of natural hazards in regional policy statements and plans;⁷ and

⁵RMA, s 30(1)(c)(iv), s 30(1)(g)(iv), and s 31(1)(b)(i).

⁶RMA, s 35(5)(i).

⁷RMA, s 62(1)(h) and s 65(3)(b)(c).

- by enabling local authorities to refuse consent for the subdivision of land in cases where the relevant local authority “considers that ... there is a significant risk from natural hazards”,⁸ and
- by empowering them to include conditions on any subdivision consent for the “protection” of land “against natural hazards”⁹ (including the ability to require the provision of 20 m wide esplanade reserves or strips along the coastline and along the banks of lakes and rivers to mitigate natural hazards).¹⁰

2.5 *Implications for Sustainable Management*

The implications of this discourse for sustainable management are that the concept of sustainable management cannot now be interpreted in a one dimensional way. For example, sustainable management does not (as stated in *North Shore* 1997) have a “single” purpose. It is clearly multi-faceted and forms part of a suite complementary and inter-dependent principles. This is evident from the Rio Declaration (UN 1992) and from the more recent articulation of international environmental principles in the Global Pact for the Environment (UN 2017). Reading international environmental law principles in this way reveals that sustainable management is not dead, but it is clear that other principles will sometimes be to the fore. Prevention plays an important role in ensuring that adverse environmental effects are avoided in appropriate cases (as opposed to being remedied or mitigated). Precaution also plays an important role in the preparation of policy statements and plans through the implementation of strategic environmental impact assessment. Likewise, the polluter pays principle plays an important role in underpinning statutory enforcement machinery.

Resilience clearly has an important role to play in relation to managing natural hazards. It is a key component of sustainability. The provision for the principle of resilience in the Global Pact for the Environment should therefore (more properly) be viewed as declaratory of an existing legal norm. The body of US legal writing about resilience and climate change reflects the link between this norm and natural hazards, how they should be managed, and how management regimes should be codified in law and reflected in policy statements and plans. Given the increasing number of natural hazards and events that are now linked by the scientific literature with the effects of climate change, resilience as a legal concept is likely to become increasingly more important. But as demonstrated by the analysis of sustainable management, focusing primarily on a single principle of international environmental law is unlikely to be appropriate. Resilience will play an increasingly more important role in responding to natural hazards generally, and the effects of climate change in particular. It may also (as suggested by Craig 2010) play an important role in halting

⁸RMA, s 106(1).

⁹RMA, s 220(1)(d).

¹⁰RMA, s 229(a)(v).

biodiversity loss. But resilience is likely to work to best effect (like sustainable management) when viewed holistically as part of the corpus of international environmental law principles that are available for academics, legislators, and practitioners to use where appropriate to reflect environmental circumstances – and most likely in combination with other environmental principles articulated in Rio and the Global Pact.

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Part II
**General Aspects: Overconsumption,
Rebound Effects, Degrowth and Planetary
Boundaries**

What Does the Rebound Effect Tell Us? Reflection on Its Sources and Its Implication for the Sustainability Debate



Joëlle Saey-Volckrick

1 Introduction

Carbon emissions are rising, the availability of freshwater is decreasing, the glacial ice-cap is melting. . . For decades now, it has been known that the climate and the planet are facing major changes. How to mitigate, or even eliminate, the impact of human activity on our environment has been subject to discussions across many different fields of research and at every level of the society. The $I = PAT$ equation, with I standing for environmental impact, P for population, A for affluence and T for technological intensity, is sometimes used to point out the main variables impacting the environment. To reduce environmental damages, those are thus the variables on which policies can be implemented. Improving technological performance and thereby reducing technological intensity has been the most attractive policy so far. But does a decrease in technological intensity lead to a proportional decrease in the human environmental impact? The existence of rebound effects and the correlation between the variables T and A shows that this may not be true.

Improvements in resource efficiency are usually regarded as an important strategy to decrease resource use. The rebound effect describes how the expected positive impact of increases in resource efficiency can be countervailed by increases in the demand for resources. Such rebound effects can lead to a smaller decrease in resource demand than expected, or even to an absolute increase in resource demand (the so-called backfire effect).

This phenomenon has been known for decades now, and the extent to which resource efficiency improvements reduce (or increase) the level of resource use has been heavily debated. In 1865, Jevons' paper paved the way for this discussion by

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suggesting that the improved efficiency of steam engines would not reduce the use of coal but rather increase it in the long-run. This idea was then taken up by Brookes (1979) and Khazzoom (1980), who highlighted the presence of rebound effects and their potential to countervail energy efficiency improvements. Many more papers followed, fueling the theoretical as well as the empirical discussion. Greening et al. (2000) were the first to give a broad overview of the empirical studies existing at the time and to propose a taxonomy to define the various types of rebound effects. Since then, the taxonomy has kept evolving (Sorrell 2007; van den Bergh 2011; Madlener and Turner 2016) and the number of empirical studies has soared (Barker and Foxon 2008; Barker et al. 2009; Allan et al. 2006; Broberg et al. 2015; Hanley et al. 2009; Turner and Hanley 2011; Grepperud and Rasmussen 2004; Wei 2009; Antal and van den Bergh 2014; Saunders 2013; Holm and Englund 2009; Glomsrod and Taoyuan 2005; Howells et al. 2010; Vikström 2008; Washida 2004). The range of results is very wide, from direct rebound effects lower than 30% in OECD countries to economy-wide rebound effects higher than 100% in Norway, China or Scotland (Sorrell 2007). The amplitude of studies reaching different results shows that the size of rebound effects depends largely on the country, sector and level of analysis. This has also been a reason to exclude rebound effects from environmental policies: the diverse conclusions found in the empirical studies has been used by policymakers to explain the lack of tangible policy action. The attitude of a representative of the Swiss Energy Office is a good example of this aversion: “until we know exactly how big rebound is, we treat it as zero” (Alcott 2010, p. 555).

Even though this quote is 10 years old, it still reflects well why rebound effects are rather absent from resource efficiency policies. For a long time, reports from international organizations such as the United Nations Environment Program (UNEP 2002, 2016), the International Energy Agency (IEA 2011, 2012) or the European Commission (EC 2012) have only mentioned rebound effects in small paragraphs or footnotes and downsized their importance, using the lower estimations. Slowly, those institutions have granted more attention to the rebound effect (Maxwell et al. 2011; EEA 2013; IEA 2014). The first policy paper solely on the rebound effect phenomenon was commissioned by the British government and written by the UK Energy Research Centre (UKERC) – well known as the Sorrell (2007) report. Afterwards, the UK has included a 15% direct rebound effect in energy savings resulting from home insulation (Maxwell et al. 2011). Since the Sorrell report, two other policy papers on rebound effects (Maxwell et al. 2011; Jenkins et al. 2011) have been published under the mandate of the European Commission and the Breakthrough Institute. A rising interest in the topic can thus be observed, and it becomes more and more difficult to overlook the existence of rebound effects. Yet, at the time of designing environmental policies and taking

policy tangible action, the issue of rebound effects is still mainly eluded or downsized (IRGC 2013; Font Vivanco et al. 2016). Font Vivanco et al. (2016) published a case study on European legislation and found 35 legal acts mentioning rebound effects, zero of which are legally binding. They also found a “positive and striking (...) correlation between legal acts and commissioned research studies that both mention the rebound effect” (Font Vivanco et al. 2016, p. 116). These results give value to the research already undertaken and encourage further research, for rebound effects to soon become a vital part of environmental policies. In the last 20 years, a great work was already achieved to identify the theoretical explanations for the rebound effect and its key determinants, notably with the papers of Allan et al. (2006), Madlener and Alcott (2009), Wei (2009), van den Bergh (2011), Sorrell (2014), Koesler et al. (2014) and Gillingham et al. (2015). Other authors (Madlener and Alcott 2009; Turner 2013; Madlener and Turner 2016; Font Vivanco et al. 2018) have identified shortcomings in the literature on rebound effects and paved the way for further research. For instance, Turner (2013), supported by Madlener and Turner (2016), pointed out the need to clarify the rebound typology, to define the mechanisms triggering macroeconomic rebound effects, to consider factors that put downward pressure on rebound effects and to define the boundaries of the term “energy efficiency improvements”. In their paper, Font Vivanco et al. (2018) also recommend differentiating efficiency improvements resulting from a resource efficiency policy and rebound effects arising from an exogenous technical change (regardless of policy intervention). They also encourage research to open the debate not only to energy rebound effect but to other resources such as water, land or waste.

Considering the state-of-art, this chapter aims at two things. First, in Section 2, it participates in the theoretical discussion by proposing a comprehensive classification of the rebound effect. Distinguishing the different levels of analysis and the mechanisms at play helps to better understand the rebound effect, and therefore, how to evaluate its size, as well as determine where the literature is still missing. For instance, whilst many studies target microeconomic direct rebound effects, macroeconomic rebound effects are less understood. Identifying the mechanisms that trigger the latter could enhance further research in this field. Section 3 then goes beyond the question of the magnitude of the rebound effect by discussing the implications of the existence of this phenomenon for the relation between resource use and economic growth on the one hand, and for the limits of the environmental benefits of resource efficiency policies on the other hand. Two statements are addressed: (1) the rebound effect challenges the feasibility of an absolute decoupling between economic growth and resource use, and (2) improved resource efficiency alone cannot counterbalance the high environmental impact of P (population) \times A (affluence). Some final remarks are presented in Section 4.

2 On Rebound Effects and Their Sources

This section discusses the different types and levels of rebound effects and the mechanisms at play. Understanding more fully the complexity of this phenomenon provides guidelines regarding which elements should be considered when trying to estimate the size of the rebound effect.

(a) *Resource Efficiency Improvements*

Since rebound effects arise from resource efficiency improvements, it is essential to define what is included in such efficiency gains. Birol and Keppler (2000, p. 458) give a definition for energy efficiency gains, but the same definition could be applied in a wider sense to other resources. They define it as “an improvement in the productivity of the factor energy. Strictly speaking, it refers to the improved productivity of capital, i.e., a machine, which is specifically dedicated to the use or transformation of energy”. Gillingham et al. (2015) go further by distinguishing the *pure* rebound effect from the one resulting from a policy-induced improvement. The former is said to arise from a costless exogenous efficiency improvement, that is, a gain in efficiency that affects the sole resource service, holding other attributes of the product unchanged. The latter is seen as the result of a resource efficiency policy. This may be costly for the manufacturer and potentially raise the product’s price, as well as induce changes in other attributes of the product (weight, size, capacity). The policy-induced improvement thus triggers a “compound effect that combines the energy [resource] savings from the efficiency improvement with the energy [resource] adjustments due to changes in the attributes and cost of the product” (Gillingham et al. 2015, p. 5).

When trying to estimate the size of the rebound effect, the distinction between costless exogenous resource efficiency improvement and policy-induced improvement should not be neglected. The first one indicates the responses that can be directly attributed to resource efficiency improvements, whilst the second one exposes the overall effect of a resource efficiency policy.

(b) *Taxonomy of the Rebound Effect*

The literature on rebound effects is still evolving, looking for answers, finding new ideas. Whilst rebound effects are often classified as direct, indirect and economy-wide rebound effects, recently a number of scientists seem to agree that this taxonomy is too simplistic to reflect the complexity of the mechanisms at play.

The distinction between the micro, macro and eventually meso¹ levels have to be considered, as well as the difference between consumption and production sides. Over time, authors such as Greening et al. (2000), Sorrell (2007), van den Bergh (2011) or Madlener and Turner (2016) have built upon each other's work to deliver a marginally increasing complete taxonomy of the rebound effects. This section attempts to give the most up-to-date picture of the different types of rebounds. The word "resource" is used throughout the entire text and has to be understood not as all resources but as one kind of resource at the time, such as energy, material, land, water or waste; the resource affected by the efficiency improvement.

A first type of rebound effect, the most widely assessed by the scientific community, is the direct rebound effect. Similarly to Khazzoom (1980), Greening et al. (2000) and Turner (2013), its meaning is here limited to the microeconomic level and differentiates the consumption from the production side (that is, individual households and individual firms). The main explanation for the direct rebound effect is that monetary savings, resulting from a less resource intensive provision of a good or service, are spent on consuming more of the same good or service. It can be decomposed into two effects²: the substitution and the income/output effect. First, the substitution effect on the consumption side implies that the consumption of the now more efficient device will act as a substitute for the consumption of other goods and services. On the production side, it means that as a result of a resource productivity improvement, this resource will become a substitute for other inputs in the production process. Second, the income effect on the consumption side, equivalent to the output effect on the production side, rises from the increase in real income, resulting from the money savings generated by the resource efficiency improvement, which allows consumers to increase their consumption of this resource service. The output effect, similarly, captures the fact that costs savings achieved by a firm can be invested in buying more of the resource inputs to produce a higher level of output. The combination of the substitution and the income/output effects increases the resource consumption despite the reduction expected from the resource efficiency improvement, which spurs direct rebound effects (Sorrell 2007, 2009; Santarius 2016).

A second type of rebounds are indirect rebound effects. Those arise from two sources: (1) the embodied resource and (2) secondary effects. The former captures

¹A few authors, such as Santarius (2016), acknowledge the existence of secondary effects at the mesoeconomic level. This distinction is made to disentangle rebound effects arising from the production sector from the micro- and macroeconomic levels. It is argued that rebound effects at the level of individual firms as well as at the sector level are not always characterized by a growth in the economy. In my view, rebound effects at aggregate levels necessarily imply economic growth. I recognise, however, that this is still a matter for discussion.

²A series of other behavioural and psychological effects could be considered; however, they fall beyond the scope of this chapter.

the resource needed for the production and installation of the more resource efficient device. The resource use might decrease in the sector targeted by the resource efficiency improvement, however, when looking at the broad picture, part of this resource use is shifted elsewhere in the economy: to the sector producing the more resource efficient capital. The net resource savings at the macro level are thus lower than the resource savings achieved at the firm/household level (Sorrell 2007). Secondary effects, on the other hand, comprise a large range of mechanisms. The micro- and macroeconomic level, as well as the consumer and producer sides, are distinguished. At the microeconomic level, the secondary effect takes place through surges in demand for other goods and services. On the consumption side, a common example is someone who spends the savings they received from having a more fuel-efficient car on an overseas holiday (Sorrell 2007). This is called the re-spending effect. The production side can be exemplified by the cost savings resulting from an efficiency improvement of the energy service of a machine, that allow the firm to purchase additional factors of production, which in turn require energy. This is called the re-investment effect (Jenkins et al. 2011).

The secondary effects mentioned above take place at the microeconomic level. Yet, secondary effects also exist at the macroeconomic level, arising from a series of complex mechanisms. If the difference between consumers and producers at the micro level is rather clear, this distinction is usually no longer used at the macro level. Most papers focus on the consumption side when addressing the direct rebound effect at the micro level, and then go on with the production side at the macro level. Turner (2013) points out that this is a fallacy in the literature and that final consumption activities follow different mechanisms than production activities. This explanation will be deepened here-after, in the case of the macroeconomic rebound effect.

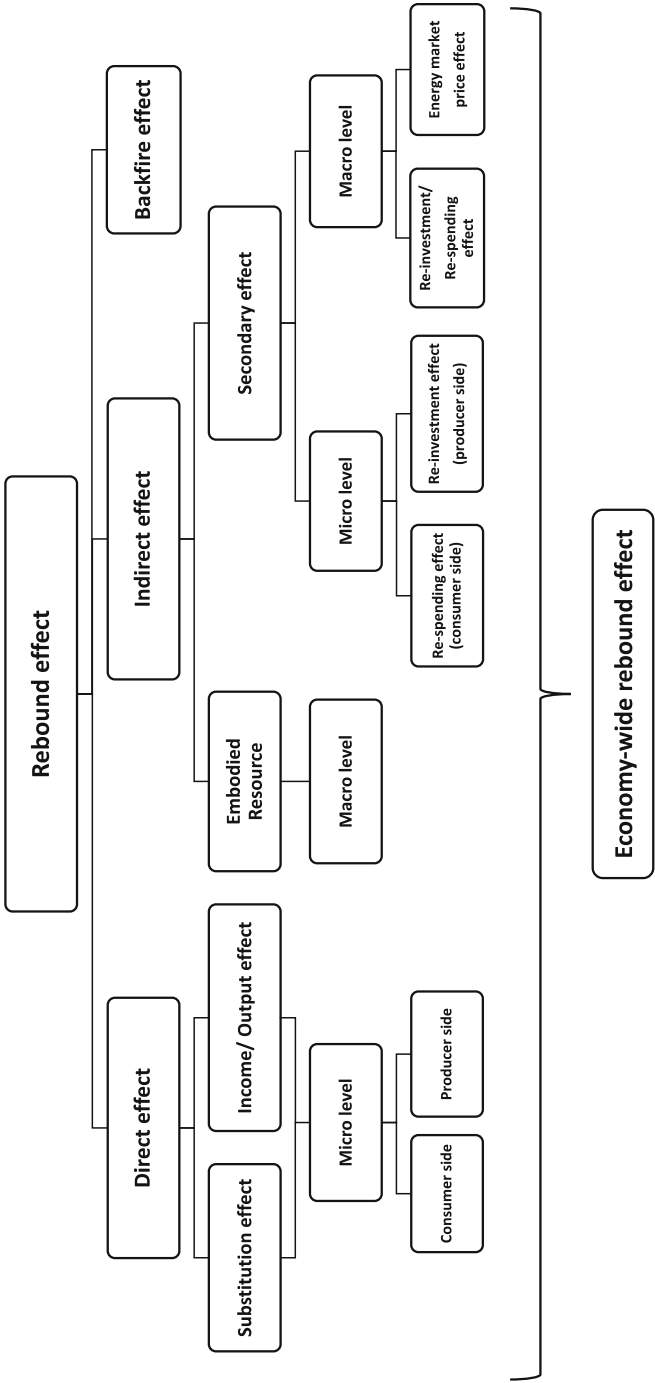
There is no clear consensus on which mechanisms trigger rebound effects at the macroeconomic level, which is mainly due to the heterogeneous definitions of macroeconomic rebounds existing in the literature. The economy-wide rebound effect is sometimes seen as equivalent to macroeconomic rebound effects; however, they are here viewed as two distinct concepts. Two mechanisms for macroeconomic rebound effects are identified: macroeconomic re-investment (on the producer side) and re-spending (on the consumer side) effects on the one hand, and changes in the market price of the resource on the other hand. The former implies that, when a sector experiences an improvement in the efficiency of a resource, its costs for this resource decrease. If the production structure of firms changes due to the efficiency improvement, the reduced input costs will lower the market price of the product (s) the sector provides. This will stimulate an increase in sales, which implies a greater use of the resource and thus a rebound effect. Furthermore, if a sector decreases its output price, it can affect the entire economy: the lower cost of one sector's product can reduce the production costs of other sectors (Turner 2013).

These lower prices of goods, stimulating larger sales, induces investments from firms. The combination of larger sales and higher investments implies economic growth (Ayres and Warr 2009). This economic growth is therefore a result of the rebound effect created by the production sector. Similarly, consumers as an aggregate can also stimulate investment and the level of output. A more efficient heating system, for instance, reduces the energy service costs and increases real income. This higher income allows consumers to increase their consumption. The demand for a higher level of consumption pushes firms to increase their output. The larger volume of output and consumption implies greater resource use as well as economic growth. In this case, the economic growth is triggered by the rebound effect resulting from the consumer side.

The second mechanism triggering rebound effects at the macroeconomic level arises from a change in the resource market price. As a resource service becomes more efficient, its cost per output decreases as well as the demand for that specific resource. If a large number of economic actors (be it consumers or producers) act similarly, the price for that resource will fall. The resource efficiency improvement therefore affects firstly one specific resource market. In the case of the demand for energy, however, it will most likely be passed onto other markets since the markets of electricity, motor fuel (petrol, diesel), coal, gas, heating oil and lignite are closely linked (Santarius 2016). Cheaper access to the resource will increase its demand, be it on the consumer or producer side, generating a rebound effect at the macroeconomic level. Furthermore, since nowadays economies are closely linked to each other, strong market price effects can lead to changes in trade patterns and to variations in international resource prices at the global level. For example, an energy efficiency gains in the automobile industry in the United States, accounting for a large share of the global oil consumption, could trigger worldwide oil market prices to fall, spurring an increase in demand for all oil consuming goods and services and prices to partially rise again (Jenkins et al. 2011).

When there is an absolute increase in the demand for a resource after an efficiency gain, we talk about a third type of rebound effect: the backfire effect. This effect captures the increase of the resource's demand of over 100%. The economy-wide rebound effect, lastly, is the sum of direct, indirect and backfire rebound effects (thus including the micro- and macroeconomic level). It estimates how the aggregate demand for a resource in the economy changes due to efficiency gains of this resource.

This classification, however, should not be seen as exhaustive nor should the distinction between the different rebound effects be seen as rigid. The micro and macro levels are interlinked and have impacts on each other (Fig. 1).



Source: author's own design

Fig. 1 Taxonomy of the rebound effect

3 What Do Rebound Effects Tell Us?

The variety of mechanisms that trigger different kinds of rebound effects was presented in Sect. 3. The complexity of the phenomenon lets us imagine the difficulty of estimating accurately each type of rebound. Making the difference between an exogenous resource efficiency improvement and a policy-induced improvement, between micro and macro levels, direct and indirect effects, etc. proves to be a challenge already from a theoretical perspective. From an empirical perspective, considerations such as the sector or the country studied add to the complexity of the estimation. The literature abounds of empirical studies on the direct rebound effect, and with reason; isolating direct changes in resource use resulting from a resource efficiency improvement at the micro level is less subject to estimation mistakes than evaluating a resource market price effect at the macro level. Disentangling the rebound effect from other macroeconomic and political variables appears to be rather challenging.

If estimating macroeconomic or economy-wide rebound effects gives too approximate results, how can environmental policies be designed to mitigate them? The taxonomy in Sect. 2 reveals the complexity of the rebound effect phenomenon. While being as comprehensive as possible, there will never be an exhaustive list of all the mechanisms and of all kinds of rebound effects that exist or might exist in the future. Scientists will never be able to give a round, ready-to-use, fit-for-all, estimation of the economy-wide rebound effect. The scale of the rebound effect, all mechanisms comprised, might outreach even our highest predictions. The UK or Ireland, by including the direct rebound effect in their home insulation policies, are taking a step in the right direction. They account, nevertheless, for one kind of rebound in one (yet important) sector. Beyond giving indications on the resource saved (or not) by an improvement in the efficiency of this resource, the phenomenon of the rebound effect tells us important elements to be considered in the sustainability discourse:

- **The rebound effect challenges the feasibility of an absolute decoupling between economic growth and resource use.**

Acknowledging the existence of rebound effects does not only imply having a better estimation of what can be expected from resource efficiency policies. It also leads us to a broader question, which is whether economic growth and resource use can be decoupled. Whilst the last century has seen resource intensity (per unit of GDP) of industrial economies fall, consumption of natural resources and its resulting carbon emissions have kept increasing, along with global GDP (Bithas and Kalimeris 2018). The explanation is rather intuitive: the rate of growth of economic output has been higher than the decrease in resource intensity. Explaining why this is the case is a much more interesting question. It can be argued that it is because policies haven't been environmentally oriented enough: efficiency gains were not broadly implemented, and prices of natural resources remained too low. Looking at trends in OECD countries, where environmental policies have been implemented

more than in the rest of the world, relative decoupling of resource use and economic growth has been achieved to a certain extent. However, when analyzing more closely the data, it is seen that this trend has reversed in the last decades. Between 1990 and 2009, every 10% of GDP increase in the OECD countries was accompanied by a rise of 6% in material footprint (Wiedmann et al. 2015; Parrique et al. 2019). Moreover, this relative decoupling in rich countries is partly due to the fact that a great share of the manufacturing industries has been relocated to developing countries (Sorrell 2010). This first explanation thus tells us only part of the story. A second reason can be found in the fact that resource consumption does not only depend on technological change. The discovery of new sources – for example new oil reserves –, improvements in labour efficiency, the rising population growth or increasing energy return on energy investment (EROI) also contribute to increases in resources consumption. Renewable energies, in a sense, can trigger similar mechanisms as energy efficiency improvements: by increasing the energy supply, they push down the price of non-renewables, enabling a further increase in demand (Alcott 2010). There is a third explanation that should not be neglected to explain the opposite trend of resource intensity on the one side, and resource consumption and economic growth on the other side: the rebound effect. As the efficiency of a resource increases, its resource intensity per unit of GDP decreases. In a decoupling scenario, this would result in a constant GDP growth, with a lower level of resource intensity. Yet, as discussed in Sect. 2, the macroeconomic rebound effect shows that the efficiency improvement actually allows for a greater level of production and an increase in economic output. The drop in resource intensity, in this case, spurs a higher level of GDP and of resource use (Sorrell 2010). The rebound effect therefore represents the “coupling” effect of resource use and economic growth.

– **Improved resource efficiency alone cannot counterbalance the high environmental impact of P (population) \times A (affluence).**

In environmental policy and the sustainability discourse, the focus is mainly set on one strategy: “*consuming and producing more efficiently*”. The objective is to reduce the environmental impact associated with the production and consumption of each good and service. By decreasing the resource intensity required to produce or consume a good or service, we expect to reduce our CO₂ emissions. This can be well explained through the famous eq. $I = P \times A \times T$. This formula represents human environmental impact (I) as the product of three variables, namely population (P), affluence or income level (A) and technology or resource intensity (T) (Alcott 2010). This same equation can also be interpreted as I standing for the level of carbon emissions, A for GDP per capita and T for carbon emissions per unit of GDP. Since decreases in population are hardly conceivable and lowering affluence goes against the belief and objectives of all governments, the burden of decreasing the environmental impact relies on technological efficiency. To achieve an absolute decoupling and a net decrease in I, the factor T should be reduced to an extent that it more than

offsets increases in P and A. Considering the high rates of growth of P and A on a global scale, technological performance is seriously challenged. To keep global temperature below a threshold of two degrees centigrade, the annual reduction in the emission rate for the period 2015–2050 should be of 4,9%/year (Sorrell 2010). If we assume an average growth in population of 0,7%/year (according to the UN predictions) and a global GDP per capita that follows a trend of approximately 1,4%/year, the current rate of reduction in carbon intensity (1,3%) implies that our level of global emissions would be 55% higher by 2050 (Sorrell 2010). Moreover, whilst the level of carbon emissions per unit of GDP has declined by an average of 30% since 1970, this trend has been slowing down and even recently reversed. Indeed, the carbon emission per unit of GDP is not only dependent on technological change. As pointed out by Sorrell (2010, p. 1796): “the historical improvements in this ratio owe much to the shift towards higher quality fuels such as natural gas, but accelerating resource depletion could lead to an increased reliance on lower quality, carbon-intensive fuels such as coal and non-conventional oil”. There are therefore reasons to cast doubts on the common optimism regarding technological ability to offset the factors population and affluence.

Recognizing the existence of macroeconomic rebound effects makes the resolution of the equation even more challenging: it implies that the right-hand sided variables are interdependent. $I = PAT$ should more accurately be re-written $I = f(P, A, T)$. A change in either of the three variables P, A or T triggers a complex set of adjustments in the two others. For instance, a resource efficiency improvement that leads to a decrease in carbon emissions per unit of GDP (T), whilst reducing total carbon emissions (I), also raises income and consumption (A), which in turn increases I and stimulates economic growth. The level of affluence, being increased, affects the level of population. At lower level of incomes, a higher affluence implies lower rates of child mortality and thus higher rates of population, whilst higher incomes usually lead to smaller families – as well as higher life expectancy. The impact of A on P remains uncertain, however, if it were to be positive, the overall positive impact on I would be reinforced. A decrease in T therefore has a series of repercussions on the other variables, implying that its net effect on I is likely to be lower than expected (Alcott 2008, 2010). In the case of a backfire effect, the net impact on I is even positive: an improvement in a resource efficiency would lead to a higher level of total carbon emissions. In this case, the strategy of “*producing and consuming more efficiently*” would not only be “not enough” but would even be counterproductive.

Luckily for us, two other strategies also exist: “*producing and consuming differently*” and “*producing and consuming less.*” Whilst the strategy of efficiency implies improving our already-in-use goods and services, “*producing and consuming differently*” refers to shifting our production and consumption to other goods and services that have a lower environmental impact. It can take the form of purchasing “green” products, relying on renewable energies, enhancing the service sector and diminishing the manufactured one, or supporting alternatives such as carpooling or co-housing. These actions represent an important and necessary change in our societies, however, their expected environmental benefits might be overrated. They

also bear hidden costs that are rarely mentioned. Renewable energies, for example, are said to become net energy savers only after many years of utilization. Prior to this, they are still compensating for the amount of energy and material spent on their fabrication. Furthermore, many renewable energy projects have a strong negative impact on biodiversity protection (Jackson 2011). Shifting towards a service economy and away from manufactured goods also bears drawbacks: it does not especially trigger environmental benefits, since high standards of services rely on infrastructure and transport that are highly resource-intensive. Moreover, the shift towards service economies is due greatly to the outsourcing of manufactured commodities to developing countries (Sorrell 2010). The pollution burden is thus not eliminated but sent away. Regarding “green” products, Delmas and Burbano (2011) observe the surge of greenwashing strategies where firms mislead consumers on the environmental benefits of their products or services. Different green products hold themselves to different ecological and ethical standards: the values represented by one green product are not necessarily the values represented by another.

The last strategy is “*producing and consuming less*”. It is mainly brushed aside within the discussion of environmental policies, since it challenges the idea of a societal need for economic growth. Considering that human environmental impact and economic growth cannot be decoupled, and that technology alone cannot resolve climate issues, this strategy proposes a shift towards voluntary simplicity and sufficiency on the one hand, and a downsizing of the economy on the other hand. The former concepts refer to autonomous, voluntary changes. People consume less by choice: they choose not to use their purchasing power, or to reduce it by lowering their working time (and thus their income). This decision of simplicity arises from the environmental motivation of “relieving human pressure on planetary resources and thus benefiting other (present or future) humans or other species” (Alcott 2008, p. 771). In this case, an efficiency gain (for example, in the heating system) implies no direct rebound effect since there is no compensation for the efficiency in the use of the resource. The embodied resource rebound effect, however, still occurs, as resources are needed to set up the new efficient device. Those shifts towards sufficiency are based on individual behavior, yet policies supporting those initiatives also play a major role in bringing them to light and encouraging their development. For instance, providing sustainable infrastructures and mobility, a fair distributed tax system, access to education and health care, open spaces for communities to gather or reducing advertisement can foster the societal dialogue on sufficiency. The latter concept, downsizing the economy and producing less, refers to major legal shifts such as regulating the legal weekly working hours, new forms of property or implementing environmental caps on the extraction of resources (to read more about those proposals, see Kallis et al. 2012). Here, the macroeconomic rebound effect would be mitigated by means of no extra production, consumption and extraction of natural resources. This sufficiency strategy, however, triggers a new kind of rebound effect, as pointed out by Alcott (2008): the sufficiency rebound

effect. The demand for resources being voluntarily lowered, the price of these resources would decrease, allowing for an increase in the demand by other economic agents. Alcott (2008) argues that this could adjust the current global inequality in terms of consumption and access to resources, however, it would still bear down on environmental protection. This is where the link between the legality of caps and the voluntary sufficiency comes into play: the former, by rationing the legal amount of extraction and consumption of natural resources, could ensure that we do not exceed the sustainable threshold of carbon emissions. The sufficiency strategy, by lowering the demand for these resources, would enhance a more equal distribution of resources.

4 Final Remarks

Resource efficiency policies are often promoted as a means for mitigating environmental damages and promoting a lower use of resources. Rebound effects tell us another story about the impact of such policies. Albeit there being a large amount of literature on this phenomenon, rebound effects are mostly left aside of environmental policy design. One of the reasons is the non-consistency in the academic literature on the size of the rebound effect. Estimates range from less than 30% to over 100%. This is due, on the one hand, to the feature of each country, sector, firm and household, and on the other hand to the large variety of rebound effects and of mechanisms triggering them. The rebound effect is indeed a complex phenomenon that can take many different forms. There is a distinction not only between direct, indirect, and economy-wide rebound effects, but also between producer and consumer side and between micro- and macroeconomic levels. In this chapter, a classification based on the literature already existing and on the different mechanisms triggering rebound effects was proposed and schematized, in order to enhance the theoretical knowledge on this topic. It also shows the complexity of the phenomenon and how difficult it is to give a round, definite, ready-to-use number for the rebound effect. But without this number, policy makers seem to not account for it in efficiency policies. The rebound effect, however, is not just about a number. It is rather a concept, that has important things to tell us about sustainability.

As mentioned above, the size of rebound effects is largely dependent on the country, sector, etc. To include them into efficiency policies as we understand today, each country and sector would need to evaluate what is the size of its direct, indirect, micro, macro... rebound effect. This is a daunting task, and waiting for this to be achieved in order to include rebound effects in efficiency policies does not reflect the emergency of environmental issues. Of course, estimating the rebound effect is relevant. At the micro level for example, analyzing the change in energy demand from a specific energy efficiency improvement on a particular type of households or firms helps to evaluate the environmental benefits of an energy efficiency policy. If the rebound effect is lower than 100%, the policy is environmentally beneficial; if it is higher than 100%, it is detrimental. At the macroeconomic level, however, the

mechanisms are so complex and involve so many different features, that trying to find a final estimate proves to be a real challenge. The question is then: do we need to wait for the academia to agree on the size of the macroeconomic (or even the economy-wide) rebound effect before we include it in environmental policies? The fact is that rebound effects exist and are large. And even if they are smaller than expected, from an environmental perspective, it is safer to bet on an over-estimation than to undervalue them. Environmental policy makers should thus not wait for one final estimate of the size of the rebound effect. They should already start acting upon the implications it has on the sustainability discourse.

Acknowledging the existence of rebound effects should not only take the form of including them into resource efficiency policies. It also leads us, on the one hand, to question the feasibility of an absolute decoupling between economic growth and resource use. Lowering the resource intensity has the impact, through rebound effects, of fostering economic output and thus demand for natural resources. On the other hand, it tells us that, if technological and efficiency improvements are important in the fight against climate change, they are not enough. Those improvements are less environmentally efficient than expected and can even be counterproductive in the case of backfire. Other pathways such as “*producing and consuming differently*” and “*producing and consuming less*” are at least as important, if not more, than “*producing and consuming more efficiently*”.

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Regulating our Consumer Culture: What Role Can the Law Play in Addressing Excessive Consumption?



Melissa Gorrie

1 Introduction

Rampant overconsumption in wealthy North American nations is a key factor in the current ecological crises. The average American consumes so much that if all other nations had equivalent consumption levels, several earths would be needed to support the demand (Large 2011; Helm 2011; Moore et al. 2012; World Wildlife Foundation et al. 2014). As such, addressing excessive levels of consumption in these nations provides an important opportunity to prevent further environmental degradation and address the climate crises.

The need to downscale current levels of consumption is a key component of the degrowth agenda (Schneider et al. 2010 p. 512; Palminhas 2015, p. 50), which calls for “a downscaling of production and consumption that increases human well-being and enhances ecological conditions and equity on the planet” (Research and Degrowth 2018). However, getting individuals in wealthy nations to consume less or “de-materialize” is a tricky proposition, particularly given that consumption is entrenched in the cultural, political, and economic systems of these nations (Large 2011). The role of the law in getting individuals to reduce the amount they consume has received limited attention in the academic literature to-date (see Gorrie 2017). This paper explores the role of law in reducing the amount individuals consume, using the wealthy nation of Canada as a case study.

In this paper, “consumption” refers to any item, good, product, or resource with an environmental impact that is purchased, taken, and/or used by an individual consumer. Unless otherwise stated, “law” refers to “formal, state-based regulation, and the institutional structures that it creates and supports” (M’Gonigle and Ramsay 2004, p. 332).

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In the sections that follow, I first provide an overview of the problem of consumption. I then review the academic literature on the relationship between law and consumption, and the systemic barriers that exists to using the law to reduce personal consumption. I then discuss some of the ways the law could be used by states willing to take bold and aggressive action to regulate consumption, before surveying the Canadian legal landscape to assess whether any of those legal tools have been employed in that jurisdiction. I analyze a few examples where the law has been employed to reduce consumption in Canada to ascertain whether they provide guidance for future efforts to regulate consumption. I conclude with a discussion of the need for scholars and citizens to expand the scope of efforts to address consumption beyond the law as traditionally defined, and propose an alternative approach that focuses on reforming social norms and rules from the bottom-up.

2 The Consumption Problem

Manifestly many wealthy nations, particularly in North America, are immersed in a culture of consumption (Large 2011). It is a culture that breeds a desire for more and better – a bigger house, a newer car, and the latest fashion trends. The social and cultural pressure to increase the amount we consume is well-documented. As stated by Michael Large “[c]onspicuous consumption and egregious waste pervade Can-American culture”, with “people who over-consume being praised and those who under-consume being pitted.” (2011, p. 120). As discussed in more detail in section C below, this culture of consumption does not exist in a bubble. It is a culture that is housed within, and nurtured by, existing western political, economic and legal systems that promote unlimited growth and liberalism. The culture of consumption is extending beyond wealthy nations. While it is estimated that Europeans and Americans will have twice their current standard of living by 2050, developing countries, such as China and India, are estimated to have four times their current standard of living (Helm 2011, p. 238). This increased standard of living translates into more cars on the road, the expansion of aviation and shipping, the conversion of land for housing, increased food production, and more disposable products (Helm 2011, p. 238).

Such excessive consumption is creating widespread ecological degradation that disregards the carrying capacity of the earth. Whether the gas in our cars, the food on our plates, or the clothes we wear, there are environmental impacts associated with almost everything we consume, especially when life-cycle impacts are considered. The average American consume so much that if all other nations had equivalent consumption levels four earths would be needed to support the demand (World Wildlife Foundation et al. 2014, p. 36). Globally, natural resources are being consumed at such an unsustainable and ever-increasing rate, that it is estimated that we will need the equivalent of 2.6 earths to support our demands by 2050 (Moore et al. 2012, p. 8). We have also already crossed four of the nine planetary boundaries within which we must stay to ensure a safe environment and operating

space for humanity (Rockstrom et al. 2009). Consumption habits have gotten so out of the control that they have been found to be a stronger driver of material use, and therefore environmental degradation, than population growth (United Nations Environment Programme International Resource Panel 2016). As such, reducing consumption represents an effective way to address the ecological devastation we are currently facing.

Consumption is also an equity and climate justice issue. Wealthy nations consume up to 10 times more natural resources than poorer nations (Friends of the Earth Europe 2009, p.3) who disproportionately bear the brunt of the impacts associated with consumption, including climate impacts (Althor et al. 2016). As such, reigning in the disproportionately high levels of consumption in wealthy nations may provide an avenue to address the equity and justice issues that currently plague the climate change debate. Further research to explore the role of consumption in achieving climate justice and equity would be valuable.

The evidence is clear that the ever-increasing levels of consumption must be reined in. As stated by Paul Wapner, “we cannot continue using resources and producing wastes irrespective of the earth’s carrying capacity but rather must bring our social and productive activities more into line with the biological limits of the earth” (1996, p. 123). In short, we need to address the consumption problem. In the sections that follow, I discuss the potential role of law in doing so.

3 Law and Consumption

The two issues I consider in this section are: (a) what is the role of law, if any, in increasing consumption; and (b) what is the role of law, if any, in reducing our levels of consumption? These questions are considered in the Canadian-American context.

3.1 *Laws Role in Increasing Consumption*

The law “touches virtually every aspect of our daily lives... including many consumption decisions” (Large 2011, pp. 125–126; see also Schuller and Ogloff 2001), such as purchasing a book that is subject to a copyright or signing a lease agreement when purchasing a car. However, there is a “big difference between touching [and directing] a conspicuous consumption decision” (Large 2011, p. 126).

The law does not generally *directly* encourage or coerce individuals to consume more – statutes and case law do not legislate or direct how many vehicles a person buys, or how many vacations they take (Large 2011, p. 116 and 126). Rather, the law’s influence on personal consumption decision are generally *indirect*. For example, the law may indirectly support consumption by legislating taxes or subsidies that support consumptive industries (e.g. oil and gas) or “consumption-friendly” activities, such as rights-of-way for cars over bikes and pedestrians, and highways over

public transit (Large 2011). In this way, the law can create an environment that encourages increasing consumption, even if it doesn't directly dictate as such. Degrowth scholars argue that the indirect influence of the law will invariably be to encourage ever-increasing levels of consumption, because it is embedded in a pro-growth paradigm (Alexander 2014, p. 129; M'Gonigle and Ramsay 2004). The impact of this pro-growth model on efforts to reduce consumption are discussed in more detail in Sect. 3.3 below.

3.2 *Laws Role in Reducing Consumption*

Legal scholars have also explored whether there is a role for law in reducing consumption. James Salzman concludes that "no country's laws have addressed the environmental impacts of consumption in a systematic manner" (Salzman 1997, p. 1255). He argues that modern environmental laws are fundamentally "production laws" and have focused on reducing pollution and managing its environmental impacts, without looking to the underlying causes of the pollution in the first place – unsustainable consumption of goods and resources (Salzman 1997, p. 1253).

Other scholars support Salzman's position (e.g. Large 2011; Lorek and Fucks 2013; M'Gonigle and Ramsay 2004). They contend that there is an implicit assumption that demand will continue to grow (Kysar and Vandenberg 2008, p. 10825), and as such conventional environmental law is limited to mitigating impacts of consumption without offering any frameworks for reducing the demand in the first place (Harsch 1999, p. 572). As stated by Bradley Harsch, "environmental policy has accepted consumers' desires as being immutable even though the destructive consequences of fulfilling them have become undeniable" (1999, p. 545).

Michelle Maloney has a more positive view of the possible role for law in regulating consumption. Although she notes that the law currently plays a minimal role in reducing consumption, she takes the position that the environmental implications of consumption are so significant that our legal system needs to play a role in setting guidelines and rules for sustainable consumption. She also points out that in other circumstances legislators have been able to successfully impose limitations on consumption. For example, during the Second World War, various states used the law to ensure that citizens conserved resources to support the war effort. She takes the position that this example demonstrates that laws are not static, but rather they can change over time to "reflect society's values and priorities" (Maloney 2014, p. 80). However, she also recognizes that there are significant barriers to using the law to address consumption, as discussed in Sect. 3.3.

While existing scholarship clearly highlights the lack of laws aimed *directly* at reducing consumption, laws may unintentionally and *indirectly* encourage reduced consumption. For example, laws restricting lot sizes or legislating right of ways for pedestrians.

3.2.1 Weak vs Strong Consumption Laws

The literature shows that where laws aimed directly at addressing consumption exist they generally take the weak consumption approach (Maloney 2011, 2014; Lorek and Fuchs 2013). Such laws focus on increasing *efficiency* and changing *patterns* of consumption towards “greener” consumption (i.e. don’t consume less, just consume differently) (Lorek and Fuchs 2013; M’Gonigle and Ramsay 2004). They include laws relating to energy efficiency, product performance or content, and information disclosure requirements (e.g. labelling, warnings and endorsements (Lorek and Fuchs 2013; Large 2011)). While there is a role for the weak consumption approach, such tactics alone will not result in significant reductions in overall levels of consumption (Maloney 2014, pp. 78–79), as there is evidence that improvements in *efficiency* are insufficient to counter ever increasing levels of consumption and are subject to a rebound effect (United Nations Department of Economic and Social Affairs 2007, p. 3). Changing consumption *patterns* can re-direct consumptive behaviour, but it does not limit or eliminate it. As such, a reduction in the amount consumed may be a by-product of the weak consumption approach, but it is not necessitated.

In contrast, a “strong consumption” approach would necessitate reductions in the *amount* consumed (e.g. avoiding buying) based on a recognition of broader ecological limits that should not be exceeded (Lorek and Fuchs 2013). Such an approach is expounded by the degrowth movement (Hobson 2013, p. 1083; Lorek and Fuchs 2013, p. 36 and 41). While there is rarely any mention of reducing the amount of consumption in existing laws (Lorek and Fuchs 2013, p. 41) there are a number of legal tools that could be employed to do so. Some potential examples include:¹

- enacting quotas or other restrictions on natural resource use, including bans (see Kallis 2015)
- legislating a tax on natural resources, such as a carbon tax or fees for single use items²
- regulating to remove the drivers which create demand; for example, banning or taxing advertising (Maloney 2011, p. 134; Domi 2015, p. 115; Kallis 2015)
- removing subsidies that encourage consumption
- enacting “right to repair” or planned obsolescence legislation (see for example, Sweden, France and the European Union)
- land-use and urban planning bylaws that encourage less consumption (e.g. restricting house sizes or pedestrian only streets).

¹Note that I do not include Extended Producer Responsibility initiatives in this list because while they may indirectly impact consumption, they are primarily aimed at production. As such, they are outside the scope of this paper.

²In order for pricing legislation to be considered a strong consumption law, the price needs to be set high enough that it will create behavioural change (i.e. a reduction in the amount consumed).

3.3 *Barriers to Using the Law to Reduce Consumption*

There are clearly legal tools available to reduce consumption. The question remains: why are decision-makers so hesitant to employ those tools? While a fulsome analysis of the barriers that exist are beyond the scope of this paper, there are two that I consider highly relevant: the pro-growth mentality and liberal ideology that form the basis of our legal and governance systems (Maloney 2014, p. 58; Maloney 2011, pp. 123–128).

Maloney summarizes these two intimately intertwined challenges aptly, stating “consumption is considered central to the current pro-growth economic system and regulating to reduce consumption on environmental grounds represents an infringement of individual rights and freedoms that lay at the heart of western liberalism” (Maloney 2011, p. 128; see also M’Gonigle and Ramsay 2004).

Degrowth scholars support this position (see for example Lorek and Fuchs 2013; Alexander 2014; Palminhas 2015). They argue that to challenge consumption is to challenge the entire system, because consumption is embedded in our pro-growth economic, social, and political structures. It is effectively part of the DNA of industrialized states, who measure success based on economic growth. As stated by Samuel Alexander, the existing “growth model of progress” assumes that the overall well-being of a society is approximately proportional to the size of its economy (Alexander 2014, p. 229). He argues that this “pro-growth paradigm” (Alexander 2014, p. 270) not only shapes our social, economic and political systems, but our legal systems as well, such that laws in Western societies have developed a pro-growth structure (Alexander 2014). As a result, “laws that foster economic growth are presumptively justified, while laws that inhibit, slow, or reduce economic growth are presumptively unjustified” (Alexander 2014, p. 230). He goes so far as to argue that formal institutions of law may be so compromised by the growth paradigm that we cannot expect or require them to produce laws that actually demand reductions in the amount of consumption (Alexander 2014, p. 228) and “that trying to convince a growth-orientated state to use the vehicle of law to create a post-growth society might be futile, a waste of our efforts” (Alexander 2014, p. 241).

Other scholars agree, arguing that the consumption problem is a manifestation of a much deeper systemic problem, which promotes continued and ever-expanding growth (M’Gonigle and Ramsay 2004; Large 2011; Maloney 2014, pp. 123–124). Under this system, “endless economic growth is not only possible, not only good – it is the ultimate good” (Large 2011, p. 120). As such, any efforts to lobby the state to enact law that challenge the growth solution are considered “politically naïve” and “socially suicidal” (Large 2011, p. 42).

With respect to the liberal ideology barrier, Geoffrey Garver argues that enshrining protections for property rights and personal freedoms in our legal system has resulted in consumption being “legally protected”, “whereby the freedom to spend... is paramount”, regardless of the ecological costs (2013, p. 325). Alexander describes it as a “doctrine of consumer sovereignty”, whereby it is assumed that “governments should play as little role as possible in regulating or intervening in

consumer choice” because consumption is considered to be a matter of “private preference” that should be free from regulatory intervention (2013, pp. 292).

In sum, the pro-growth mindset combined with the liberal ideology that the state (and therefore the law) should not interfere with or limit citizen’s freedoms makes regulating to reduce consumption extremely difficult, to the point where it is almost political suicide. The question then becomes whether legal systems are so compromised that we cannot expect, or require them, to produce laws that actually demand reductions in the amount consumed.

In the sections that follow, I explore whether there are examples where the Canadian government has overcome these barriers and used the law to reduce consumption.

3.4 Canadian Legal Efforts to Address Consumption

3.4.1 Research Criteria Used to Locate Examples of Strong Consumption Laws

In order to locate examples that fit within the scope of my research, I applied the following criteria: (a) Canadian laws (federal, provincial/territorial, and municipal), (b) that sets limits on, or prohibits consumption of an item, good, product or resource with an environmental impact, (c) aimed at affecting the behavior of individuals or households, (d) where the focus is on volume reduction of the thing to be consumed by individuals or households (see criteria used in Maloney 2014).

3.4.2 Federal and Provincial/Territorial Efforts

Canada has no national legislation directly aimed at reducing consumption in order to address environmental degradation or climate change.³ The primary legislation relevant to consumption is the federal *Energy Efficiency Act*, SC 1992, c 36, which sets energy efficiency standards for various products.

As a signatory to the Paris Agreement under the United Nations Framework Convention on Climate Change (United Nations 2015), Canada submitted its first Nationally Determined Contribution (“NDC”) in 2016, which was “an

³Note that the *Canadian Environmental Protection Act*, 1999, SC 1999, c 33, restricts or bans certain harmful or toxic substances/ingredients that are a component of a particular good or product. However, it is not included in my analysis because the Act does not generally restrict the consumption of the good or product that contains the targeted substance; rather, the good or product just needs to be made with alternative ingredients that are less harmful for the environment and human health. In other words, the purpose of the Act is to ensure that goods and products include ingredients that are environmentally safe, not to ensure that less of a particular good or product is consumed (e.g. banning microplastics as an ingredient in toothpaste vs. banning toothpaste).

economy-wide target to reduce its greenhouse gas emissions by 30% below 2005 levels by 2030” (Government of Canada 2015). However, to-date there has been no indication that addressing personal consumption will be a mechanism used by the federal government to achieve that target.

In 2016, the Canadian government released various policy documents that are intended to help Canada meet its NDC. The first document is the Pan-Canadian Framework on Clean Growth and Climate Change (Government of Canada 2016a). Reducing demand for natural resources is not one of the specific strategies proposed to address climate change. The Pan-Canadian Framework does, however, indicate that national price on carbon will be set at \$10 per tonne in 2018, reaching \$50 per tonne by 2022 (Government of Canada 2016a). Carbon pricing is a market mechanism that could be used to reduce consumption if prices are set at a level sufficient to impact consumer behavior. Further research is required to determine what the carbon price needs to be in order for it to have a meaningful impact on behavior. However, the fact that the federal government recently announced that it will be watering down the scope of the carbon pricing mechanism reduces any potential it may have had to curb oil consumption (CBC News 2018).

The federal government also released the “Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada, 2016-2019” (Government of Canada 2016b). It makes reference to Canada taking action to support the United Nations Sustainable Development Goal 12 and promoting “sustainable consumption” but does not specify any actions or measures to implement that general support (p. 19). Rather, there is a general reliance on energy efficiency programs as the main mechanism to curb consumption (p. 23).

Finally, in 2016 the federal government released its Mid-Century Long-Term Low-Greenhouse Gas Development Strategy (Government of Canada 2016c). However, the document fails to outline specific strategies that will be employed to reduce emissions. The Mid-Century Strategy focuses on the need to transition to other energy sources but not reducing overall demand for energy. To the contrary, it states that “[u]nder a low-carbon future, Canada’s electricity demand is expected to increase substantially by 2050” (p. 23). There is also a continued heavy reliance on energy efficiency and conservation to reduce emissions (p. 34).

However, the Mid-Century Strategy does make some references to strategies that could reduce overall consumption. With respect to transportation, there is some mention of reducing the use of vehicle transportation (p. 35). It also states that “[n]ew policies could instigate behavioral change away from wasteful consumption patterns...” (p. 66) including tax breaks for repairing activities (p. 68). Finally, there is also a recognition of the need for system-level change: “Canada will need to fundamentally transform all economic sectors, especially patterns of energy production and consumption. Over time, this requires major structural changes to the economy and the way people live, work, and consume” (p. 75).

In terms of provincial/territorial action, there are some legal measures that may impact consumption, including carbon pricing and energy efficiency legislation. However, none of those laws are directly aimed at reducing consumption in order to address environmental degradation and/or climate change.

Overall, the same general pattern described in the academic literature can be seen in Canada at both the federal and provincial/territorial level. There is a focus on weak consumption measures aimed at improving energy efficiency and hastening the switch to goods/services that have a lower impact, rather than the use of direct regulation to require absolute reductions in the amount of consumption. In short, none of the federal or provincial/territorial examples discussed above meet my research criteria. As such, I had to turn to the municipal level to find laws that meet those criteria. Two such laws are discussed below.

3.4.3 Municipal Efforts

Regional Municipality of Wood Buffalo Single-Use Bag Ban Bylaw

(a) *The Bylaw*

In 2010, the Regional Municipality of Wood Buffalo (“RMWB”) council unanimously passed a bylaw banning single-use shopping bags. That bylaw was repealed and replaced with a revised version of the bylaw in 2012 (“Bag Bylaw”) (RMWB 2012). The Bag Bylaw includes 10 communities in the RMWB, including the oil sands capital of Fort McMurray. The ban includes single-use bags made of polyethylene, pulp or paper. Reusable bags are permitted and must be more than 2.25 mm thick (ss. 2(g) and 3).

An establishment found guilty of breaching the bylaw could be fined up at \$10,000 (s. 8). However, there are a number of exemptions under the bylaw, including: single-use bags for bulk goods and meat products, food service establishments, pharmacies, dry-cleaners, and non-profits in the normal course of business (s. 4).

The Bag Bylaw is one of the first of a growing number of laws in Canada aimed at addressing single-use plastics (other municipalities include Montreal and Victoria). The regulation of single-use plastics is unique, as it is one of the few examples where states seem to be willing to act to regulate individual consumption in the name of environmental protection.

(b) *Effectiveness of the Bylaw in Reducing Consumption*

In 2014, Jarrod Pickford, supervisor of environmental and public services with the RMWB, was interviewed regarding the success of the Bag Bylaw. According to him, there has been a drastic change since it was enacted (Yeske 2014). That conclusion is based on the fact that no fines have been issued. However, it is unclear whether the lack of fines resulted from 100% compliance, or if it is the result of a lack of monitoring and enforcement to ensure that violations are detected and tickets issued.

Pickford also asserts that in the first year of the Bag Bylaw “a couple million bags were diverted from the landfills” (Yeske 2014). He credits the reduction, in part, to the fact that compliance was compulsory. He specifically stated that education alone

wouldn't have been sufficient and that the compulsory nature of the Bag Bylaw is crucial to its success.

Contrary to the picture painted by Pickford, others in the community have raised concerns about residents accumulating too many reusable bags because they forget to bring their own bags with them to the store. They also suggest that the reusable bags that are accumulating sometimes end up being tossed in the garbage just like single-use bags (Crawford and Alldritt 2012).

The issue of accumulating reusable bags raises a potential area of a concern with single-use plastic laws. While a ban or charge may reduce the amount of single-use thin-film plastic being consumed, it may result in a substitution effect where reusable bags are treated like a single-use item, or they are simply replaced with other single-use products (i.e. paper, biodegradable, or compostable single-use items). If that occurs, such laws are not strong consumption laws, as they do not lead to an absolute reduction in the amount consumed. Rather, the law simply changes the pattern of consumption away from one type of single-use item towards another option whose environmental impact is potentially worse or at least equivalent. The evidence to-date is unclear as to whether such a substitution effect occurs. It likely depends on the form of the law and whether it effectively encourages reliance on reusable options, or just any option other than single-use plastic. With respect to the Bag Bylaw, the evidence seems to indicate that a substitution effect may be occurring in some households.

Toronto's Anti-idling Bylaw

(a) *The Bylaw*

Idling occurs when a vehicle is running but the engine is not in gear. CO₂ emissions could be reduced by 1.4 million tonnes annually if Canadians avoided idling for 3 min every day (City of Toronto 2010a). The City of Toronto enacted its anti-idling bylaw in 1996 and revised it in 1998 and 2010 (the "Idling Bylaw") in an effort to reduce GHG emissions and the pollutants that accompany those emissions (City of Toronto 1998). It was the first stand-alone idling control bylaw in Canada. The current version of the Idling Bylaw permits idling for up to 1 min in a 60-min period and has certain exemptions, including emergency vehicles, transit vehicles, ferry boats, armored vehicles, and mobile workshops (City of Toronto 1998).

Education and outreach activities are an important component of the Idling Bylaw (City of Toronto 1998). The current fine for contravening the Idling Bylaw is \$130 CDN. It is enforced through general monitoring, public complaints and intensive enforcement campaigns. There is also a 24-hour hotline for members of the public to report idling infractions and obtain information on the Idling Bylaw (City of Toronto 2010b). Transportation Services acknowledges that it has limited resources to enforce the Idling Bylaw. Enforcement only occurs in the daytime and primarily focuses on twice yearly week-long blitzes. Otherwise, enforcement efforts are limited to responding to complaints (City of Toronto 2010b).

(b) *Effectiveness of the Bylaw in Reducing Consumption*

Natural Resources Canada provides a summary of what constitutes effective anti-idling bylaws, including a list of weaknesses in existing by-laws in Canada (2016). The Idling Bylaw avoids many of those weaknesses by limiting the allowable idling time to 1 min, it no longer includes a temperature exemption, and it includes a set fine.

The fact that the City of Toronto also implemented an education and outreach program to compliment the Idling Bylaw will likely improve its effectiveness. As stated by the Clean Air Partnership, “idling bylaws are most effective when they form part of a comprehensive anti-idling policy that includes education” (Natural Resources Canada 2016).

There is evidence that the Idling Bylaw is being enforced and that fines are being issued. During the first 5 years after it was enacted, the city issued 247 tickets and 1350 warnings (Phil Tank 2016). From 2005–2009 that number increased to 379 tickets and approximately 2948 warnings (City of Toronto 2010a). Despite my efforts, I was unable to obtain any more recent data from the City or Toronto. According to the Chief Medical Officer for the City of Toronto as of 2010, 100% of prosecutions under the Idling Bylaw were successful (City of Toronto 2010a, p. 10).

The fact that there are a significantly higher number of warnings being issued compared to fines raises some questions about the effectiveness of the Idling Bylaw. If idlers are significantly more likely to receive a warning as opposed to an actual fine, it may not have as much as a deterrent effect as it otherwise could.

It is also difficult to draw any firm conclusion regarding the Idling Bylaw’s effectiveness based on the number of warnings and tickets issued. The issuance of warnings and tickets does not necessarily equate to reduced idling/consumption. As such, it is difficult to ascertain the amount of impact the Idling Bylaw is having without more research being undertaken.

3.4.4 Conclusion Regarding the Role of Law in Canada in Addressing Consumption

My analysis demonstrates that there has been a limited role for the law in addressing personal consumption in Canada. There are a few discrete and limited examples of laws that could potentially be considered strong consumption laws at the municipal level in Canada. The effectiveness of those efforts remains unclear. Even if 100% effective, these efforts would only be addressing a small fraction of the consumption problem. The aforementioned barriers to states taking meaningful action, also make it unlikely that strong consumption laws will be enacted in the near-term; at least not within the urgent time-frame required to address the current environmental crises.

As such, while efforts to enact consumption-based laws should continue, I propose that there is a need to look beyond the top-down approach of relying on state-based laws in order to effect meaningful change in this arena. I canvas one promising alternative approach in the following section.

4 Using Social Regulation to Address Personal Consumption: A Bottom-Up Approach

One interesting proposal to address consumption requires taking a broader view of the law to include the non-state rules and social and cultural norms that support increasing levels of consumption and making them a focus of reform (referred to herein as “social regulations”) (See Large 2011; M’Gonigle and Ramsay 2004). Social norms are defined as “rules and standards that are understood by members of a group, and that guide and/or constrain social behavior without the force of law” (Power and Mont 2010, p. 2587). Examples of social regulations include: “norms made among friends or community members, with the promise of social approval or the threat of social stigma attached” (Large 2011, p. 253).

Taking this wider perspective of the law engages legal pluralism, a field of study that “challenges the notion of law as being exclusively the domain of the state” by bringing “non-state regulatory systems into our field of view” (Large 2011, p. 34; M’Gonigle 2008, p. 36). These social systems and structures have “internal legal orders that function in a compelling regulatory fashion” (M’Gonigle 2008, p. 36). Simply put, “people are ruled by rules, and the law is just one sub-set” (Large 2011, p. 30).

Although a fulsome analysis of how the social regulation approach could work to address the consumption problem is outside the scope of this paper, I think that it is a highly relevant and very viable option that warrants further research. The reasons I propose that additional efforts should be focused on the role of social regulation are three-fold.

First of all, it avoids reliance on state (in)action. By expanding the purview of law to include social regulation, it opens up avenues to effect change from the “ground-up” through community and individual level action, rather than necessitating reliance on hesitant and captured state actors. This approach recognizes that “nonstate forms of governance exist and can be used to effect widespread change” (Large 2011, p. 127). As stated by Large, “[i]nstead of burning precious time and energy pursuing the state for solutions to state-supported demands for growth, we can work beneath the state, starting within our own homes, organizations, and social circles, to begin to build a cultural consensus to grow into a world of non-growth” (p. 129). Given that “the field is virtually wide open for tougher consumption-related standards”, citizens can play an important role in filling the void left by the state (Large 2011, p. 125). They can work from the bottom-up to reform social norms into “relatively strict consumption standards, while the state haplessly guards the background law.” (Large 2011, p. 137). By expanding the scope of law in this way, legal scholars and citizens are not limited to critiquing the law and calling for change through state-based means. Rather, they are able to take matters into their own hands to reform and reshape social regulations from the bottom up (Large 2011, p. 129).

Alexander summarizes this proposal eloquently:

[G]rowth fetishism has such a strong hold on the branches of government that efforts directed toward producing strong top-down environmental law will essentially be ignored

by lawmakers, and thus those efforts for progressive top-down change could well be wasted. We do not, of course, have a surplus of oppositional energy or resources to waste or misdirect, so if it is the case that the zebra of law will not change its stripes, it arguably follows that we should not dedicate our efforts toward convincing it to do so, no matter how desirable that top-down change may be. Rather, we should dedicate our efforts toward areas with the greatest leverage – with the greatest potential to effect positive change – and I have come to suspect that the areas that have the greatest leverage lie amongst the grassroots of social movements and culture, not parliament or the courts. (Wild Law 2014, p. 229)

Second, this bottom up approach targets the type of regulation that arguably has more of a direct influence on personal consumption decision-making. As discussed above, state-based laws generally do not play a direct role in increasing our levels of consumption. Social regulation, on the other hand, has a very direct influence on our personal consumption decisions (Large 2011). As stated by Power and Mont, “[i]t is the social norms, traditions, and values underlying mainstream society that have the most significant impact on consumption behavior, and so these should be the level at which policy interventions are targeted in the first instance” (2010, p. 2587). For example, there is social pressure to buy new clothes to keep up with the fashion seasons, and to buy the biggest engagement ring you can afford.

Third, although the state would not be a target of these reforms, it is possible that reforming social regulations could ultimately lead to changes in the law, as there is an interplay between the two. The law influences social norms, and vice versa (Rivers 2007; Posner 2003). As stated by Alexander, “changes in a society’s culture quite directly lead to changes in law” (Alexander 2013, p. 215). As such, reforming social regulations from the ground-up could create the social license and pressure for such laws to be enacted by the state.

It is also possible that working to create “greener” social regulation on a small-scale can lead to significant system-scale change, by slowly grinding down the pro-growth “imperative” (Large 2011, p. 138). Alexander points out that “culturally induced changes in law inevitably impact on political and economic structures”, and goes so far as to argue that such structural change “will almost certainly not eventuate unless it is accompanied and probably preceded by a widespread cultural shift in attitudes toward consumption” (Alexander 2013, p. 216). As such, if we are to have any hope of transcending and restructuring the pro-growth structures we need a cultural and social shift; it is a precondition to structural change (Alexander 2013). While such a proposal is attractive, further research is required to ascertain its validity.

In sum, not only does the bottom-up approach avoid the challenges of relying on unwilling states to enact laws, it will also likely be a more effective approach, given that social regulation plays a more significant role in directing personal consumption. This approach also has the potential to propel states to enact consumption-based laws and perhaps even result in an overhaul of the entire pro-growth system. However, further research is required to ascertain what such a bottom-up approach would look like and how it could be successfully implemented. Some questions for further research: what are the forms of social regulation that are directing us to

consume more? What are the most effective mechanisms that can be used to reform social regulation?

5 Conclusion

My analysis of the legal landscape in Canada confirms the conclusions of other scholars, that where consumption laws exist, they generally focus on weak measures aimed at patterns of consumption and energy efficiency. While those efforts should continue, measures that necessitate absolute reductions in the amount consumed are required. I was able to locate few examples of Canadian laws at the municipal level aimed at reducing consumption, but those efforts are far and few between, and their impact on consumption is questionable. My analysis also suggests that we cannot rely on the state to enact such laws given the significant barriers that exist and the evidence of their unwillingness to act to address consumption.

Given the foregoing, I propose that there is a need to move beyond a top-down approach that focuses solely on traditional sources of state power, such as the law. One alternative is to put efforts towards reforming social regulation through community level action from the bottom-up. This approach requires legal scholars to expand their notion of the law to include social norms and rules that promote reduced consumption. To be clear, I am not arguing that there is not a role for the law in addressing consumption. Efforts at the national level are also needed, and that they can help support and enhance bottom-up strategies (see van den Bergh 2011; Domi 2014, p. 196). However, the current environmental crisis necessitates bold, aggressive, and creative solutions, and reforming and reshaping social regulations that direct consumption behaviors from the bottom-up is a promising solution that warrants further research.

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Biodiversity, Climate Change and Finnish Forest Regulation



Minna Pappila

1 Introduction

Ensuring the continuous supply of raw material for the forest industry has been the central goal of Finnish forest policy since the 1960s (Salakari 2006) and there is currently growing pressure on the forest sector to increase forest logging in Finland. The National Forest Strategy 2025, adopted by the Finnish Government in 2015, aims to increase annual loggings from 65 million m³ to 80 million m³. Finnish ecologists and climate scientists have warned that this would jeopardize both the climate and biodiversity targets that Finland has set out for itself according to EU and international law (Hukkinen et al. 2017; Koljonen et al. 2017). Forest biodiversity has steadily declined over the years, and the urgent need to diminish greenhouse gases would require maximizing the sinks and reserves in the short term. The Finnish Forest Strategy 2025 and steadily increasing loggings risk hindering the commitments that Finland has made (Seppälä et al. 2017).

The aim of this article is to scrutinize how Finnish forests are regulated from the point of view of the biodiversity and climate change targets and commitments that Finland has signed up to. Both stipulations and incentives to reduce and increase loggings are considered in this research. As legislation includes only part of these instruments, soft law is also analyzed. This includes annual logging estimates, forest certification and best practice guidelines.

The article is based on the model of strong sustainability and planetary boundaries, which is a tool for specifying the aims of strong sustainability. Strong sustainability means that economic activities preserve natural resources and enhance social wellbeing i.e. a nation's economy functions within the safe limits of nature and societies (Oliviera et al. 2018). The concept of planetary boundaries attempts to

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scientifically evaluate the safe operating space for the most critical elements of ecological sustainability – those elements that are critical for the functioning of ecosystems and, therefore, also for the wellbeing of the humanity. According to Steffen et al. (2015), genetic diversity is already beyond the zone of uncertainty i.e. there is high risk of irreversible negative environmental changes. Climate change is in the zone of uncertainty and increasing risk. After the latest report of the IPCC, the threat has reached the high-risk zone (IPCC 2018). Thus, both biodiversity and climate change are vital issues for humanity, yet politicians continue to postpone difficult decisions on effective actions and nearly every nation endeavors to minimize the undertaking of the necessary steps to protect biodiversity and climate, while instead proceeding to try to maximize economic growth. The article of Steffen et al. (2015) starts with a strong call *‘for a new paradigm that integrates the continued development of human societies and the maintenance of the Earth system (ES) in a resilient and accommodating state’*.

What commitments has Finland thus far made? First, Finland has committed to halting biodiversity loss by 2020 (European Commission 2011). Second, the EU – Finland included – has committed itself to decreasing greenhouse gases by 20% by 2020 and 40% by 2030 compared to 1990 levels (EU 2014). Finland should decrease 39% within the so-called effort-sharing sector (EU 2018a). In addition, the Finnish Parliament (2015a) has stipulated in the Climate Act that Finland will reduce greenhouse gas emissions 80% by 2050.

2 Forestry in Finland

Finland is the most forested country in the EU. Nearly $\frac{3}{4}$ of its territory is covered by forests, most of which are privately owned. Forest companies own little less than 10%. Municipalities, parishes, forest cooperatives and foundations own about 5%. The remaining privately-owned forests are owned by Finnish citizens: there are 740,000 forest owners in Finland, which means that about 1/7 of the Finns are forest owners. The state owns about one fourth of the nation’s forests (Luke 2019a). Most (about 80%) of forests are production forests, which means that logging is not generally restricted in these forests. Protected forests are unevenly spread out in Finland. Protected areas are mainly located in Northern Finland, whereas in the Southern part, only 3,6% of forests (excluding unproductive forests) are protected (Luke 2017). In Finland, protection normally means no loggings at all. The amount of protected forests and unproductive forests in all Finland is 12%.

Forest loggings have increased from 40 million m³ in 1991, to 60 million m³ in 2000 and 72 million m³ in 2017 (Luke 2018a). The growth of Finnish forests is about 100 million m³ per year, so there is no danger that economic sustainability would be risked. Both industrial use and energy use are growing steadily. Finland’s energy and climate policy emphasize increasing the use of renewable energies, especially wood-based energy (Parliamentary Committee on Energy and Climate Issues 2014).

Most wood raw material originates from privately owned (excluding industry-owned) forests. In 2017 only 11 million m³ originated from state-owned and industry-owned forests and 61 million m³ from privately, mainly family-owned forests (Luke 2018a). This difference is relevant when considering possible instruments for regulating the amount of loggings.

3 Forest Sector and Climate Change

The carbon balance of forestry is a complex issue depending on ‘the management, assortment distribution of harvested wood, end use of products, harvesting and processing releases, and substitution effects’ (Pukkala 2011). Finland and other EU member states have already reported on the LULUCF (land use, land use change and forestry) sector for several years due to the Kyoto Protocol. In 2018, the EU adopted a LULUCF Regulation (EU 2018b). The LULUCF Regulation requires every member state to ‘ensure that accounted emissions from land use are entirely compensated by an equivalent removal of CO₂ from the atmosphere through action in the sector’. However, the regulation does not set targets for increasing the sink of the LULUCF sector. Instead, it includes a ‘no net debit’ rule for LULUCF. This enables the member states to decrease the sinks of the LULUCF sector if emissions in other sectors are sufficiently reduced.

There are various parameters that affect the balance of emissions and removals in the forest sector. For example, carbon sequestration is much higher if a previously treeless area is afforested, as compared to normal regeneration after clear cutting (Pukkala 2011). Also, it makes a difference what kind of silvicultural practices are used and whether a forest-based biofuel is substituted in the use of fossil fuel or not (Pukkala 2011).

There are some calculations that LULUCF Regulation does not require decreasing wood harvesting within the EU. On the contrary: ‘We quantified the harvesting possibilities under the LULUCF regulation, provided a country does not want to generate debits. The simulations showed that the EU 26 as a whole may have a harvest (wood removals) increase from 420 million m³ in 2000–2009 to 560 million m³ in 2050, complying to “continued management practices” criteria, without creating debits’ (Nabuurs et al. 2018). Heinonen et al. (2017) suggest that moderately increasing logging in Finland would still be sustainable from the point of view of carbon sequestration but not biodiversity. However, according to their research, the total cumulative carbon balance of forestry is the highest with low cutting levels.

4 Forest Sector and Biodiversity

The link between the Finnish forest sector and biodiversity decline is relatively straightforward. National assessments on the state of biodiversity say it all. As for forest species, ‘changes in the forest environment are the primary cause of threat in the case of 693 species (30.8%). For more than half of these species, the cause of threat lies in decreasing amounts of decaying wood or forest management activities. Changes in the tree species composition of forests, as well as the reduction of old-growth forests and the decreasing number of large trees, constitute threats which are almost as significant’ (Hyvärinen et al. 2019). Furthermore, according to a recent assessment of the threatened habitat types in Finland, ‘forests in Finland have significantly lost their natural, ecological characteristics. At the same time, the area of many forest habitats has diminished. As a result of these changes, 76% of forest habitats in Finland are now threatened. Another 21% of the forest habitats were assessed as nearly threatened’ (Finnish Environment Institute 2018; Kontula and Raunio 2018).

5 What Is Sustainable Forestry in Finland?

The story of sustainable forestry already began in eighteenth century Germany, from where it travelled to Finland (Knauf 2014). At the time, sustainability meant only economic sustainability; annual increment should be larger than harvest volume and regeneration must be safeguarded.

Wider discussion on forests and nature protection started in Finland in 1980’s and there were numerous forest conflicts in the 1990’s about logging old-growth forests. In the 1990’s the discussion about sustainable development began; there was the UN Conference on Environment and Sustainable Development, where the importance of both biodiversity protection and sustainable use were emphasized. Up until that time, the forest management paradigm included only economic sustainability, but since the 1990’s, social and ecological sustainability have been on the agenda, too. The forestry sector has, since the 1990s, adopted the three pillars of sustainable development into the model of sustainable forest management (Knauf 2014).

The inclusion of ecological sustainability into Finnish forest management started in the 1980’s when the Forestry Development Centre Tapio (Tapio) included recommendations on nature protection into its best practice guidelines (Keto-Tokoi 2006). The Forest Act (Finnish Parliament 1996a) was enacted in 1996 and there were – for the first time – stipulations on biodiversity protection. The purpose of the Forest Act is to promote economically, ecologically and socially sustainable management and use of forests in order that the forests produce a good output in a sustainable way while their biological diversity is being preserved (section 1). Section 10 of the Forest Act included (and still includes, in addition to now including sections 10a and 10b) a list of the ‘habitats of special importance’ (e.g. forests along

rivulets and around springs, certain kind of mires and herb-rich forests), which must be protected i.e. not logged, if they are in a natural or semi-natural state. The mean size of these protected habitats is 0,6 ha (Finnish Government 2013).

The regulation of the habitats of special importance has remained the only biodiversity stipulation in the Forest Act. All the other practices of forest management are based on soft law: Tapio's guidelines and forest certification standards (PEFC and FSC). Metsähallitus (a government enterprise that steers the use of state-owned forests) has environmental guidelines for practicing forestry in state-owned forests. In addition to the forest regulation, the Nature Conservation Act (NCA) (Finnish Parliament 1996b) includes stipulations that affect forest management. These all are examples of integrating elements of sustainable use in forest management. Unfortunately, there has not been any substantive progress in this integration since 1990's in these regards.

6 Forest Act

The Finnish Forest Act does not force the forest owner to conduct loggings. In fact, the owner may just forget the whole forest and let it be as it is. Only severe damage by a storm or forest fire might require the owner to take certain measures. On the other hand, there are no limitations on loggings either. The owner may log their forest at any age, size and time and as much as one wants. At one time there were age and size limitations, but these too were abolished in 2013 when the Forest Act was amended. However, by re-introducing previous size and age limits it would be possible to limit the amount of loggings. There are some soft law restrictions on loggings during the nesting time of birds, but there is no information about how effective those rules are nor how big of a threat summer loggings pose for rare bird species (Pappila 2019). There are no areal restrictions on logging either, but in practice, the logging areas affected are relatively small. The average size of clear cuts is about two hectares. The strict obligation to take care of the regeneration of the forest is a pro-climate requirement even if it originates from economic sustainability.

As already mentioned, the Forest Act determines certain habitat types, called habitats of special importance (section 10), which are protected, and aims at protecting the areas of higher biodiversity values. The habitats are on average about 0,6 hectares and cautious felling by picking individual trees is normally possible. Many of the sites are, undoubtedly, ecologically more valuable than the surrounding 'normal forest'. However, ecologists have warned that protecting areas that are too small does not fulfil the aims of protection and, further, the ecological importance of small-sized protected habitats has also been questioned (Hanski 2006). As for climate change, the habitats do not affect the overall amount of loggings as the habitats cover less than 1% of privately-owned forests (Finnish Environment Institute 2013). There are also other problems related to the protection of these habitats; e.g. protection practices vary in different parts of Finland, many of the habitats have not been found in inventories or correctly delineated and are

therefore not protected in practice. Further, part of the known habitats is deteriorated or destroyed during loggings every year (Kotiaho and Selonen 2006; Pykälä 2007; Raunio et al. 2013; Pappila 2018).

Part of the forest habitats protected by the Habitats Directive (EEC 1992) are habitats of special importance and thus partly protected by the Forest Act. Part of the forest habitats are protected by the Nature Conservation Act, either as nature conservation areas or as protected habitats. Even if the status of habitats and species is better than in other EU member states (EEA 2014), all of the forest habitats protected by the Habitats Directive have an unfavorable conservation status in Southern Finland (National Summary 2012; EEA 2014) and would, for this reason, also require more efficient protection measures and changes in forest management practices.

Since the 2013 amendments to the Forest Act, the owner has been able to choose their method of logging. Before the addition of these amendments, the owner could only practice so-called even structured forest management where different forms of clear cutting are the main methods of final felling (followed by regeneration, 2–3 rounds of thinning and then final felling again – a rotation of about 60–80 years). Nowadays, continuous cover forestry i.e. uneven structured forest management is allowed. Continuous cover forestry is mainly based on selection cutting. There are research results showing that the current mainstream even-structured forest management is not always optimal from the point-of-view of limiting climate change (Pukkala 2011). Uneven-structured forestry would also offer some biodiversity and water protection benefits (Nieminen et al. 2018). To better protect ecosystem services, Tapio's best practice guidelines recommend uneven-structured forestry in some cases (Saaristo and Vanhatalo 2015). There are, nevertheless, no incentives or obligations to use continuous cover forestry even if it would be more climate and biodiversity friendly.

The Forest Act does not restrict land-use change. Forest land may be changed into another type of land for any reason and without permission. In Finland about 10,000 ha of forest area is lost every year (Haakana et al. 2015), but because the total forest area is 21,900,000 ha, the loss is in general not considered a problem in Finland. For certain forested mires, such as spruce mires, the ongoing clearing of peatlands into fields is still a threat (Kontula and Raunio 2018, 147). Currently, Finland is tracing how much and what kind of areas could be reforested. These could be e.g. unproductive farm lands. The main incentive for this is to increase CO₂ sinks (Ministry of Agriculture and Forestry 2018b).

7 Nature Conservation Act

The Finnish Nature Conservation Act regulates the establishment of nature conservation areas such as national parks and nature reserves. It also includes provisions on habitats protection (regional environmental authorities must delineate the habitats). Only some of the NCA habitats are forest habitats (wild woods rich in broad-leaved

deciduous species; hazel woods; common alder woods). About 1200 ha of these forest habitats have been delineated and protected. The habitats protected by the NCA are rarer, and typically a bit bigger and more strictly protected than those protected by the Forest Act (Raunio et al. 2013).

The NCA stipulates species protection, too. Habitats of certain species are either automatically protected against all activities (so called ‘directive species’ NCA section 49) or protected after the delineation by authorities (specially protected species NCA section 47). Habitats of all other species, even if classified as threatened, are not protected against logging. There is only soft law guidance on the voluntary protection of habitats of threatened, but not otherwise protected species (Pappila 2018). The most common forest species of the ‘directive species’ – protected by the EU Habitats Directive – is the flying squirrel. The breeding sites and resting places of the flying squirrels must always be protected. In practice’ set-aside areas have been too small to effectively conserve the habitat; only 21–36% of breeding sites and resting places are habited a year after a forest cut (Jokinen 2012). Using continuous cover forestry instead of clear cuts has been recommended around these habitats, but there are no obligations or incentives to do so (Saaristo and Vanhatalo 2015). Therefore, the de facto destruction of the habitats continues due to economic reasons even if the landowner is entitled to monetary compensation if economic losses are significant (NCA section 53). Apart from the flying squirrel, the habitat protection provisions of the NCA do not have substantial effect on forestry (Pappila 2018).

8 Indirect Effect of Other Legislation

It is quite clear that forests are not felled without a cause. There are underlying reasons i.e. economic needs for the wood provided by forests. Most of the cut wood goes to forest industry and the forest industry uses most of the logged wood: in 2017 the industry used 62,9 million m³ while 5,1 million m³ went for energy use (Luke 2018c). The forest industry of which we speak means mostly pulp and paper industry. After a bit of a slowdown, there have been large new investments lately in the forest industry. Further, it should be noted that a quarter of the energy produced in Finland comes from wood-based fuels. The energy use of wood is mainly based either on the thinning of young stands and on logging residue and it is thus less problematic than other use of wood materials.

The Finnish Act on Environmental Impact Assessment (EIA Act)(Finnish Parliament 2017) does not require EIA before regular forest logging. (EIA is required only for forest regeneration with non-native species, ditching or permanent land use change of more than 200 hectares.) Nor does any regulation require any kind of inventory on e.g. endangered species before silvicultural activities. However, in Finland the amount of data on different species is the most extensive in the world (Rassi et al. 2010).

Pulp and paper mills, of course, do require EIA. Then EIA also includes assessments on the indirect significant effects on e.g. biodiversity and climate. Therefore, the effects of raw materials i.e. mainly how loggings affect the surrounding areas should also be assessed. Nowadays EIA documents of pulp and paper mills do recognize the biodiversity and climate effects of planned mills and loggings. In relatively recent EIA assessments of pulp mills (EIA 2014a, EIA 2014b) the amounts of needed wood have been calculated and the effects have been assessed in a general way. The two example mills (EIA 2014a, EIA 2014b) will use mainly wood from thinnings, and some amount of wood waste from sawn mills. The Kemijärvi Mill (EIA 2014a) is assessed to use 2,9 million m³ of wood annually. The EIA document admits that it is not possible to say how loggings will affect the climate in the long and short run (EIA2014a). The Äänekoski project is even larger (5,5 + 13, million m³ of wood annually) and also uses the official ‘sustainable annual loggings’ estimates of The Natural Resources Institute Finland (in Finnish *Luonnonvarakeskus*, in short Luke) (Luke 2018b) to conclude that purchase of raw materials will be sustainable. The EIA report of the Äänekoski Mill (EIA 2014b) mentions that there are several remarkable forest industry investments under planning and correctly acknowledges that their effects on carbon balance should be assessed together.

There is, however, no way to take these potentially negative effects on biodiversity or climate into account in licensing pulp and paper mills. The Environmental Protection Act (EPA) (Finnish Parliament 2014) only considers harms caused by emissions, not the logging of raw materials. EPA does not enable the authorities to assess the biodiversity effects of logging and other sustainability issues related to the production of wood raw material. Direct greenhouse gas emissions connected to the production of wood raw material are regulated by EPA or the Act on Emissions Trading (Finnish Parliament 2011), however, EPA-licensing does not take into consideration the indirect climate change effects of logging.

In sum, legislation does not include any ways to control the amount of logging. All in all, there is globally speaking, little regulation containing explicit provisions for mitigating forest-based climate-change (Christy et al. 2007).

9 Soft Law and Sustainability

When it comes to Finnish forest governance, the role of soft law is always emphasized, as hard law sets only general rules. The oldest of soft law is the best practice guidelines for sustainable forest management, which the Forestry Development Centre Tapio (established in 1907) develops and coordinates through a nationwide process. The guidelines are highly respected among forest professionals. However, they do not include exact standards for e.g. the minimum width of water protection zones but are instead descriptive.

Both certification schemes that are in use in Finland include more exact rules on forest management than national legislation. The PEFC standard is more widely

used (85% of Finnish forests) (PEFC 2018) but also less demanding than the FSC on biodiversity protection. The FSC includes more stringent rules on e.g. old holdover trees and dead and decaying trees, water protection zones and the protection of valuable habitats (FSC 2011; PEFC 2014; Pappila 2018). For instance, soft law provisions on water protection zones vary from 5 meters in PEFC to 30 meters in the FSC and 10–30 m in state-owned forests (Metsähallitus 2011). FSC has less effect than the PEFC as only 1,612,693 ha is FSC certified in Finland (FSC 2018) compared to 18,131,682 ha of PEFC certified forest areas (PEFC 2018).

Another often-mentioned protection instrument is the METSO program (see more below) that aims at voluntary forest protection. METSO is mentioned, for example, in the National Forest Strategy 2025: ‘while the increasing felling volumes risk to increase the number of threatened species, an attempt is being made to alleviate the situation by means of the forest biodiversity programme METSO’ (Ministry of Agriculture and Forestry 2015). Another set of means mentioned in the strategy, is the education of forest professionals and advising of forest owners.

Even if soft law has undoubtedly had many positive effects on Finnish forest management (e.g. water protection measures in forest ditching, see Pappila and Halonen 2015) it has been unable to make effective enough improvements in all spheres of forest management. For example, despite years of education, the amount of dead wood in Finnish forests has started to decline after several years of positive development (Luke 2019b). Recently, the quality of nature protection in forestry operations has also decreased slightly in other respects (Saaristo et al. 2017). One of the problems might be that the forest professionals who mainly do the actual forest logging, do not dare to undertake more protection measures than are recommended in the standard (minimum) way of interpreting the recommendations and certification criteria. More protection means financial losses for the forest owner. There is currently no practice for implementing protection rules on a case-by-case basis according to the natural conditions, as was originally intended (Saaristo et al. 2017). Also, there is no follow-up on the actual implementation of all protection measures of soft law (Pappila 2019). Despite this, soft law is usually mentioned as the main way to improve biodiversity protection in forestry.

PEFC standard is the only regulatory – law or soft law – instrument that mentions the level of sustainable allowable cut. The criterion 2 stipulates that ‘the level of sustainable allowable cut shall not be exceeded in the (certified) area during the five-year cycle preceding the audit’ (PEFC 2014). The definition (explanation) of the criteria is somewhat unclear. It states that ‘The maximum regional sustainable harvesting volume is considered to be a proportionate average for a five-year cycle calculated for the regional forest program’. It seems to refer to the calculations of Luke (see more below). Loggings in the South-East Finland already exceeded the estimates of Luke for 5 years (Forestry Centre 2019) and the effect of PEFC audit remains to be seen.

10 Annual Sustainable Loggings

Calculations on annual allowable cut (AAC) are used around the world. In some countries such as Russia and Canada, AAC calculations are binding on forest leasers (Mathey et al. 2009; Elbakidze et al. 2013), while in some countries, like Finland, the calculations are merely background information for national and regional forest policies. The use of binding AAC calculation is easily understood in countries where state-owned forest areas are leased to private actors, whereas in Finland every forest owner makes logging decisions concerning their own land and thus the introduction of binding AAC would seem like a ‘planned economy’ tool. Additionally, AAC is in some cases the minimum amount of logging that the tenure holder is expected to log and does not therefore allow for any extra ecological considerations (Mathey et al. 2009).

The Natural Resources Institute Finland makes estimates regarding the largest volume of sustainable felling (Luke 2018b). Estimates are made both regionally and for the whole country. Currently, according to Luke, ‘the largest volume of sustainable felling removal of stem wood is approximately 81 million cubic meters per year during the period of 2011–2020’. These estimates are not binding for anyone, but e.g. national and regional forest strategies are based on these calculations and therefore it affects the general planning of Finnish forest governance, including subsidies.

Calculations by Luke are based on extensive national forest inventory data. To date, ecological and social sustainability have not been considered while calculating the maximum allowable cut. Only the existing protection of forest areas is taken into account with regards to restrictions on forest use, otherwise e.g. biodiversity and recreational values are not considered (Luke 2018b). This means that the pressing ecological need to increase the amount of protected areas is disregarded. Further, issues such as age structure and the need for more dead wood and large trees should be taken into account (Korhonen et al. 2016). This means that annual sustained yield would be a better definition, as the continuous discourse on ‘sustainable loggings’ is misleading and easily marginalizes discussion on the effects of forestry on biodiversity as groundless. According to estimates from April 2019, the maximum annual loggings would be 78 million m³, when considering intensified nature protection in production forests (Luke 2019c).

The Finnish Government sets annual production targets for Metsähallitus, which in turn governs and manages the state-owned forests. Production targets are minimum goals and do not set the maximum levels of loggings. Instead of limiting loggings, Finnish forest governance mainly aims at maximizing forest growth and increasing logging through e.g. monetary instruments.

11 Forest Planning

There are different levels of forest planning in Finland. State authorities develop national forest strategy and regional forest plans; however, these strategic documents are not binding and mainly include aims for developing forestry.

Private owners can purchase a customized forest plan, which includes information about their forest's resources and valuable habitats, and a timetable for various forest management tasks such as thinning and final felling. The owner may choose a production, protection or e.g. recreation-oriented forest plan. Nowadays, the Forest Centre collects information through remote sensing, laser scanning and aerial photography, while the Centre's database covers more than 4/5 of privately-owned forests. According to this data collected through public funding, the forest owner receives free information about their forests and even recommendations for forest management (Finnish Forest Centre 2016a) and thus a customized forest plan is no longer a necessity if mainstream forest management is the aim of the forest owner.

Actual landscape level planning takes place only in state-owned forests and under the purview of Metsähallitus (Metsähallitus 2016). In private forests, landscape planning would also be beneficial for biodiversity and would be a more cost-efficient means of biodiversity protection than current protection instruments (Mönkkönen et al. 2014; Michanek et al. 2018). Landscape planning not only allows for the protection of certain valuable areas but also the diversification of forest management regimes to suit relevant species. The owner could then be compensated if the management regime (e.g. extended rotation, green tree retention, no thinning) would not be economically optimal for the owner (Mönkkönen et al. 2014). This would be cheaper than compensating for economic losses as full protection requires. The losses could be covered by e.g. a tax-fund system where each forest owner pays a tax or a fee to cover the losses of those owners that suffer financially from the implementation of certain practices (Michanek et al. 2018). The existing, detailed forest data combined with species data could already make landscape planning an ecologically and economically sound possibility. This kind of a landscape-level and binding forest planning would also help to decrease the climate vulnerability of species (Mazziotta 2015; Mazziotta et al. 2016). To be efficient, these landscape plans ought to be binding.

12 Financial Instruments

The Finnish government supports forest management and the forest industry in many ways. One of the mechanisms is the Temporary Act on the Financing of Sustainable Forestry (Temporary Act) (Finnish Parliament 2015b). About 60–70 million euros are distributed annually according to this act (Luke 2018d).

A small part of the total sum – about 5% – goes to the protection of biodiversity and other ecosystem services. Firstly, the owner may receive financial support if they

take biodiversity or other ecosystem issues into account more extensively than is required by law (e.g. support for passive protection) (Temporary Act, section 19). Secondly, the owner may receive support for active protection measures, which means various forest ecosystem management projects, such as management and the restoration of important habitats, prescribed burning and other similar projects with regional significance, which enhance forest ecosystem management as well as the multiple use, landscape, cultural and recreational values of forests (Temporary Act, section 21). Yet, there is not enough money budgeted for these purposes and only a portion of the suitable sites is protected (Finnish Forest Centre 2016b).

The biggest part of state subsidies, 67 million euros in 2017, goes to forest management: the forest owner can obtain support for the tending of young stands, remedial fertilization, ditch cleaning and supplementary ditching, and forest road maintenance and construction. The rationale behind this support is to enhance forest productivity and ensure raw material for the forest industry. In 2018 the subsidies for forest roads were increased again. The aim is to increase the accessibility of Finnish forests by increasing the support of forest road maintenance and construction. Ironically, climate change is also behind this increase as the winters has become shorter and the ground does not freeze, thus forest roads are under more pressure than before (Ministry of Agriculture and Forestry 2018a). Therefore, at least a part of these subsidies directly aims at increasing loggings. Other types of work might affect climate change and biodiversity, too. Positively or negatively. On the one hand, the tending of young stands aims at increasing forest growth, which could mean more CO₂ sequestration. On the other hand, however, it may decrease biodiversity (Mönkkönen et al. 2014), and forest ditching and ditch maintenance in turn affect waters negatively (Nieminen et al. 2017; Pappila and Halonen 2015) and in some cases increase CO₂ emissions from peat forests (Ojanen et al. 2014) and forest roads have had a great impact on forest fragmentation and lead to a situation where edge-influenced forests make up a large portion of the landscape (Löfman 2006).

Another financial instrument affecting forestry is the Finnish forest biodiversity program METSO (2008–2025) (Ministry of Agriculture and Forestry 2017). It aims at halting the decline of biodiversity. The METSO program emphasizes voluntary protection, which became the norm in Finland after the severe dissatisfaction of landowners towards the relatively non-participatory process of developing the Finnish Natura 2000 network at the end of the 1990s. Forest owners may now decide whether they want to protect their forests or not and receive full financial compensation for protection. METSO areas are partly financed by the mechanisms of the Temporary Act (and thus add nothing to the old system). The government money for this purpose dropped drastically in 2012. Another part of METSO protection is financed through the nature protection budget and the share of the budget has also dropped after 2014 (Koskela et al. 2018). Nevertheless, the government refers to this program as the main means to protect forest biodiversity from increasing loggings (Ministry of Agriculture and Forestry 2015). Perhaps due to calls for more money from different sectors of society and the popularity of the program, some additional money was allocated for METSO in 2018 (Koskela et al. 2018).

In addition to the financial support for forestry and nature protection, there is the support that the forest industry receives directly and indirectly in Finland. The biggest share of support comes in the form of tax relief. Firstly, energy intensive industry receives part of their payments for electricity tax back (tax refund); and secondly, energy intensive industry pays less tax for the electricity it uses (tax reduction). For example, the Finnish forest giant UPM collected 43 million euros in tax relief in 2016. Yet, this sum only accounts for 0,9% of UPM's turnover. In comparison, in 2016 the Finnish Government spent 25,6 million euros for the METSO program (Koskela et al. 2018). At the same time, the company paid 510 million euros in dividends to its shareholders. Out of the other large forest companies, Metsä Group received 25 million euros and Stora Enso, 16 million euros, in tax relief (Pietarinen and Roslund 2018).

Some of the subsidies are pro-biodiversity and help to reach the goals of sustainable forestry, while most of the subsidies, such as support for road construction, aim directly at increasing the use of wood. However, even if financial support for the forest sector clearly increases forest logging, decreasing these subsidies would not result in the quick changes in forest loggings that might be needed to maintain and increase the CO₂ sinks of forests. On the other hand, the tendency to give even more subsidies to pro-logging projects – especially to forest roads – instead of nature protection, is likely to worsen the ecological sustainability of Finnish forestry.

The Finnish taxation system does not encourage owners to cut their forests: since 2006 the owners have been taxed according to their stumpage revenues (tax is currently 30% of profit). In addition, there is still the municipal tax on real estate. Earlier, a site-productivity forest taxation was in use and it encouraged the owner to sell wood because they had to pay taxes regardless of if they sold wood or not.

13 Conclusions and Discussion

Restricting the annual amount of forest logging is practically impossible according to the existing regulation, and the majority of forest governance instruments, such as law, subsidies and forest planning enhance increasing loggings. Current forest governance does not take planetary boundaries into account and forest policy documents include only abstract biodiversity goals without concrete means to achieve them. Current regulation on biodiversity protection is insufficient and there is no forest regulation concerning mitigating climate change. Biodiversity is continuously declining in Finland, although more slowly than in many other places on earth.

Even if the conservation status of all forest habitats protected by the Habitats Directive is unfavorable in Southern Finland, no effective new measures have been taken or planned. There are several suggestions for better forest habitat protection in the recent Red List of Habitats: saving the remaining old-growth forests, saving oldest trees and dead trees, saving some of the forest habitats even if their quality has been deteriorated (law requires that they should be in natural or semi-natural state in

order to be protected), diversifying forest management methods, and increasing restoration (e.g. forest fires), management (e.g. removing spruces) and inventories (Kontula and Raunio 2018). All these measures are well known, but the problem seems to be that the government counts on soft law, staff training and voluntary protection without adequate funding (Ministry of Agriculture and Forestry 2019). How all these measures will materialize is uncertain as legislation does not require them and does not include any incentives towards changes in e.g. forest management methods. Necessary protection, restoration and management measures would require more resources for underfunded environmental and forest authorities (e.g. training, inventories, delineation, protection procedures and restorations projects) and to pay for the economic losses of landowners. Currently the majority of training or nature protection projects (e.g. improved water protection or forest burning) of the Finnish Forest Centre is financed by e.g. European Agricultural Fund for Rural Development and there is not enough money for nature protection projects allocated in the budget.

As for forestry, there is not only private interest vs public interest, but also public interest (biodiversity and climate) against public interest (economic growth), which makes the puzzle even more difficult to solve. At present there are no strong political forces that would demand the implementation of strong sustainability instead of playing the game according to the rules of short-term economic growth. The long-term risks of climate change are considered only to the minimum extent. There are continuous arguments about how much forest Finland can or must protect or log, as it would be no option to keep the CO₂ storages now as large as possible and log the forests then, after 20–30 years, when it is visible how climate change prevention has worked out globally.

It is more difficult to make quick changes to the amount of loggings in a country like Finland where forests are primarily owned by private owners. However, the state should still be responsible for limiting loggings when necessary for environmental reasons. It is not possible to shift the responsibility onto private forest owners and they should not be forced to consider the national policies and environmental commitments of Finland in their private decision-making without clear legal rules and compensation for their economic losses. There are ecologically harmful subsidies on private forest management that could be diminished or abolished, but that would only be a short-term measure in the face of the urgent situation posed by the climate change and biodiversity decline. Financial instruments can also have positive effects in the future, though. If the carbon trading system of the EU starts to function efficiently, it would increase the price of carbon. Increased price, in turn, could make carbon storage in forests more profitable than logging them.

Due to lack of regulation, defining maximum allowable annual cutting would currently only work for state-owned forests. State forests nonetheless cover less than 1/10 of current loggings and would not prevent increasing loggings in private forests or importing wood. There is currently no other regulatory instrument to restrict the amount of loggings in privately owned forests other than a vague criterion in the PEFC standard, which should affect Finnish forest industry if the loggings would continuously exceed the current (ecologically unsustainable) maximum estimates made by Luke.

There is often speculation about relocating forest industry into less environmentally responsible countries or simply importing more wood from Russia if there is not enough raw material available in Finland. Forest protection in one country – e.g. in China – has led to increasing logging and illegal logging in another countries – e.g. in Russia and Southeast Asian countries with weak regulatory regimes (Hu et al. 2014). It is, however, unlikely that all forest industry would move away from Finland – and there are clearly some limits for wood supply, even if we do not agree on those limits, and nationally we can only affect that. Limits to increasing global consumption is another, yet important discussion.

In privately owned forests other regulatory instruments should be used. Landscape planning could be a possible solution and ever more realistic due to the vast amount of forest data collected by remote sensing, laser scanning and aerial photography. Landscape planning could combine several instruments and aims. It would help to diversify forest management regimes according to the needs of biodiversity and different owners. Some species would benefit from e.g. continuous cover forestry or longer logging rotation. Forest management could be more intensive on less valuable forest plots. Planning that would cover several landowners' forests instead of only one owner and would help to create large enough habitats instead of the current, often very small-scale habitats now protected by the Forest Act.

Soft law does not bring a solution to the unsustainability of forestry. Soft law has already included rules and recommendations on ecological forest management for 20 years or more. Yet, soft law has not proven to function as efficiently as has been anticipated, as the example of dead wood shows.

As was shown in this article, it is neither easy nor currently legally possible to limit loggings in private forests either to protect biodiversity or climate. There are monetary incentives for forest owners to improve the productivity of forests but a very limited amount for biodiversity protection and none for carbon storage. The current ratio of 5% of funding to biodiversity and 95% to productivity (plus tenfold subsidies to the forest industry) should be changed and large-scale habitat protection and active restoration methods should be financed more than they currently are to reach the biodiversity commitments and targets Finland has undertaken. Reaching the targets requires new large-scale protection areas as well. Some threatened forest habitats such as old-growth forests cannot be protected in small patches or only temporarily.

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Part III
General Aspects: Corporate Responsibility
Practices & Product Policy

‘The Chemicals Between Us’: The Use and Discharge of Chemicals in the Life Cycle of a Pair of Jeans – From Legal Theory to Practice



Martine Bosman, Tineke Lambooy, Elif Oral, and Bart Jansen

1 Introduction

Our previous study on the sustainability challenges (‘hotspots’) faced by the denim and jeans industry (‘EU SMART Study’; EU SMART 2017a, p. 7–8) demonstrated that although water use and CO₂ emissions are important environmental issues, the use and discharge of chemicals constitute a major hotspot in the majority of the international supply chain phases; this hotspot adversely impacts people’s health and destructs ecosystems (EU SMART 2017a). Our sustainability indicators were based on the Social Foundation (Raworth 2012, 2017) and the Planetary Boundaries (Rockström et al. 2009). These theories establish within which boundaries we should stay with our activities worldwide in order to remain within a safe and operating space for humanity. We should prevent that the life-supporting ecosystems collapse or implode in an unrepairable way, thereby taking into account social basic values of equitability and fairness. The use and discharge of chemicals contribute to the crossing of two of the Planetary Boundaries, i.e. the boundary of biogeochemical flows and the boundary of chemical pollution. The latter has been substituted by a new boundary in 2015, i.e. “the introduction of novel entities” (Steffen et al. 2015, p. 6). In several stakeholders’ and experts’ meetings, this hotspot emerged as in need of further research (EU SMART 2017b). Thus, in this chapter we analyze the challenges of the global denim and jeans industry in reducing the use of toxic and hazardous chemicals (hereinafter: ‘chemicals’) and their discharge. We follow this

In the document we submitted, the reference to the song was mentioned, this needs to be inserted again as an asteriks * Title of a song of Bush (Album: The Science of Things, 1999)

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up by studying relevant laws and regulations concerning this topic and we search for innovative solutions pioneered by best practice companies in view of complying with such legal norms.

In order to make the research outcomes more targeted and tangible, we chose to examine the challenges faced by one Western jeans brand (the 'Brand'). The Brand is known for its continuous attempts to improving its performance in terms of Corporate Social Responsibility ('CSR'; Lambooy 2010). In collaboration with the Brand, we selected one specific pair of jeans (the 'Jeans') offered by the Brand in its permanent collection as the object of our case study. The Brand agreed to provide us with access to its data, among other, on the manufacturing process and to introduce us to its supply chain partners (together with the Brand, the 'case study companies'). This research approach allowed us to pinpoint the companies working in the international supply chain of the Jeans, and hence to identify the countries in which they work, i.e. Turkey, Vietnam and the Netherlands.

In regard of these countries, we assessed the challenges they face, in general, with the use and discharge of chemicals related to the jeans industry, consumer use, and the waste and recycling of jeans products. From our research, we excluded the use and discharge of chemicals related to transport in and between the phases, because we focus on the denim and jeans industry specifically whereas transport is commonly found in most industry sectors and can be considered a sector in itself. Subsequently, we developed a regulatory ecology with the objective to find out which standards and mandatory norms apply to the use and discharge of chemicals in all phases of production, use and waste and recycling of jeans.

Subsequently, we mapped the efforts undertaken by the Brand and the case study companies to comply with the norms imposed in legislation, and where and how these efforts go beyond the mandatory norms in order to ultimately generate zero chemical waste. We analyzed and compared such efforts with the norms found in the regulatory ecology in order to detect best practices. In this way, we could indicate where the gaps are between (i) the standards mandated by law regarding the use and discharge of chemicals and (ii) what in practice is possible in avoiding or mitigating the pollution of ecosystems and causing adverse impact to people.

In this chapter, our main research question is: *What can be done by the denim and jeans industry to prevent the negative impacts on people and the environment caused by utilizing and discharging chemicals?*

1.1 Methodology

We performed doctrinal research in order to detect the types of chemicals used and discharged in the denim and jeans industry in general, and the adverse impacts caused by them. Academic literature was reviewed as well as grey literature such as reports from international institutions and civil society organizations. For developing the regulatory ecology, again through doctrinal research, we collected and analyzed relevant international, European and national laws, and soft law and self-regulatory

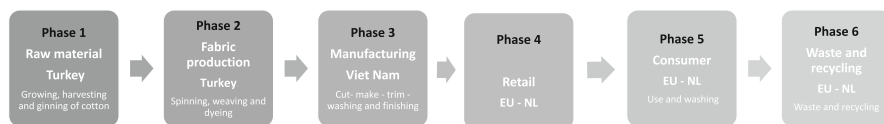


Fig. 1 Phases and processes in the PLC of the Jeans

norms, that regulate the use and discharge of chemicals. We involved legal scholars from Turkey (one of the authors, Elif Oral), Vietnam (assistant professor Tran Viet Dung of Ho Chi Minh City University of Law) and the Netherlands (three of the authors: Martine Bosman, Tineke Lambooy and Bart Jansen) in this process.

The second part of the study introduces a qualitative inductive case study in which we developed a product life cycle ('PLC', see Fig. 1) of the Jeans through semi-structured interviews with, and field visits and factory visits to, the supply chain companies. The authors themselves conducted the interviews in Turkey, Vietnam and the Netherlands with the case study companies in 2017. Besides this, we also visited and interviewed a denim production company in Italy, academics, environmental consultants, NGOs, civil servants, and people in the field in the stated countries in 2017–2018 (the interview protocols are available upon request). The interviews were transcribed and through coding, we collected the relevant information. The objective was to learn about the behavior of the case study companies in this PLC, the challenges in relation to the use and discharge of chemicals which they have to deal with, and the solutions which they have implemented.

1.2 Reading Guide

Section 2 reveals the results of the literature review identifying – in general – the chemicals that are used and discharged in the various phases of the production of denim and jeans, and what their potential environmental and health risks entail. In Sect. 3, the regulatory ecology is developed. Section 4 presents the results of the case study and provides the conclusions concerning the analysis of good and best practices engaged in by the case study companies. This is followed by the concluding remarks in Sect. 5, which also comprises a discussion on the limitations of the research and the opportunities for further study.

2 Chemicals in the PLC of a Jeans – Literature Review

In this section, we discuss the role of chemicals, which is indispensable in the PLC of a jeans in each of the life cycle phases. The information is based on our analysis of academic literature and reports, published predominantly in the last 10 years, hence it is *not* related to the case study companies' practices (see Sect. 4 for the case study).

2.1 Overview

The studies on the use of chemicals in the textile industry conclude that such chemicals have multiple negative impacts on the environment and human health (e.g. Avagyan et al. 2015; Bevilacqua et al. 2014; Hussein and Scholz 2018; Environmental Justice Foundation 2007; Hackett 2015; Fransson and Molander 2012; Karthik and Gopalakrishnan 2014; Korucu et al. 2015; Lofrano et al. 2016; Nijkamp et al. 2014; Parisi et al. 2015; Muthu 2017; Periyasamy and Militky 2017; Sandin et al. 2013; Swedish Chemical Agency 2013). The negative environmental impacts of chemicals on soil and water have been extensively assessed and clarified (Bisschops and Spanjers 2003; Aivazidou et al. 2016; Chico et al. 2013; Chapagain et al. 2006; Correia et al. 1994; Joa et al. 2014; Rudenko et al. 2013; Wang et al. 2013; Zhang et al. 2014). The negative impacts of chemicals on the human health was the subject of other studies (BfR 2012; Delmaar 2010; Delmaar et al. 2012; Finnish EPA 2011; RPS 2013; Rydberg 2009; Zhong et al. 2006). Besides a general overview, the literature research also provided phase-specific information on adverse impacts of chemicals, which will be discussed below.

2.2 Phase 1 – Raw Material (Cotton Cultivation)

The literature is consistent in indicating that in conventional cotton cultivation, synthetic fertilizers, pesticides, herbicides, fungicides, growth enhancers and defoliation agents are the most commonly used chemicals (UNEP 2011; Lee 2017; Robesin 2014; Larsson et al. 2013; Esteve-Turrillas and de la Guardia 2017; Textile Exchange 2014; Textile Exchange 2016b; Rana et al. 2015 p. 214). The chemicals especially contribute to water pollution (Hackett 2015, p. 9, 72; Chico et al. 2013; Chapagain et al. 2006) and soil eutrophication (FAO 2015; Solidaridad 2014; Radhakrishnan 2015; Baydar et al. 2015). They contain toxic and carcinogenic chemicals, which are especially harmful to other plants and aquatic organisms, causing long lasting adverse effects (Almeida 2015, p. 178; Gardetti 2015, p. 66; Environmental Justice Foundation 2007). An overview of possible chemicals used in this phase and the effect thereof is presented in Fig. 2.

In order to minimize the adverse impacts, various methods of 'Integrated Pest Management' ('IPM') have been introduced (Grose 2009, p. 46 et seq.; WWF 2007). For example, according to the Better Cotton Initiative ('BCI') production principles, farmers should first consider non-chemical pest control methods, hence pesticides use is seen as a last resort (BCI 2018, p. 14). Furthermore, in terms of chemicals' use, organic cotton growing has environmental benefits compared to conventional cotton, because in organic cotton growing, no genetically modified seeds, synthetic fertilizers (Blackburn 2009, p. 262; Muthu et al. 2012), and toxic and persistent chemicals, such as pesticides, are allowed (Bevilacqua et al. 2014). Additionally, only organic fertilizers and manures (Wakelyn and Chaudhry 2009, p. 244), and

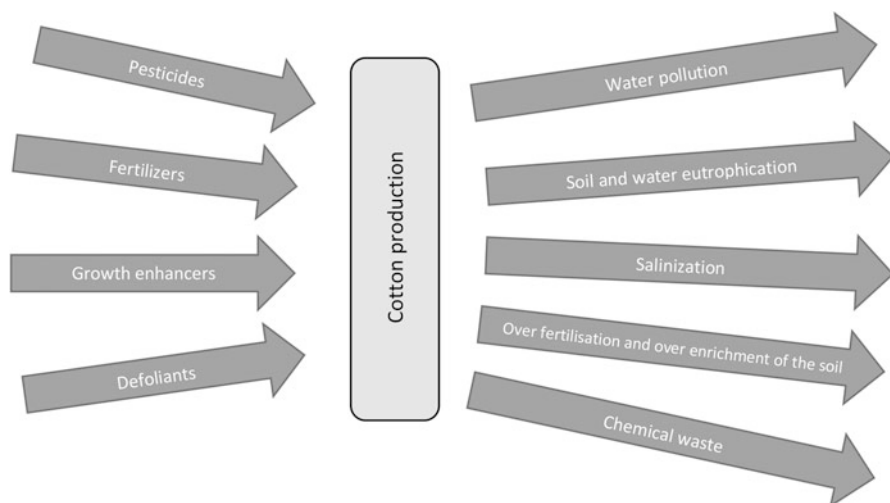


Fig. 2 Overview of possible chemicals used in cotton production and the effect thereof

certain biological or mineral-based pesticides, may be used (EC 2007, arts.12(1) (d) and (h), 16(a) and (b); GOTS 2017; OCS 2017).

2.3 Phase 2 – Fabric Production

In the spinning process, several chemicals, such as synthetic oils and ester oils, are used (IPPC BREF 2003; Karthik and Gopalakrishnan 2014, p. 167–169). After spinning, the threads are woven and treated, including pre-treatment processes comprising singeing, i.e. burning off of loose fibres, desizing, scouring, mercerizing, and bleaching (Harane and Adivarekar 2017), dyeing, washing, softening, finishing, and after-treatment. The chemicals generally used in this phase significantly contribute to the environmental adverse impacts in the PLC of a jeans, and they pose a ‘high-risk’ due to the use of highly hazardous chemicals (OECD 2018, p. 55; Finnish EPA 2011, p. 16). Marechal et al. (2012, pp. 29–54) analyzed that persistent organic pollutants (POPs) are emitted during the finishing process in the textile industry.

The process of washing and scouring of the fibers is conducted with detergent and auxiliaries, along with sodium hydroxide (caustic soda). This process causes a high contamination of wastewater with pesticide residuals and other contaminants, such as dirt and grease from the fibers (Hackett 2015, p. 9, 23). Bleaching agents (e.g. hydrogen peroxide, sodium silicate, chlorine) are used to clean the fibers (Hackett 2015; Bevilacqua et al. 2014). Caustic soda is also sometimes added to the process of bleaching and/or mercerizing. In the dyeing and finishing processes of the denim, a variety of chemicals are used, such as synthetic indigo (Buscio et al.

2015) and auxiliaries, alkali, salts, reducing and oxidizing agents (IPPC BREF 2003, p. 78, 83–85) as well as finishing chemicals, such as sulphuric acid, phenol, caustic soda, softeners and anti-bacterial substances (Öztürk et al. 2016a). Inorganic auxiliaries may include heavy metals such as mercury, cadmium, and lead (UNEP 2011; Parisi et al. 2015).

Consequently, the described processes produce waste water which can be heavily polluted with chemicals (Öztürk et al. 2016a, p. 93). Studies reveal that conventional biological waste water treatment systems and purification methods remain inadequate in treating the dyes, metals and other toxic compounds (Yükseler et al. 2017). When the waste water is discharged into natural water resources, the chemicals consume the oxygen in the aquatic environment, and the dye causes scarcity in the light, essential for aquatic habitat (Holkar et al. 2016, p. 352; Hussein and Scholz 2018, p. 6871). An overview of possible chemicals used in this phase and the effect thereof is presented in Fig. 3.

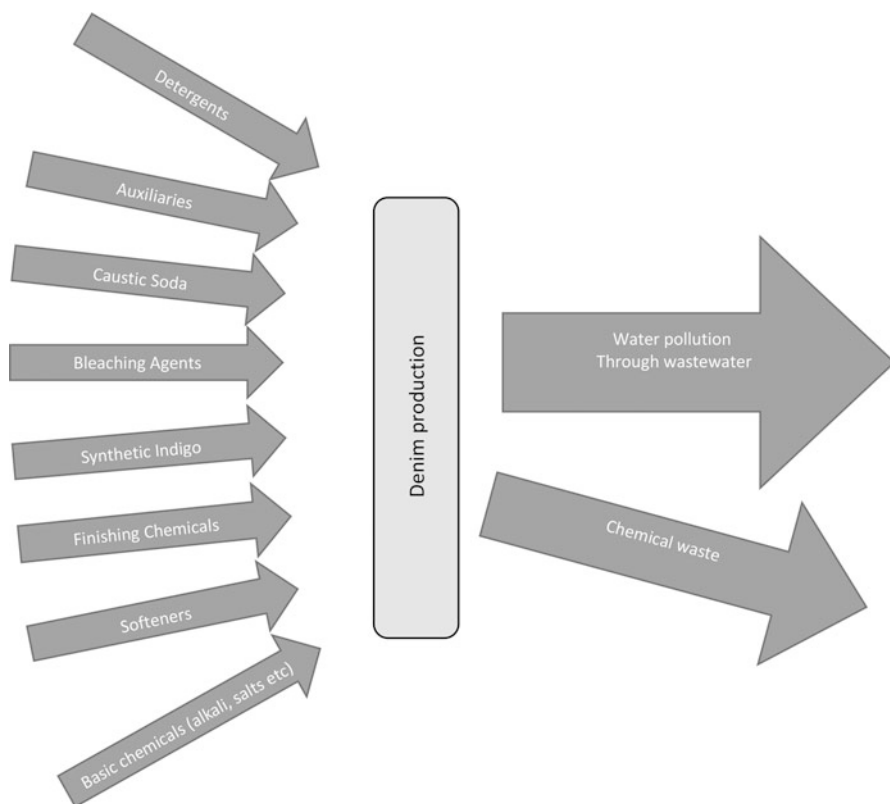


Fig. 3 Overview of possible chemicals used in denim production and the effect thereof

2.4 Phase 3 – Manufacturing

Phase 3 entails the garment manufacturing, or the 'cut, make, trim' ('CMT') process. The treatment differs from jeans to jeans. All denim fabric starts out as dark denim. Most jeans are subsequently treated before they are sold to the consumer: the finishing process. To obtain a lighter or faded look, jeans can be sprayed with potassium permanganate or treated with bleaching agents, which need to be neutralized with chemicals such as sodium metabisulphite. Jeans can also be stonewashed, treated with lasers or sandblasted (Amutha 2017, pp. 40–41; Periyasamy and Militky 2017, pp. 171–185; EU SMART 2017a, p. 38). Resins can be used to create a 3D wrinkle effect (Khalil and Mazedul Islam 2015). Jeans are washed in industrial-sized washing machines, detergents and softeners are used in this process. The number of washings will vary per look and can take up as much as 12 steps. Afterwards, the jeans are dried, checked and finished. Furthermore, in this Phase 3, buttons, buckles, leather patches, labels, zippers and other accessories are added to the jeans. The production of these parts may also entail the use of various chemicals (GOTS v. 5.0, pp. 17–18; Zhang et al. 2014).

Other chemicals used in the process can involve sodium hydroxide (caustic soda, removes waxes and oils from the fiber to make it more receptive to bleaching) and formaldehyde, a textile finish resin, used for instance to reduce shrinkage (Lee 2017; European Survey 2007). The chemicals used in this phase, can present substantial environmental pollution and health hazards resulting from the disposing of (untreated) 'solid' waste such as sludge and (untreated) waste water. An overview of possible chemicals used in this Phase 3 and the effect thereof is presented in Fig. 4.

2.5 Phase 4 – Retail

We note that the chemicals used in the warehouses and retail shops include substances used for cleaning floors and toilets et cetera. However, since these activities are not specifically related to the retail of jeans; we decided not to elaborate on this subject.

2.6 Phase 5 – Consumer

Irresponsible consumption and uninformed consumers also play a significant barrier for realizing an environmentally sustainable fashion industry (Strähle and Müller 2017, p. 17; Steinberger et al. 2009). Consumers buy (too) many jeans, wash them (too) often, do not always offer their jeans after use for re-use and/or recycling. Depending on the local situation, detergents used by consumers can end up in surface water or soil. Not all detergents are bio-degradable and thus can cause adverse impact to the local ecosystem. Additionally, if a jeans still would contain toxic chemicals, e.g. due to improper treatment of the chemicals in the production or

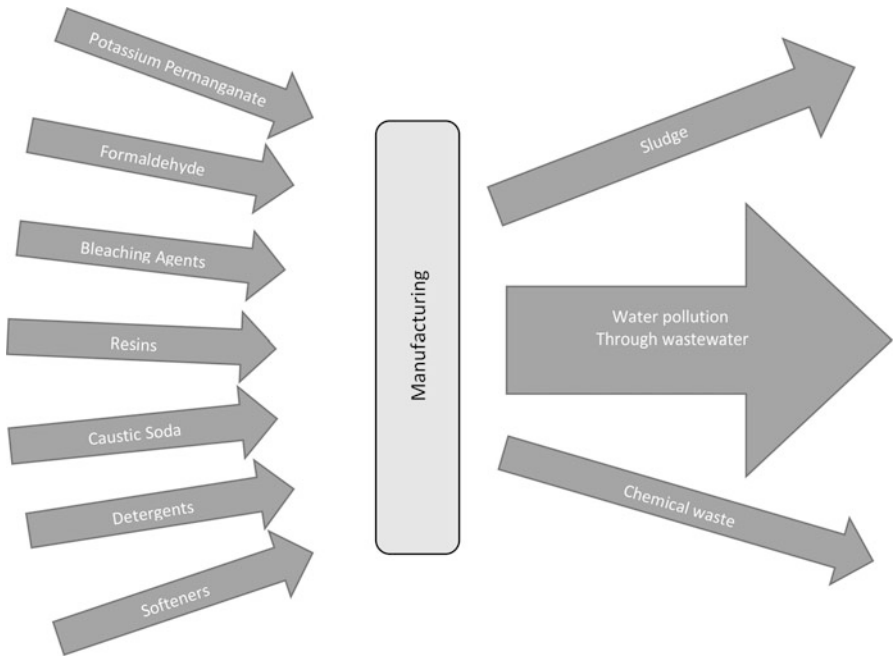


Fig. 4 Overview of possible chemicals used in the manufacturing of a pair of jeans and the effect thereof

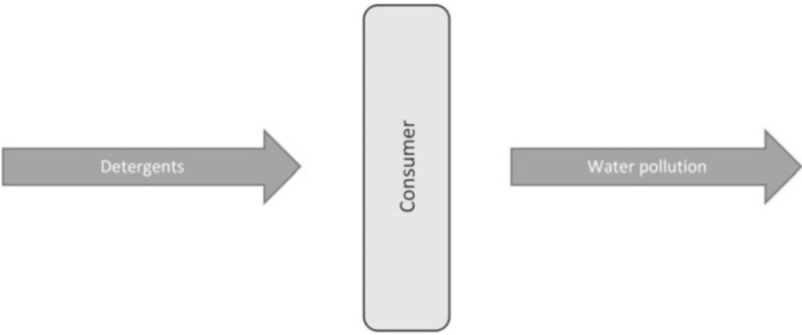


Fig. 5 Overview of possible chemicals used in the consumer use phase of a pair of jeans and the effect thereof

finishing processes (Phases 2 and 3), washing by consumers can result in the leaching of such chemicals into the waste water. Depending on the local filter-system of the sewage system, if any, the environment could be harmed (Lofrano et al. 2016; Greenpeace International 2012, p. 11). An overview of possible chemicals used in this Phase 5 and the effect thereof is presented in Fig. 5.

2.7 Phase 6 – Waste and Recycling

This is the phase in which the first consumer or the retailer discards a jeans. If the discarded jeans is disposed of in an ordinary garbage bin, it ends up as waste. Generally, waste will be incinerated or end up in a landfill. If a jeans ends up in a landfill, it can cause an adverse impact on the local environment, because any residue of chemicals still existent in the fabric will trickle into the soil and contaminate surface and ground water.

Other options are that a jeans is resold through a second-hand ready-made garment ('RMG') network or is disposed of into a textile waste container. Any discarded RMGs in a textile waste container are collected by textile sorting companies. Hence, the RMGs are divided into several categories: (i) RMG that can be worn again, (ii) textiles that can be recycled, and (iii) waste. The first category is mostly sold to Eastern Europe, Africa, and Asia (Tojo et al. 2012, p. 26; www.wieland.nl/marketing-en-verkoop-gesorteerd-textiel/; www.sympany.nl/wat-doen-we/wat-doet-sympany-met-textiel/). Reuse does not entail the use or discharge of chemicals, other than the transport and detergents applied by the new user in the washing process.

As regards the recycling of textiles to useable 'new' fibers, we note that there are two main methods of creating new fibers from old textile materials: (i) mechanical, which is used for single material recycling, e.g. a jeans made of 100% cotton, and (ii) chemical, which is used to recycle synthetic, man-made fibers and mixed or blended fibers (Textile Exchange 2016a; Vadicherla and Saravanan 2014). Stretch jeans are made of cotton mixed with elastane. Such mixed fibers constitute a complicated technical problem to break down into useable new fibers (Muthu et al. 2010; Leonas 2017, p. 65; WRAP 2016). The process requires the application of chemicals. The main chemical used to separate cellulose from polyester is a toxic solvent, i.e. *n*-methylmorpholine-*N*-Oxide (GHS category 4 classification; www.sigmaaldrich.com/catalog/product/aldrich/224286?lang=en®ion=NL; Leonas 2017, p. 65; Zamani 2011; Zamani et al. 2015; Jeihanipour et al. 2010). Overall, it is still difficult to realize the recycling of RMG products on a substantial scale, and there is still a great need for innovation and research into technologies to tackle the problems arising in recycling mixed fibers to new 'virgin' fibers again (Interview Brand 2017; Ellen MacArthur 2017, pp. 97–99).

3 Legal and Self-Regulatory Norms

In Sect. 2, among other, we identified the chemicals that generally play a role in each phase of the denim and jeans supply chain. In Sect. 3, we first discuss the development of international legal norms and international soft law regarding hazardous chemicals (Sect. 3.1). These norms not only provide an important context to evaluate the subject, but they also often form(ed) the motivation for adopting national

legislation and developing self-regulatory regimes. In Sect. 3.1, the role of industry-wide chemicals-specific self-regulatory norms is pointed out. The Sects. 3.2, 3.3 and 3.4 contain the discussion concerning the pertinent legal norms in each of the jurisdictions in which the case study companies operate (Turkey, Vietnam and the Netherlands). A full overview of the regulatory ecology concerning the use and discharge of chemicals, comprising international, European and national laws, as well as soft law and self-regulatory regimes is presented in Annex 1 at the end of this paper.

3.1 International Legal Norms and International Soft Law

3.1.1 International Treaties

The Stockholm Convention on Persistent Organic Pollutants ('POP'; EC 2004) aims to prohibit and/or to eliminate the production, use, and trade (import/export), and to reduce the unintentional releases of certain chemicals, and finally to ensure a safe and environmentally sound manner of waste management of the intentionally produced POPs. The 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal aims to reduce the generation of hazardous waste, to restrict their transboundary movements, and to promote an environmentally sound waste management (EC 2006a).

Other international treaties are aimed at sharing and providing information, such as the 1998 Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, which promotes shared responsibility, cooperation and information exchange among the Parties concerning the use and trade of certain banned or severely restricted chemicals and severely hazardous pesticides. The Rotterdam Convention has been implemented in an EU Regulation (EC 2003), in certain respects going further than the said Convention. Regarding the international regulation of chemicals it is also important to consider the Aarhus Convention (UNECE 1998), which envisages public participation in decisions on specific activities (art. (6)(1)(a)), such as allowing and establishing chemical installations for the production of phosphorus-, nitrogen- or potassium-based fertilizers, chemical installations for the production of basic plant health products and biocides, plants for the pre-treatment (operations such as washing, bleaching, mercerization) or dyeing of fibers or textiles where the treatment capacity exceeds 10 tons per day (Annex 1).

Finally, the main piece of EU legislation on chemicals is the EU Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals ('REACH'; EC 2006b). The Regulation aims to protect the environment and human health by putting the burden on companies to assess and manage the risks imposed by the chemicals used in their products, and to inform their employees and the public on these risks. The European Commission determines and updates the list of chemicals

that needs authorization, such as the substances of very high concern ('SVHC'; Lambooy 2010, pp. 345–349).

3.1.2 International Soft Law

The Rio Declaration on Environment and Development ('Rio Declaration') and the Agenda 21 (UNCED 1992) have contributed in raising awareness concerning the dangers involved in the production, use, and trade of hazardous chemicals in relation to agricultural and industrial activities (Agenda 21, Chapters 6, 8, 14, 19 and 20). They recommend the adoption of integrated farm and pest management within the framework of a life-cycle management. Agenda 21 calls upon industries to establish environmental management systems, to identify the areas where integration of a cleaner production method is needed, and to effectively control the storage, treatment, recycling, reusing, transporting, recovering and disposal of hazardous waste.

Following these stipulations, an internationally agreed-upon standard managed by the United Nations (UN) was set up to replace the assortment of hazardous material classification and labelling schemes previously used around the world, that is the Globally Harmonized System of Classification and Labelling of Chemicals ('GHS'). This voluntary standard was established with the aim of informing workers and consumers on chemical hazards. Currently, the GHS is being implemented in the laws of an increasing number of countries (Persson et al. 2017). Multiple other international instruments, specifically aimed at the use of chemicals, have also been adopted in order to underline the urgency of implementing national measures to prevent chemical pollution and unhealthy practices (e.g. World Summit on Sustainable Development 2002 'Rio+20' paras. 213–223; The Future We Want 2012; Resolutions WHA.63.26 and WHA.63.25 by the World Health Assembly of World Health Organization (WHA/WHO 2010); ILO Convention No. 170 concerning safety in the use of chemicals at work).

The ambitions of preventing chemical pollution and unhealthy practices as formulated in the Rio Declaration and the Agenda 21 have later been strengthened by the Millennium Development Goals (MDGs 2000) and the Agenda 2030 for Sustainable Development Goals (SDGs 2015). The SDGs, represent an important non-binding commitment by the governments, businesses and people to "reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination" (SDG 3); "achieve the environmentally sound management of chemicals and all wastes throughout their life cycle ... in order to minimize their adverse impacts on human health and the environment," by 2020 (SDG 12.4); and finally to "improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated waste water and substantially increasing recycling and safe reuse globally" (SDG 6), by 2030.

The main aim of international soft law specific to chemicals is to call upon the actors involved (i.e. governments, international organizations and private actors) to minimize the significant adverse impacts of chemicals and pesticide use. Several

declarations adopt a governmental level political commitment to respect human rights and ecosystem integrity through implementing sustainable agricultural practices, cleaner manufacturing processes, and environmentally sound chemical and waste management strategies. See, for instance, the Bahia Declaration on Chemical Safety of the Intergovernmental Forum on Chemical Safety (IFCS 2000), the Dubai Declaration on International Chemicals Management (Preamble paras. 3–4), The Strategic Approach to International Chemicals Management (SAICM 2006, p. 11) and the International Code of Conduct on Pesticide Management (FAO/WHO 2014). Additionally, the 2016 Guidelines on Highly Hazardous Pesticides (FAO/WHO 2016) establish the tools for identification, assessment, mitigation, planning, and prevention in order to help the governments to interpret and apply the International Code of Conduct on Pesticide Management.

As the topic of chemicals has been considered of great concern to human health and environmental protection, the UN have appointed a ‘Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and waste’ (‘UN Special Rapporteur’) who reported in ‘The Guidelines for Good Practices’ (‘Report’; HCR 2017) that businesses, – especially, among others, the textile and other garment industries (paras. 91–93) – have the responsibility to act with due diligence regarding the use of toxic chemicals and wastes discharged in the life cycle of their products to prevent that their toxic footprints result in the violation of human rights, including right to life, right to health, right to physical and mental integrity, right to food, right to water (para. 81, 112(g), 82). According to the Report:

This requires businesses to go beyond mere compliance with existing legislation and regulations. Existing legislation has been, and continues to be, outpaced by the rapid expansion and evolution of key industrial sectors, such as extractive and chemical industries, and innovation in new products and processes downstream. Legislation lags farther and farther behind the evidence of hazards, risks and impacts of hazardous substances and wastes. The rapid expansion of extractive and chemical industries in low-income countries has outstripped the capacity of government regulators, creating governance gaps and heightened possibilities of impacts. (para. 84)

3.1.3 Industry-Wide Chemicals-Specific Self-Regulatory Norms

Literature on CSR and sustainable business models observe that self-regulation currently plays an important role in setting international minimum standards on the use and discharge of chemicals (Lambooy 2010, Ch. 6 and 10; Molderez and van Elst 2015, p. 101; King and Lenox 2000, p. 698; Ashadujjaman 2019). As part of their CSR strategy, several Western-based brands have adopted certification standards. An example thereof is the *Worldwide Responsible Accredited Production* standard which universally certifies the RMG factories to verify that they comply with local laws and internationally accepted standards of environmental protection ensuring proper and safe waste management and disposal (Principle 10). There are many other initiatives and some are specifically aimed at minimizing the use and

discharge of chemicals such as Zero Discharge of Hazardous Chemicals (ZDHC) and the Chemical Footprint Project founded by Clean Production Action, aiming to reduce or ban the use of certain chemicals (Finnish EPA 2011, p. 49) or to promote safer alternatives to hazardous chemicals (Rossi et al. 2017, p. 26 et seq.).

3.2 *Challenges in the Early Stages of the PLC of a Jeans – Phases 1 and 2 (Turkey)*

3.2.1 Turkish Legal Framework Pertaining to the Use and Discharge of Chemicals

Turkey is an OECD Member State, and a party to the international treaties mentioned in Sect. 3.1.1, except for the Aarhus Convention, and has transformed those international norms into its domestic law (see Annex I). Furthermore, having an EU candidate country status, Turkey harmonizes its laws with the EU *acquis*, especially with regard to environmental protection (MEF 2006), consumer and health protection, food safety, and agriculture. For example, since Turkey is an important exporter of various agricultural products, including vegetables and fruits, to EU countries, it is obliged to cultivate these products in accordance with the EU *acquis*. Therefore, Turkish laws and regulations concerning the use and discharge of chemicals (Annex I) are mostly similar, identical and/or equivalent to EU legislation (Durak-Kılıçaslan 2015, pp. 38–40). Nevertheless, it has been observed that the use of a chemical recently banned in the EU may continue in Turkey until it becomes extinct in the market (Şık 2017).

According to the Turkish Constitution, it is the duty of the State and the “citizens” to improve and to protect the environment, and to prevent environmental pollution (art. 56). In other words, the State, businesses, including the mills engaged in yarn and fabric production, and individuals, such as cotton farmers, are responsible for taking the necessary measures in order to protect everyone’s right to live in a healthy and balanced environment. Similarly, the State should ensure efficient land cultivation, and prevent improper use and destruction of agricultural land (arts. 44 and 45), e.g. by supporting farmers in acquiring machinery, equipment and other inputs with the purpose of preventing improper use and destruction of the agricultural land.

In line with the Constitution, the Turkish Environment Law provides that “everyone”, including the administration, professional chambers, unions and other NGOs, has a duty to protect the environment and to prevent pollution (art. 3). Compliance with the international commitments, and particularly the EU *acquis*, is expressly mentioned among the environmental and agricultural policy priorities in order to achieve sustainable development and sustainable environment goals (Environment Law art. 1 and Agriculture Law arts. 5, 18(2)(b)). The Environment Law (art. 2) defines hazardous chemicals and hazardous wastes as:

any type of chemical substance or products, wastes and substances contaminated with these wastes, which causes the deterioration of ecological balance and the denaturation of human

beings and other living things by adversely affecting the ecosystem concerning physiological, chemical and/or biological aspects.

Accordingly, except for certain legal loopholes and inconsistencies with the EU *acquis* due to the time required for the transition and transformation of the laws in the harmonization process, environmental adverse impacts and sustainability hotspots resulting from the use of hazardous chemicals in cotton cultivation (Phase 1) and the yarn and fabric manufacturing processes (Phase 2) – both as identified in Sect. 2 – seem to stem mainly from the absence of good practices due to economic, social and structural constraints or loose enforcement of laws rather than their content (Oral 2019). For example, buying eco-friendly technology is considered expensive, agricultural traditions do not change easily, and advanced irrigation systems and drainage canals mostly have not been implemented. The phenomenon of unregistered apparel workshops also brings new challenges into play (Oral 2019).

3.2.2 Phase 1 – Raw Material (Cotton Cultivation)

The use of growth enhancers and defoliants in Turkey is very rare (Kooistra et al. 2006, p. 23; Baydar et al. 2015) and the cultivation of genetically modified cotton is not allowed (By-Law on the Genetically Modified Organisms and Their Products). Hence, conventional cotton is GMO-free in Turkey.

Chemical fertilizers – containing nitrogen and phosphorus – are widely preferred to natural manure, because of their low-cost and easy-accessibility in the market. Pesticides are also used widespread in the Mediterranean, Aegean and Marmara regions (Dağhan and Öztürk 2015, p. 296), and 29% of all pesticides used in the agriculture is applied for cotton cultivation (Altun 2016, p. 13). However, in Turkey, the use and effects of highly hazardous and extremely hazardous chemicals is low compared to other top cotton-producing countries (Pesticide Action Network 2017; FAO 2015, p. 15; De Blécourt et al. 2010, p. 35), due to (i) the legal ban – in line with the EU *acquis* – on the most harmful agricultural pesticides, (ii) the legal restrictions on the use of chemicals in certain protected areas (By-Law on the Registration, Evaluation, Authorization and Restriction of Chemicals (Turkey ‘REACH’); By-Law on the Control of the Pollution Caused by Dangerous Substances In and Around Aquatic Environment; By-Law on the Chemical Fertilizers Used in Agriculture, and to the By-Law on Water Pollution Control), and (iii) the ban on aerial pesticide spraying (Sirtioğlu 2017, p. 4). Moreover, the adoption of an IPPM approach, such as BCI, prevents serious soil degradation, water contamination, and air pollution. This approach has reduced the pesticide use by 92% despite the increasing production (Pesticide Action Network 2017, p. 18, 33).

The By-Law on the Protection of Drinking Water Basins is also relevant in this context as it provides that: (i) no agricultural activity other than organic farming, and if this is not possible “good agricultural practices”, is allowed in an area having a radius of 1 km surrounding drinking water basins (arts. 9(12), 10(11)); (ii) no new industrial facility may be built in an area having a radius of 1.3 kilometers

surrounding drinking water basins (arts. 10(6) and 11(6)); (iii) transforming to organic farming and good agricultural practices in such areas are encouraged (art. 11(10)); and (iv) no waste water storage, treatment, and disposal is allowed in this area (art. 11(9)) and in an area having a radius of 2 kilometers from the rivers used for the purposes of acquiring drinking water. However, full implementation of this By-Law, which entered into force on 28 October 2017, and the preparation of protection plans for the drinking water basins may take up to 5 years (provisional art. 1 of the By-Law).

The By-Law on the Control of Water Pollution and the By-Law on the Control of Soil Pollution envisage a series of measures and rules regarding the prevention of water and soil contamination, but the lack of infrastructure constitutes a problem for waste water treatment (Oral 2019). For example, governmental support on building subsoil drainage canals is effectively used in some areas, while in others, no technique is used for preventing waste water contaminated by pesticides, fertilizers, and crop residues, to harm the soil and to mix with fresh underground water resources (Interview İyi Pamuk Uygulamaları Derneği, IPUD 2017). In some regions, surface drainage canals are also absent. Therefore, soil (Yüce et al. 2006; Çelik et al. 2005; Yaylalı-Abanuz 2011) and natural water resources, such as the Meriç-Ergene River, Gediz River, Küçük Menderes River, and Büyük Menderes River, which are located near agricultural fields and industrial plants, are found to be highly contaminated, particularly with heavy metals such as cadmium, lead, and mercury (Dağhan and Öztürk 2015, p. 295–296; Sari et al. 2016; Dökmeci 2017; Güler et al. 2013; Tezcanlı-Guyer and Genç-İlhan 2011; Yılmaz and Koç 2016; Küçük 2007). The use of polluted natural water resources for irrigating agricultural fields, where vegetables, fruits or rice are grown, also seriously threatens human health (Kocaman et al. 2015).

Finally, the By-Law on the Control of the Packaging Wastes, in line with Directive 94/62/EC of 20 December 1994 on packaging and packaging waste, requires that the treatment of packaging waste of chemicals is effectively controlled. Stubble burning is also prohibited by the Environment Law (art. 20(1)). The fine is approximately 74 TL (conversion rate by April 2020: USD 11) per *decare*; additionally, criminal sanctions can be enforced pursuant to the Turkish Criminal Code (arts. 181 and 182). In practice, sometimes these packages are either left behind in the field (Interview IPUD 2017) or burned outdoors together with the cotton stalks and weeds (Interview Farmer 2017) causing more environmental harm, killing every living-thing in and on soil, and adding to the risk of soil erosion (Dağhan and Öztürk 2015, p. 299).

3.2.3 Phase 2 – Fabric Production

In textile mills, the processes of yarn and fabric manufacturing often imply the use of chemicals and excessive use of water. Particularly, the wet fabric processing procedures, such as the pre-treatment, bleaching, dyeing (colorings), washing, softening, finishing, and the after-treatment, may cause significant adverse impacts on the

environment, causing chemical pollution in soil and water if the waste water is not treated properly (Sect. 2).

Thus, an environmental impact assessment (EIA) is required for any industrial project that entails a bleachery, yarn mill and fabric mill having dyeing departments, in case they have a yearly capacity of more than 3000 tons (By-Law on EIA Annex-1). Concerning denim washing facilities, except for normal washing conducted with softeners, the Ministry of Environment and Urbanization may require conducting an EIA, depending on an evaluation based on the criteria determined under the By-Law on EIA (art. 15 and Annex-2, 10(c)).

The Environment Law bans and/or restricts the use and discharge of hazardous chemicals which affect ecosystems and human health. Enterprises acting against the provisions of the Environment Law may be given a one-year time in order to bring their activities in line with the Law, unless the breach creates an immediate danger for the environment and/or human health (art. 15). In case of existence of such a danger, anyone who produces, sells, stores, uses, transfers, collects, recycles, re-uses and disposes hazardous chemicals and wastes can be held jointly and severally liable, regardless of any misconduct (art. 28). The Environment Law envisages a series of administrative fines and sanctions, including the suspension of the activities of the polluter (arts. 15), in case of, among others, not building the compulsory waste collection, pre-treatment, treatment or disposal facilities; polluting internal waters and soil by wastes; polluting resources of drinking water by wastes (art. 20). If the “wastes” concern “dangerous wastes” (i.e. explosive, harmful, toxic, carcinogenic, toxic for the reproduction system, eco-toxic, or mutagenic), the fine can be increased up to figures of approximately 369,000–3,688,000 TL (conversion rate by April 2020: USD 57,000 – 568,000) and can be multiplied by factor 3 if the polluter is a company. (also see 2020/1 Communiqué on the Administrative Fines).

Finally, the EU Directive concerning the integrated pollution prevention and control (‘IPPC’; EC 2008/1, replaced by EU 2010/75, i.e. the Directive on industrial emissions), obliges the States to take preventive measures against air, water, and soil pollution related to industrial activities, to issue permits for existing and new installations, and to adopt additional measures for issuing a permit, if an environmental quality standard requires stricter conditions than are those achievable by the use of the ‘best available techniques’ (BAT) (art. 10). Turkey has not enacted a law implementing the IPPC Directive, but it adopted – the content of which is in line with the IPPC Directive – the Communiqué on the IPPC in Textiles Industry. It applies to those facilities, where processes such as washing, bleaching, mercerizing, sizing, printing, desizing and similar pre-treatment, dyeing and finishing, are conducted with a capacity of more than 10 tons per day (art. 1(2)) (also see the By-Law on Water Pollution Control art. 31(f)). The yarn and fabric producers themselves are responsible for controlling all emissions, discharging, and wastes. Additionally, they are required to implement the BAT and/or Clean Production Plans (CPP) to prevent air, water and soil pollution (Communiqué art. 7). However, Turkish government observations record that the fabric producers may act reluctant due to technical difficulties and the high costs of use of advanced technology, which is often priced based on foreign currencies (MEU 2016, p. 132). Nevertheless, some of the textile

mills successfully started to invest in eco-friendly technologies (see Table 1, Sect. 4) aiming to reduce water exploitation and chemicals use in line with the Communiqué (Öztürk et al. 2016a, p. 93). Furthermore, pursuant to an amendment of the Communiqué in 2015, it is now required that facilities, which apply mercerization over 1 ton/day, reuse their waste water of mercerization containing alkali in the pre-treatment processes (Communiqué Annex I, B.2.4).

3.3 *Challenges in the Manufacturing Process of a Jeans – Phase 3 (Vietnam)*

3.3.1 Vietnamese Legal Framework Pertaining to the Use and Discharge of Chemicals

In Vietnam, laws are passed by the National Assembly, which consists of delegates who mostly are part-time deputies; they only meet twice a year for a 30-day session. Laws usually regulate a matter in general terms and so-called Decrees and Circulars particularize the norms in more specific terms. Relevant Laws, Decrees and Circulars concerning the environment, biodiversity, and the use and discharge of chemicals have been examined by us to the extent as they were available in English. Tran Viet Dung assisted us in finding these laws and provided explanation.

Vietnam is party to the international treaties mentioned in Sect. 3.1.1, except for the Aarhus Convention, which is not open to accession for Vietnam (arts. 17 and 19). Vietnam is a party to several multilateral environmental agreements that regulate the use of hazardous substances and/or the protection of and care for biodiversity (see Annex I). The new Free Trade Agreement (‘FTA’) between the EU and Vietnam (signed 30 June 2019), establishes a framework for environmental protection in the context of trade and investment. It requires the States Parties to pursue sustainable development (Chapter 13, arts. 1 and 2) and to encourage trade in products which contribute to the sustainable use and conservation of biological diversity. The FTA further stipulates that the States Parties promote CSR in which regard they will take into account the ‘internationally agreed instruments that have been endorsed or are supported by each Party’ (Chapter 13, art. 13.10.2e).

3.3.2 Phase 3 – Manufacturing

The RMG industry in Vietnam has grown extensively in recent years, contributing to its industrialization. In the same period, multiple laws and regulations were adopted regulating the use and discharge of chemicals. They are relevant for RMG manufacturers. The central norms can be found in the Law on Chemicals and the Law on Environmental Protection. These norms are elaborated in Decrees and Circulars adopted pursuant to these laws.

Regarding the use of chemicals in the manufacturing and finishing of a jeans, the Law on Chemicals ('LoC', Chapter V) and several subsequent Decrees and Circulars are important (see [Annex 1](#)). The LoC provides regulations on safety, rights and obligations, and state management in chemical handling. The LoC defines hazardous chemicals as chemicals with one or more of the hazardous properties listed in art. 4 (4), which refers to the GHS (see Sect. 3.1.2). Regarding the manufacturing of a jeans, the use of PP and liquid bleach are classified as toxic to aquatic life (Classification retrieved from <https://echa.europa.eu/nl/substance-information/-/substanceinfo/100.028.874> and <https://echa.europa.eu/nl/substance-information/-/substanceinfo/100.028.790>).

According to the LoC, organizations that use chemicals in their production process are entitled to receive sufficient and precise information concerning the properties of those chemicals, classification, labelling, and Safety Datasheets (art. 30(1)) from the producer of the chemicals. Companies must identify and list the chemicals they use and store for the production process (arts. 30(2)(e) and 53). They must also inform and train their employees to observe safety instructions in dealing with chemicals and provide them with relevant information (art. 30).

The Law on Environmental Protection (LoEP) stipulates that environmental protection is the responsibility of every agency, organization, family household and individual (art. 4(1)) and must harmonize with economic growth, conservation of biodiversity, children's rights and the promotion of gender equality "*to ensure the human right to live in a pure environment*" (art. 4(2)). In terms of liability, any organization, family household or individual who causes environmental pollution, emergencies and/or degradation, is responsible to find remedial solutions, pay damages and assume other responsibilities as stipulated by law (art. 4(8)).

In the manufacturing process of a jeans, solid and liquid wastes as well as waste water are produced. The discharge of hazardous waste water, waste substances and other poisonous agents can inflict adverse impacts to human beings and to plants, animals and living organisms in water sources. Although the textile industry is not the main contributor to hazardous waste in Vietnam, it generates a considerable amount of chemical waste (Nguyen Thi Kim Thai 2009, p. 259). Manufacturing businesses are obliged to collect and treat waste water, and to collect, classify, treat and discharge solid waste in accordance with the LoEP (art. 68(1a) and (1b)) and the prescribed environmental standards (see also Decree 80/2014/ND-CP on waste water treatment and Circular 04/2015/TT-BXT concerning water drainage and costs). Manufacturers who produce a large amount of waste which is likely to seriously affect the environment, are obliged to have employees who are specialized in environmental management systems (art. 68(3) LoEP). Manufacturing establishments working with environmentally harmful substances, including the jeans manufacturers using the bleaching agent PP, must ensure that there are no negative impacts on residential areas (art. 68(2) LoEP). Wastes, including hazardous wastes and waste water, should be managed through minimization, re-use, collection and treatment (Decree 38/2015/ND-CP; Chapter V, art. 36(1) and Circular 36/2015/TT-BTNMT).

Industrial zones must have their own waste water collection and treatment system, meeting prescribed environmental standards. Production units must have a collection of waste water and treatment system, either through self-treatment before discharge into the environment, discharging it into industrial waste water treatment systems, or transferring it to functional units outside their own facilities. The discharged water must regularly be monitored and managed in accordance with loading capacity and quota (Decree 38/2015/ND-CP, arts. 38 and 39). The state encourages all forms of investment in the field of waste water management in accordance with legislation on investment (art. 42 Decree). Lastly, chemical residues and waste must be treated by suitable technologies and meet environmental protection standards (art. 35 LoC with reference to the Law on Protection of the Environment for treatment of waste and waste water).

New textile manufacturing developments (‘projects’), which involve the production and sub-production of textiles and garments with an annual capacity of at least 50,000 products, including the stages of washing and bleaching, or an annual capacity of at least 2 million not involving such stages, need to carry out an EIA in the preparatory stage of the project (LoEP art. 18, Decree No. 18/2015/ND-CP art. 12 and Appendix No. II number 97). An EIA implies that communities are consulted to ensure that the project has no adverse impacts on communities’ well-being, biodiversity and/or the natural environment (Decree No. 18/2015/ND-CP, art. 12 (4)). Evaluating the process of EIAs in Vietnam, it was noticed that the timing of the EIA could be improved (it often occurs after the most crucial decisions have already been made) and that a meaningful public participation and information was not always achieved (Clausen et al. 2011; Tran 2019).

3.4 Challenges Pertaining to the Use and After-Use – Phases 5 and 6 (The Netherlands)

3.4.1 Dutch Legal Framework Pertaining to the Use and Discharge of Chemicals

The Netherlands ratified all international treaties and instruments discussed in Sect. 3.1 and is an EU Member State, hence it has to comply with all EU Regulations and to implement all EU Directives (Annex I). The Netherlands is also an OECD Member State.

3.4.2 Phase 5 – Consumer

The impacts of the use and discharge of chemicals in the PLC consumer phase stem from the detergents used for the washing of a jeans. Detergents are water-soluble cleansing agents, the production and sale of which are regulated by the EU Regulation (EC) No 648/2004) of 31 March 2004 on detergents and, in the Netherlands,

by the Dutch Decree on detergents environmental management (“Besluit Detergentia Milieubeheer” 2005). The EU Regulation imposes limitations on the trading of detergents taking into account the level of biodegradability of surfactants. Generally, the EU Regulation prescribes that national measures relating to the use of detergents must aim to achieve a high level of protection for the environment, in particular the aquatic environment, as guaranteed in the EU Commission’s White Paper on the strategy for a future Chemicals Policy (European Commission 2001). Furthermore, in the Netherlands, the Environmental Management Act (“Wet Milieubeheer”; art. 10.2) prohibits the release of any waste outside a qualified waste establishment. Exceptions from this prohibition are provided in the Decree on the release of waste water by private households (“Besluit lozing afvalwater huishoudens” 2007), pursuant to which a private household is permitted to release its waste water to the local sewage system managed by the municipality provided that the household complies with any local rules imposed by the municipality.

3.4.3 Phase 6 – Waste and Recycling

If a jeans end up in the general waste, it eventually will be incinerated. In the Netherlands, according to the National Waste Control Plan (“Beleidskader Landelijk Afvalbeheerplan” 2017), waste need to be recycled and ultimately incinerated. Any waste that can be incinerated may not end up in a landfill (Chapter B 12). However, waste is sometimes temporarily ‘stored’ in a landfill until it can be otherwise processed. As explained in Sect. 2.7, a RMG that ends up in a landfill can still release chemicals capable of contaminating surface and ground water. Therefore, contaminated water and leachate must be collected and treated to the appropriate standard before it can be released (EU Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste, Annex I). The Directive regulates the protection of soil and water through situation and design requirements (in art. 3) and regulates water leachate management (in art. 2). Pursuant to this EU Directive, the Decision on landfill and soil protection (“Stortbesluit Bodembescherming” 1993) stipulates the criteria that Dutch managers of landfills need to take into account in order to protect the environment.

If a jeans is collected separately from other household wastes (Sect. 2.7), it can be used for resale or recycling. Dutch law does not impose a duty on consumers to discard their jeans in a separate waste bin or container, hence many discarded jeans end up in ordinary household waste. Municipalities often place special textile waste containers, but consumers are not obliged to bring their jeans to them. Nor are retailers and brands mandated by law to recollect any jeans sold by them (Baart et al. 2019). In regard of the recycling process, chemicals are used in certain types of recycling processes (Sect. 2.7). Companies that use chemicals in recycle processes have to comply with the Dutch Environmental Management Act and are to obtain the necessary operational permits. This Act has the objective to prevent that any environmental harm would be caused by industrial processes.

4 The Case Study: Good and Best Practices

4.1 *The PLC of the Jeans*

In Sect. 2, we presented the ecological and social challenges faced by the denim and jeans industry related to the use and discharge of chemicals. In order to detect the best practices in the jeans industry aimed at addressing the challenges, we conducted a case study. Together with the Brand, we selected a specific pair of jeans, i.e. the Jeans, and analyzed its PLC along the lines of the PLC displayed in Fig. 1 (see for the methodology, Sect. 1.1).

The information which we obtained in the case study showed that the Jeans is made of organic cotton. The cotton is cultivated and harvested in Turkey (Phase 1). The cotton is transported by truck to a denim mill elsewhere in Turkey, where it is spun into yarn and subsequently woven into denim fabric (Phase 2). Next, the denim is shipped to Vietnam. In a manufacturing factory, the denim is cut and stitched to produce the Jeans. The Jeans is treated to get the desired look and feel and finished (Phase 3). The Jeans is then transported by truck in Vietnam and subsequently by boat to the Netherlands, where the Brand is headquartered. The Jeans is sold in retail stores in the Netherlands or sold online and shipped through a parcel delivery company (Phase 4). After Phase 4, although the Brand develops initiatives, it has no real influence on the behavior of the buyers of the Jeans, nor on the processes in the after-use phase. Consumers wear and wash the Jeans (Phase 5) and at the end of life, they either resell the Jeans, give it away for reuse, or throw it away (Phase 6). For the purpose of the case study, we assumed that the last two phases also take place in the Netherlands. As set out in Sect. 1, we did not examine the use and discharge of chemicals related to the transportation in and between the phases. In the case study, the means of transport differ per day depending on the lead time of the Jeans and on the practical possibilities and prices of the transporters.

In regard of each phase of the PLC of the Jeans, we obtained detailed information from the case study companies concerning their use and discharge of chemicals. We categorized these industry practices along the lines of the challenges identified in Sect. 2 and the legal norms discussed in Sect. 3. In Table 1, we present an overview of our findings. Per phase, the challenges are stated, the country-specific legislation is summarized, and the good and best practices adopted by the case study companies are accounted for. We also added any best practices found in literature to enrich the overview of best practices.

Generally, regarding the use of chemicals, we found that the legal norms applicable to the case study companies primarily provide instructions concerning any prohibited chemicals (Annex I), the use of the GHS list, and how to communicate information regarding chemicals to the government, consumers, or in the supply chain. Concerning the discharge of chemicals, our analysis displayed that laws are in place in Turkey, Vietnam and the Netherlands regulating the discharge of hazardous waste and waste water. Such laws aim to protect the environment in general and any vulnerable areas in particular. In our case study, we found several good or best

Table 1 Overview per phase of the challenges, country-specific legislation, and good and best practices

Challenges found in literature (Sect. 2)	Country specific Legislation (Sects. 3.2, 3.3, and 3.4)	Good and best practice
Phase 1 – Cotton cultivation – Turkey		
Pesticides and fertilizers use	Ban on the most harmful pesticides.	Good Practice: Better Cotton reduces pesticide use in comparison with regular cotton.
	Legal restrictions concerning the use of chemicals in certain protected areas.	Best Practice: Organic farming, GOTS certified cotton: the use of pesticides, fertilizers and chemicals are limited or not used at all.
Water and soil contamination	No agricultural activities other than organic in an area of 1 km surrounding drinking water basins.	In organic farming toxic and persistent pesticides are banned.
Wastewater treatment	Agricultural wastewater should be treated in accordance with the relevant legislation.	See above.
Packaging of chemical waste	Wastes of chemicals need to be packaged and properly disposed of.	In organic farming, GOTS certified cotton: the use of pesticides, fertilizers and chemicals are limited or not used at all.
Phase 2 – Fabric production – Turkey		
General use of hazardous chemicals	EIA is required for an industrial project.	Good practice: ISO 14001: acting in line with appropriate legislation.
	List of banned and regulated chemicals.	Good practice: use the least hazardous chemicals, in compliance with Bluesign and ZDHC.
		Good practice: Use of dyeing techniques that are more superficial if the jeans will be bleached in manufacturing phase.
		Best practice: reduced indigo combined with an organic substance replacing, resulting in 70% less chemicals, 15% less indigo, no use of salts, no by-products such as sulphate, no risk for humans and planet.
Discharge of solid chemicals and residue after use	Restriction/ban on use and discharge of hazardous chemicals with administrative fines and criminal punishments.	Good practice: discharge of chemical waste in accordance with the laws.
Wastewater	Best available techniques and clean production plans are compulsory.	Good practice: treatment of wastewater before release.
	Reuse of wastewater is compulsory for facilities applying over 1 ton/day mercerization in the pre-treatment processes.	See best practice comment on reduced indigo above, this results in water that is clean and can be used again.

(continued)

Table 1 (continued)

Challenges found in literature (Sect. 2)	Country specific Legislation (Sects. 3.2, 3.3, and 3.4)	Good and best practice
Phase 3 – Manufacturing – Vietnam		
Use of hazardous chemicals	EIA might be required for new industrial projects.	Best practice: the least invasive chemicals: Bluesign certified and in accordance with the RCL ZDHC list.
	List of banned and regulated chemicals.	The use of laser instead of chemicals for bleaching effect.
Wastewater	Industrial zones must have their own wastewater collection and treatment centre.	Ozone washing.
	Should be managed through minimization.	Zero discharge of waste water: there is no release back into the environment. Water is recycled through a non-chemical, reverse osmoses process and Nano filtration and re-used.
	Manufacturers should collect and treat wastewater in accordance with the law or discharge in industrial wastewater treatment systems or transferring it to functional units outside the facilities.	
Chemical waste in sludge	Manufacturers should collect and treat waste in accordance with the law.	The least invasive, Bluesign approved chemicals are used (see above).
		The sludge is tested non-hazardous and recycled to bricks for homes and industrial use.
Solid waste	Waste is to be collected, classified and treated in accordance with the law.	Trimming and rejected jeans are recycled to new materials such as chairs. Method is being patented.
General negative effects	The manufacturer must ensure that there is no negative impact on residential areas.	
Phase 5 – Consumer – the Netherlands		
Use of and composition of detergents and softeners	Composition detergents and softeners must comply with regulation.	Soft tap water, saving up to 20% of detergent and 30% of softener use.
		Use of less invasive or even biodegradable detergents.
		Reduce frequency of washing.
Wastewater	No specific regulation with regards to release of household waste water from a washing machine to the sewerage.	See above.

(continued)

Table 1 (continued)

Challenges found in literature (Sect. 2)	Country specific Legislation (Sects. 3.2, 3.3, and 3.4)	Good and best practice
Phase 6 – Waste and recycling – the Netherlands		
Leachate	All waste that can be incinerated, is banned from landfill.	Separated waste collection for textiles.
	To prevent leachate into soil and water, structural requirements are in place.	Incineration instead of landfill.
	In case of leachate, the leachate must be collected and treated.	
Recycling	No regulation specifically aimed at the use of chemicals in recycling (falls within the scope of the general environmental laws applicable).	Improved RMG collection and post-collection-selection system.
		Take back system.
		Lease-a-jeans.
		Design with focus on recycling.
		Recycling of the jeans.

practices employed by the case study companies that at minimum comply with these norms, and at best go beyond them.

Our analysis leads to the conclusion that the best practices presented in Table 1 in essence focus on the following four challenges: (i) restricting the use of chemicals; (ii) treating waste and waste water; (iii) sharing information about chemicals and creating transparency concerning supply chains and the production process; and (iv) closing the loop. This conclusion, however, mainly applies to the production phases of the Jeans and to a lesser extent to the consumer phase. In the waste and recycling phase, good and best practices can be found in discarding the Jeans in such a way that the denim or fibers can be recycled. A crucial approach in the process of developing best practices is eco-innovation, implying introducing technological, organizational, social and institutional changes (Panapanaan et al. 2014, pp. 1218–1219). Eco-innovation comprises new ways to reduce or substitute chemicals, and to treat the waste water (Eryiğit and Özürce 2015; Buscio et al. 2015; Holkar et al. 2016; Hussein and Scholz 2018; Chen et al. 2017; Kocabaş et al. 2009; Öztürk et al. 2009, 2015, 2016a, 2016b)). In the remainder of this section, we discuss each of the four focus areas as conclusions of the case study.

4.2 Conclusion 1: Restricting the Use of Chemicals

In the raw material phase of the Jeans, the GOTS certification (i.e. a self-regulatory norm, see Sect. 2) implies that the cotton is produced in compliance with the Council

Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91. Consequently, no hazardous or toxic fertilizers, nor pesticides, are used in the cotton cultivation process. GOTS and also the Organic Content Standard ('OCS') provide a 'positive list' of allowed chemicals (Almeida 2015, p. 176 et seq.; Choudhury 2015, p. 151 and 169). A similar method is used in the Zero Discharge Hazardous Chemicals ('ZDHC') standard, which self-regulatory norm prescribes the use of a so-called Restricted Substance List. Furthermore, the ZDHC standard recommends that the brand provides the Restricted Substance List to its sub-contractors, including recycling places (UNEP 2011, p. 11; ZDHC Manufacturing Restricted Substances List, Version 1.1.2015). Regarding the dyeing process, we found an innovative indigo dyeing technology, in which the pre-reduced indigo is combined with a liquid-based organic agent that replaces the conventional use of Sodium Hydrosulphite – a major problem in indigo dyeing. The technology employs 70% less chemicals, 15% less indigo, 0 salts, 0 sulphate bi-products, and as a result, all that is produced from this process is clean and reusable water (https://www.g-star.com/nl_nl/sustainablejeans).

4.3 Conclusion 2: Treating Waste and Waste Water

A best practice is signing the 'Greenpeace detox commitment', entailing an independent check of waste water and public communication of the results (e.g. mill Candiani, www.candianidenim.it/#quality-section). The commitment also advocates a zero discharge of hazardous waste by 2020 and guaranteeing a greener supply-chain in a post-toxic world (Greenpeace International 2012, pp. 5–6, 34). There are innovative alternatives for the use of chemicals and waste water treatment (e.g. waste water treatment applied at the Vietnamese case study company's facility, Table 1). Another best practice is described by Joa et al. (2014), who introduce a new method for corporate water accounting called "Regionalized Cumulative Water Intensity" (RCWI) for the cotton textile chain. Certainly, the best practice is preventing the production of hazardous waste water at all. As shown, this is a possibility in all production phases and either involves eliminating hazardous chemicals (see above), or distilling the chemicals from the waste water, and recycling them and re-using the water (visit and interviews at the Vietnamese case study company's facility).

4.4 Conclusion 3: Sharing Information and Creating Transparency

Regarding the use of chemicals in the PLC of a jeans, multiple flows of information need to be observed. From business-to-business within the supply chain, from

business-to-authorities, from business-to-communities and consumers, and from (local) authorities to its subsidiaries. Best practices can only be achieved if all these information flows are carefully executed. We identified practices that go beyond legal norms, i.e. companies that publicly disclose waste water and sludge test results and a list of suppliers (including wet processing supply chain companies), resulting in measurable and verifiable efforts. Transparency is essential for ‘detoxing’ the RMG industry, hence innovations need to be shared across the industry as much as possible.

4.5 Conclusion 4: Closing the Loop

Currently, the end of the PLC of jeans usually is the ordinary waste bin. Improved waste collection of jeans and a focus on recycling – in all aspects, from design to innovation in recycling techniques – could alleviate the (toxic) impacts in PLC Phase 1 (Ellen MacArthur 2017, p. 91; Sandin and Peters 2018; Interview Brand 2017; WRAP 2017). Consequently, best practice requires designing jeans that can be recycled, ensuring that the jeans is returned to the brand or collected separately, and that it is recycled into new cloth or fibers. Still, it was difficult to find best practices in Phase 6. We found that consumers are not attentive in returning their jeans after use, brands do not typically collect their own waste, and the recycling technology of denim fibers is not yet mainstreamed (Interview Brand 2017, case study companies and others, and literature). We conclude that in terms of consumer behavior, company outreach in collecting the waste, and also technologically, many barriers need to be conquered, to achieve a PLC in which the recycling of jeans has a prominent place (Interview Brand 2017 and Interview recycling company 2017) or could even replace the cotton production in Phase 1.

5 Final Remarks, Limitations and Future Research Avenues

Recent literature on the use and discharge of hazardous chemicals in the denim and jeans industry reveals that in many of the production phases of a jeans, the use of chemicals poses a health risk to cotton farmers, companies’ employees and neighboring communities, and that local eco-systems have or are becoming dysfunctional due to chemical pollution. Therefore, in this chapter we analyzed what the denim and jeans industry can do to prevent such risks (*main research question*).

In Sect. 2, we identified which chemicals in each of the PLC phases of a jeans are the source of negative impacts on people and the environment and in Sect. 3, we assessed which legal norms address such challenges. Annex I contains an overview of all findings concerning the legal norms. Already for many decades, the dangers of

the use and discharge of chemicals have been acknowledged. Consequently, international norms have been defined and implemented in national jurisdictions. Many of those national legal norms align with each other, because they all derive from the same international instruments. However, not all norms correspond completely. As the PLC of a jeans usually covers multiple jurisdictions, this regulatory complexity creates challenges for brands that are committed to ensuring a sustainable production process throughout their supply chain. International soft law and self-regulatory industry standards provide assistance to brands in this respect as they go beyond local legislation by providing uniform standards. Examples are the OECD Due Diligence Guidance, ZDHC, GOTS, and OCS. These standards often align with the best practices in the industry. ZDHC is presently the forefront in the substitution and treatment of hazardous chemicals in the RMG industry. A ZDHC commitment requires companies to go for a zero-hazardous chemicals production process and instructs companies to be transparent about their achievements. In Sect. 4, we discussed which best practices are employed by the case study companies in the international supply chain of the Jeans. Table 1 links the risks related to using and discharging chemicals to country-specific legislation and the best practices found in the case study and literature. Table 1 reveals discrepancies between the risks, the legal norms, and best practices. Solutions able to address the challenges often go beyond current laws.

In answer to the main research question, we conclude that the denim and jeans industry can play an important role in realizing international ambitions concerning clean production supply chains if the companies (i) act in compliance with local laws and (ii) integrate sustainable choices in the decision-making processes in all phases of the PLCs of their products, thereby implementing (voluntary) international sustainability standards, such as among other ZDHC. Integrating sustainable choices starts with the design of a product, is followed by a careful selection of suppliers and close collaboration with them, and ends with a proper after-use policy (OECD 2018, p. 42, 55). In addition to this, innovation is key to improving the 'chemical sustainability' in the PLC of a jeans. Innovation can include replacing hazardous chemicals with eco-friendly ones and full treatment of waste water. Moreover, the waste and recycling phase needs more attention in order to realize a circular economy. As Strähle and Müller (2017) propose, all actors in the PLC can contribute thereto by applying the 'Five-R model': recycling, reusing, reducing, re-designing and re-imagining. We add: repairing, i.e. offer to repair jeans, as we found this service offered among the Brand's best practices.

However, even though these options are available, our research shows that the majority of the companies in the denim and jeans industry still operates in a very polluting way. Companies often refer to the competitive economic situation in the sector, in which the production speed increased enormously in the last 20 years while consumer and other prices decreased, and argue that it is too difficult for them to invest in new technologies and innovative processes. Hence, as our research reveals, only few companies in the sector are committed to find and implement solutions that address the dangers of the use and discharge of chemicals. Furthermore, typically, the design of a jeans does not yet aim for recycling in the after-use phase and brands

are commonly not collecting their jeans in the after-use phase. Currently, recycled fibers do not yet constitute the same quality as new cotton fibers, hence recycled fibres are often combined with newly produced fibres. Generally, the recycling process appears to be very undeveloped.

Another factor of influence on the behavior of companies is legislation. It appears that current legislation lags behind imposing effective solutions in avoiding chemical pollution and/or is not enforced. Furthermore, for most actors in the denim and jeans industry, the legal requirements do not represent the minimum, but rather the maximum standard. In order to move this sector towards an increased chemical sustainability, laws in the EU and the production countries need to be reinforced and updated so as to include the best practices; an improved minimum legal standard is necessary to ensure that the laggards also take steps towards avoiding causing chemical pollution and health risks.

The *limitations* of our research are that in the case study part of our research, we only followed one brand's international supply chain. In line therewith, we limited the legal part of the research to the jurisdictions in which the case study companies operate and we collected the best practices adopted by the case study companies. However, as commented on above, many of the laws identified by us aligned with each other as they follow international standards and ambitions. Hence, we believe that the essential elements of the legal standards emerged from our research results. Furthermore, regarding best practices, our literature research provided us with many additional insights in relation to best practices adopted by other brands and their supply chain companies. Moreover, in the case study, we conducted many interviews with stakeholders in multiple countries and from various backgrounds. Also, we organized four stakeholders' meetings, two of them in production countries in Asia, which meetings provided us with rich input (EU SMART 2017b). Finally, in this research project, we had the opportunity to collaborate with academic experts from Turkey, Vietnam, Bangladesh, India and Indonesia, several of them with an engineering background, who supported us in identifying best practices, thereby supplementing the ones that emerged from the case study companies' practices.

We see *opportunities for further research* addressing topics such as: (i) creating more transparency concerning which chemical substances are restricted by law in each country in the international supply chains of RMG products; (ii) clarifying deviations between restricted substances in countries; and (iii) formulating approaches to how to raise the bar in the EU in regard of importing products that have been produced while causing adverse impacts because of the use and discharge of chemicals. Furthermore, although many policymakers and companies consider recycling an important approach to close the RMG loop and to establish a circular economy, we note that little to nothing has been published on the use and discharge of chemicals in recycling practices.

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Annex I

Treaty and international law	Soft law generic	Soft law & self regulatory norms textiles specific	Regulation specific to phase 1 & 2 in Turkey	Regulation specific to phase 3 in Vietnam	Regulation specific to phase 5 & 6 in The Netherlands
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989)	Rio Declaration on Environment and Development with Agenda 21 (UNCED 1992)	The Accord on Fire and Building Safety in Bangladesh (The Bangladesh Accord, 2013)	Agricultural Law No. 5488, 18/4/2016, OG 18/04/2006, 26148	Law on Access to Information No. 104/2016/QH13	Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste
Rotterdam Convention on the Prior Informed Consent (PIC) for Certain Hazardous and Pesticides in International Trade (1998)	ILO Convention No. 170, 4 November 1993, Concerning safety in the use of chemicals at work	Bluesign – www.bluesign.com	Environment Law No. 2872, 9/8/1983, OG 11/8/1983, 18132	Law on Chemicals No. 06/2007/QH12	Decision environmental management of detergents (Besluit Detergentia Milieubeheer) 2005
UNECE Aarhus Convention, Convention on access to information, public participation in decision making and access to justice in environmental matters (1998) Applicable to the Netherlands	Bahia Declaration on Chemical Safety, of the Intergovernmental Forum on Chemical Safety (IFCS) (2000)	Business Social Compliance Initiative (BSCI) www.amfori.org/node/223/domain_access/3/field_resource_type/code-conduct-119?_ga=1.51736169.1504987314.1438963418	Law on Cotton Breeding No. 2903, 27/1/1936, OG 1/2/1936, 3221	Law on Environmental Protection No. 55/2014/QH13	Decision on landfill and soil protection (Stortbesluit Bodembescherming) 1993
Stockholm Convention on Persistent Organic Pollutants (2004)	UN Millennium Development Goals (MDG) 2000	The Chemical Footprint Project www.chemicalfootprint.org/	Law on Organic Farming No. 5262, 1/12/2004, OG 3/12/2004, 25659	Decree on Chemical Safety No. 68/2005/ND-CP	Council Directive 75/442/EEC 15/07/1975 on Waste
EC (2003), Regulation No 304/2003 of the European Parliament and of the Council of	World Summit on Sustainable Development (WSSD), Johannesburg Summit (2002)	Dutch Agreement on Sustainable Garments and Textile (2016)	Law on Soil Protection and Land Use No. 5403, 03/07/2005, OG 19/07/2005, 25880	Decree Detailing and Guiding the Implementation of a number of articles of the Law on	Decree on the release of waste water by private households ("Besluit lozing

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Treaty and international law	Soft law generic	Soft law & self-regulatory norms textiles specific	Regulation specific to phase 1 & 2 in Turkey	Regulation specific to phase 3 in Vietnam	Regulation specific to phase 5 & 6 in The Netherlands
28 January 2003 concerning the export and import of dangerous chemicals, OJ L 63, 6.3.2003, p. 1. Regulation as last amended by Commission Regulation (EC) No 1376/2007 OJ L 307, 24.11.2007, p. 14.				Chemicals No. 108/2008/ND-CP	afvalwater huishoudens”) 2007
EC (2004), Regulation No. 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC, OJ L 158/7	Dubai Declaration on International Chemicals Management and The Strategic Approach to International Chemicals Management (SAICM, 2006) With SAICM and a Global Plan of Action (2006)	Eco labels: EU Flower, Oeko-Tex 100, Oekotex 100 plus, STeP, The Recycled Claim Standard, Global Recycled Standard and organic certifications such as GOTS, OCS, OCS 100, BCI	By-Law on the Registration, Evaluation, Authorization and Restriction of Chemicals (Turkey REACH), OG 23/06/2017, 30105 mük.	Decree Amending and supplementing a number of articles of the Governments Decree No. 108/2008 detailing and guiding a number of articles of the Law on Chemicals No. 26/2011/ND-CP	Environmental Management Act (Wet Milieubeheer) 1993
EC (2006a) Regulation No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste incorporates the provisions of the Basel Convention into EU law, OJ L 190, 12.7.2006	Globally Harmonized System of Classification and Labelling of Chemicals (GHS, 2009)	OECD Due Diligence for responsible Supply Chains in the Garment and Footwear Sector (2018)	By-Law on Environmental Inspection OG 21/11/2008, 27061	Decree On water drainage and wastewater treatment No. 80/2014/ND-CP	Regulation (EC) No 648/2004 of the European Parliament and the Council of 31 March 2004 on detergents

EC (2006b) Regulation No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH),	World Health Assembly 63.25, 21 May 2010 Improvement of health through safe and environmentally sound waste management	The Social Accountability International (SAI) www.sai-intl.org	By-Law on State Support for Wastewater Treatment Facilities According to Article 29 of the Environmental Law No. 2872, OG 01/10/2010, 27716	Decree Prescribing environmental protection masterplan, strategic environmental impact assessment and environmental protection plan No. 18/2015/ND-CP	Policy on waste management in the Netherlands, Chapter B12 (Beleidskader Landelijk Afvalbeheerplan 2017–2029)
EC (2007) Regulation No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91	World Health Assembly 63.26, 21 May 2010 Improvement of health through sound management of obsolete pesticides and other obsolete chemicals	Sustainable Apparel Coalition (SAC) https://apparelcoalition.org/	By-Law on the Business considered as Industrial, Commercial, Agricultural and Forest Business, OG 3/9/2008, 26986	Decree Detailing a number of articles of the Law on Environmental Protection No. 19/2015/ND-CP	Administrative Decree on landfill and environmental protection (AMvB Stortbesluit Bodembescherming 1993)
EU Regulation on Registration Evaluation Authorisation on Restriction of Chemicals (REACH) establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and	OECD Guidelines for Multinational Enterprises (2011)	Worldwide Responsible Accredited Production (WRAP) http://www.wrapcompliance.org	By-Law on the Chemical Fertilizers Used in Agriculture, OG 18/3/2004, 25406	Decree On management of waste and discarded materials No. 38/2015/ND-CP	Directive 2008/98/EEC 19/11/2008 (Extended producer responsibility)
	UN Guiding Principles on Business and Human Rights, Implementing the United Nations 'Protect, Respect and Remedy' Framework (2011)	Zero Discharge of Hazardous Chemicals (ZDHC) & Restricted Substance List https://www.roadmaptozero.com/fileadmin/pdf/MRSL_v1_1.pdf	By-Law on the Health and Safety Measures in the Work with Chemical Substances, OG 12/8/2013, 28733	Circular Specifying a number of articles of the Law on Chemicals and the Governments Decree no. 108/2008/ND-CP detailing and guiding a number of articles of the Law on Chemicals No. 28/2010/TT-BCT	

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Treaty and international law	Soft law generic	Soft law & self regulatory norms textiles specific	Regulation specific to phase 1 & 2 in Turkey	Regulation specific to phase 3 in Vietnam	Regulation specific to phase 5 & 6 in The Netherlands
Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, OJ L 396, 30.12.2006, p.1	UN Conference on Sustainable Development, Rio+20 (2012)		By-Law on the Control of Industrial Air Pollution, OG 3/7/2009, 27277	Circular Stipulating hazardous waste management No. 12/2011/TT-BTNMT	
	The Future We Want (TFWW), UNGA Resolution (27 July 2012)		By-Law on the Control of the Waste Packages, OG 27/12/2017, 30283	Circular Providing the Registration of the use of chemicals for production of products and goods in the industrial sector No. 07/2013/TT-BCT	
	International Code of Conduct on Pesticide Management (FAO/WHO 2014)		By-Law on the Control of Pollution Caused by Hazardous Substances in and around Aquatic Environment, OG 26/11/2005, 26005	Circular Guiding a number of articles of the Governments Decree no. 80/2014/ND-CP of August 6, 2014 on water drainage and wastewater treatment No. 04/2015/TT-BXD	
	UN Sustainable Development Goals (SDG) 2015 with Johannesburg Plan of Action		By-Law on the Control of Soil Pollution, OG 8/7/2010, 27605	Circular Providing detailed and simplified environmental protection schemes No. 26/2015/L-BTNMT	

Guidelines on Pesticide Legislation (FAO/WHO, 2015)	Guidelines on Highly Hazardous Pesticides (FAO/WHO, 2016)	Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes (2017)	By-Law on the Control of Water Pollution, OG 31/12/2004, 25687	Circular On strategic environmental assessment, environmental impact assessment and environmental protection plans No. 27/2015/TT-BNMNT
			By-Law on Environmental Impact Assessments, OG 25/11/2014, 29186	Circular On management of hazardous waste No. 36/2015/TT-BTNMT
			By-Law on the Fundamentals and Implementation of Organic Agriculture OG 18/8/2010, 27676	Circular Specifying and providing guidelines for implementation of certain articles of the Law on Chemicals No. 32/2017/TT-BCT
			By-Law on the Genetically Modified Organisms and their Production, OG 13/8/2010, 27671	
			By-Law on Good Agricultural Practices, OG 7/12/2010, 27778	
			By-Law on Production, Import, Export and Marketing of Organic and Organomineral Fertilizers and Soil Regulators, and Organic	

(continued)

Treaty and international law	Soft law generic	Soft law & self regulatory norms textiles specific	Regulation specific to phase 1 & 2 in Turkey	Regulation specific to phase 3 in Vietnam	Regulation specific to phase 5 & 6 in The Netherlands
			Natured Other Products Containing Microbials and Enzymes, OG 29/03/2014, 28956		
			By-Law on the Protection of Drinkwater Basins, OG 28/10/2017, 30224		
			By-Law on the Protection of Underground Waters against Pollution and Deterioration, OG 7/4/2012, 28257		
			By-Law on the Protection of Waters against Agricultural Nitrate Pollution, OG 18/2/2004, 25637		
			By-Law on Waste Management, OG 2/4/2015, 29315		
			Circular on the Supervision of Fertilizers Supplied in the Market 2017/17		
			Communiqué on the Classification of Dangerousness of Workplaces related to Work Health and Safety, OG 26/12/2012, 28509		

				Communiqué on the Integrated Pollution Prevention and Control in the Textiles Industry, OG 14/12/2011, 28142	
				Communiqué on the Amendment on the Integrated Pollution Prevention and Control in the Textiles Industry, OG 10/3/2015, 29291	
				Communiqué on the Inspection of Import of the Chemical under Control for Protecting the Environment (Product Safety and Control 2018/6) OG 30/12/2017, 30286	
				Communiqué on the Administrative Fines that will be imposed under Article 20 of the Environment Law, OG 31/12/2019, 30995	
				Communiqué on the Market Monitoring and Control of Fertilizers, OG 6/4/2017, 30030	

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Fiscal Policy for Sustainable Development: The Italian Way to Promote Innovative Entrepreneurship According to European Union Rules



Patrizia Accordino

1 Introduction

The global economic crisis has highlighted the importance of high-level technology and innovation. Innovation, intended as the creation of a new product or process or the implementation of significantly changed ones, is a key factor both in fostering new businesses and revitalizing existing ones, especially during an economic crisis. It helps long-term new product development, growth, lasting prosperity, and is crucial to the challenge of competitiveness (Gault 2018). Indeed, innovative business activities, seeking alternative solutions, favor social challenges and help strengthen the thesis that sustainability may generate competitive advantages for companies.

Promoting a strong innovative ecosystem – understood as a mix of interconnected entrepreneurial actors, organizations, institutions and entrepreneurial processes mediating and governing the performance within the local entrepreneurial environment – is a feasible option for national policies, but only if the Government and all other economic players involved support innovative entrepreneurship and update the regulatory framework favorable for their growth and development (Wong et al. 2005; Mason and Brown 2014). Innovation also plays a crucial role in achieving synergies between social and economic performance. It allows new firms to develop new methods or upgrade existing ones; to explore alternative resources; to attract long-term and large investments in tangible and intangible assets as well as to set up new sectors and new lines of production (Antonelli and De Liso 1997; Nidumolu et al. 2009). Therefore, it is clear that innovation favors sustainable development.

Although it is a recognized fact that the strong version of the so-called Porter Hypothesis (Porter 1991; Porter and Van Der Linde 1995), which affirms the

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relationship between sustainability and business performance, requires empirical evidence (Ambec et al. 2013), many authors agree that the availability of natural resources and their potential utility has created new solutions increasing competitiveness and boosting economic growth (Esty 2001; Ederington 2010; Stavropoulos et al. 2018). Hence, the interaction between sustainability and innovation generates new jobs and increases the economic wealth of a Country (Morrar et al. 2017). The social, economic, and institutional dimensions of sustainability (Schratzenstaller 2015) require appropriate coordination of the tax policy as an enabling factor affecting the establishment, survival and business performance of innovative firms. Therefore, a sustainable fiscal policy must grant solvency, growth, stability, and, at least, the fairness of a tax system, particularly in the long-term (Schick 2005). In addition to this, fiscal policy can play an important role in stimulating innovation through its effects on research and development, entrepreneurship, and technology transfer (Hanusch et al. 2017) as confirmed by the European Commission that has repeatedly enhanced the importance of a “sustainable” tax system oriented towards growth and development (Council of European Union 2009; European Commission 2010), and fostered (European Commission, COM 2016, 733 final) fiscal policies affecting the performance of a business ecosystem and offering increased opportunities. As a result, underlining the absence in the Member States of well-targeted strategies positively impacting on the countries’ business ecosystems and enabling the creation and growth of innovative enterprises, the Institution has strongly suggested that Government pay special attention to tax schemes and incentives for investment in startups.

The connection between the taxation system, sustainability, growth, and economic development is, essentially, clear (Musgrave 1959; Tanzi and Zee 1997; Cottarelli and Keen 2012); it consists of using the tax system to promote macroeconomic stabilization, improve resource allocation, enhance total factor productivity, and address distributional disparities. Besides, there is an institutional side of sustainability (Pfahl 2005) linked to administrative rules and practices, whose complexity requires the attention of policymakers, in order to create a tax-friendly environment and to reduce an undue burden on individuals and businesses. According to findings in recent literature (Djankov et al. 2010; Salman 2014), high personal and corporate tax rates have a negative impact on starting a new business; consequently, they lead to a decrease in economic activity. Moreover, the aim of increasing tax competitiveness requires the institutions to provide clear rules; simplifies the variety of exploitable legal forms and focuses on financing methods as well as tax structure efficiency (Lindholm-Dahlstrand and Stevenson 2010; Garelli 2012, Elert et al. 2017). In line with the previous assumption, tax incentives play a fundamental role where Countries wish to reinforce conditions to create a profitable local system of entrepreneurship and innovation; they usually consist of a set of advantages and incentives as tax deductions or similar measures like a lower tax rate to reduce the overall tax burden of investors and of innovative firms (Czarnitzki et al. 2011; Bagarotto 2015; Guan and Yam 2015). Taking into account the tax allowance and the tax base reduction, it is a fact that tax leverage could encourage investors to give preference to the transfer of risk capital, compared to debt, which generally

ensures a better reward as interest (Tracey and Shapiro 2008; Zwick and Mahon 2017). There are, also, alternative measures such as tax credits, increased allowances, accelerated depreciation, etc. that a Government can consider. All these facilities are usually available to all firms. Although, in some circumstances, they can be designed for a specific target. Consequently, if a Member State decides to introduce new rules which confer benefits in favor of certain undertakings, it must comply with European Union State Aid rules.

It is necessary to underline that a global vision of this kind of strategy shows that it can only work if Government is able to choose the best formulas, implement it properly, and periodically evaluate its effectiveness. Policymakers usually play a key role in promoting economic development through appropriate industrial policies. Italy represents a very interesting case-study to support the previous thesis as, over the last 6 years, the Legislator and Government have managed to enforce the business ecosystem, acting on profitable fiscal policies addressed to help innovative and sustainable firms in achieving resource efficiency and competitiveness. After having considered the topic of innovative entrepreneurship as a secondary factor for years, in the early 2000s the Italian Government finally understood that the traditional scheme had to be replaced by new models based on an “industrial strategy” – as a “synthesis” of various enabling factors like innovation, sustainable development, and profitable fiscal policies – suitable for enhancing private and public investments, and for increasing the demand for goods and services favoring the achievement of a better quality of life and environment (Mason and Brown 2014). Therefore, the Italian Ministry of Economic Development – with the support of the Council of Ministers of the European Union suggesting¹ (European Union Council 2012) the development of a legal framework of innovative entrepreneurship – provided a set of measures for streamlining the procedure of setting up and aiding the growth of startups of clear innovative technological character. Initially issuing Decree-Law no. 179/2012 on “Further urgent measures for Italy’s economic growth” converted into Law no. 221/2012, the Institution proposed a “new deal” requiring a multi-dimensional approach and decided to introduce several amendments designing and implementing a long-term, manifold intervention, which now emerges as a synergic effort, in order to support innovative entrepreneurship. Coherent with the previous context is a tax policy paying the right attention to a proper distribution of income and wealth. For instance, the Italian Government favors innovative startups with social goals, or that only develop and market high tech innovative products or services in the field of energy. It is assumed that these firms produce both social and economic value² and it is well-known that they are considered more environmentally

¹In July 2012 the Council of Ministers of the European Union formulated two recommendations concerning start-ups: first of all, Italy was expressly encouraged to favor the creation of start-ups as important entities counteracting the issue of youth unemployment and, in addition to this, to simplify the regulatory framework and to focus on the financing methods of companies just starting out.

²According to article 2, paragraph 1, of the Decree-Law n. 155/2006, these are the social areas involved: social work; healthcare and social care; education and training; environmental protection;

sustainable than pure product manufacturing, due to their ability to replace physical products (Porter and Heppelmann 2015). The new rules outlined above also apply to certified startup incubators, offering services to support the creation and development of innovative startups. Moreover, considering that the Italian industrial structure, compared with other industrialized countries, consists of an exceptionally high percentage of small and medium-sized enterprises (hereinafter SMEs) – family managed, reluctant to implement innovative projects, with a low propensity to take risks, and conditioned by conservative and defensive behaviors (Bonti and Cori 2011), later, with Decree-Law no. 3/2015³ – known as “Investment Compact” – the Institution decided to extend some incentives to innovative SMEs. The choice is reasonable considering that the economic crisis has hit smaller companies, mainly due to structural problems linked to reduced company size and under-capitalization. These conditions lead them to depend heavily on bank financing. Nonetheless, these companies in terms of turnover and employment represent a preponderant part of the Italian business ecosystem. In addition, recent official findings show that innovative SMEs have better performance compared to non-innovative ones. Last but not least, the Member States with higher levels of entrepreneurship are often less successful at helping business eco-systems flourish, simply because they neglect to take their peculiarities into account. Therefore, this is a suitable opportunity to support traditional firms in enjoying innovation while also involving new companies that, after the start-up phase, maintain clear innovative and technological interests. Fiscal reform is usually implemented together with other structural reforms and the Italian reform, as a whole, mixes several policy instruments: contribution for the acquisition of property, plant, and equipment; credit lines granted to innovative projects based on the use of industrial property rights; more flexible labor laws; facilities to access financial sources; exceptions to bankruptcy. Nevertheless, in the explanatory report attached to decree-law no. 179 of 2012, the legislator underlines that strengthening the growth and inclination to invest in innovative start-up companies is “a priority to try to foster a climate favorable to their development, increasing their ability to attract private capital, thanks to the tax leverage”. As a result, the most profitable rules are incentives and exemptions in favor of innovative enterprises and investors which potential is emphasized by the provision of a work for equity scheme for workers and consultants, as well as access to crowdfunding. In addition to this, over the last 6 years, the Italian Government and the Italian legislator have reinforced the scheme with collateral measures – like the Patent box, Research and Development tax credit, Super and Hyper Depreciation, and the Allowance for corporate equity – emphasizing outcomes.

The entire Italian strategy has been undertaken in accordance with the principle of the primacy of European law over national laws (Ingrao 2010).

promotion of cultural heritage; social tourism; undergraduate and post-graduate education; cultural services, non-academic training; services for social enterprises.

2 Methods

The research is based on a case study method. In this context, the two most common ways include inductive approach based on the Grounded Theory (Glaser and Strauss 1967) and deductive/testing approach (Yin 2003). The Grounded Theory relies on data generating new theories while the other approach develops a theory at the beginning of the research and focuses on testing and validating the theory in case settings. There is also an approach lying in-between the two and it was proposed by Eisenhardt (1989). It is inductive, but with elements following a more planned approach: in order to explore the applicability of the framework for entrepreneurs, a single embedded case is carried out. The latter is the method appropriate for this research because it allows defining the topic more broadly by considering contextual issues and relying on multiple sources of evidence. Therefore, firstly, it is important to clarify how the fiscal policy based on incentives and collateral measures for innovative entrepreneurship, set up by the Italian Government, has succeeded in obtaining remarkable results, whilst at the same time respecting the European rules on State Aid. This preliminary analysis is necessary to emphasize the relevant strategy undertaken by Italian Institutions through carefully examining the evolution of the incentives introduced and the provision of some collateral measures. Then these remarkable outcomes are summarized and discussed, commenting on them and pointing out the recognizable contribution made by the legislation and characterized by synergistic and frequently updated amendments, all with the aim of confirming the initial assumption. Finally, it is worth emphasizing the purpose and significance of this study by underlining suggestions and recommendations for national and European institutions and organizations building a favorable environment for innovative enterprises. Indeed, the framework can serve as a model, even though perhaps imperfect, for European policymakers developing fiscal policies with the same goal for growth and sustainability of the business ecosystem and as an inspiration for enlightened entrepreneurs.

The comprehensive evaluation of the outcomes of the incentive policies carried out by the Italian Government is based on two kinds of report: the Annual Report to Parliament on the implementation of legislation in support of innovative startups and SMEs, presented to Parliament every year by the Italian Ministry of Economic Development; the quarterly report by the Italian Chamber of Commerce, periodically drafted to highlight and measure the social impact of innovation activities. It is important to note that the startup key indicators (number of startups, rate of investment, etc. etc.) are the meter of the efficiency and effectiveness of the strategy. Hence, data concerning the actual situation over the years following the introduction of the new rules are reported, in order to confirm the reliability of the outcomes.

3 Theoretical Background

3.1 *The European Union Rules on State Aid*

First of all, it is worth noting that the Treaty on the Functioning of the European Union (hereinafter TFEU) imposes a general prohibition of State Aid (Del Federico 2006; Salvini 2007; Blauberger 2008; Quigley 2009; Phedon 2012). Therefore, tax incentives must comply with article 107, paragraph one, of the TFEU which states that “any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favoring certain undertakings or the production of certain goods shall, in so far as it affects trade between the Member States, be incompatible with the internal market”. The “ratio legis” is that if a European Union Member State gives aid to an industrial or commercial internal undertaking, it could create privilege and the aid could be considered a “selective” tax measure favoring national innovative firms, with subsequent infringement of the European State Aid rules. As is evident, the provision does not include a well-defined notion of aid, nor does it give any reference cases. For this reason, the EU Commission’s decisions and the EU Court of Justice’s cases are fundamental, and the two Institutions are strictly vigilant.³

Although the European Community is particularly concerned with tax incentives which have, or may have, an impact on the location of business activities – it has been established that the Commission be allowed to intervene in the sovereignty of Member States in such cases – measures satisfying these criteria, in certain circumstances, can be considered as exemptions. Thus, the Commission can declare the compatibility of the aid and authorize it according to the Treaty. Some exemptions are identified in art. 107, ph. 2, of the TFEU. These kinds of exemption do not require any evaluation, indeed they are considered “de jure” exemptions. Moreover, other exemptions are provided in ph. 3 and they outline aid potentially compatible with the internal market that must be declared as such by the Commission.⁴

³The leading cases from the Court of Justice relating to the notion of advantage are: *De Gezamenlijke Steenkolenmijnen* (C-30/59); *SFEI* (C-39/94); *Altmark* (C-280/00) and *EDF* (C-124/10).

⁴Three categories of aid *shall* be compatible with the Internal Market: (a) aid having a social character, granted to individual consumers, without discrimination related to the origin of the products concerned; (b) aid to make good the damage caused by natural disasters or exceptional circumstances; and (c) aid granted to certain areas of the Federal Republic of Germany affected by the former division of Germany, in so far as such aid is required as a compensation for the economic disadvantages caused by that division. Then, five categories of aid may be considered to be compatible with the internal market: (a) aid to promote the economic development of underdeveloped areas of the EU (with abnormally poor living standards or high levels of unemployment); (b) aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State; (c) aid to facilitate the development of certain economic activities or areas (provided it does not adversely affect trading conditions to an extent contrary to common interest); (d) aid to promote culture and heritage conservation (again provided it does not affect trading conditions and competition in the EU to an extent contrary to

Therefore, if a Member State has serious doubts about the compatibility of aid with EU rules, it must notify and suspend this aid until the Commission decides. In fact, the Member States are not permitted to put the measure into effect until the final decision has been made (standstill clause). It is well known that the European Commission pays particular attention to this kind of aid because it is considered relevant to the area of tax planning. Indeed, EU institutions are used to taking advantage of state aid rules as instruments against so-called aggressive tax planning.

3.2 The Italian Strategy in Favor of Innovative Entrepreneurship

As underlined in the introduction, Italian Law no. 221/2012 is the most important step in the Italian reform. It includes proposals put forward in the Restart Italia! Report developed in September 2012 by a Task Force set up by the Ministry of Economic Development composed of representatives from academic, communication, business, finance, and third sectors. For the first time, the new rules propose a clear concept of innovative startup,⁵ intended as a new high-tech innovative firm. And, above all, they present a multi-dimensional approach including the various factors relevant to developing a functional innovative business ecosystem. Indeed, they consider labor market needs, financing method opportunities and the effects of fiscal policy. The new strategy was appropriately defined (Cian 2015) “polyhedric and original” due to the aim of emphasizing the various relevant factors and new solutions proposed by the legislator through targeted and unitary action. Nevertheless, fiscal policy is the factor that has the greatest effect on investment in the field of innovative businesses. Therefore, the new rules provide specific incentives and exemptions for innovative enterprises, granting them the necessary amount of capital to start their activities successfully. The new legislation includes several kinds of

common interest); (e) such other categories of aid as may be specified by decisions of the Council as proposed by the Commission.

⁵It is worth noting that the new legislation contains a detailed concept of innovative startup including any companies with shared capital, whose shares are neither listed on a regulated market or on a multilateral negotiation system. These enterprises must also comply with the following requirements: (a) be newly incorporated or have been operational for less than 5 years; (b) have their headquarters in Italy or in another EU country, but with at least one production site in Italy; (c) have a yearly turnover lower than €5 million; (d) do not distribute profits; (e) have as exclusive or prevalent company objectives the production, development, and commercialization of innovative goods or services of high technological value; (f) not to be the result of a merger, split-up or selling-off of a company or branch. Moreover, the innovative character of the enterprises is identified by *at least one* of the following criteria: (1) at least 15% of the company’s expenses can be attributed to R&D activities; (2) at least 1/3 of the total workforce are PhD students, the holders of a PhD or researchers; or, alternatively, 2/3 of the total workforce must hold a Master’s degree; (3) the enterprise is the holder, depositary or licensee of a registered patent (industrial property), or the owner and author of a registered software.

incentives. Firstly, there are those regarding firms; innovative startups, certified incubators, and SMEs who do not pay: stamp duty; fees collected through the obligation of entering the Business Register; the annual fee usually owed to the Chambers of Commerce, except for SMEs. They are also exempt from rules concerning non-operational dummy companies⁶ and companies reporting systematic losses, both subject to a higher level of taxation based on presumed earnings (Nussi 2010; Beghin 2012). Instead, under certain conditions and terms, startups and SMEs can transfer tax losses incurred in the first three fiscal years of activity to their holding company, where the transferee is a company listed on an EU/EEA regulated market or controlled (directly or indirectly) by a company listed on an EU/EEA regulated market. The intention to support the growth of these enterprises, therefore, justifies the exception created by the legislator. In addition, to foster loyalty among management, employees, and suppliers like lawyers and accountants, innovative firms may apply stock options and the work for equity scheme,⁷ offering them capital shares as traditional rewards. The revenues resulting from these financial instruments are tax-deductible for both fiscal and contributory purposes. For the years 2012, 2013 and 2014 a tax credit amounting to 35% of the expenses sustained by the company was provided for the hiring of highly qualified workers.

Tax incentives for those who invest in Startups, certified incubators and SMEs represent the other valuable side of the coin. Individuals receive a 30% tax allowance that they may deduct from their total income of eligible investments, for an amount not exceeding € 1,000,000 in any tax period; Companies can benefit from the same percentage tax base reduction, for an amount not exceeding € 1,800,000 in any tax period. These incentives work if the investment is maintained for at least 3 years and operates both in the case of direct and indirect investments through other companies, such as Collective Investment Undertakings. Furthermore, Italy was the first European Country to develop a regulation on equity crowdfunding, only referred to innovative start-ups and to SMEs (Laudonio 2014; Piantavigna 2014). Crowdfunding is a way of promoting new opportunities for access to financing methods, alternative to traditional bank loans. Choosing equity-based crowdfunding,⁸ the investor expects a financial reward for his investment consisting

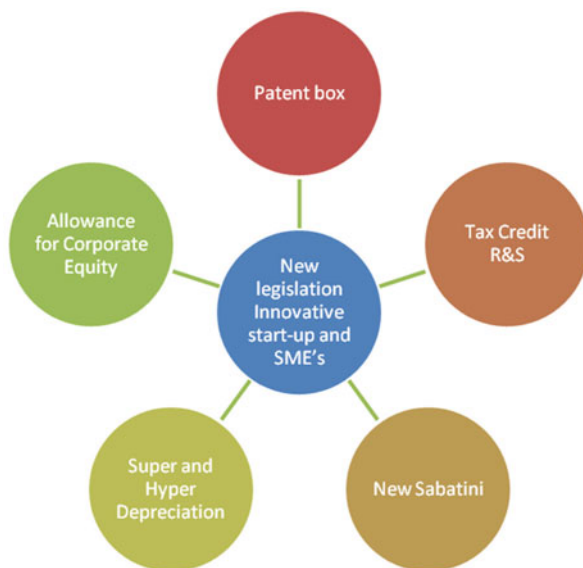
⁶Companies which do not carry on any significant activity. The rules establish relating earnings to assets, calculating a presumed minimum income and comparing predicted minimum earnings with effective results.

⁷Consulting the “Guide to the use of equity and work-for-equity plans” issued by the Ministry of Economic Development in March 2014 and available on the relative website, it is noted that the aim of the measure is to provide innovative startups and certified incubators with loyalty and inspired management, in a field in which human capital is extremely important. Moreover, the rules allow easier access to qualified professional services that could not otherwise be exploited by innovative start-ups, especially at an early stage of business activity – as, by definition, where they often operate with a lack of liquidity.

⁸The equity-based model of crowdfunding is a true collection of social capital: it determines, against the investment, realized through the payment of money, the appointment of a shareholding in the capital of the company and of the status of a shareholder, as well as of the related patrimonial and administrative rights.

Fig. 1 Incentives joined with other measures.

(Source: our elaboration)



of dividends received from shares, royalties of intellectual property rights or revenue from bonds and other securities. This model also guarantees all economic and administrative rights derived from holding shares in the company (Vitali 2014; Rossi 2014). It is important to note that those who adopt crowdfunding transactions enjoy all the other incentives provided by the rules in favor of innovative enterprises.

The Italian Government has worked ensuring A “progressive combined action”, constantly monitoring the outcomes of the introduced measures, amending them, multiplying their benefits, and allowing their osmosis with other facilities operating in favor of Italian enterprises (Fig. 1). All these efforts have been coordinated by the actors of the reform to support the national business ecosystem and increase its development.

Tax credit for research and development activities provides a 50% tax credit for incremental investments, up to MLN/€ 20 per year for each beneficiary. Investments considered for tax credit are those related to basic research, industrial research and experimental development: the hiring of technically qualified staff; research contracts with universities, research institutes, enterprises, start-ups, and innovative SMEs; depreciation of laboratory facilities; technical skills; industrial property rights. The innovative firms are entitled to the benefit on the condition that, during the fiscal year in which they intend to take advantage of the tax credit, at least € 30,000 of R&D costs are incurred. Moreover, the maximum yearly amount of the tax credit must be equal to MLN/€ 20 per taxpayer.

The so-called Patent box regime (Felder 2013; Arginelli and Pedaccini 2014) offers those who choose to invest in startups by increasing the role of intellectual property, the opportunity to have a 50% exemption from the overall income of profits coming from the direct/indirect use of intellectual property and industrial

patents. The benefit arises from the use or licensing of certain intangible assets like software protected by copyright; patents, business, and technical industrial know-how as well as other legally protected intellectual property, such as designs and models.

Allowance for corporate equity (Klemm 2007; Accordino 2012) provides for a notional interest deduction based on the annual increase in equity of the taxpayer. The incentive, due to the reduction of the tax advantage of the debt, encourages investments in new equity, promoting the recapitalization of companies.

Super and Hyper depreciation (Boria 2017) allows companies investing in new tangible assets to deduct an extra amount equal to 250% of the fixed asset value and 140% of the intangibles in case of purchase (or lease) of new technological assets such as digital-controlled machines, equipment and so forth, acquired in order to atomize and digitalize enterprises. The New Sabatini grants SMEs financial contributions for the purchase of such assets.

All these measures comply with the new rules provided for startups and SMEs; their joint operation amplifies global effects. Having outlined the dynamic rules adaptable to market response and market failure, the Italian authorities submitted the scheme of the new legislation and its following amendments to the European Commission. Indeed, the measures, introduced in 2012 and later revised, were newly modified and converted from temporary to long-term from 1 January 2017,⁹ according to the latest decision of the European Commission C (2017) 4285 final.

4 Features of the Italian Strategy

We began the chapter underlining that the substantial and remarkable success of the innovative entrepreneurship plan implemented by the Italian Government is ascribable to the adoption of dynamic policies that have been constantly monitored and considerably changed, in line with both market feedback and European State Aid rules. Initially, the introduced incentives were temporary and characterized by stringent requirements. So, it was easy to obtain the approval of the European Commission. On 21 August 2013 the Italian authorities, in accordance with Article 108(3) of the TFEU, notified the scheme of State aid measures to promote risk capital investments in innovative startups. The Commission found that tax incentives for investments in innovative startups constitute State aid in the sense of Art. 107 (1) of the TFEU. Indeed, the Institutions considered the condition set out in the provision as an advantage. However, it concluded “do not raise any objections to this measure” as State aid “compatible with the internal market pursuant to point (c) of the first paragraph of Article 107 of the TFEU”, on the basis of “Community guidelines on state aid to promote risk capital investments in small and

⁹Italy’s budget law for 2017 (Law 11 December 2016, no. 232) makes a number of significant changes to the incentives.

medium-sized enterprises”. More specifically, “aid intended to facilitate the development of certain activities or of certain economic regions, provided that they do not alter the conditions of trade to an extent contrary to the common interest”.¹⁰ The Commission approved the measures (with decision 8827 final issue on 5 December 2013), not setting conditions to be respected by the Member State, in order to be able to ensure these measures.

Due to this legislation, insiders perceived a cultural and social change of mind in the Italian entrepreneurial ecosystem: indeed, it enforced flexibility, dynamism, cooperative evolution; all factors enabling sustainable development. Despite the new rules having significantly contributed to the driving force of the reform, it soon became clear that policy enhancement was necessary. As mentioned above, the decision to extend incentives provided for startups and certified incubators to innovative SMEs was the first step in improving the policy. Nevertheless, monitoring the market, Italian authorities perceived some failures in the new policy and understood that it was necessary to address this while providing reinforcement. Thus, the Government decided to gradually reinforce the benefits of the policy. The task force employed evaluated the rules and established some corrections in order to strengthen their potential. One of the most important goals of the reform is to encourage investors to commit their capital to innovative entrepreneurship.¹¹ Consequently, the tax incentive for individuals was gradually raised from an initial 19% to the current 30% and the tax base reduction of corporate tax from 20% to 30%. Furthermore, as underlined above, the Italian Government twice requested an extension of the deadline of the existing scheme, which was finally granted with an extension to 31 December 2025. The Italian authorities are careful to notify every amendment of the existing scheme to the European Commission. So far, the Institution has recognized the appropriateness and proportionality of them and has granted their approval. Substantially, it has acknowledged the Italian effort to introduce dynamic reform based on some fixed measures and other amendable

¹⁰The Commission always acts applying suitable general principles which allow the compatibility of aid with exchange and transparency. The first criterion requires the aid to be assessed from a common perspective and not in reference to the beneficiary undertaking, or to the specific national context, considering the real possibilities of the measure to achieve the common objective which is the subject of the derogation. The second, on the other hand, invests the Commission with the task of verifying the compatibility of the measure with intra-Community trade and with competition, taking into account all the factors which, for this purpose, may be relevant.

¹¹The benefits are assured to those who decide to invest in one or more innovative startups, certified incubators and SMEs in case of direct investments and even indirectly, through intermediary companies or by using collective investment schemes. The law ensures that incentives apply in the case of investments in the share capital and in the share premium reserve of the shares or stakes of the innovative startup. In case of indirect investment through other limited companies, it should be pointed out that only cash investments that determine an effective capitalization of the intermediary company may be incentivized. Furthermore, Circular no. 16/E/2014 of the Italian Revenue Agency has clarified that the eligible investments are all cash investments, carried out either at the incorporation of the innovative startup or when the registered capital of an already established startup is increased.

ones, whilst maintaining focus on the needs of the market. After all, the policy has shown an extensive margin of success, although this extremely positive intensive margin must be constantly monitored and improved (De Angelis 2017). The European Commission's conclusions were coherent with its recent guidelines: as previously mentioned, the Institution recommended Member States strengthen all key elements, highlighting the growth of a business ecosystem in which innovative enterprises can flourish.

5 Results and Discussion

The ability of the Italian Government to outline an incisive and adaptable intervention, according to the indications provided by the European Union authorities, derives from data collected over the years following the application of the first scheme (Giraudò et al. 2016). Policymakers and experts have designed a well-developed system for monitoring the achievement of policy goals based on an annual exchange of views with Parliament and on a sectorial quarterly report. This double action on outcomes also allows the identification of strengths and weaknesses and the possibility for necessary adjustments. Analysis of the periodically revised documents shows that startup companies registered in the specially dedicated section¹² one year after the introduction of the policy were 23% more than in the previous year, with the trend rising during the following years, peaking at 35% in December 2014 (Table 1).

Table 1 Data on investments: evolution between 2014 and 2015

	2014	2015	Change %
No. of investors (individual and corporate)	1673	2703	+61.6%
No. of startups with individual direct investment	515	666	+29.3%
No. of startups with corporate direct investment	187	222	+18.7%
No. of startups with both kinds of investment	92	109	18
Total investments by individuals	32.8 million Euro	48.3 million Euro	+47%
Total investments by companies	17.5 million Euro	34 million Euro	+94%
Total tax allowance in favor of individuals	6.6 million Euro	9.7 million Euro	+47%
Total tax base reduction in favor of companies	1 million Euro	1.9 million Euro	+90%

Source: Ministry of Economic Development (2017, p. 109) on the Italian startup act annual report to Parliament 2017

¹²Innovative startups registered in the Special Section of the Chamber of Commerce Business Register.

Table 2 Annual trend of key indicators of Italian innovative startups, 2015–2017

Indicators	June 30, 2015	June 30, 2016	June 30, 2017
Startup numbers	4249	5942 (+39.9%)	7398 (+24.5%)
Employees	4891	9042	10,262
Production value	€ 192,349,469 (2663 financial statements 2014)	€ 585,211,807 (3853 financial statements 2015)	€ 773,170,993 (4717 financial statements 2016)
Fixed assets/total assets	30.83%	29.44%	26.83%
Startups in profit/total	42.7%	42.9%	42.7%

Source: Ministry of Economic Development (2017, p. 27) on the Italian startup act annual report to Parliament 2017

Table 3 Key indicators of Italian innovative startups, 2018

Indicators	Third quarter 2018	Second quarter 2018
Startup numbers	9647(+2.67%)	9396

Source: Unioncamere, Ministry of Economic Development, Infocamere (2018)

At the end of the second quarter of 2017, there were 7398 Italian innovative startup units (Ministry of Economic Development 2017; Unioncamere 2018). Compared to the previous year (June 30, 2016), there was an increase of 24.5%, equal to 1456 more innovative startups and an increase of 39.9% compared to the end of 2015 (Table 2). Moreover, considering sustainable development, it is worth noting that there were 139 innovative startups with a “social goal” registered on 30 June 2017, 46 more than 2016.

At the end of the third quarter of 2018, the number of innovative startups was 9647 units, an increase of 251 compared to the second quarter of 2018 (Table 3). The analysis shows that Italian innovative startups tend to increase their production value and to have a very high survival rate (Ministry of Economic Development 2017).

The two-year survival rate is close to 95%, while at 3 years it is around 90%. 55.2% were established in the North of the Country, one quarter in Central Italy and one quarter in Southern Italy. With regard to sector distribution, startups operating in services represent 74.8% and the clearly prevalent activities are those of information and communication services. In the midst of these, we find firms that pursue sustainability, intended as innovative startups with a social goal and businesses that develop and market high-tech innovative products or services in the energy industry. Furthermore, the percentage of female business owners is between 15% and 30%, rising for women who are under 36 years of age; nevertheless, there are 3592 innovative startups (42.8% of the total) in which at least one woman is present in the company. Startups mainly owned by the under-35 s represent 22.3% of the total.

Looking at the economic performance of innovative startups, the average value of production has more than doubled in the years 2015–2016. The aggregate turnover, calculated for the 4717 firms that filed their 2016 annual statement of accounts (63.7% of those registered as of 30 June 2017) amounts to €773 million. If we consider only the firms of this group that also filed a statement of accounts in 2015, we can see how the aggregate turnover has increased from around €332 million to more than €602 million (+81.3%) over 2 years. In terms of employment, innovative startups express a total workforce of 34,120 people comprising 10,262 employees and 23,858 shareholders; an increase of 13.5% compared to 2016. By analyzing the human capital employed, it is possible to note that between 25% and 30% have a prevalence of young workers. No different are the outcomes of the analysis of innovative SMEs which reveal that on June 30, 2017, they were almost three times more than the previous year. They are mainly located in Northern Italy (almost 60%). Innovative SMEs, like startups, largely operate in the services sector (62.7%). Analyzing the data from the 2016 statement of accounts (86% of the total), the aggregate turnover recorded by innovative SMEs exceeds €1 billion (€1,316,887,551), the total workforce (9313) is similar in size to the much larger startup group and the registered share capital is on average much higher. Last but not least, according to *Doing Business 2018* (World Bank Group 2018), Italy occupies the 46th position in the international ranking, up compared to the previous editions and constantly improving in recent years. This means that an innovative and sustainable tax policy is the right way to boost internal business eco-system while attracting foreign investments.

Further examining the synthesized data, it emerges that Italian innovative entrepreneurship policies positively affect the business ecosystem and enable innovative startups to flourish and existing ones to develop. However, a more realistic approach must consider the effectiveness of the implemented policies by emphasizing some key factors. In line with the assumptions summarized in the theoretical framework, tax incentives are the most important drivers in this positive performance allowing the enactment of growing business projects like innovative startups. Indeed, as underlined above, investments in innovative startups are growing, and the growth of investments means an increase in the demand for goods and services. Nevertheless, the Italian Government's new-found way to promote growth and productivity influences other relevant factors. Turning our attention to employment, it is clear that, due to the *work for equity scheme*, providing the involvement of those who carry out their activities within startups, incubators and SMEs, a neglected factor relevant for the achievement of a national innovative and sustainable ecosystem favorable to workers was highlighted. Its national appreciation rate is significant (13%). Besides, it creates an interconnection between the business structure and those who, involved as shareholders in various ways, contribute to guaranteeing its development, taking care of its maintenance and growth. Another crucial element is crowdfunding: this alternative financing method provides profitable conditions in favor of the venture capitalist investing in innovative firms and highlights significant outcomes in encouraging their birth. Indeed, although the European Union Vat Committee developed some guidelines (taxud.c.,1, 2015, n. 576037) on Vat implications (Merx 2016) in October 2015, these are not legally binding decisions and

Member States are free to adopt rules on this topic, following these guidelines more or less closely (Boria 2015). Nowadays the Italian Government finds that Vat rules for crowdfunding are unnecessary. It is a fact that access to equity crowdfunding in order to invest in startups and SMEs has increased substantially, doubling the number for all of 2016 in just the first semester of 2017 (Unioncamere, Ministry of Economic Development, Infocamere 2018).

After having identified specific performance indicators, it is possible to use them for benchmarking the effective outcomes of the fiscal policy, side by side with officially registered data.

6 Conclusions

As explained by the Minister of Economic Development Carlo Calenda in the last “Annual Report to Parliament on the implementation of legislation in support of innovative startups and SMEs – 2017”, although they are still far from international benchmarks, these enterprises are increasingly strategic for the economic development of the Country; they have doubled in number over the last 2 years; they account for over 2 billion euro in total turnover and they offer about 50,000 jobs. A cultural change is taking place in our Country and it offers young Italians an alternative path for their future. Incubators, accelerators, labs, and university startup groups are springing up all over Italy and the amount of foreign capital investment has grown significantly. The Italian business ecosystem is now full of new firms whose management has planning abilities, the capacity to face the challenges of the European Union market, as well as being competitive and able to attract international capital.

It is well-known that the main problems with developing an innovative enterprise are access to financial resources – especially in the early stages – plus taxation. From the beginning, these were the two crucial points of legislation introduced by the Italian Government. Indeed, with a long-term strategy to ensure that introduced tax incentives and facilities for investors express all their potential, Italian policies focus on enhancing tax incentives to equity investors in accordance with European State aid rules. Today this is a flagship based on synergic action; in fact, it consists of strengthening tax credits for investment in research and development; simplifying administrative procedures to start an innovative business and investment in it as well as popularizing the benefits of crowdfunding.

The remarkable outcomes synthesized in the previous part of this paper are ascribable to Italian legislation, recognized as one of the most internationally advanced in the European context for innovative business support strategies. Also, the Italian Government continues working to improve the regulatory framework for innovative entrepreneurship by boosting the national system for business. Italian policymakers have outlined an incisive and adaptable intervention, in accordance with EU rules and have designed a well-developed system for monitoring its outcomes. Data and benchmarks are remarkable; tax incentives have ratified

capitalization and increased demand for goods and services; the “work for equity scheme” has achieved the further effect of involving those who carry out their activities within innovative firms; crowdfunding is a successful alternative financing method. Last but not least, there is an increase in the creation and growth of innovative firms with a social goal, a crucial circumstance for enhancing sustainable development. Indeed, the Italian fiscal policy is now considered one of the most advanced in Europe for innovative business support strategies and is a flagship based on synergic action.

This study has enabled us to underline the constructive elements of the policy and to confirm that supporting innovation contributes to ensuring sustainable development. For this reason, the Italian experience over the last 6 years can help European policymakers who are planning to adopt measures to promote and support innovative and sustainable entrepreneurship by helping their creation, development, and expansion. Moreover, it can influence the choices of inspired entrepreneurs who are planning to create innovative businesses. These policies began functioning better as soon as the Government, through performance evaluation, periodically introduced various changes in response to market data. Consequently, future studies could further investigate appropriate ulterior measures that could strengthen Government efforts. A remarkable strategy might be to cut some tax rate percentage points on corporate profits of innovative firms or to introduce a flat rate for innovative startups, certified incubators, and SMEs. It is also important to further study fiscal policies to improve incentives in favor of Southern Italy; it is an essential expedient to balance the geographic allocation of Italian startups.

In conclusion, this research clearly has limitations given it is carried out on a single case study. Therefore, it could also be interesting to further examine the effectiveness of similar measures by including in the analysis other Member States that have adopted similar policies obtaining the same or better outcomes in line with State aid rules, in order to improve the validity of the Italian outcomes as a model.

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Planned Obsolescence and Criminal Law: A Problematic Relationship?



Emanuele La Rosa

1 Introduction

What is “Planned Obsolescence”? It is not easy to answer this question. Indeed, there are several types of “Planned Obsolescence”.

We know indirect obsolescence, incompatibility obsolescence, psychological obsolescence (due to marketing companies), ... and then we can find a “Planned Obsolescence” *stricto sensu*.

Indirect obsolescence generally occurs because the components required to repair the product are unobtainable or because it cannot be repaired (e.g., batteries welded into an electronic device).

Incompatibility obsolescence occurs, for example, when software no longer works once an operating system is updated. This type of obsolescence is linked to after-sales obsolescence, which encourages consumers to replace rather than repair a product, partly due to the time and cost of repair.

Style or psychological obsolescence occurs because marketing campaigns lead consumers to perceive existing products as out-of-date. It is pointless to make manufacturers produce tablets that last 10 years if our consumption patterns make us want to replace them every 2 years. For example, mobile phones are replaced every 20 months on average (every 10 months in the 12–17 age group). Despite the importance of this problem, the document will address only the first three points. The fourth point presupposes a different approach, relating to consumption patterns.

Serge Latouche (2012) proposes a different classification model, which distinguishes between three types of obsolescence: the technical, the psychological or

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symbolic and the programmed one. This classification does not coincide perfectly with the previous one.

The obsolescence technique implies the disuse of machines and appliances due to progress technical, which introduces improvements and innovations of all kinds.

The obsolescence psychological refers to the disuse caused, not by the technical wear or tear introduction of a real innovation, but by the disqualification of the products generated by advertising and fashion, through a new look, design, and even of new packaging.

Programmed obsolescence refers to wear or tear artificial malfunction, where, from the beginning, the product is conceived by the manufacturer to have a limited life, and this thanks to the introduction systematics of a device that allows it. Consequently, the latter author affirms there is a true symbiosis between programmed obsolescence, symbolic obsolescence, and technical obsolescence.

For the purposes of this investigation, we must focus on Planned or Programmed Obsolescence *stricto sensu*.

A synthetic and generic definition is the following:

“Planned Obsolescence” is «the production of goods with uneconomically short useful lives so that consumers will have to make repeat purchases» (Bulow 1986).

The phenomenon of products with a life cycle preset by the manufacturer is now well known to the average consumer, who often notes the progressive insurability (often sudden) of a series of consumer products (especially technological ones) (Soto Pineda and Prada 2017).

It is not a new phenomenon. Indeed, it is associated with a form of industrial production that relies on a minimum renewal rate for its products.

We can remember the famous “light bulbs affair” or “Phoebus Cartel”: in 1924 corporations based in Europe and America (*Osram, Philips, Tungsram, Associated Electrical Industries, ELIN, Compagnie des Lampes, International General Electric, and the GE Overseas Group*) founded a cartel, that conventionally lowered operational costs and worked to standardize the life of light bulbs at 1000 h (down from 2500 h) and raised prices without fear of competition. The cartel tested their bulbs and fined manufacturers for bulbs that lasted more than 1000 h. A 1929 table listed the number of Swiss francs paid that depended on the exceeding hours of lifetime. The cartel operated without the knowledge of the public, and the cartel could point to standardization of light bulbs as an alternative rationale for the organization (London 1932; Krajewski 2014).

It is true, however, that it is in the contemporary era that the phenomenon is arousing more clamor and attention. This probably depends on the fact that today mass consumption is increasingly interested in technological products, with respect to which Planned Obsolescence has a different relevance compared to when it occurs for other products.

The topic has become very current also as a consequence of some cases that have recently involved important companies (Apple, Samsung, Epson) and have attracted the attention of the competent authorities in Italy and France.

The aim of this chapter is to reconstruct the regulatory framework at the supra-national level on Planned Obsolescence; then we will evaluate the impact of this regulatory framework in some national legal systems.

In particular, the case of France will be examined. This is the first country (and at the moment only) that has adopted a strategy to combat the phenomenon of Planned Obsolescence that also includes the use of criminal law.

The “Planned Obsolescence” crime will be assessed from the point of view of the fundamental principles of criminal law, as well as from the point of view of its actual effectiveness.

The results of this research can help to answer the following question: can the use of Criminal Law be considered an «*appropriate dissuasive measure*» against “Planned Obsolescence”?

2 The Growing Attention to the Phenomenon by European Institutions

For a long time, it was thought that Planned Obsolescence was a normal industrial and commercial practice that represents a form of business freedom.

Thought as a strategy to stimulate demand and stimulate consumption, together with the advertising and consumer credit, integrates the triad that allowed the boom in called “consumer society”.

The expansion of Planned Obsolescence finds fertile ground in the s.c. “Consumer society”, integrating a vicious circle in which the advertising creates the desire to consume, the credit provides the means to do so and Planned Obsolescence renews that need. Consequently, the Planned Obsolescence of products is a functional tool to the called consumer society, which implies a type of society that promotes, encourages or reinforces the choice of a consumer lifestyle, and that disapproves any alternative cultural option; a society in which to conform to the precepts of the consumer culture and strictly adhere to them is, to all practical purposes, the only choice unanimously approved: a viable option and therefore plausible, and a requirement of belonging.

Even today, there are those who see in the practices of Planned Obsolescence an effect induced by the competitive dynamics of the market, which lead to the production of goods in continuous updating, improvement and evolution, also and above all in response to the increasingly sophisticated needs of the average consumer. In other words, these practices are the result of competition between the various producers, to provide the end user with increasingly advanced products, which – perhaps not obvious enough – inevitably leads to the obsolescence of previous models (Waldman 1993; Utaka 2000; Grout and Park 2005).

In the last few years, this hypothesis has been questioned and also the supranational institutions become aware of the phenomenon “Planned Obsolescence”.

Although product renewal may be necessary, certain abuses need to be addressed.

There is a growing political consensus in the European Union that we have to move away from our current linear economic system to one that is based on closing material loops, a circular economy (Maitre-Ekern and Dalhammar 2016).

Acting against the Planned Obsolescence, assumes – in the perspective of the European Union – also an important economic value. The vast majority of offending companies are in the hi-tech sectors and their products are often imported into Europe. By tackling this issue, the European Union would be offering its companies a way to stand out from the rest by effectively putting sustainability into practice.

A first (even if implicit) consideration of the phenomenon “Planned Obsolescence” has occurred, for example, in the Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of Eco design requirements for energy-related products. This hard law regulatory tool is the main starting point in the context of product durability.

The Directive draws attention to the durability of the product, as well as to the possibility of maintenance, repair and availability of spare parts, requiring that the following “sustainable” design criteria be used by the manufacturer: minimum guaranteed duration, minimum time for availability of spare parts, modularity, upgrading, reparability. Taking into account the provisions of the Directive, the duration must be considered by the manufacturer as a measure of the “*optimal life cycle of a product*”; to the point where it is no longer economically possible to repair the constituent parts.

Greater and replicated attention to the phenomenon is recorded in two more recent soft law regulatory acts. We can remember:

- (a) Opinion of the European Economic and Social Committee on «*Towards more sustainable consumption: industrial product lifetimes and restoring trust through consumer information*» (2014/C 67/05);
- (b) Motion for a European Parliament resolution on «*a longer lifetime for products: benefits for consumers and companies*» (2016/2272), adopted by European Parliament on July 4, 2017.

The second one refers to a series of legislative and soft law acts of the European Institutions dedicated to the issues of sustainable development, environmental protection and a prudent and rational use of natural resources.

Among the goals set is the adoption of measures against Planned Obsolescence: the Commission is invited to propose better consumer legal protection and «*appropriate dissuasive measures*» (Motion for a European Parliament resolution on «*a longer lifetime for products: benefits for consumers and companies*», n° 2016/2272, § 30) for producers.

3 Criminal Law as “*Appropriate Dissuasive Measures*” Against “*Planned Obsolescence*”: The French Experience

The question is: can the use of Criminal Law be considered an «*appropriate dissuasive measure*»?

The French legislator would seem to think so. Indeed, in 2015 (and then in 2016) the French Parliament revised the French «*Consumer Code*» (*Code de la consommation*) by introducing a specially crafted penal provision.

Previously, the law «*on the consumption*» of March 18, 2014 (said “Law Hamon”) had brought a first legislative response to fight Planned Obsolescence.

Some of the most striking provisions:

- (a) Extension of the presumption of the existence of the defect compliance, from 6 months to 2 years. The Consumer Code allows the consumer availing the legal guarantee without having to prove a defect functional.
- (b) Obligation for manufacturers and importers to indicate the duration during which spare parts will be available (if existing).
- (c) Obligation for manufacturers and importers to meet their commitment to the supply of spare parts in both months following the request.

Afterwards, the article 99 of the law «*on the energy transition*» of August 17, 2015, after a brief definition of the concept, provides a sentence of 2 years imprisonment and 300,000 € fine (may be increased to 5% of the turnover average over the past 3 years) for all manufacturer/importer guilty of the crime of «*Planned Obsolescence*».

Finally, the Ordonnance n° 2016-301 has moved the crime of «*Planned Obsolescence*» in the Consumer Code:

Article L. 441-2: «*Is prohibited the practice of planned obsolescence that is defined by the use of techniques by which the head of the marketing of a product is to deliberately reduce the life span to increase the replacement rate*».

Article L. 454-6: «*It is punishable with two years of imprisonment and a fine of 300.000 Euro*».

France is the first country to adopt a law that expressly refers to Planned Obsolescence and defines it. This definition is the result of a compromise reached by the two chambers of the French Parliament – the National Assembly and the Senate – after months of intense discussions (Boissonnet and Puget 2017; Legrand 2014).

How to evaluate the solution adopted by the French legislator?

The legal regulation model adopted by the French legislature is to be evaluated from two points of view.

First of all, we must verify whether such a solution is compatible with the fundamental principles of criminal law; in particular, the principle of offensiveness (or harm principle) and the principle of strict legality.

Second, we need to verify the effectiveness and efficiency of this solution.

The examination of the French model can provide useful indications in the more general perspective of the use of criminal law against Planned Obsolescence.

3.1 The Relationship Between the Crime of «Planned Obsolescence» and the Principle of Offensiveness (or Harm Principle)

This principle of offensiveness must be considered from two different points of view.

The first one is as follows: are there – and eventually – what are the interests offended by Planned Obsolescence?

The second one is as follows: are there any alternatives to the introduction of a «Planned Obsolescence» crime?

The answer to the first question is quite simple. Planned Obsolescence produces a lot of negative effects: social, health, cultural, ethical, environmental.

From a social perspective, Planned Obsolescence presents three problems. First of all, in a crisis, the mindset created by the Planned Obsolescence of consumer goods has contributed to encouraging credit purchases and unprecedented levels of consumer indebtedness. The ones who suffer most are the socially disadvantaged groups who cannot afford expensive long-lasting products and often settle for poorer-quality bottom-end products. Then there are the employees of the entire repairs sector, who have to bear the detrimental effects of Planned Obsolescence. The figures from the 2007 ADEME (French Environment & Energy Management Agency, <https://www.ademe.fr>) report confirm this trend. Only 44% of broken appliances are repaired. Distributors estimate that only 20% of out-of-warranty customer support results in repairs. The 2010 ADEME study also reveals a significant fall in repairs in France between 2006 and 2009, especially in the case of white goods. The repairs sector has the advantage that it cannot be relocated and mainly offers stable jobs. In short, Planned Obsolescence causes excessive recourse to credit and restriction of access to the best quality products.

Planned Obsolescence causes health damages: effect of increased waste production and incineration. The first concerns the direct consequences of incineration for people living nearby, because electronic components are toxic; and the second is international. Indeed, infrastructure for IT waste processing is so lacking that many end-of-life products are exported illegally to regions with lower landfill charges . . . but this has a severe impact on local residents. Many cities in Africa have become “receptacles for the developed world’s unwanted electronics and electrical equipment,” and their disassembly is causing environmental and health catastrophes (Amankwaa 2013; Sullivan 2014). We can see the example of Ghana, where scrap iron is recovered from waste and sent to Dubai or China. Much of this waste ends up in southern countries where they cause health and environmental problems (Freeman 2010; Lubick 2012; Grant and Oteng-Ababio 2016).

From the point of view of culture, the phenomenon determines a decrease of consumer’s trust in businesses (Cooper 2004; Utaka 2006; Kinokuni et al. 2010; Kuppelwieser et al. 2019).

Then there are the ethical and symbolic effects. These are less tangible aspects, but very important from the point of view of the affirmation of a greater focus on the theme of sustainable development. In Italy, for example, the poet and writer Pier

Paolo Pasolini was one of the first to grasp the negative effects of the phenomenon “Planned Obsolescence”, speaking of a «new way of production» based on the irrepressible invention of superfluous and constantly perishable goods and on the hedonistic function of individual consumption (Pasolini 1976). The fast fashion business model is an emblematic example of this cultural conditioning of consumer behavior (Vitorino 2017).

The foregoing are observations certainly worthy of consideration. But the most important adverse Planned Obsolescence effects are:

- (a) for the “consumers” (forced to bear the costs of repairs and the continued new purchase of goods)
- (b) for the “environment”, exposed to danger:
 - from the point of view of the non-rational use of natural resources;
 - from the point of view of the excessive production of waste.

The unnecessary replacement of a still working product or the premature rupture of a product can cause a strong impact on the consumption of raw materials necessary for the production of new products to replace those considered obsolete, which in turn will have to be disposed of, with consequences on the generation of waste (Guiltinan 2009; Vidalenc and Meunier 2015; Rivera and Lallmahomed 2016; Wieser 2016; Sardo et al. 2018).

Planned Obsolescence, therefore, it is a fact multi-offensive, which harms two types of common interests: those of consumers and those of the environment (Martinez and Porcelli 2016; Soto Pineda 2015; Salcedo 2014).

Now we can move on to the second question we set ourselves. Having recognized that there are interests that deserve to be protected through criminal law, we must ask ourselves if there are any alternatives to the introduction of a «Planned Obsolescence» crime.

Can we protect those interests in another way? We could hypothesize a lot of different alternative solutions.

I. Private law remedies (warranty law; class action).

These are legal remedies, which entail the right to compensation for damage due to the breach of the manufacturer’s contractual obligations towards the consumer (Bianchi 2018; Mariotti et al. 2013).

Several legislative initiatives undertaken in various European countries reveal how the system is evolving towards strengthening the current legislation also in terms of warranty (Wrbka 2017; Re and D’Ippolito 2018).

In the Netherland has been introduced an extended guarantee of deformity based on the average lifetime the consumers entitled to expect from the product.

Finland also allows the duration of the guarantee to be extended under the «Consumer Protection Act». According to the preamble, the seller is responsible for non-conformity arising from the manufacture of a product – for example, a vehicle, building materials, or an electrical appliance – even if the lack of conformity comes to light more than 2 years after delivery of the goods. This model is similar to the system in the Netherlands. An ombudsman is responsible for determining the

lifetime of the product, based on criteria such as the price of the product, its parts, or usage, such as frequency of use. The legislator has not developed a list concerning the “expected lifetime” of specific products. Nevertheless, individual cases can be studied in light of the recommendations of the “*Consumer Dispute Board*”.

II. Administrative regulations and Non-criminal sanctions (fine, administrative sanctions).

Indeed, the choice to regulate and sanction the phenomenon with administrative measures seems the most immediate and natural due to the fact that considering Planned Obsolescence the need to protect the consumer immediately comes to mind. Such as, a way is considering the hypothesis of Planned Obsolescence as an unfair commercial practice (Kalafatic 2015).

This is the solution recently adopted in Italy.

As a result of two complex investigations, the AGCM (Italian Antitrust Authority) has ascertained that the companies of the Apple group and of the Samsung group have carried out unfair commercial practices in violation of the articles 20, 21, 22 and 24 of the Italian Consumer Code in relation to the release of some firmware updates of mobile phones that have caused serious malfunctions and significantly reduced performance, thereby accelerating the process of replacing them.

In fact, these companies have induced consumers – through the insistent request to download and also because of the existing information asymmetry with respect to manufacturers – to install updates on devices that are not able to adequately support them, without providing adequate information, or no means of restoring the original functionality of the products.

In particular, Samsung has insistently proposed, from May 2016, to consumers who had purchased a Note 4 (placed on the market in September 2014) to proceed to install the new Android firmware called Marshmallow prepared for the new phone model Note 7, without informing form of serious malfunctions due to the greater stresses of the hardware and requiring a high repair cost for out-of-warranty repairs connected to such malfunctions (http://www.agcm.it/dotcmsdoc/allegati-news/PS11009_scorr_sanz_omi_dichrett.pdf).

Apple, however, has insistently proposed, from September 2016, to the owners of various models of iPhone 6 (6 / 6Plus and 6s / 6sPlus respectively released on the market in the fall of 2014 and 2015), to install the new iOS 10 operating system developed for the new iPhone7, without informing the greater energy demands of the new operating system and the possible inconveniences – such as sudden shutdowns – that such an installation could have entailed. To limit these issues, Apple released a new update (iOS 10.2.1) in February 2017, without warning that its installation could reduce the speed of response and functionality of the devices. In addition, Apple has not prepared any assistance measure for iPhones that had experienced operating problems not covered by the legal guarantee, and only in December 2017 has provided the possibility of replacing the batteries at a discounted price. In relation to Apple, a second conduct was also found in violation of article 20 of the Consumer Code since the same, until December 2017, did not provide consumers with adequate information about some essential characteristics of the batteries, such as their average life and deterioration, as well as about the correct procedures to

maintain, verify and replace the batteries in order to preserve the full functionality of the devices (http://www.agcm.it/dotcmsdoc/allegati-news/PS11039_scorr_sanzDich_rett_va.pdf).

The two companies have had fines equal to the maximum number, considering the seriousness of the conduct and the size of professionals: Samsung 5 million and Apple 10 million euros (5 million for each of the two contested practices).

Both companies will also have to publish an amending declaration on the Italian page of their website informing them of the Authority's decision with the link to the assessment order. (Re and D'Ippolito 2018).

Administrative measures include those of a fiscal nature.

For example, in 2017 Sweden has taken a series of fiscal measures aimed at strengthening the sectors of repair, recycling, and the circular economy. It intends to:

- reduce the cost of repairs by reducing the VAT rate on certain goods (including bicycles, shoes and clothes) from 25 to 12%,
- allow consumers who choose to repair their domestic appliances to deduct 50% of the labor cost from their taxes,
- tax products which contain materials that are impossible or difficult to recycle and repair.

III. Offenses already provided for by the penal codes in force (fraud, . . .).

Lastly, the decision to introduce a specific offense against Planned Obsolescence should be subject to an assessment of the inadequacy of the existing criminal laws.

For example, at least in some cases, fraud could be applied.

Each of these instruments does not seem to be enough just to counter the phenomenon (Jaenne 2016).

Moreover, they favor consumer protection rather than environmental protection.

Another flaw in this approach is that consumers are considered completely without responsibility with regard to the phenomenon. Effective action must also involve consumers: it must increase their awareness of the need for sustainable development and rational use of natural resources.

Then the introduction of a Planned Obsolescence crime can be a useful solution.

3.2 The Relationship Between the Crime of Planned Obsolescence and the Principle of Strict Legality

The other principle that we must consider is the principle of legality.

The contents of this principle are manifold. In the case we are examining here, two profiles are mainly highlighted: that of "precision" and that of "sufficient definiteness". The first one expresses the need for the criminal rule at issue to describe a fact with sufficiently clear boundaries so that every citizen can know in advance what the behavior forbidden by the legal system is. The second highlights the need for the fact described by the criminal rule at issue to be ascertained and

proven in the criminal trial, on the basis of scientific laws or maximum experience. (Marinucci et al. 2018).

Let's start from the profile of the s.c. "precision". How to provide a precise definition of a multifaceted and complex phenomenon such as "Planned Obsolescence"? It is difficult to provide a precise definition of "Planned Obsolescence". In fact, it is very difficult to draw a clear boundary between normal business practices and behaviors that are worthy of being punished.

The risk is to adopt a too generic definition.

Indeed, the French criminal doctrine has highlighted various profiles of the generic nature of the definition accepted by the article L. 441-2 Consumer Code.

For example, it is unclear whether Planned Obsolescence can be realized with an omission: the failure to adopt an update that would lengthen the life of the product is a technique of Planned Obsolescence? Based on the literal interpretation of the rule it is not easy to answer this question.

Even the reference to the product life span is rather imprecise. Many studies have shown that it is particularly difficult to define the concept of "life" of a product and how it would preferably talk about "Durability": however, the first to be assessed in practice, the second in the abstract. The choice of the first option connotes the fact punished in psychological terms.

In any case, there would be considerable difficulties in judicial assessment. The crime of «Planned Obsolescence» therefore poses problems of compatibility with the principle of "sufficient definiteness" (Geissbühler 2016).

Notwithstanding the rather wide definition of Planned Obsolescence in the law, convicting a producer of the infraction will not be easy.

In order to prove that the crime was committed, the judge must verify:

- (a) the product is the result of the implementation of particular technological solutions;
- (b) the product has a deliberately reduced duration
- (c) the producer must act intentionally in order to increase the "substitutability" rate of the product

To prove the existence of the first condition is relatively easy. In fact, it is a question of demonstrating an objective element: that a technical device not necessary for its normal functionality has been included in the product.

The question becomes much more complex for the remaining two conditions.

Let's start from that (sub b). Take, for example, the case in which it is found that the manufacturer has adopted a device which determines a reduction of product performance. It is what would seem to have happened in the s.c. "Apple case"; the same company admitted to having reduced the performance of older models of iPhone after a software update.

Are we sure that the performance degradation is similar to a «*reduction in product life*»? The literal interpretation of the French norm would seem to push towards a negative answer. It will be necessary to see how jurisprudence will orient itself.

But also, in perspective *de iure condendo* we can discuss the opportunity to equate two conditions that are however different from each other.

The proof of intention (sub c) is even more difficult (Demuro 2010). Consumer and environmental associations heavily criticized the use of the word «*deliberately*», which requires proof of intention from the side of the producer.

In the famous case of “Light bulb affair” this proof would have been possible. Indeed, the decision to artificially reduce the life of the product was the result of a precise agreement (Phoebus Cartel) between the producers; agreement whose existence was easily demonstrated (Krajewski 2014).

But in most cases, producers can argue that there was no intentional design choice.

How to prove the intention? The producer can defend himself by offering a rational justification that could be credible, even if not objectively demonstrable [f. e.: safety needs]). In most case producers can argue that there was not an intentional choice.

If, for example, a manufacturer replaces a joint built for years with a certain material with another built with different material (perhaps of lesser quality), it is quite possible that this is part of a precise plan of Planned Obsolescence; but the producer’s justification that it is only trying to limit the cost of production without compromising quality could be “credible”.

Let us once again consider the s.c. “Apple case”: are we sure that the claim that the reduction in performance is functional to the protection of the battery in older models does not conceal the intention to favor their substitutability? Obviously not; but we cannot even have the certainty of the opposite.

The same happens in the s.c. “Epson case”. The company is accused of having altered the printing blocking system, which would be programmed to report the lack of ink well before the toner is actually used up, in order to push the supply of new toner ahead of time. Epson can justify himself by claiming that the chip of the printer cartridge stops functioning at 25% capacity because from that point on there is a high risk being paler or uneven on the page.

But even in the same famous “Light bulb affair” some have been trying to offer a scientific justification for excluding that you are sitting in front of an improper practice of Planned Obsolescence. Some engineers deemed the life expectancy of 1000 h reasonable for most bulbs, and that a longer lifetime came at the expense of efficiency. Engineers argued that longer bulb life caused the increase of heat and decrease of light if bulbs lasted longer than 1000 h. They argued the result of wasted electricity (Krajewski 2014).

In conclusion, whenever there can be a rational alternative explanation (economic, technical or precautionary) it becomes very difficult to say with certainty that we are facing a case of Planned Obsolescence (Tollemer 2012). The possibility for producers to demonstrate their good intentions is undeniably great and their excuses not always unlikely, although they may cover less worthy objectives (Maitre-Ekern and Dalhammar 2016).

3.3 *The Criminal Repression of Planned Obsolescence Is Effective?*

It is probable that the French legislator wanted to offset the excessive indeterminacy of the objective contours of the incriminating fact with a more pregnant subjective element. However, the result is an incriminating rule that is difficult to apply.

This consideration leads us to the last parameter object of our evaluations: the effectiveness of the use of criminal law.

After highlighting the possible tensions between a «Planned Obsolescence» crime and some principles of criminal law, we must answer other questions.

The first one: is criminal law an effective and dissuasive measure in this area? The impact of French Reform (2015/16) appears to be rather limited. Till now there are only two judicial procedures: against Epson and Apple (see: Apple and Epson under scrutiny for planned obsolescence. Corporate Knights Magazine. Spring 2018 17 (2): 11–12).

The low number of proceedings is probably also linked to the difficulty of perception of the phenomenon by the victims (taken individually). It is no coincidence that the few proceedings were initiated on the initiative of the HOP (Stop Planned Obsolescence) association, which is the same that promoted the intervention of the French legislator.

It is likely that complaints, investigations and proceedings will increase in the coming years. Only then can we assess the attitude of the jurisprudence and the real impact of the French criminal law on «Planned Obsolescence».

The second question is as follows: does the «Planned Obsolescence» crime affect the behavior of producers and consumers? Does it play a cultural orientation function?

The real cultural effects of the change in the mentality and the behavior are controversial (in any case they probably must not be overestimated).

It is possible that the fear of reputational damages could be a deterrent for companies.

4 *Obsolescence and Criminal Law: The Perspective de iure condendo*

All the objections previously exposed are serious and founded.

Does this mean that we have to renounce to the use of criminal law? This is not necessary. But, we must build a less ambiguous and more easily enforceable offense.

We could include into the criminal rule a non-exhaustive list of the techniques that amount to Planned Obsolescence:

«...the voluntary introduction of a defect, a weakness, a planned or premature outage, a technical limitation, an inability to repair, or an incompatibility...».

We also could specify that “*inability to repair*” consists of «*the fact that a product cannot be dismantled or that spare parts necessary to its functioning missing*».

So, an early definition proposed by the French National Assembly (Article. L. 213-4 on the draft law on energy transition for green growth, as adopted by Assemblée Nationale on 14 October 2014, TA n° 412).

We could also better specify who is the possible perpetrator of the crime. The French Consumer Code would seem to identify the offender with the person responsible for placing the product on the market. And the people involved in the design or implementation of the product? Currently, they could be punished only for complicity in the crime. It would be preferable to indicate clearly which categories of subjects (engineers, planners, administrators, ...) can be considered as perpetrators of the crime.

Last but not least: to make the proof of the crime less difficult, we could replace the reference to the intention (deliberately) with that to the simple will of the fact.

5 Conclusions

Against the Planned Obsolescence, we need a model of regulation that integrates soft law instruments, commercial law actions (class action) and administrative controls (i.e., imposition – if it is possible – of a minimum useful life for products or giving a minimum period of availability for spare parts).

The action to combat Planned Obsolescence must be developed in a harmonized way.

The main objectives should be:

- to develop a methodology to evaluate the life of products in an objective manner; providing for civil or administrative sanctions for producers who do not adopt the indications emerging from the use of this methodology;
- to encourage – through tax mechanisms – the repair of the products instead of replacing them.

Pro-environment product design and marketing practices and innovative government policies may alleviate the problem over time. However, given the current lack of understanding about consumer replacement and disposal behavior, it is questionable as to whether these practices and policies will be sufficiently informed to be effective. Thus, marketing scholars have a significant opportunity to contribute to sustainable durables product development (Guiltinan 2009).

Faced with these difficulties in managing the “Planned Obsolescence” phenomenon, the need for the use of criminal sanctions cannot be ruled out.

Criminal law role should be limited only to cases of failure of other instruments, according to “*extrema ratio*” principle. Moreover, the analysis of the French experience has shown a certain difficulty in combining the effectiveness of the penal intervention with the respect of some fundamental principles that regulate this matter.

In this perspective, it would be preferable – if possible – to apply the crimes currently provided for consumer protection, such as fraud.

The introduction of a crime of “Planned Obsolescence”, however, could offer a more complete protection of the various offended interests (not only affecting consumers, but also those related to environment). Also, from this point of view, the solution adopted by the French legislator is not optimal: to consider only consumers as systematic victims of the phenomenon means adopting a too unilateral reading of the same. The inclusion in the Consumer Code produces a gap between the crime and the legal assets that must be protected. Not only that: there is a risk that the application of the rule to the s.c. “Professional victims” is excluded (Jaenne 2016).

In any case, effective law enforcement can only pass from legal harmonization to a supranational level. Indeed, in a globalized market, it is unthinkable for individual national legislators to take effective action against Planned Obsolescence practices, whose effects expand beyond national boundaries.

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Part IV
**General Aspects: Corporate Social
Responsibility & Reporting**

Political Corporate Social Responsibility and the Role of Companies. Evidence from Novo Nordisk



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1 Introduction

Over the last half of the twentieth century, the corporate social responsibility (CSR) issue has received considerable attention from academics, civil society, media, and regulators. The concept of CSR has been established in different ways (for a review see Dahlsrud 2008). One of the main contributions to the definition of CSR comes from Carroll's (1979) foundational article. Carroll (1979, p. 500) proposed a four-part definition of CSR that focuses on various businesses' responsibilities to the society: "The social responsibility of business encompasses the economic, legal, ethical, and discretionary (philanthropic) expectations that society has of organizations at a given point of time".

The concept of CSR has matured and been put into practice over the years. In the past decade, an emerging version of CSR has gained attention. We are referring to the concept of political corporate social responsibility (PCSR).

There is no single accepted definition of PCSR. Some see PCSR as a governance mechanism, "an extended model of governance with business firms contributing to global regulation and providing public goods" (Scherer and Palazzo 2011, p. 901). Others consider political CSR "as activities where CSR has an intended or unintended political impact, or where intended or unintended political impacts on CSR exist" (Frynas and Stephens 2015, p. 485).

The increase in PCSR may be explained by considering changes in the socioeconomic environment in which companies operate, and the changing role of businesses in a global society. The transnational nature of political, economic and cultural problems, and activities is weakening the power of states to regulate the behavior of companies that expand their operations globally (Scherer and Palazzo 2008) and

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are thus exposed to heterogeneous legal environments and social demands (Rasche 2015). These “regulatory gaps” have led civil society actors to urge private firms to assume a political (and not only an economic) role (Wickert 2016) and to contribute to the development of global governance (Palazzo and Scherer 2008). According to this new role, corporations may assume political duties and play a “political role” in global governance through the production of global standards, rules, and public goods (Scherer and Smid 2000; Matten and Crane 2005). Moreover, companies can affect regulatory changes by exercising political pressure through lobbying, membership in advisory committees and other political channels (Frynas and Stephens 2015). Consequently, they become politically engaged (Scherer et al. 2006) and work together with political institutions, non-governmental actors and local communities in changing the institutional environment in which they operate (Frynas and Stephens 2015; Rasche 2015).

This means that firms are not only committed to responding to regulations or stakeholder pressures but are becoming influential and constructive participants in processes aimed to solve global environmental and social issues (Edward and Willmott 2011).

Political CSR may be considered an “influential new research stream” (Schrempf-Stirling 2018, p. 2) in CSR research. Therefore, our study specifically aims to analyze the political role taken on by corporations to fill regulatory gaps due to weak or insufficient social and environmental standards and norms, and thus to encourage socially and environmentally responsible conduct, by increasing governments’ and institutions’ interest in CSR and in its communication.

Given this background, the empirical approach used to explore PCSR is a case study (Yin 2009). The focus of our research is on a specific multinational corporation recognized internationally for its early commitment to integrating sustainability into its culture and business practices. We are referring to Novo Nordisk A/S, a global healthcare company with headquarters in Denmark and 95 years of innovation and leadership in diabetes care.

The aim is to verify the presence of characteristics that define the PCSR of Novo Nordisk to explain the reasons for this “political role” (why) and how the company manages, perceives and/or explains its approach. To answer our research questions, we collected data by means of a documentary analysis and an interview with a company representative.

The remainder of this paper is structured as follows. First, the paper provides an overview of previous research on political CSR. Second, it describes the methodology adopted. Finally, the findings of the documental analysis and of the interview are presented and discussed.

2 The Political Role of Companies: From Addressees to Drivers of Global Regulation

The role of businesses in society varies depending on the cultural, political and economic context in which they operate.

Until the second half of the twentieth century businesses operated mainly within legal and moral parameters imposed by national governments and social communities (Palazzo and Scherer 2008). In this traditional context, the regulatory power was only in the hands of nation-state authorities, which were regarded as the main political actors defining the legal framework of rules and regulations that guarantee private, political and social rights. In this context, companies were mainly just the addressees of such a legal framework (Scherer and Baumann-Pauly 2007). Such an approach is based on an economic view of CSR, which posits a strict separation between the role of businesses and government: businesses are considered to be exclusively economic actors whose main responsibility is to increase profits (Friedman 1970). In this view, CSR should only be pursued by companies in order to maximize shareholder wealth.

Recent CSR research provides an alternative to the economic view described above, by suggesting that conditions characterizing the previous scenario have changed as a consequence of the process of globalization (Scherer and Palazzo 2011). Scherer and Baumann-Pauly (2007) underline the incapacity of the state, under the conditions of globalization to recognize and anticipate all possible conflicts and to coordinate problems emerging within an “increasingly interconnected and highly complex environment” (2007, p. 11). In addition, Rasche (2015) argues that governments’ abilities to regulate business behavior are threatened by heterogeneity characterizing legal environments and social demands that affect firms in modern society. This does not mean that nation-state institutions are deprived of their power to regulate corporations or lose all their influence over them, but globalization stresses the need to address regulatory issues internationally and not limit them only to a national context (Edward and Willmott 2011). Therefore, in the global context, legal rules can be incomplete and the enforcement apparatus ineffective, by determining regulation gaps. According to Scherer and Palazzo (2008, p. 1), such gaps have to be filled by managers by means of “prosocial behavior” and the assumption of social responsibilities, that not only comply with the law but also go beyond it. Companies are not just considered the “bad guys, causing environmental disasters, financial scandals, and social ills” (2008, p. 2), but the solution to the global regulation vacuum.

Not only globalization characterizes this changing world. No less relevant are the new relationships among state, civil society, and corporations that are bringing out their complementary role in governance. Each actor has a complementary role in this inclusive model of governance and all together have to contribute to the creation of value. On the basis of these considerations, we can understand that the development of legal frameworks and rules can no longer be managed by a centralized governmental authority alone (Scherer and Baumann-Pauly 2007). Frynans and Stephens

(2015, p. 1) emphasize the proactive influence that companies can exercise on global governance “through active lobbying, membership in advisory committees and other traditional political channels”), by affecting regulatory changes, encouraging a socially and environmentally responsible conduct and by increasing governments’ and institutions’ interest in CSR and in its communication. Therefore, companies emerge as political actors involved in political CSR (PCSR) by taking on responsibilities traditionally assumed by governments and by engaging in political activities via philanthropy. This means that companies assume social responsibilities that go beyond their economic roles. The mere compliance to moral and legal standards, underpinning the traditional understanding of CSR, is no longer sufficient for responding to the new challenges. Being aware of this, global corporations have decided to intensify their CSR engagement and have begun to set or redefine those standards, thereby assuming a politically enlarged responsibility (Scherer and Palazzo 2008).

Over the last decade, there has been a rising interest in the political dimension of CSR, and therefore different definitions of PCSR have been proposed (some of them and the related key aspects are summarized in Table 1).

As highlighted above, PCSR has been defined differently by experts and may still be considered in its infancy.

Wagner and Seele (2017) argue that political action of non-state actors could suffer from a legitimacy deficit because they are not democratically elected or controlled. These authors highlight that it is possible to avoid this drawback only by means of corporate communication and discourse. Therefore, CSR reporting and widely accepted guidelines may be considered a key instrument for PCSR. It should be noted that the link between PCSR and CSR reporting emerges even when companies assume a political role to address the incompleteness or weakness of social and environmental standards and norms (Wickert 2016) by participating proactively in the formulation of rules and guidelines or by influencing the latter through their commitment to sustainability and related reporting practices. Based on the above considerations, we want to verify, with reference to a well-known multinational company, the presence of characteristics and behaviors that can show and explain the political role of this company.

3 Research Design

As highlighted above, the objective of this study is to explore how and why a company would be involved in political CSR. To this aim, we use the case study method, which is appropriate for contributing to the knowledge of social phenomena by deepening or widening our current understanding through the investigation of contemporary events over which we have little or no control (Lamberti and Lettieri 2009; Yin 2009).

According to Scherer and Palazzo (2011), five main characteristics can be used to describe the changing role of corporations as political actors. The authors refer to the

Table 1 Definitions of political CSR and related key aspects

Authors	Definition of PCSR	Key aspects
Scherer and Palazzo (2007)	Political CSR aims at the democratic integration of the corporate use of power, especially in the transnational context of incomplete legal and moral regulation.	The authors develop a new CSR approach based on the Habermasian concept of deliberative democracy.
Scherer and Palazzo (2011)	Political CSR suggests an extended model of governance with business firms contributing to global regulation and providing public goods.	This model develops a new understanding of global politics where private actors play an active role in the democratic regulation and control of market transactions.
Edward and Willmott (2011)	Political CSR is based on an extended model of governance with business firms contributing to global regulation and providing public goods.	The authors propose an alternative perspective to Scherer and Palazzo's proposition by embracing the radical democratic theory.
Mäkinen and Kourula (2012)	Political CSR refers to processes where business firms start to self-regulate, take over the traditional governmental tasks of political and social regulation and operate as new providers of citizenship rights and public goods.	The authors suggest that the Rawlsian approach is the systematic focus on background justice needed in political CSR discussions.
Fynans and Stephen (2015)	Political CSR refers to activities where CSR has an intended or unintended political impact or where intended or unintended political effects on CSR exist.	The authors identify the dominance of institutional theory and stakeholder theory in the political CSR field. However, they suggest the possible adoption of a multiple theoretical perspectives (e.g. the combination of the resource-based view and institutional theory).
Rasche (2015)	CSR should be understood politically, because firms increasingly provide public goods and engage in business regulation, thus assuming state-like obligations.	Political CSR is regarded as a European approach to study the political role of corporations and is contrasted with the American approach of corporate political activity (CPA).
Scherer et al. (2016)	PCSR entails those responsible business activities that turn corporations into political actors by engaging in public deliberations and collective decisions and the provision of public goods or the restriction of public bads in cases where public authorities are unable or unwilling to fulfil this role.	This definition of PCSR does not regard the link between responsible business and politics exclusively as a consequence of globalization, but rather relates it to gaps in local or regional governance.
Wickert (2016)	Political CSR involves businesses taking a political role to address regulatory gaps caused by weak or insufficient social and environmental standards and norms.	The author shows why and how not only large multinational corporations but also small and medium-sized enterprises can play a political role.
Wagner and Seele (2017)	Political corporate social responsibility theory suggests that corporations play a political role to fill regulatory gaps and contribute to a global governance system by voluntarily engaging in self-regulation.	The authors argue that CSR reporting and related guidelines are key for political CSR, as they have the potential to increase legitimacy and minimize abuse of corporate political action through dialogue.

following characteristics: (1) participation of companies in the political sphere resulting in global governance; (2) engagement in self-regulation; (3) responsibility beyond liability; (4) moral legitimacy; and (5) deliberative democracy. If these five characteristics are fulfilled, a corporation might be considered a political actor that can contribute to filling the regulatory gap.

To verify if, how and why Novo Nordisk can be described as a political actor, we used Scherer and Palazzo's framework. Specifically, we documented the presence of the five characteristics above specified, by carrying out a content analysis of Novo Nordisk's documents and manager interview.

The combination of different source of evidence can increase the validity of the analysis (Yin 2009). The content analysis techniques are frequently used to analyze the data collected through case studies as they can provide the description of the content of documents analyzed and improve the validity of the case study approach (Krippendorff 2004; Miles and Huberman 1984).

3.1 Case Selection

The paper was based on a single case study considered useful for illustrating how businesses' ways of embedding sustainability can shape governments' and organizations' interest in CSR and in its communication, leading to filling regulatory gaps in social and environmental standards and norms and encouraging socially and environmentally responsible conduct. The focus is on Novo Nordisk, a multinational healthcare company founded in 1922 that is a world leader in diabetes care. Over the years, the company has acquired experience and capabilities that also enable it to help people defeat obesity, hemophilia, growth disorders and other chronic diseases. With headquarters in Denmark, on the outskirts of Copenhagen, Novo Nordisk employs approximately 42.100 people in 79 countries and markets its products in more than 170 countries.

This Danish company is known for its strong commitment to sustainable business by integrating the Triple Bottom Line approach into its culture and corporate strategy. Specifically, since producing one of the first environmental reports in the world in 1994 (Novo Nordisk 1994), Novo Nordisk has become a leader in the area of sustainability reporting.

A case study approach is relevant because analyzing in-depth the leadership of Novo Nordisk in the field of CSR reporting allows us to investigate the political CSR phenomenon within a real-life context, adding strength to what is known about this phenomenon.

Novo Nordisk was selected for two main reasons.

First, the company has been widely recognized for its CSR activities and disclosure practices. Since 2005, it has been ranked as one of the *Global 100 Most Sustainable Corporations in the World* selected by Corporate Knights, occupying the top position in 2012. For 11 consecutive years, Novo Nordisk's Annual Report was awarded *Best non-financial annual report* by the Danish association of

state-authorized accountants, FSR, and the business daily Børsen (Palacios et al. 2010); and, since 2007, it has been named the *Best integrated report* at the Corporate Register Reporting Awards (except for 2011, when the Brazilian company *Natura Cosméticos* was awarded).

Second, the proactive nature of Novo Nordisk's reporting in relation to content elements and principles proposed by key international standard setters (e.g. Global Reporting Initiative, International Integrated Reporting Council), as well as in relation to Danish legislation on the environment and CSR reporting (Danish Parliament, Ministry of Environment and Energy and Danish Environment Protection Agency 1995; Danish Parliament and Minister for Economic and Business Affairs 2008), led us to examine whether the company has exerted any influence on the development of sustainability reporting frameworks and regulations under consideration.

3.2 Data Collection

First, in order to obtain an overall picture of the company's responsibility approach we collected data using press articles, company's website, annual and corporate social responsibility reports, and scientific papers that refer to Novo Nordisk.

To verify the proactiveness of Novo Nordisk's reporting activities with respect to Danish legislation on environment and CSR reporting, we examined the law on *Green Accounts* of 1995 (Danish Parliament, Ministry of Environment and Energy and Danish Environment Protection Agency 1995) and acts amending the *Danish Financial Statements Act* (Danish Parliament and Danish Minister for Economic and Business Affairs 2008; Danish Parliament and Danish Ministry of Business and Growth 2012; Danish Parliament 2015), the last of which is designed to implement EU *Directive 2014/95/EU* on non-financial information (European Parliament and Council 2014).

This information allowed us to obtain an overall description of the company and its approach to sustainability issues in order to verify the presence of the five characteristics that can define PCSR.

In the second stage of our analysis, an individual interview with a company representative was proposed to understand the political CSR that seems to characterize Novo Nordisk's approach to sustainability. The interview's goal was "to gather the print of behavior, of social interactions and perceptions through the actors' discourse" (Wacheux 1996), and it was useful to explore the point of view of our research subject. A letter providing information on the nature of the study, the proceedings of participation, and the confidentiality of data were emailed to the Novo Nordisk CSR manager 1 week before the scheduled date of the interview. The interviewee's comments were recorded and transcribed in accordance with best practices in qualitative research (transcripts being verified by interviewee) and were integrated into the discussion of the results of our analysis.

The reading of all these documents led to the elaboration and application of a coding process that allowed us to identify the main reference data for our analysis. Subsequently, these data were collected into five dimensions reflecting the characteristics that, according to Scherer and Palazzo's framework (2011), define PCSR (Creswell 2009).

4 Data Analysis

The results of the content analysis are presented below according to each of the Scherer and Palazzo's five dimensions of PCSR.

Governance Model With reference to the *governance model*, corporations that want to make a political contribution need to implement, within their structures and procedures, a stronger focus on processes of stakeholder engagement, and they have to contribute to the creation of global governance institutions (Scherer and Palazzo 2011). Over time, Novo Nordisk has experienced the modification of its relationship with stakeholders. The origin of the company's focus on sustainability as an integral part of its business strategy dates back to the late 1960s when Novo Nordisk suffered severe stakeholder criticisms for the first time (Morsing and Oswald 2009). This criticism concerned the possible side effects of a new product line of enzymes on consumers' and employees' health. Faced with a dramatic drop in sales, the company reacted by developing dust-free enzymes that presented no risks to its stakeholders (Morsing and Oswald 2006). In 2001, Novo Nordisk had a second encounter with criticism from NGOs, when it was accused, along with other medical companies, of allocating higher priority to profits rather than to the health of less advantaged people. The company's reaction was strong and successful and consisted of a more proactive form stakeholder engagement, designed to identify and address their needs and interests (Dey and Burns 2010). Stakeholder engagement has become an essential tool for Novo Nordisk to understand which issues are crucial for making sustainability a pivotal point of its strategy. In this way, the predominantly environmental focus shifted to a focus that today also includes health, safety, bioethics and social responsibility issues.

The relevance of stakeholders was also highlighted in the interviewee's responses:

What we do, and actually spend a lot of time doing, is make sure that we calibrate what we do, what stakeholders expect of us. When we do that, we are able to get ahead of the curve of what are expectations in terms of formal requirements, because we understand those that would be the new expectations is coming, and so we are better prepared for it. It is always better to be ahead of the curve.

Thus, according to the interviewee, it is important to have a dialogue with stakeholders, so "*we try to meet the information needs of the various stakeholders, not just shareholders*".

Self-Regulation The PCSR assumes, as highlighted previously, that corporations have a regulatory role and that they also rely on the “so-called soft-law that operates without a governmental power” (Sherer and Palazzo 2011, p. 907). Therefore, the role of law has decreased, and the importance of *self-regulation* has increased. Self-regulation is one of the key elements of a corporation’s political role. Novo Nordisk’s approach to corporate social responsibility issues is characterized by self-regulatory action and participation in voluntary soft law. One of the most visible expressions of this approach is Novo Nordisk’s sustainability reporting experience.

In 1994, the Danish company became one of the first companies in the world to publish an environmental report (Novo Nordisk 1994). It is important to highlight that Novo Nordisk decided to experiment with this form of corporate reporting, which was completely new in respect to traditional financial communications at a time when guidelines on disclosing information regarding environmental impact were not yet formulated. Furthermore, this first environmental report was published a year ahead of Danish legislation requiring that certain companies prepare and publish *Green Accounts*. We refer to the Act No.403 of 14 June 1995 (Danish Parliament, Ministry of Environment and Energy, Danish Environment Protection Agency 1995, p. 1), which amended the *Environmental Protection Act* according to which “the statement of accounts shall indicate the significant consumption of energy, water and raw material and the type and quantity of pollutants, forming part of the production process, which are discharged from the enterprise to air, water and soil or form part of products and waste”. These clarifications lead us to argue that Novo Nordisk’s decision to disclose non-financial information was totally voluntary and proactive, both in comparison to guidelines and national regulation. Environmental reporting is regarded as a means of integrating sustainability thinking in everyday business practices at Novo Nordisk, with the knowledge that such a communication tool can also contribute to increasing competitiveness and, consequently, to improving financial results. Environmental reports for 1993 and 1994 (Novo Nordisk 1994, 1995) are not available on the company’s website (accessed April 2018), but from the verification carried out by SustainAbility on the third environmental report of 1995 (Novo Nordisk 1996), it became clear that Novo Nordisk was able to present its environmental performance in a reasonable and balanced way despite the lack of reference points in this area.

Since then, the company has continued to expand and develop its voluntary disclosures. It published its first social report (*Social Report 1998*) in 1999 (Novo Nordisk 1999), the same year that the Global Reporting Initiative (GRI) published an *Exposure Draft of the Sustainability Reporting Guidelines* (GRI 1999) and the Institute of Social and Ethical Accountability (ISEA) launched the *AA1000 Framework* (ISEA 1999). The *Social Report 1998* (Novo Nordisk 1999) represents the first step in a more systematic reporting on the social dimension of sustainable development, understood merely as the company’s impact on people. In 2000, simultaneously with the publication of the first full version of the *GRI Sustainability Reporting Guidelines (G.1)* (GRI 2000), Novo Nordisk merged both of its social and environmental reports into one document (*Environmental and Social Report*

1999), covering the significant environmental, bioethical and social aspects of corporate activities (Novo Nordisk 2000). It constituted the first attempt to apply the guidelines provided by GRI, and in so doing, useful enrichments were introduced (i.e., *Site Reports*). In addition, to produce this and the following reports in accordance with the *GRI Guidelines*, Novo Nordisk expressed its active participation in the international organization as one of the *Organizational Stakeholders (OS)*, who are GRI's core supporters. They have connected their name with GRI's vision and mission, contributed their expertise, promoted GRI in their own networks, had an important governance role and invested in GRI through annual financial contributions (GRI 2012).

Since 2001, Novo Nordisk's reports have been compliant with the *United Nation's Global Compact (UNGC)* principles, and since 2002, they have followed the approach laid out in the *AA1000 Framework* (ISEA 1999). However, in 2004, Novo Nordisk took its most important step by fully integrating the previously separate *Annual Financial Report* and *Sustainability Report* into one inclusive document called *Annual Report* (Novo Nordisk 2005) in order to provide a balanced presentation of the company's financial, social and environmental performance. The aim was to offer a more comprehensive overview of the company's performance, progress, positions, and strategic initiatives by exploring the interactions between financial and non-financial objectives (Dey and Burns 2010). In so doing, Novo Nordisk acted as an early mover and promoter of integrated reporting, not only compared to other companies but also in relation to frameworks and laws subsequently elaborated, by anticipating them and encouraging or contributing to their formulation.

The anticipatory position of Novo Nordisk with reference to the production of the Integrated Report was confirmed by the interviewee:

We have started to integrate reporting before the term actually existed.

The pioneering experience of Novo Nordisk is also made evident by Eccles et al. (2015) on their time axis showing "the four phases in the evolution of Integrated Reporting meaning". They view the integrated reporting movement as evolving through four continuous and overlapping phases: company experimentation, expert commentary, codification and institutionalization. The first phase is marked by the efforts of two Danish companies, Novozymes and Novo Nordisk, and a Brazilian company, Natura, in the early 2000s to produce their first integrated report. Therefore, similar to many new management ideas, "integrated reporting was begun by corporate practitioners" (Eccles et al. 2015, p. 9). Based on their observations of corporate practices, consultants, academics and other experts began to establish basic principles of integrated reporting (second phase) and subsequently, in the late 2000s, frameworks and standards were developed thanks to the collaboration between NGOs, companies, investors, and accounting firms (third phase). The key codification effort (and the most globally significant effort to date) is the *International <IR> Framework*, published in December 2013 by the *International Integrated Reporting Council (IIRC 2013b)*. Finally, the progress made in the previous

phases resulted in the formulation of voluntary codes of conduct, regulations and laws (fourth phase).

In addition to initiating the integrated reporting movement, Novo Nordisk contributed actively to the development of the <IR> Framework (IIRC 2013b) in several ways:

- participating in the <IR> Pilot Programme, providing a contribution to the *Discussion Paper Towards Integrated Reporting – Communicating Value in the 21st Century* (IIRC 2011);
- contributing to the 2013 Consultation Draft of the <IR> Framework (IIRC 2013a);
- becoming a member of the IIRC, with participation by Novo Nordisk's Vice President of Corporate Sustainability and Chief Sustainability Officer, Susanne Stormer.

In 2008, the Danish Parliament adopted the *Proposal for an Act amending the Danish Financial Statements Act (Report on social responsibility for large businesses)* (Danish Parliament and Danish Minister for Economic and Business Affairs 2008). According to the new act, large businesses in Denmark must supplement their management's review with a report on social responsibility, containing information about CSR policies, how these policies are translated into actions, what the business has achieved as a result of working with CSR and expectations for the future. It is evident that, once again, Novo Nordisk stands out in its capacity to anticipate the requirements of Danish legislation, as they had reported such information for many years prior to the legislation. The same clearly applies to the amendment to the *Danish Financial Statements Act* adopted in 2015 (Danish Parliament 2015), including new requirements concerning CSR reporting, which implemented the *EU Directive 2014/95/EU* (European Parliament and Council 2014) on the disclosure of non-financial information.

The proactive nature of Novo Nordisk's experience in the discipline of sustainability reporting is synthesized in Fig. 1.

The interviewee highlighted:

We actually believe that it is much more important that reporting frameworks define a set of principles; companies must define how they tell a story, also thinking about what is relevant to them [...] and also how you create value to your customers, your employees, your business partners etc.

On the other hand, the interviewee highlighted the importance of companies not sitting down, "*waiting for regulation arrive, then regulation would not be dynamic. Thus, it is necessary to introduce improvements and then it became regulation*".

Responsibility Beyond Liability A new political role of corporations, from a PCSR perspective, is identified considering corporations' contributions to the public good (e.g. fair working conditions). CSR goes beyond legal liability, affirming the idea of "*social connectedness*" (Sherer and Palazzo 2011, p. 907). Novo Nordisk, since the late 1990s, has worked to improve human rights fulfilment by the government, where such fulfilment was inadequate. Specifically, it engaged in multi-stakeholder

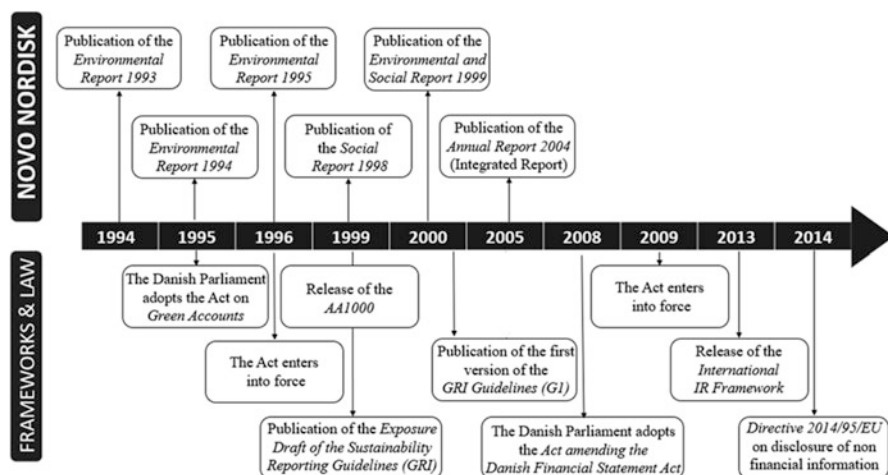


Fig. 1 Evolution of Novo Nordisk's Sustainability and Integrated reporting compared to the development of law and frameworks

initiatives with NGOs, local stakeholders and the Chinese Ministry of Health with the aim to pressure and support the Chinese government in strengthening responsibility and action on diabetes care. Examples of these initiatives are the enforcement of national health recommendations and diabetes treatment guidelines, the provision of education and training about diabetes, and the prevention and improvement of public health system integration (Jonsson et al. 2016). As a result, not only the reinforcement of the rights of patients but also the moral legitimacy of the company was obtained.

Moral Legitimacy Moral legitimacy strategies are typical of PCSR (Wagner and Seele 2017). In this changing world, corporations must identify new ways to obtain their licenses to operate and to be legitimate (Scherer and Palazzo 2011). Novo Nordisk's attention to stakeholder engagement and dialogue and its role in cooperation with NGOs and other institutions in the process of global governance are driving forces for moral legitimacy. Knudsen and Brown (2014) highlight the efforts of leading Danish companies, including Novo Nordisk, to induce government CSR initiatives. The exertion of such political influence lead to a collaboration between companies and the Danish government on several initiatives, such as the *National Network for Business Leaders*, the supervisory board of the *Copenhagen Centre for Corporate Responsibility* and the *Danish government's Council for Social Responsibility*. Last but not least, Knudsen and Moon (2013) analyze different types of regulatory configuration of Political CSR, including the "initiation" of regulation of national governments by international corporations. The authors mention the key role played by Novo Nordisk in Denmark in the creation of a network of leading CSR companies that supported the UN Global Compact (*Danish UN Global Compact Business Network*). When the Danish government adopted the above mentioned

actin 2008, amending *the Danish Financial Statements Act*, these companies contributed to the Danish government's decision to privilege UN Global Compact principles in non-financial reporting.

The interviewee also highlighted the importance of independent assurance of its CSR reports in order to improve credibility:

We actually put a lot of effort behind having a relevant and credible report.

As mentioned by different authors (Wagner and Seele 2017), third-party assurance is another aspect of political corporate behavior. A large part of the literature suggests that assurance not only increases the reports' credibility and quality but also can improve the confidence level regarding company disclosure by stakeholders, reduce the risk that CSR reports can be perceived as addressing only the needs of the most powerful stakeholders and enhance legitimacy (Dando and Swift 2003; Tarquinio and Rossi 2017).

Deliberative Democracy The fulfilment of all four dimensions of PCSR may be considered a clear expression of *deliberative democracy*, in which there is a collaboration by both state and non-state actors in global governance (Scherer and Palazzo 2011).

5 Conclusion

Political CSR brings our attention to the fact that under conditions of globalization, companies can assume a political role by influencing and cooperating with governments and institutions in order to fill regulatory gaps.

Using Scherer and Palazzo's framework of five characteristics that define political CSR, we have demonstrated that Novo Nordisk exhibits those characteristics. Its proactive action in the field of CSR reporting by anticipating, encouraging and contributing to the formulation of frameworks and rules was highly relevant. The results confirm Novo Nordisk's innovative spirit and its capacity to initiate change, rather than only reacting to events. The company's decision to disclose its environmental impact since 1993 has proved to be proactive in relation to the first requirement of the Danish Parliament for the preparation and publication of *Green Accounts* (Danish Parliament, Ministry of Environment and Energy and Danish Environment Protection Agency 1995). The company's first *Social Report* (Novo Nordisk 1999) was also 10 years ahead of the *Proposal for an Act amending the Danish Financial Statements Act* (Danish Parliament and Danish Minister for Economic and Business Affairs 2008) requiring large companies to report on their social responsibility. Moreover, it is clear that Novo Nordisk applied its reporting practices in advance of the contents of the *EU Directive 2014/95/EU* (European Parliament and Council 2014) on the disclosure of non-financial information.

The analysis also provides evidence of the anticipatory nature of Novo Nordisk's non-financial reporting with respect to international reporting guidelines and

frameworks. If the Novo Nordisk's merger in 2000 of both its social and environmental reports into one document (*Environmental and Social Report*) (Novo Nordisk 2000) was concurrent with the publication of the first full version of the *GRI Sustainability Reporting Guidelines (G.1)* (GRI 2000), its integration in 2005 of the previously separate *Annual Financial Report* and *Sustainability Report* into one inclusive document (*Annual Report*) (Novo Nordisk 2005) initiated in practice the idea of Integrated Reporting resumed 8 years later by the *IIRC*. Its relevant and high-quality experience in this area has led to the active engagement of the Danish company with such standard setters as the *Organizational Stakeholder* of the GRI, as a participant in the *<IR> Pilot Programme* and as a member of the *IIRC* which was attended by its Vice President of Corporate Sustainability and Chief Sustainability Officer, Susanne Stormer. Novo Nordisk thus fulfils the core elements of PCSR, self-regulatory action and participation in voluntary soft-law.

The company's strong attention to stakeholder engagement, contribution to public good and commitment to socially acceptable behavior in order to be legitimate not only highlights its fulfilment of all the four dimensions of PCSR but also may be understood as a clear expression of the fifth characteristic of a deliberative democracy.

This paper contributes to the literature on political CSR, supplementing previous studies and taking part in the understanding of how and why a company can change its role as a political actor. Since the political conception of CSR is still in an early stage of development, our study contributes to operationalizing this concept with reference to a well-known company.

A limitation of this research is that a single case exploration hardly provides a sound basis for the generalization of the study findings, which could be affected by the traits of the company, industry or geographic area. The findings from a single case are not statistically generalizable, but this work may be considered a starting point for other research aimed at verifying how some CSR initiatives and companies' activities may change the role of corporations as political actors. Future research may enhance the representativeness of our study by conducting interviews with other stakeholders involved in the PCSR process (e.g. Danish government, standard setters etc.). In this way, it would be possible to obtain an external view of the phenomenon and to explore more depth the reasons and effects of the political role of corporations. Secondly, more compelling and robust results could be achieved by carrying out a multiple case study (Yin 2009) in order to analyze PCSR in companies belonging to different industries, geographical areas and of different size.

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Italy Towards Mandatory Sustainability Reporting. Voluntary Corporate Social Responsibility Disclosure of Italian Companies and Legislative Decree 254/2016 Statements. A Quantitative Analysis of the Last 10 Years



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1 Introduction

Corporate Social Responsibility Disclosure (CSRD) is a formal commitment to inform and involve stakeholders with an adequate flow of communication on social, ethical and environmental effects of organizations' economic actions. In particular, Gray et al. (1987, p. 9) define CSRD as 'the process of communicating the social, ethical and environmental effects of organizations' economic actions to particular interest groups within society and to society at large'. In this sense, CSRD plays a key role in providing transparent and reliable information, and is widely considered important for legitimacy (Gray et al. 2001; Campbell 2004).

Given its importance, CSRD has been a focus of academic interest. Several studies examine the reasons why companies adopt voluntary CSRD (e.g. Dowling and Pfeffer 1975; Gray et al. 2001; Guthrie and Parker 1989; Patten 1992); other studies focus on the relationship between a company's propensity for CSRD and company characteristics such as: profitability (e.g. Al-Tuwaijiri et al. 2004), corporate governance systems (e.g. Haniffa and Cooke 2005; Michelon and Parbonetti 2012), industry (e.g. Brammer and Pavelin 2006), size (e.g. Cowen et al. 1987; Roberts 1992), in order to identify the best proxies for CSR and CSR practices. Company characteristics play a key role in CSRD, but legislation is considered important and positive to increase the number of companies that publish complete and transparent sustainability disclosure and to stimulate CSR initiatives. At the same time, implementation of CSR strategies and, consequently, CSR disclosure is an important goal for global sustainable development; the United Nations Sustainable Development Goals (SDGs) mean that business is required to focus on other

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goals as well as economic growth. In this sense, it might be interesting to identify areas where legislation is required to reach the goal of transparent, complete and full-range disclosure on sustainability, and to boost more widespread use of these practices. Institutional theory argues that companies are ruled by a complex and interlinked set of formal and informal rules which affect their strategies and processes (North 1990), and implementing CSR can be strategic response to institutions and regulations (Buhmann 2006; Campbell 2007). In this sense, the way in which companies treat, consider and communicate with their stakeholders depends on the institutions within which they operate (Campbell 2007).

A growing number of professional and academic institutions and organizations promote the implementation of CSR reporting and supply useful guidelines for helping company disclosure and, in certain countries (e.g. France, Sweden, Norway, Netherlands, Denmark and Australia), firms are under legal obligation to disclose socio-environmental performance. In 2016, for the first time, Italian legislation (Legislative Decree No. 254/2016) requires 'public interest entities', from financial year 2017 onwards, to integrate statutory financial statements with disclosure of environmental, social and governance strategies. Before 2017, companies could opt to disclose CSR information at their own discretion in stand-alone reports, such as social, sustainability or environmental reports, or to combine all economic, social and environmental information in an integrated report. CSRD is thus moving from a voluntary to a legislative perspective, and it is interesting to investigate the situation before and after the new legislation in order to have a clearer picture of the problems and opportunities it brings.

Given the scarcity of studies that analyze historical trends of CSR disclosure in Italy and the characteristics of Italian CSR reports, this research aims to fill the gap by investigating the reasons for the new law and the immediate impact it had when it came into force. The research aims to provide information and insights for business managers, scholars and national and European regulators by investigating the characteristics of non-financial reporting prior to the new Italian legislative decree and the immediate impact of the regulation.

Starting from this premise our contribution investigates the role of company characteristics in influencing voluntary disclosure used to obtain legitimation. We present explorative research using a quantitative approach. The analysis is focused on voluntary CSRD (2007–2016) implemented by Italian companies (excluding enterprises in the banking, financial and insurance sectors) listed on the Italian Stock Exchange in the 10-year period. We also propose some considerations on mandatory CSRD implemented by Italian listed companies for the year 2017. In particular, we will try to answer the following research questions: What is the extent of Italian CSRD and how did it evolve in the 10 years 2007–2016? What are the characteristics of voluntary disclosure in terms of type of report and guidelines or standards followed? Is there a relationship between industry, size, profitability, presence of a corporate website with non-financial information and CSRD? What changes occurred in Italian CSRD as a result of Decree 254/2016?

The chapter comprises four main sections: literature review; Italy towards mandatory sustainability reporting; empirical research; conclusion.

2 Literature Review

Corporate social responsibility disclosure is the process of communicating to stakeholders the social and environmental effects of organizations' economic actions (Gray et al. 1987). Given its importance, CSR has been a focus of academic interest since the 1980s (e.g. Guthrie and Parker 1989; Roberts 1992; Deegan and Gordon 1996; Neu et al. 1998). There are several overview studies, which specifically review the existing corporate social responsibility disclosure literature such as: Mathews 1997; Parker 2011; Fifka 2013. Considering the studies from recent years, several key topics have been analyzed. Much of this literature focuses on *causes, characteristic and role* of CSR disclosure. In particular, the studies are related to *reasons, relevance, completeness, credibility and effectiveness* of CSR information. With regard to the reasons, such as company reputation, customer loyalty and/or customer-company identification, the studies investigate why companies choose to disclose their CSR commitment at their own discretion (Kolk and Pinkse 2010; Schmeltz 2012). With regard to the *relevance* of CSR, Dhaliwal et al. (2012) investigate the relevance of CSR information for the market. They find that CSR appears to present relevant information to investors about firm's financial performance or to reduce the cost of equity capital. Furthermore, companies may specify their ethical values by CSR reporting better than by mandatory disclosure (Lewis and Unerman 1999). This can contribute to the democratic development of an effective social responsibility policy (Spence 2009) and can increase transparency and thus enhance democracy (Brown 2009; Spence 2009). Other research underlines the importance of CSR stand-alone reports in order to make evident the higher firm commitment to social and environmental issues (Mahoney et al. 2013). As far as *completeness and credibility* of CSR information are concerned, there are studies related to the aptitude of CSR in order to present companies situation (Gray 2010; Amran et al. 2014), as well as studies focused on potential benefits of CSR for investors and financial stakeholders (Dhaliwal et al. 2012). There are differing views on such benefits; several studies, in fact, raise doubts over the significance of CSR for investors (Kolk et al. 2001) by suggesting that voluntary social disclosure in company reports is merely an attempt to increase legitimacy (Kent and Zunker 2013) or to influence public perception (Neu et al. 1998). In this respect, studies analyze the *effectiveness* of CSR disclosure (e.g. Weber 2008). They examine its role as a signal of apprehension for social and environmental issues, or an opportunity to camouflage corporate activities and insinuate a corporate image which differs from reality (Cho et al. 2010; Mahoney et al. 2013), enabling the falsification of company image (Hopwood 2009). With regard to the *credibility* of CSR, several studies underline the importance of the *assurance* of the documents, although with some critical viewpoints (Adams and Evans 2004). Many studies emphasize a lack of technical abilities and assurance-provider independence (Dando and Swift 2003); other studies reveal that the benefits of assurance are limited to perceptions of the company image (Cho et al. 2014; Wong and Millington 2014). On the other hand, other

studies indicate the importance of rigorous independent verification processes (Zorio et al. 2013).

Otherwise, an important group of research focuses on the *instruments* of CSRD and on *standards* used for outlining the reports. In particular, in recent years, these studies have focused on the *integrated report* (Frias-Aceituno et al. 2014; Stubbs and Higgins 2014; de Villiers et al. 2016), and several researchers analyze the differences between an integrated report and other types of stand-alone report, especially a sustainability report (Mio et al. 2016). Regarding *standards* and *guidelines*, several studies point out the importance of developing guidelines able to ensure transparent and reliable information (Christensen 2002; Dando and Swift 2003). In this respect, many studies underline the importance of the Global Reporting Initiative (GRI) guidelines, which are considered the best available option for companies in reporting on CSR issues (Gray 2010; Mahoney et al. 2013; Michelon et al. 2015; Fernandez-Feijoo et al. 2014). The GRI is however also subject to the criticism that the sustainability principle can appear vague and thus allows companies to make subjective use of guidelines (Moneva et al. 2006).

Finally, another considerable part of literature explores the *relationship between a firm's propensity for CSRD and company characteristics*. In particular, many studies show a strong relationship between *industry* and CSRD (Brammer and Pavelin 2008; Buniamin 2010; Kansal et al. 2014). With regard to company size, the studies are coherent and show that it has a substantial positive relationship with social and environmental disclosure (Brammer and Pavelin 2008; Cho et al. 2010). There are however conflicting findings on the relationship between CSRD and financial performance; some studies show a significant positive relationship (e.g. Tagesson et al. 2009) whereas others show an insignificant relationship (e.g. Cormier et al. 2005). A further group of studies analyze the relationship between CSRD and corporate governance characteristics such as governance structures (Michelon and Parbonetti 2012), corporate executives' attitudes to disclosure (Adams 2002) and stockholder composition (Chau and Gray 2002).

3 Italy Towards Mandatory Sustainability Reporting: Legislative Decree No. 254/2016

Until financial year 2016, medium and large firms in Italy could opt to disclose CSR at their own discretion in stand-alone reports. Starting from the 2017 accounting year onwards, all large public-interest companies are required to publish a non-financial statement (NFS) describing policies, risks and results related to corporate sustainability. In fact, on January 10, 2017, Legislative Decree No. 254 of December 30, 2016, which transposes European Union Directive 2014/95 on the disclosure of non-financial information and of information on the diversity of the composition of the governing bodies of large companies and groups, was published in the Official Journal. The Decree came into force on January 25 and its provisions apply, with

reference to declarations and reports relating to financial years beginning on or after January 1, 2017. The Decree represents an important innovation in the communication of information related to the 'sustainability' that affects companies of significant size and is an important signal of encouragement towards the promotion of sustainability disclosure.

In particular, Article 3 of the Decree provides for the obligation to draw up an individual declaration of a non-financial nature for public interest entities that have had, on average, during the financial year, more than 500 employees and, at the closing date of the financial statements, exceed at least one of two maximum limits (balance sheet total: € 20,000,000; total net revenues from sales and services: € 40,000,000). On the other hand, for public interest entities which are parent companies of a large group, there is an obligation, for each financial year, to draw up a consolidated declaration of a non-financial nature (Article 4). Both declarations must be drawn up and published by the directors of the public interest entity. It should be noted that Legislative Decree No. 39/2010 (Article 16, c. 1) defines public interest entities as including Italian companies issuing securities admitted to trading on Italian and European Union regulated markets, banks and insurance and reinsurance companies.

With reference to the information disclosed, the non-financial declaration must contain information of a social, environmental, employee-related, human rights and anti-corruption nature. In particular, in environmental matters, information must be provided about the use of energy resources and water resources, and about the greenhouse gas emissions and the health risk factors that distinguish the company's activities. With regard to employees, information should include actions taken to ensure gender equality, measures envisaged to implement the relevant conventions of international organizations and the way in which dialogue with social partners takes place. In the field of human rights, it is necessary to indicate the measures used to prevent human rights violations and the actions taken to prevent discriminatory conduct. Finally, the instruments chosen and adopted to fight active and passive corruption should be indicated.

The information provided should meet the requirements of relevance and must be provided describing at least the business model for the management, organization and control of the company (including any model adopted pursuant to Legislative Decree No. 231/2001), the policies applied by the company, the results achieved and the fundamental performance indicators of a non-financial nature. The main risks verified connected with the issues covered by the decree also have to be described.

On the other hand, it is possible not to provide information on one or more aspects if the company does not put into practice policies in these areas; but the company is required to indicate in the declaration the reasons why it is not providing such information. It is also permitted to omit information on future developments and transactions under negotiation, in the event that their disclosure could affect the commercial position of the company. In this case, the company has to indicate in its

declaration that it intends to make use of this option. In any case, the omission of such information is not permitted if it compromises the correct and balanced understanding of the company's performance and the effects of its activity on the aspects covered by the declaration.

Another important issue covered by the Decree is related to the guidelines for drawing up the declaration. The non-financial declaration, in fact, must be drawn up on the basis of recognized national or international reporting standard and guidelines, issued by Italian or international authorities, of a public or private nature, functional, in whole or in part, in compliance with the obligations of non-financial reporting provided for by Legislative Decree and Directive 2014/95/EU. Where an autonomous reporting methodology is used, the statement must contain a clear and detailed description of the reporting methodology as well as the reasons it was selected.

With regard to communication, the Decree establishes that the declaration of a non-financial nature may be communicated in three different ways: it may be an integral part of the directors' report; it may constitute a separate report; or it may be an integral part of the annual report. In any case, the non-financial statement, even when published in the form of a separate report, is to be considered as an annex to the financial statements. In this respect, the regulation requires the administrative body to approve it and make it available to the control body within the same time limits as for the draft financial statements, and it is published in the register of companies, by the directors themselves, together with the directors' report.

In conclusion, the Decree imposes important obligations regarding CSR disclosure, although at present they are restricted to certain categories of large companies. However, in order to assess the extent of the intervention, it is also necessary to take into account the widespread experience of voluntary sustainability reporting already existing in Italy, especially among large companies. A similar evolution in regulations had already occurred with regard to information on corporate governance, which became mandatory under Decree 173 of 2008 (which amended Article 123-bis of the Consolidated Law on Finance). The 1999 Code of Corporate Governance subsequently increased its dissemination, although in the context of voluntary disclosure. There appears to have been reciprocal influence of voluntary practices and disclosure obligations. It is a fact that regulatory provisions determine companies' behavior and influence their production of documents, and it is also possible that a widespread attitude favorable to voluntary disclosure may also lead to the consideration of regulatory intervention in this direction. In this sense, therefore, it would be interesting to analyze the extent of sustainability disclosure in the years prior to the introduction of the regulatory obligations, in order to evaluate the expansion and improvement of CSR disclosure after the new regulations.

4 Empirical Research

4.1 Methodology: Aims and Data Collection

Starting from literature review, the empirical research aims to answer the following research questions:

- RQ1: *What is the extent of Italian CSRD and how did it evolve in the 10 years 2007–2016?* (Marimon et al. 2012; Hahn and Kühnen 2013);
- RQ2: *What are the characteristics of voluntary disclosure in terms of type of report and guidelines or standards followed?* (Frias-Aceituno et al. 2014; Mio et al. 2016);
- RQ3: *Is there a relationship between industry, size, profitability, presence of a corporate website with non-financial information and CSRD?* (e.g. Cormier et al. 2005; Brammer and Pavelin 2008; Tagesson et al. 2009);
- RQ4: *What changes occurred in Italian CSRD as a result of Decree 254/2016?* (Buhmann 2006)

The analysis considers quantitative characteristics of information processes, and consists of the following phases:

1. an exploratory examination of Italian listed companies to identify the number of firms that disclose voluntary CSR information in specific stand-alone reports in the period 2007–2016; for that period:
 - (a) an analysis of the reports published in terms of type of document (social, sustainability, environmental, intangible and integrated report) and reporting standards used (especially Italian standard ‘Gruppo di Studio per il Bilancio Sociale’ – GBS, and international standard ‘Global Reporting Initiative’ - GRI);
 - (b) an analysis of relationship between CSRD and industry, size (total assets) and profitability (ROA) of the company, and the presence of a corporate website containing non-financial information;
2. a brief examination of CSRD practice after the entry into force of the new national regulation on non-financial disclosure.

For Phase (1), our sample is composed by companies meeting the following requirements for the entire 10-year period:

- continuous listing on the Italian Stock Exchange;
- not belonging to banking, financial or insurance industries. This is because of the different characteristics of their equity and because these firms are not comparable with firms of other industries (La Porta et al. 2002).

Our final sample comprised 165 companies for which we have 10 years of observations.

For Phase (2), the sample is composed by listed companies obliged by law to publish non-economic-financial information, and not-belonging to the financial, insurance and banking industries (total 186 units).

4.2 Results and Discussion

A preliminary descriptive analysis was made of the characteristics of the Italian entrepreneurial scenario of the 10-year period and the type of disclosure produced (RQ1). The analysis of the sample focused on the distribution of the reports, and therefore the companies, across the ten main industries identified by the Industry Classification Benchmark (ICB), a globally recognized industry classification taxonomy. These are the industries reported by the classification shown in Table 1: (0) Oil and Gas; (1) Basic Materials; (2) Industrials; (3) Consumer Goods; (4) Health Care; (5) Consumer Services; (6) Telecommunications; (7) Utilities; (8) Financials (excluded for the reasons mentioned above); (9) Technology.

It should be noted that more than half of the sample under study is represented by companies in the Basic Materials and Consumer Goods industries, and that the least represented industrial sector is the Oil and Gas sector. In the next part of the analysis, the role of belonging to a specific industry in relation to the production (or not) of non-financial report will be examined through an analysis of the averages between the different industries.

The second descriptive analysis of the frequencies of our sample concerned the choice of the different types of non-financial reports adopted by the 165 companies analyzed (RQ2), compared both with the total number of non-financial reports published (Relative Percentage) and with the total number of companies analyzed (Total Percentage) (see Table 2).

It is important to underline that most of the non-financial reports of the companies analyzed are Sustainability Reports, while the other types of reports are used infrequently. The number of Integrated Reports published in the last 10 years is also undoubtedly low (20 Integrated Reports produced by a total of 165 companies

Table 1 Frequencies over industries

Industry	Frequency	%
Oil and gas	61	3.70
Basic materials	510	30.91
Industrials	70	4.24
Consumer goods	379	22.97
Health care	70	4.24
Consumer services	110	6.67
Telecommunications	150	9.09
Utilities	140	8.48
Technology	160	9.70
Total	1650	100.00

Table 2 Frequencies over types of report

Types of report	Frequency	Relative percentage	Total percentage
Social	16	4.42	0.97
Sustainability	276	76.24	16.73
Environmental	29	8.01	1.76
Intangible	1	0.28	0.06
Integrated	20	5.52	1.21
Other report ^a	18	4.97	1.09
Total CSRD	360	100	21.81
Total sample	1650	–	100

^a‘Other report’ covers a small number of very specific tools such as the SA8000 and ethical rating reports, usually one or two page documents, which cannot be considered real reports

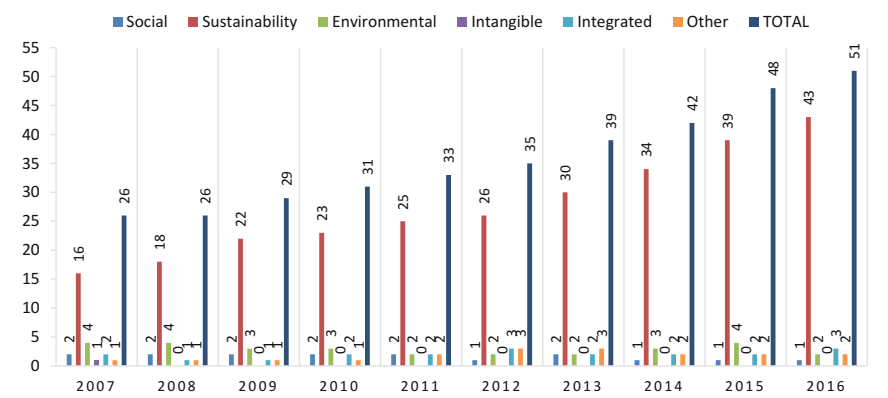


Fig. 1 Voluntary Disclosure by year

over the last 10 years), despite the ferment of the academic and professional world towards this new reporting tool and the increasingly numerous activities of the International Integrated Reporting Council (IIRC)¹ in favor of greater knowledge and dissemination of the same.

The graph below (Fig. 1) shows the development and increasing use of the different types of non-financial reports among companies observed during the period 2007–2016, before the new regulation on non-financial disclosure. While the data concerning the types of reports other than the Sustainability Report are not very interesting and have a constant trend, the number of Sustainability Reports (and the total number of non-financial reports produced) shows a marked positive trend of growth. In 2007 only 26 companies out of 165 (16%) drew up and published a voluntary disclosure document, while in 2016 the number is 51 (31%). Over just 10 years, the number of reports disseminating outside the company information of

¹<http://integratedreporting.org/>

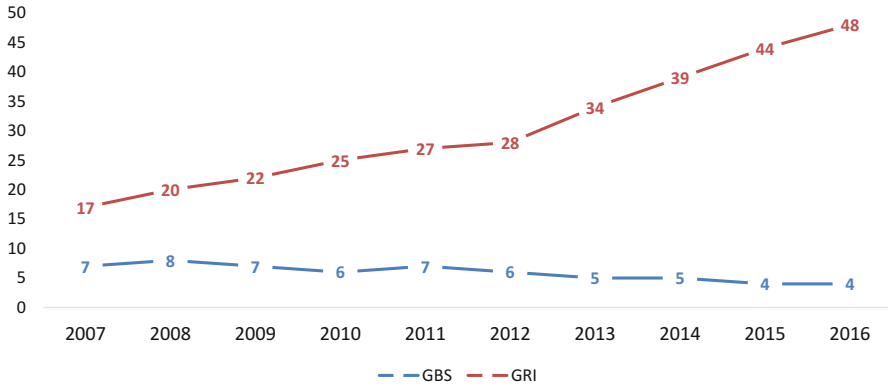


Fig. 2 GRI and GBS by year

social, environmental, ethical and rights nature as well as financial information thus doubled.

A significant increase over the period under investigation also concerns the recognized use of one of the main reporting guidelines, the Global Reporting Initiative (GRI)² standards, for which there is slow but steady growth from 2007 to 2012, and rapid growth from 2013 to 2016 (see Fig. 2). In 2016, 48 out of 51 (94%) companies that prepared a non-financial report adopted one of the versions of the GRI standards and made specific reference to it in the document, respecting the guidelines and the official indications. This represents an important step towards a greater structuring and completeness of the non-financial reports as well as a step towards greater vertical and horizontal comparison of the same.

At the same time, and probably as a consequence, starting in 2013, the number of companies producing a report with non-financial information which adopted the ‘Gruppo di Studio per il Bilancio Sociale’ guidelines (GBS)³ fell to 4 out of 51 (8%) in 2016 (Fig. 2).

With regard to the adoption of and compliance with the main process standards in terms of social and environmental reporting, over the 10 years analyzed, there was growth, although fluctuating and not continuous, in standards AA1000, SA8000 and Global Compact (Fig. 3). In 2016, Global Compact was adopted by 22 companies out of 51 (43%) which provide a non-financial report.

The analysis continued with a more in-depth study of the differences in the preparation of non-financial reports in the nine industries in our sample (RQ3). We prepared and performed a mean-comparison group T-test (Table 3). The null hypothesis is that the average of voluntary disclosure values in each of the nine industries (1 if it is present, 0 if it is not present) is equal to the average of the same values in the rest of the sample.

²<https://www.globalreporting.org/>

³<http://www.gruppobilanciosociale.org/>

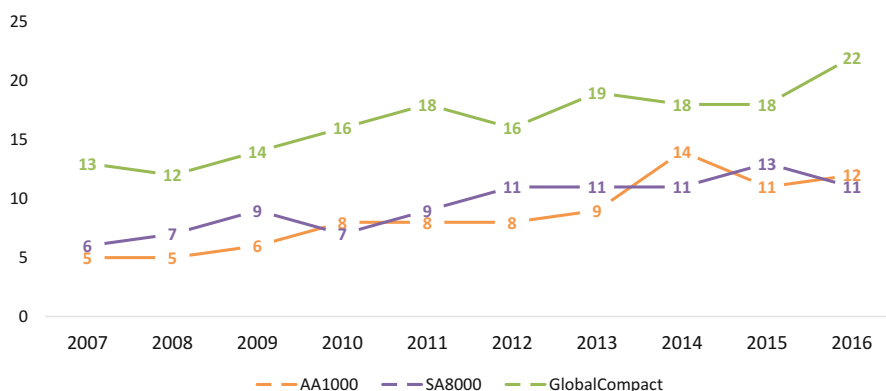


Fig. 3 AA1000, SA8000 and global compact by year

Table 3 Group mean-comparison test: Voluntary Disclosure in different industries

No.	Industry	Industry mean	Rest of sample mean	Difference	T-test
0	Oil and Gas	0.6557	0.2026	0.4531	-8.5714***
1	Basic Materials	0.2175	0.2235	-0.0059	-0.2713
2	Industrials	0.3857	0.2120	0.1737	-3.4465***
3	Consumer Goods	0.0791	0.2612	-0.1821	7.6442***
4	Health Care	0.0428	0.2272	-0.1844	3.6599***
5	Consumer Services	0.2091	0.2201	-0.0110	0.2701
6	Telecommunications	0.1467	0.2267	-0.0800	2.2595**
7	Utilities	0.6214	0.1821	0.4393	-12.5711***
9	Technology	0.1000	0.2322	-0.1322	3.8552***

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

The results show that companies in Oil and Gas, Industrials and Utilities industries have a higher industry mean value compared to the rest of sample mean value, and a significant result in the T-test. Companies belonging to these three industries tend to produce significantly more voluntary disclosure reports than other companies. Companies belonging to Consumer Goods, Health Care, Telecommunications and Technology industries are less inclined to publish a non-financial report than companies belonging to the other industries. These results confirm previous findings: Brammer and Pavelin (2006), for example, found that companies operating in high-tech and finance industries are less inclined to disclose non-financial information, whereas companies operating in industries with a high environmental impact are more inclined to disclose it. Companies belonging to industries such as Oil and Gas and Utilities operate in a context of great attention and concern for environmental issues and related pollution, so requests for information from the community and all stakeholders will be probably greater and more pressing. These companies

Table 4 Group mean-comparison test: Broadcast of non-financial information through the corporate website in different industries

No.	Industry	Industry mean	Rest of sample mean	Difference	T-test
0	Oil and Gas	0.8197	0.4059	0.4137	-6.5006***
1	Basic Materials	0.4196	0.4219	-0.0023	0.0882
2	Industrials	0.5000	0.4177	0.0823	-1.3642
3	Consumer Goods	0.3140	0.4532	-0.1392	4.8484***
4	Health Care	0.1857	0.4316	-0.2459	4.0961***
5	Consumer Services	0.4091	0.4221	-0.0130	0.2664
6	Telecommunications	0.3733	0.4260	-0.0527	1.2454
7	Utilities	0.7143	0.3940	0.3202	-7.4599***
9	Technology	0.3938	0.4242	-0.0304	0.7400

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Table 5 Logistic regression

Voluntary disclosure			
Total Assets	0.649*** (0.072)	Observation	1650
ROA	0.015 (0.017)	LR chi-square	905.50***
Website	3.322*** (0.281)	Pseudo R2	0.52
Intercept	-13.089 (0.986)		

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

may therefore be more inclined to disseminate social and environmental information precisely to respond to concerns and requests for information from outside.

The same type of analysis (group mean-comparison T-test) was also carried out on the use in the various industrial sectors of a powerful information and communication tool such as the company website (see Table 4). This analysis investigates whether the website is also used as an additional source of information, in the same way as publication of non-financial reports in various industries, especially in sectors that are particularly interested in accessing certain types of non-financial information. The results (Table 4) show that companies in Oil and Gas and Utilities industries have a higher industry mean value compared to the rest of sample mean value, and a significant result in the T-test, similar to the results of the previous industries analysis (Table 3). Companies belonging to these two industries tend to use the corporate website to disclose social, environmental, ethical and other non-financial information to a greater extent than other companies. Companies belonging to Consumer Goods and Health Care industries are less inclined to publish a non-financial report than companies belonging to the other industries, as was found by the industry analysis above (Table 3). The decisive role of industries with a high environmental impact is also clear in this analysis of website use for disclosing non-financial information. It is also clear that internet is becoming a key tool for information and communication, and therefore for obtaining legitimacy, and companies are clearly aware of this.

Table 6 Comparison before and after the new law

	Sample	Non-financial disclosure
Listed companies (2017)	236	158 (67%)
Listed companies (2017) – No banking, financial or insurance industries	186	129 (69%)
Listed companies (2017) – Listed continuously from 2007 to 2016	140	98 (70%)
Listed companies (2016) – Listed continuously from 2007 to 2016	140	46 (33%)

Finally, we analyzed the data collected in a Logistic Regression (Table 5) that takes into account not only the years and the industries (as fixed effects) but also the company size (calculated through the value of Total Asset), profitability (calculated through the Return on Assets - ROA) and the use or not of a website containing information of a social and environmental nature (binary variable: 0 for absence and 1 for presence) (RQ3).

The regression analysis shows a high goodness of adaptation (Pseudo $R^2 = 0.52$) and a good significance (p -value < 0.01) of the whole model. The results relating to the individual coefficients confirm first of all the positive and significant relationship (p -value < 0.01) between the preparation of a non-financial report and the size of the company, a relationship investigated and deepened by previous research and confirmed by our analysis of Italian listed companies in the last 10 years. Secondly, there is a positive and significant relationship (p -value < 0.01) between the preparation of a non-financial report and the presence of a web site containing socio-environmental information. We hypothesize that companies that make an effort to produce a document containing non-financial information also use online communication, in particular the company website, to convey this type of information to the outside world. They will probably put it in the public domain using a more direct style of communication typical of the web. The result confirms that online digital communication is highly valued and exploited by companies wishing to disseminate social and environmental information to the outside world for the benefit of the community and stakeholders in general (Tagesson et al. 2009; Rahim 2016; Bosetti 2018).

To conclude the analyses of our sample, we focus briefly on what happened immediately after the entry into force of the new national regulation on non-financial disclosure for Italian companies listed on the stock exchange (see Table 6). Although these figures go beyond the period covered by our survey, they indicate how and to what extent the law on non-financial disclosure has impacted on the production of social and environmental reports by Italian listed companies (RQ4).

In 2017, 158 out of 236 listed Italian companies (67%) published a non-financial report. Excluding companies belonging to the financial, insurance and banking sectors, out of 186 listed companies, 129 (69%) published a document with socio-environmental information; of these 110 (85%) did so through a report separate from the Management report (*‘Relazione sulla gestione’*). To make a comparison between the sample in our survey on an equal footing with the new data for 2017, the sample

is restricted to 140 companies listed continuously for 10 years from 2007 to 2016 and still listed in 2017. In 2016, 46 companies (33%) produced a non-financial report; and with the entry into force of the new law in 2017, there is a marked increase that brings companies to 98 (equal to 70% of the 140 analyzed in this last comparison before and after new regulation). Of these, 84 have a separate document, and separate from the Management report (Table 6).

5 Conclusion

CSRD plays a key role in providing transparent and reliable information and is widely considered important for legitimacy. In this context, it is relevant to investigate the role of company characteristics in influencing voluntary disclosure used to obtain legitimization, and how companies fulfil obligations to stakeholders through CSR strategies. In Italy, until financial year 2016, companies could opt to disclose CSR information at their own discretion in stand-alone reports (sustainability or environmental reports, or to combine all economic, social and environmental information in an integrated report). Since 2017, Italian legislation requires large companies to integrate statutory financial statements with disclosure of environmental, social and governance strategies, and this has been an important novelty for Italian companies and their stakeholders.

Our findings show that in the period 2007–2016, in a non-mandatory situation, the number of CSR reports published by Italian listed companies grew steadily; the analysis highlights a big increase in the use of sustainability reports and increasing use of GRI standards, and standards like AA1000 and SA8000. The findings reveal the voluntary behavior of Italian companies, compliance with the requirements of the Decree with reference to content, i.e. the different dimensions of sustainability, and with the use of international standards and guidelines. Regulatory requirements in fact appear to include many CSRD practices which were already followed by many Italian listed companies. In this respect, regulatory intervention, far from being distant from real life operations, aims to make compulsory for all companies the behaviors considered most virtuous, thus enhancing at the same time the efforts and innovative capacity of the companies themselves.

Moreover, the research compares trends in different industries in order to identify which have more stringent rules and greater stakeholder pressure for transparency, information disclosure and full-range annual reporting. In the absence of specific legislation, industry pressures and specific sets of rules have played a key role in the development of CSRD in Italy. In line with previous studies (Brammer and Pavelin 2008; Buniamin 2010; Kansal et al. 2014), we find that listed companies operating in areas with a strong social and environmental impact have a higher propensity to engage in CSRD, in other words, that industry influences corporate management on decisions about the type of disclosure to be published. In this respect, specific regulatory intervention for different sectors could be useful.

The use of a company website as a communication tool is influenced by the industry to which the companies belong: those operating in industries with a high environmental impact tend to make greater use of the website to convey CSR information. This use of the website is also significantly related to the production of non-financial reports. Companies which opt to collect, manage and process this information tend to disseminate it publicly through both official reports and an official online communication channel.

Concerning the other variables, our findings are in line with previous research on other countries: company size is positively and strongly correlated with CSRD propensity, while company profitability shows a positive but weak relationship.

With reference to the year 2017, we observe a marked increase of the number of companies producing a non-financial report as a document separate from the financial report. This data analysis, although exploratory, gives a clear idea of the impact that the new law has had on the publication of non-financial reporting documents. The mandatory nature of the law (Buhmann 2006) has forced many companies to implement non-financial information management and integrated or stand-alone reporting processes. Previous behaviors analyzed in this research formed the basis from which the legislation took its cue, and forced companies less virtuous in the communication process to adapt to it. The 37% of companies in the sample, which were obliged by the new law to implement a formal and structured CSR reporting process thus benefitted from examples of practices consolidated over time. Such practices tended to be well-structured, often because they had followed different standards and frameworks, and served as a stimulus, a limit and a guide to other companies in the process of change.

From an academic research point of view, the strength of this work is that it investigates what happened in the decade preceding the introduction of the law on non-financial information in order to trace the relationship between the historical situation and business characteristics and the requirements of the new national legislation. In highlighting the tools adopted by Italian listed companies, the results of the research should be of direct benefit to the management of companies affected by the legislative decree, particularly companies which still voluntarily produce non-financial reports. The research may also indirectly interest Italian and European lawmakers in tracing the evolution of CSRD before legal obligation, and in identifying the characteristics of companies and industrial sectors to which they belong. It may also inspire lawmakers to act where necessary if there are shortcomings in the disclosure practices or a weak use of national and international guidelines or standards.

The research shows clearly that a law such as the 2016 Italian Legislative Decree on voluntary disclosure (European Union Directive 2014/95) has strong and significant impact on the behavior of companies and the quality, volume and transparency of information published and disclosed to society in the broad sense. This is a good example of how sustainable development promoted by institutions such as the European Union may move from voluntary initiatives and then be strengthened and expanded by legislation with a view to greater awareness of social and environmental issues and the needs of civil society.

Limitations of this research are that it analyses information and characteristics related only to non-financial disclosure, and that in terms of time it was not possible to analyze a good number of years after the introduction of the Legislative Decree. A longer time-scale would bring the impact into focus more clearly.

Future research would be useful to deepen the study of the voluntary disclosure produced in the last decade by analyzing qualitative aspects of the published information, the topics covered by the reports, credibility of the documents and their shortcomings. Future research will certainly, also, be of interest if it focuses on the change in the contents and information published and disseminated by companies as a consequence of the new legal obligations.

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Non-financial Performance Indicators: The Power of Measures to Operationalize the Law



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1 Introduction

During the last decade, we have seen an increasing use of Sustainability Performance Indicators (SPIs) disclosed in Corporate Social Responsibility (CSR) reports, in the field of sustainability. The construction of SPIs can provide an unquestionable added value to economic, social and environmental corporate communication (Schaltegger and Burritt 2000; Tarquinio et al. 2018). Indicators can be considered useful tools for the analysis and control of company performance, suited to express synthetically complex and dynamic events characterizing the business management (Cisi 2003).

Recently, in Europe, the adoption of Directive 2014/95/EU on Non-Financial Information, hereafter “Directive” (EC 2014), has addressed to enhance the consistency and comparability of Non-Financial Information (NFI) disclosed throughout the European Union, emphasizing the need to have a concise and standardized set of SPIs that summarizes overall business performance (Gasperini and Zambon 2017). According to the Directive, large companies headquartered in EU will have to provide some NFI “to the extent necessary for an understanding of the undertaking’s development, performance, position and impact of its activity, relating to, as a minimum, environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters” (Directive, Article 1, L. 330/4). To this aim,

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companies have to report on their business model, on risks linked to the companies' operations, products and services and supply chain, policies pursued and, most importantly for our aims, "non-financial key performance indicators relevant to the particular business" (Directive, Article 1, L. 330/5). The Directive was implemented in Italy by No. 254/2016 Legislative Decree, hereafter "Decree" (Decreto Legislativo 2016).

In this framework, SPIs can be considered one of the most effective and powerful tools for communicating relevant companies' NFI in a synthetic, structured and comparable way. Indeed, SPIs are useful to transform some qualitative information into quantitative ones, facilitating the comparison among companies. CSR reporting literature and several organizations have highlighted the growing stakeholders' pressure for balanced, accurate, and reliable performance indicator systems considered capable of producing high-quality economic, environmental and social information (Fernandez-Feijoo et al. 2014; GRI 2017; Boiral et al. 2019). Therefore, these indicators might be considered a useful tool to operationalize the law.

However, it is necessary to underline that the regulation can contribute to the production of standardized and comparable information so that indicators can show their full contribution, but only if it is possible to reduce the variation in the content and structure of non-financial reporting both within and between sectors. This goal cannot be achieved only through mandatory disclosure of NFI; it is necessary to adopt global shared standards for non-financial reporting, useful to facilitate comparisons across companies. The European Commission has acknowledged some national, EU-based and international frameworks as appropriate for complying with the Directive (European Commission 2017). According to research that has analyzed the first application of the EU Directive on NFI, the GRI standards and guidelines have become the widespread standards used for mandatory NFI in Italy (Venturelli et al. 2017; Manes-Rossi et al. 2018).

Moreover, prior research has shown contradictory results on the question of whether mandatory reporting has an influence on reporting quality (Chauvey et al. 2015; Habek and Wolniak 2016; Lock and Seele 2016; Lunque-Vilquez and Larrinaga 2016; Mion and Loza Adaui 2019) and on the usefulness for investors of NFI in voluntary and mandatory contexts (Loprevite et al. 2018; Aureli et al. 2019).

Based on the above considerations, our research aims to investigate the effects produced by the adoption of the Decree on non-financial reporting provided by Italian companies obliged to follow the law. To this aim, we have analyzed the SPIs disclosed in NFRs produced before and after the Decree by companies belonging to the "sensitive sectors", in terms of relevance of their social and environmental impact. The longitudinal analysis performed showed a relevant change in the SPIs disclosed by companies belonging to our sample, which becomes more evident in the first year in which the Decree entered into force (fiscal year 2017).

The results of our research are useful to highlight how companies have changed their reporting approach after the adoption of mandatory non-financial reporting. The longitudinal analysis performed documented a decrease of the overall quantity of NFI disclosed via SPIs and a general reduction in their average value, which was

more evident in the first year in which the Decree entered into force. In this way, this study contributes to research regarding NFI practices and offers useful insights for policy-makers and companies to understand the effects of laws on corporate behaviors.

We structured the chapter into five sections. The next section provides a theoretical background on the value of SPIs disclosed in Non-Financial Report (NFR). Section 3 describes the sample, data and the research methodology, while Sect. 4 discusses the results of the analysis. The final section offers our concluding remarks.

2 The Role of SPIs in Mandatory NFI Statements: Theoretical Background

SPIs can be considered one of the most effective and powerful tools for communicating companies' NFI in their CSR reports.

SPIs are synthetic and relevant measurements useful to support company's decision-making processes, to identify risks and areas of inefficiencies, to monitor effectiveness, and to manage the overall performance, also in achieving socio-environmental goals (Jasch 2000, 2009; Schaltegger and Burrit 2000; Mio 2005).

They can be classified along various forms and dimensions of measurement and, according to Adams and Frost (2008), an integrated use of financial and non-financial indicators into different aspects of their management functions can become a powerful driver to improve corporate sustainability performance. In fact, these measurements inform, in a structured manner, internal decision-making processes and organizational behaviors about socio-environmental goals to operationalize sustainable development, but they also support CSR reporting purposes towards stakeholders (Cisi 2003; Mio 2005, 2010; Adams and Frost 2008). Especially as external communication tools, SPIs are suitable for intertemporal and intra-sectoral comparison purposes, since they can be applied to companies of any type, size, sector or country (Olsthoorn et al. 2001; Daub 2007).

Concerning the sector, literature has underlined that a company's affiliation within "sensitive" sectors is a variable capable of influencing SPIs disclosure (Cho and Patten 2007; Prado-Lorenzo et al. 2009; Legendre and Coderre 2013; Khlif et al. 2015; Tarquinio et al. 2018).

Moreover, through these synthetic measures, stakeholders can assess the organizations' actual performance about their sustainable development commitments and the ethical basis of their CSR programs (Wilburn and Wilburn 2013). CSR reporting literature has highlighted the growing stakeholders' pressure for balanced, accurate, and reliable SPIs systems to produce high-quality economic, environmental and social information in companies' Sustainability Reporting (SR) (Mio and Venturelli 2013; Fernandez-Feijoo et al. 2014; Lin et al. 2014; Boiral et al. 2019). However, companies should pay more attention to improving the disclosed NFI, even because recent studies have shown that NFI has a positive impact on financial performance

and competitive advantage (Adams et al. 2011; Hussain 2015; Laskar and Gopal Maji 2018; Loprevite et al. 2018).

The adoption of the EU Directive on NFI proposes an important challenge to identify non-financial performance indicators capable of satisfying the request for laws and able to capture in a synthetical way, information useful for all stakeholders (first of all investors) (Venturelli et al. 2017; Gasperini and Zambon 2017). According to the Directive on NFI disclosure, starting from 2017, large companies headquartered in EU will have to provide some social, environmental and governance statements. The NFI to be included is essentially

information to the extent necessary for an understanding of the undertaking's development, performance, position and impact of its activity, relating to, as a minimum, environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters, including: (a) a brief description of the undertaking's business model; b) a description of the policies pursued by the undertaking in relation to those matters, including due diligence processes implemented; c) the outcome of those policies; d) the principal risks related to those matters linked to the undertaking's operations including (where relevant and proportionate) its business relationships, products or services which are likely to cause adverse impacts in those areas, and how the undertaking manages those risks; (e) non-financial key performance indicators relevant to the particular business (p. 4–5).

To support organizations in providing NFI, the EU issued 2017 the EU Guidelines (EUG) which aims to “help companies disclose high quality, relevant, useful, consistent and more comparable non-financial (environmental, social and governance-related) information in a way that fosters resilient and sustainable growth and employment, and provides transparency to stakeholders [...]. They are intended to help companies draw up relevant, useful, concise non-financial statements according to the requirements of the Directive” (EC 2017 p. 4). The EUG, with reference to Key Performance Indicators (KBIs), clearly specifies that: “KPIs are also considered effective tools to connect qualitative and quantitative information, and to build linkages. They enable companies to provide a balanced and comprehensive view in a concise and effective manner” (EC 2017 p. 14). In this way, the EUG confirms the relevance of these tools.

Today there are several guidelines, standards and frameworks for the production of NFI (GBS, ISO 26000, AA1000AP, etc.), all of which support improving the quality of NFI reports. The guidelines of the Global Reporting Initiative (GRI) are certainly those used most widely, as confirmed by different surveys (KPMG 2017). These guidelines were developed as part of a multi-stakeholder process and first published in 2000 (GRI-G1 2000). Since their first version (G1 2000), these SPIs represent one of the most relevant characteristics of the GRI Guidelines. All the revisions of the GRI guidelines, up to the latest versions of the G4 and GRI Standards, have made improvements in the performance indicators, including the possibility of using additional organization-specific indicators, defined in the Sector Supplements (up from the G2), or as established in the G4, other information related to “material topics” and the effects they may have, which are not provided in the list of GRI indicators (GRI-G4 2015a, b).

It is necessary to underline that if a framework is used for the preparation of the Non-Financial Statement (NFS), it is legally required to indicate which framework was applied. The Directive was implemented in Italy by the No. 254/2016 Legislative Decree entered into force on 25 January 2017 (implemented starting from the fiscal year 2017).

Some studies have begun to investigate the effects regarding the adoption of the Directive in the European context. Venturelli et al. (2017), with reference to a sample of Italian large companies, analyzed the consolidated or individual financial statements concerning 2015, in order to verify the NFI compliance level in the areas of business model, sustainability policies, sustainability risks, key performance indicators, and diversity in company's SRs showing positive NFI scores, especially when companies are already involved in CSR activities. Manes-Rossi et al. (2018) documented on a sample of large European companies a high level of compliance with EUG in terms of key performance indicators disclosed. Mion and Adauì (2019) explored the effect of mandatory NF reporting, focusing on the effects of the new legislation in Italy and Germany. The Authors undertake a content analysis of nonfinancial disclosures of a sample of Italian and German companies according to three dimensions of sustainability reporting quality: credibility, availability and strategic anchorage. Their results showed that the quality of NF disclosures increased after the implementation of the law. So far there are no studies that have carried out an analysis on the disclosure level of SPIs concerning the periods before and after the adoption of the Directive in Italy.

3 Empirical Research: Sample, Data and Methodology

3.1 *Sample and Data*

The Italian Commission for Companies and the Stock Exchange (CONSOB) provided the list of the Italian companies which published the NFS, available as of 31 August 2018. Inside this list, we selected industrial firms which fulfilled the following criteria:

- those having the obligation for NFS in the application of the Decree starting from the 2017 financial year;
- those active in sensitive sectors¹;
- those using the G4/GRI Standard (GRI-S) during the observation period (2015–2017).

¹For sector classification, we used the Industry Classification Benchmark code (ICB Code) provided by Thomson Reuters Datastream database (Datastream item identifier for financial firms: WC07040).

Table 1 Sampling

Selection of companies	Number	
Entities in list provided by CONSOB	200	
Companies with obligation for NFS	198	
Financial sector	–50	
Non-sensitive sectors	–130	
Companies operating in sensitive sectors	18	
Without continuing use of GRI standard over the three-year period 2015–2017	–4	
Companies - Final sample	14	
Sample composition per sector	Number	%
Chemicals	2	14,29%
Electricity	5	35,71%
Gas, Water and Multi-utilities	4	28,57%
Oil and Gas Producers and Oil Equipment and Services	3	21,43%
Total	14	100,00%

We choose to focus our analysis on companies adopting the GRI standard because it is generally deemed as the most detailed and structured framework which sets analytical requirements for non-financial reporting (Skouloudis et al. 2009). Moreover, it is the standard on which SR was originally grounded (Manes-Rossi et al. 2018). We refer to companies active in sensitive sectors because it was highlighted that these companies disclose a higher quantity of NFI and rely on GRI reporting, more widely and earlier than companies operating in other sectors, so as to communicate their actions and results to the market (Mio 2010; Clarksonm et al. 2011; Toppinen et al. 2012; del Mar Alonso-Almeida et al. 2014).

The selection process yielded a sample of 14 firms (see Table 1).

Data on the use of the indicators required for each aspect (economic, environmental and social) by the G4-GRI Guidelines were collected from NFRs published by the companies. Research focuses on a three-year period, thus 3783 observations, in terms of indicators disclosed along the analysed period (see Table 2).

3.2 Methodology

To investigate on indicators disclosed in NFRs, we performed content analysis, considered as a suitable tool to identify information and focus on the way specific themes are presented and the frequency of their occurrence in the documents analyzed. This technique allows “for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use” (Krippendorff 1980, p. 18) and is one of the most commonly used methods in disclosure studies (Manes-Rossi et al. 2018; Setia et al. 2015). In line with prior studies (Setia et al. 2015), we adopted the variant of the method based on the simple analysis of the

presence or absence of particular items, applying a dichotomous coding system by attributing scores of 0/1 for the absence/presence of information.

The content analysis was performed manually by a research group. Reports were first coded by a researcher, then checked for consistency by another researcher, and any discrepancies were discussed to agree on the final classification of data.

To establish whether the legal provisions by the Italian Law have affected the disclosure behavior of companies in the selected sample, we considered it useful to compare the reports provided in the period before the mandatory requirement with the early adoption of compulsory NFR (*longitudinal analysis*).

The results of the analysis performed on the reports published by companies included in the sample are presented in the following section. The key contents of the reports have been summarized by a disclosure index that allows for quantifying the gathered information. This index is structured for each category as follows:

$$DI_c = \frac{\sum_{i=1}^n SPI_i}{\frac{n}{e_c}}$$

where

c = category of indicators

i = specific indicator within the category

n = number of sample companies

SPI_i = dummy variable whose value is equal to 1 (the company use the indicator) and to 0 (the company does not use the indicator)

e = number of indicators per category

It is worth noticing that the number of indicators depends on the standard version adopted (G4; GRI-S). The disclosure index compares companies following different standards, given that the number of disclosed indicators is scaled with reference to the number of indicators available in the specific guideline of the standard.

For the aims of this research, we use a descriptive analysis addressed to study the frequency distribution of the Disclosure Index for each category of indicators. To evaluate the effects concerning the introduction of mandatory requirements for NFI, a longitudinal analysis was performed, which allowed for a comparison between the contents of reports provided by our samples of companies in relation to the periods before and after the Decree. In particular, our longitudinal analysis repeats the observations of the disclosure index over the three-year period 2015–2017.

The longitudinal analysis of the main descriptive variables (mean, median, standard deviation) highlights the relevant changes in the selection of indicators observable in the transition towards the mandatory adoption of non-financial disclosure. The resulting trend offers insights on the possible influence of the mandatory regime on indicators' disclosure. We deem this change is more likely an effect of the different behavior of companies in response to the legal prescriptions rather than significant changes in the materiality assessment. The relevance of the subject matter

for which a particular indicator is prescribed (materiality) is universally intended as the root of information selection in reporting structure, and should be almost stable and therefore not variable according to contingent changes. Moreover, we believe that the requirement of mandatory assurance for NFRs plays a non-significant role.

4 Results and Discussion

The following section presents the results of the disclosure analysis on the reports published by the companies included in the sample. Table 3 introduces the disclosure analysis by offering an overview of the analyzed reports, detailing the specific sector and the standard adopted (G4; GRI-S) per year.

Table 4 shows two measures of central tendency (mean and median) and a measure of dispersion (standard deviation) of the observed values for the disclosure index per year and category of indicators. The mean value can be used to show the disclosure level for indicators in the reports issued by the companies of the sample.

The results of the analysis highlight low values of the disclosure index – broken down by categories and financial years – thus confirming previous findings of similar recent studies aimed to conduct an inquiry on the compliance of the overall NFI (Venturelli et al. 2017). With specific reference to the disclosure of SPIs, our mean value for the year 2015 (0.50) is not significantly different from the result (0.437668) obtained by previous research conducted on a more extensive sample including financial firms and non-sensitive sectors (Venturelli et al. 2017, p. 8). Our study adds value to research on this topic by considering the evolution of the disclosure index over time by covering a period *pre* and *post* the entrance into force of the Decree.

At first glance, a clear trend emerges. As we can see in Fig. 1, which graphically shows the trend during the period under investigation, there is a general reduction in the average value of the disclosure index. This trend is characterized by a weak decline in the phase of approaching the mandatory regime followed by a drastic reduction in the first year when the Decree entered into force (fiscal year 2017). The analysis concerning the sub-categories of social indicators (SO, HR, PR) shows a similar trend.

To analyze the trend of the disclosure index in more detail, we calculated the differences recorded from 1 year to the next. The results of this elaboration, for a more effective presentation, are graphically displayed in Fig. 2.

As we can see, over the three-year period the mean values show significant reductions for all categories of indicators. The differences range from -0.33 (Economic) to -0.14 (Social). Observing the changes from 1 year to the next, it is worth noting that the contraction of the disclosure index is much more pronounced in the first year of the mandatory regime. The differences between the mean values of 2017 compared to those of 2016 are negative for all categories and sub-categories but they assume higher absolute values when compared with the corresponding differences from 2015 to 2016 (though the latter differences not being all negative). The

Table 3 Sample composition (Sector, Standard version and Assurance)

Company	Sector	Standard version			Assurance		
		2015	2016	2017	2015 (Voluntary)	2016 (Voluntary)	2017 (Mandatory)
1	Electricity	G4	G4	GRI S	✓	✓	✓
2	Electricity	G4	G4	GRI S	✓	✓	✓
3	Gas, Water and Multiutilities	G4	G4	G4	–	✓	✓
4	Gas, Water and Multiutilities	G4	G4	GRI S	✓	✓	✓
5	Electricity	G4	G4	GRI S	✓	✓	✓
6	Oil and Gas Producers and Oil Equipment and Services	G4	G4	GRI S	✓	✓	✓
7	Electricity	G4	G4	G4	✓	✓	✓
8	Gas, Water and Multiutilities	G4	G4	GRI S	✓	✓	✓
9	Chemicals	GRI S	GRI S	GRI S	–	–	✓
10	Gas, Water and Multiutilities	G4	G4	GRI S	✓	✓	✓
11	Oil and Gas Producers and Oil Equipment and Services	G4	G4	G4	✓	✓	✓
12	Oil and Gas Producers and Oil Equipment and Services	G4	G4	GRI S	✓	✓	✓
13	Chemicals	G4	G4	GRI S	–	–	✓
14	Electricity	G4	G4	GRI S	✓	✓	✓

standard deviation (see Table 4), even with diverging trends within the specific categories, shows a low data variability during the period considered. The results of the analysis, therefore, appear to be reliable to assert that the companies' stance towards disclosure has been relatively homogeneous within the sample.

This evidence cannot merely be considered an effect of variation in the materiality perimeters, because it is unlikely that companies that continue to carry out the same activity from year to year have a significant reduction in the number of indicators deemed “material” in the transition towards the mandatory regime. Instead, it is plausible to believe that a different attitude in the disclosure of

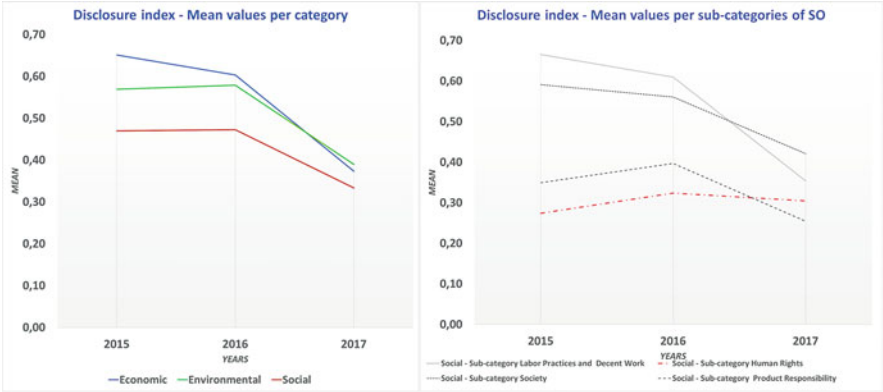


Fig. 1 Trend analysis

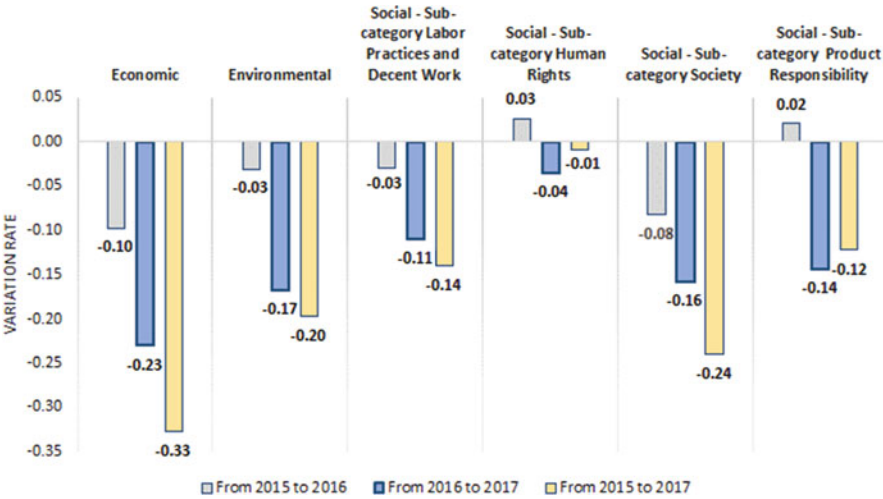


Fig. 2 Disclosure Index: variations per categories

indicators has led this univocal and generalized trend, as the result of the regulatory obligation. In our opinion, the reduction of the disclosure index can be considered related to the assessments of information reliability, in response to the legal requirement of NFI disclosure. Besides, it is worth highlighting that the transition to the mandatory regime also implied the mandatory assurance for NFS and it could have created a more conservative stance towards the disclosure of quantitative information that in some cases, is neither easy to estimate nor possible to verify in terms of reasonableness.

On a more general level, the results obtained open the way to further insights on the complex issue of the quality of information that cannot be exclusively associated

to quantitative dimension (according to the assumption “*more information = higher quality*”) but need to be also investigated in terms of reliability of the information disclosed (Beretta and Bozzolan 2008). In this sense, we are confident that the introduction of the new legal provision, which could have caused a reduction in the number of indicators used by companies, could display a positive effect on a relevant aspect of the quality of NFI.

5 Conclusions

This study addressed the under-researched topic related to the disclosure of SPIs in NFS referred to the periods before and after the adoption of the Directive on NFI by Italian companies.

The adoption in the EU of this Directive aims to enhance the consistency and comparability of NFI disclosed throughout the Union, emphasizing the need to have a concise and standardized set of performance indicators that summarize overall business performance (Gasperini and Zambon 2017). The construction and reporting of SPIs can be useful to help companies disclose “high quality, relevant, useful, consistent and more comparable non-financial (environmental, social and governance-related) information“, as requested by the Directive (Article 1, L. 330/4). Therefore, the SPIs might be useful to operationalize the norm, fostering the translation of EU regulation into practice. To this purpose, the widespread use of GRI by companies investigated here, even before the adoption of the Decree, may have shown its effects. However, we can observe that the Directive does not impose detailed rules for non-financial reporting, but rather establishes the minimum requirements for the information to be disclosed. This situation can explain some differences observed in NFI disclosed by Italian companies belonging to our sample.

Analyzing the results, a large number of companies declare that their NFS answers the requirements of the Decree implementing the Directive. However, we observed some differences in the disclosure of SPIs before and after the adoption of the Decree. The longitudinal analysis referred to the 2015–2017 financial years, documented a general reduction in the average value of the SPI’s disclosure index. Therefore, in correspondence with the introduction of a mandatory reporting of NFI, a decrease of the overall quantity of NFI disclosed via indicators was observed.

These findings can be interpreted in various ways. We can hypothesize that such a decrease in the disclosure index could be the effect of a rationalization of information disclosed in NFS, to calibrate the reports only to the requirements of the Decree. On the other hand, we cannot exclude that the first adoption of the Directive produced a shift towards the disclosure of SPIs considered more material by companies. Therefore, the implementation of a mandatory non-financial disclosure could encourage corporations to focus significant attention on those issues considered more material for them and also for their stakeholders. In our opinion, however, it is more likely that the reduction of the disclosure index can be considered as related to the assessments of information reliability, in response to the legal requirement of NFI

disclosure. Moreover, the transition to the mandatory regime also implied the mandatory assurance; this requirement could have created a more conservative stance towards disclosure of information that, in some cases, is neither easy to estimate nor possible to verify in terms of reasonableness. Anyway, results suggest that the adoption of a law on NFI can produce a critical reconsideration of appropriate information to prioritize. The mandatory requirement on NFI may act as an instrument to affirm the *commitment*, and not only the *compliance*, of companies to law.

Consistent with the argument made in previous literature (Lunque-Vilquez and Larrinaga 2016), it emerges the need to further investigate on the impact of governmental regulation on CSR practices, since better disclosure levels cannot be univocally associated to changes in the law. Moreover, Bebbington et al. (2012) underlined that: “formal legislation alone may not be sufficient to create a norm” (p. 90). Informal norms and the legitimacy of law, that is the coherence within a hierarchical system of norms of countries, can show their power. Analyzing how companies answered to requests of law in a country may highlight the real power of law to regulate reporting on NFI.

Our findings, however, have some limitations. We did not measure the quality of information disclosed via SPIs but only the presence (or not) of disclosure on SPI. We limited our analysis only to a small number of Italian companies belonging to sensitive sectors; therefore our results are not generalizable. These shortcomings can constitute future avenues for research. On the one hand, it is possible to extend the sample to other companies, pertaining to different sectors, and other countries for further investigation on the quantity and quality of SPIs disclosed. On the other hand, it is possible to investigate the determinants of the companies’ reporting behaviors through questionnaires or interviews.

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Part V
**General Aspects: Human Rights,
Non-governmental Organizations and
Public Participation in Environmental
Matters**

Collaborative Regulation: Preventing Regulatory Capture in Multi-stakeholder Processes for Developing Norms for Sustainability Conduct



Karin Buhmann

1 Introduction

Related to economic practices with social and environmental impacts, excessive natural resource exploitation, land grabbing and sub-standard labor conditions in global supply chains are frequent occurrences that also have high sustainability relevance. Such practices pose risks to the environment and human lives currently as well as in a longer-term sustainability perspective of balancing current needs with those of the future. In the case of the examples above, major impacts relate to human rights, such as those of local communities, small-scale farmers, or workers (UN Human Rights Council 2013). Investments and trade have caused depletion of large stretches of tropical forests, which not only harms the environment and adds to climate change, but also affects the socio-economic conditions of communities. The transnational character of these economic activities often involves or affects numerous private and public actors in several states or regions (Ruggie 2013). This causes challenges for singular or even sector-wide private self-regulatory initiatives, and to the effectiveness of self-regulation by individual actors on their own.

Since the final decades of the twentieth century a number of private,¹ public² or public-private multi-stakeholder³ initiatives have emerged to govern the conduct of

¹Examples include the Forest Stewardship Council's standards (<https://ic.fsc.org/en/what-is-fsc-certification/requirements-guidance>), the Marine Stewardship Council ([msc.org](https://www.msc.org)), the ISO 26000 Social Responsibility Guidance Standard (<https://www.iso.org/standard/42546.html>, accessed 25 April 2019).

²Key examples are the OECD Guidelines for Multinational Enterprises (OECD 2011) and the United Nations Guiding Principles on Business and Human Rights (UN Human Rights Council, 2011).

³Examples include the Extractives Industries Transparency Initiative ([eiti.org](https://www.eiti.org)) and the Voluntary Principles on Security Human Rights (<https://www.voluntaryprinciples.org/>)

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economic actors by providing norms of conduct, sometimes complemented by certification⁴ or legality verification⁵ schemes in lack of ‘hard’ legal enforcement modalities of a transnational or international character, or effective monitoring and enforcement at the national level. For such initiatives to be effective, they need to be applied, to be trusted, and to be seen as relevant responses to the sustainability issue at hand. This requires qualified input in terms of various types of information, concerns and views, and a processing of this input into a normative that is adopted by relevant organizations. In regard to regulation, these elements can be addressed as legitimacy from three different perspectives: input, throughput and output. Much of the current literature on these aspects of legitimacy has been offered by political scientists and governance scholars who often address the topic from a political perspective concerned with power and use of power, for example resulting in regulatory capture (Risse 2005; Börzel and Risse 2010). Literature by international law scholars recognize the connection between legitimacy and participation in regulation of global concerns (Franck 1990; Higgins 1994; Shelton 2000) but also acknowledges that more knowledge and theory is needed to inform and support processes of transnational regulation (Brunnée and Toope 2010).

Through the Sustainable Development Goals (SDGs), the United Nations (UN) General Assembly sent a message that sustainability and responsibility for sustainable development are global in reach and not limited to particular countries or regions (UN 2015). This is a call to the world that political and regulatory issues confronting global sustainability challenges are on the rise, leading to a need for governing the sustainability impact of economic activities, whether those are linked to the private sector or the public sector or a combination. Adding to the complexity of that task is the fact that much norm-creation related to sustainability is transnational and trans-systemic in process as well as intended applicability. The regulatory task is transnational in that it transgresses the boundaries between public and private, international and national law. Efforts to address the problems and develop guidance and bindings norms are not only being exercised by nation states, but also by international organizations such as the United Nations, and regional organizations, such as the G20, the OECD, the Council of Europe and European Union.⁶

Traditionally, non-state actors do not have a role in international law. This means that they have neither obligations, nor a right to participate in law-making. In the current context, this is particularly salient with regard to business enterprises. While civil society organizations have acquired options for consultative status with the United Nations under the UN Charter article 71, and international organizations have

⁴For example, FSC and MSC apply certification.

⁵The European Union’s Forest Legality, Enforcement, Governance and Trade (FLEGT) scheme for timber is a key example of a legality verification scheme (see Overdevest and Zeitlin 2014; Buhmann and Nathan 2013).

⁶Jointly, international and regional organizations are referred to in here as supranational organizations. This term for organizations being above-national should not be confused with *supra*-national, which is a term that explicitly refers to the particular legal structure of the EU which unlike other super-national organizations enjoys the power to legislate with direct effect for citizens and companies in Member States.

acquired some rights based on international case law, individual companies are largely absent from international law in these respects. The lack of obligations causes situations of impunity or at least a severe lack of normative guidance for firms in regard to their impacts on society (Ruggie 2013). The non-inclusion in international efforts to regulate is a challenge too: it may contribute to alternative ways to influence law-making, such as lobbying or illicit influence that may challenge the legitimacy of process as well as output. For example, early UN efforts to develop detailed norms business responsibilities for human rights failed partly because business organizations felt excluded from the process and resorted to lobbying (Kinley, Nolan and Zerial 2007; Buhmann 2012). However, inclusion may also cause legitimacy concerns because firms are not representative or elected for that role, and because of a risk of capture of the process.

In the environmental or human rights fields, civil society organizations typically represent the voice of those affected. Business associations have in some cases been admitted to such processes, in particular when they enjoy consultative status. An explicit inclusion of business in such multi-stakeholder regulatory processes under the UN on sustainability issues has occurred in some instances, notably in the development of the UN Global Compact's 10 principles, and in the development of the two currently adopted UN instruments on business responsibilities for human rights, the 'Protect, Respect and Remedy' Framework (UN Human Rights Council 2008) and the UN Guiding Principles on Business and Human Rights (UN Human Rights Council 2011). This is a novelty that further underscores the legitimacy challenge, which in this case is dual: it is not only about involving for-profit non-state actors in international law-making, a role traditionally exercised by sovereign states. It is also about involving the very organizations whose actions the new regulation is intended to shape with a view to reducing their adverse impact or enhancing positive impact, in the evolution of new norms for their conduct. It is not surprising that this may cause apprehension, lest business captures the process. However, the exclusion of business may be damaging for the result, too. Experience shows that even when organized to be broadly inclusive of public as well as both not-for-profit and for-profit non-state actors, multi-stakeholder regulatory processes can be at risk of regulatory capture by participants that are privileged in terms of knowledge, experience, access to certain (public) institutions, resources, or other advantages. Such capture has affected EU efforts to develop norms for EU-based transnational enterprises with regard to corporate social responsibility (CSR) through a multi-stakeholder initiative launched in the early 2000s (Kinderman 2013; Fairbrass 2011; Buhmann 2012), as well as the range of companies to be covered by the EU's (2014) Directive on Non-Financial Reporting (Kinderman, 2016). At the same time, a non-inclusion of stakeholders can also be a treat to the process. The development the UN Global Compact, a UN initiative launched in 2000 to provide normative guidance for companies to reduce their adverse impacts in regard to human rights, labor standards and the environment,⁷ nearly faltered in the

⁷Anti-corruption, the 10th Global Compact principle, was only introduced in 2004.

early stages of the process because the multi-stakeholder regulatory process was designed to include companies but initially failed to include civil society (Kell and Levin 2002; Buhmann 2017:63–64). Another UN initiative occurring around the same time to develop detailed norms for business responsibilities for human rights included civil society but eventually failed to gain support because some industry organizations felt that for-profit organizations had not been sufficiently included (Ruggie 2013, 2014).

Overall, this complex interaction between public policy objectives on sustainability and the transnational character of the issues at stake combined with the role and significance of the private sector in particular in regard to causing adverse sustainability impacts and the limited role of the private sector in international law into the overall research question guiding this chapter: what types of processes can enable a broadly representative input to be turned into a normative result (output) in such a manner that the output enjoys a high degree of legitimacy to support organizational uptake even without strong enforcement institutions..

The complexity set out above calls for theory-building on a process that is inclusive while also balancing power disparities, and which must therefore contain steps to check for and balance out privilege that can result in regulatory capture. This chapter contributes to filling that knowledge gap by developing a theoretical framework for such a process. Introduced in here by the term ‘collaborative regulation’, that framework is built around proceduralization.

Methodologically, the chapter adopts a pragmatic socio-legal approach. The socio-legal focus means that focus is on the law-making process rather than the normative outputs of such a process. This allows the chapter to set out *collaborative regulation* as a procedure that enables the process to balance power disparities and avoid regulatory capture. Empirically, the chapter draws on the mixed results of a series of efforts by supranational institutions to develop regulation of transnational activities of business enterprises and factors affecting the deliverance of the desired normative output. In line with the pragmatic approach, the development of collaborative regulation draws on a combination of theories on participation in law-making, the significance of a ‘compliance pull’ in certain regulatory contexts, and procedure as an element in protecting as well as balancing rights of participation.

Following this introduction, which sets out the *purpose* of the chapter, Sect. 2 provides the empirical backdrop for the regulatory issue at stake. Sect. 3 sets out the *theoretical framework* that underpins the importance of transnational regulation enjoying a ‘compliance pull’ and of participation in supranational regulatory processes; as well as the theories of reflexive law, discourse ethics and legitimate law-making that jointly form the foundation for the theoretical contribution advanced by the chapter. Based on this theoretical foundation, Sect. 4 argues the relevance of proceduralization as an element in avoiding regulatory capture of such participatory processes. Setting out the analytical *results*, the subsequent sections develop key elements of *collaborative regulation*. Section 5 describes a distinction between general and specific proceduralization. Section 6 sets out key steps in a specific proceduralization, focusing on inclusiveness and representation,

declarations of interests and connections, and inclusion of stakeholders in preparation for interaction. Finally, Sect. 7 *concludes*.

2 Empirical Backdrop

In response to the absence of international regulation of economic actors' and their adverse sustainability impacts, a series of private initiatives emerged at the end of the twentieth century across sectors or in relation to specific sectors, later followed by some public-private regulatory initiatives, typically comprising particular governments and sector organizations. As noted in the introduction, this ranges from principle-based standards over certification, reporting, process and guidance standards. Most embody a normative aspect that firms commit to on a voluntary basis. Some have modalities attached to certify adherence or provide transparency on practices. By contrast to national law where judicial institutions are charged with judicial powers, enforcement of transnational normative frameworks on company conduct is typically based on some form of reputational damage to the company or its 'social license to operate'. The development and on-going normative adjustments of these initiatives typically involve a plurality of actors. Like other regulatory processes involving several actors, this means a risk of regulatory capture, that is, of particular views, interests or actors obtaining dominance in a manner that harms the trust and legitimacy of the process and, therefore, of the output.

Following some early steps in the 1970s, the years between 1998 and 2011 witnessed several multi-stakeholder initiatives launched by the UN and the EU as well as the private organization ISO to develop comprehensive normative guidance for firms in regard to their adverse impacts on society. The processes varied in composition and outputs. The brief overview below serves to give an idea of the diversity in terms of turning regulatory aims into accepted normative outputs.

The process launched in 1998 towards the so-called Draft UN Norms on business and human rights involved human rights experts and civil society from the outset. It included some business organizations later (Weissbrodt and Kruger 2003; Buhmann 2017). The output was passed by the expert committee to the UN Human Rights Commission, which rejected them, partly due to lack of support from business organizations in states represented in the Commission (Ruggie 2013). The process towards the UN Global Compact included UN experts on corporate social responsibility (CSR) and global governance and businesses recognized by 'CSR leaders' (Kell and Levin 2002). Some civil society organizations became included later, after several NGOs criticized the initiative for legitimacy deficits. The process led to nine (later ten) recommendations on human rights, labour and environment that became normative backbone of the Global Compact, with support from the UN General Assembly through a series of declarations on 'global partnerships' (Buhmann 2017:62–63). Based upon recommendations from the UN Office of the High Commissioner for Human Rights (OHCHR) and directives in the text setting out the mandate for the task, the process that lead to the UN *Protect, Respect and Remedy*

Framework (UN Human Rights Council 2008) and the UN Guiding Principles on Business and Human Rights (UNGPs) (UN Human Rights Council 2011) involved a broad group of stakeholders from the outset, including business and civil society representatives (Ruggie 2013; Buhmann 2017). Now broadly known as the UN Framework and UNGPs, the outputs were adopted by the UN Human Rights Council and has informed a series of other normative initiatives on responsible business conduct (Buhmann 2016, 2018a).

By contrast, an initiative with an ambitious aim of developing a normative framework for European companies and their societal impacts when the companies are involved in transnational activities did not succeed very well in delivering on that ambition. The European Multi-Stakeholder Forum on CSR, launched in 2002 by the EU Commission, included organizations representing industry, employer and employees. Some other civil society organizations with expertise in environment, labour and human rights, whose major experience in multi-stakeholder regulation derived from UN contexts, were also involved. The process was strongly influenced by industry and employers' organizations with experience from the EU's institutionalized 'social dialogue' process for labour law-making, and led to a vague normative output (Kinderman 2013; Fairbrass 2011; Buhmann 2012).

Yet another example, the process towards the ISO 26000 Social Responsibility Guidance Standard, led 2005–2010 by the private International Standardisation Organisation (ISO) comprised several stakeholder groups, including industry, NGOs, governments, labour, consumers and academics (Henriques 2011). The process was successful in delivering a comprehensive guidance text.

Among these processes of creating norms in accordance with underlying sustainability related public policy objectives, some were much more successful in delivering outputs in accordance with the objectives that led to the rule-making process being created. The diversity of the processes, their participants and outcomes in regard to normative comprehensiveness of the outputs and their acceptance or rejection raise issues throughout legitimacy that underpins the need for theory-building on how a multi-stakeholder regulatory process enables the input from many stakeholders to be turned into a normative result (output) in such a manner that the output enjoys a high degree of legitimacy.

3 Theoretical Perspectives on Compliance Pull Generation and Participation in Regulatory Processes

The sustainability related field is characterized by a need to prevent harm from occurring, because repairing damage done is often not possible, or takes very long while secondary harm resulting from the first may occur in the meantime. This calls for a regulatory process that caters for what international law professor Thomas Franck refers to as a compliance pull, that is, a drive for compliance that is not contingent on the presence of legally institutionalized enforcement. Franck (1990:

24) noted that the strength of international law depends on a rule or rule-making institution “exerting a pull towards compliance on those addressed normatively because those addressed believe that the rule or institution has come into being and operates in accordance with generally accepted principles of right process”. He observed that one of the most extraordinary things about the international legal system is that its subjects obey its rules and accept of obligations *despite* the underdeveloped institutional structures, processes and enforcement mechanisms, arguing that this comes about as a result of a perception of a high degree of legitimacy (1990:33–335). Making a point of particular relevance to sustainability related regulation even beyond the conventional state-centrist international law context, Franck (1990:26) explained that “[l]egitimacy exerts a pull to compliance which is powered by the quality of the rule or of the rule-making institution and not by coercive authority. It exerts a claim to compliance in the voluntarist mode.” More recently, Brunnée and Toope (2010) have argued that what matters in law in general is in the creation and effects of legal obligation rather than in form or enforcement. They also observe that non-national law and its rule-making capacity should not be judged by the standards of domestic law and its defining features of enactment through courts’ application and centralized enforcement, but on its effectiveness to generate norms that affect conduct even in the absence of sanctions. Underscoring the significance of participation in the rule-making process as a modality to create a sense of identification and drive towards compliance from within, studies also suggest that there is a close relationship between the effectiveness of transnational schemes, and their legitimacy perceived as the degree of ownership felt by those who are subjected to the normative requirements of the scheme (Guldbrandsen 2004).

A law-making process aiming at a compliance pull is not intended as a stand-alone solution. There are productive tensions between sanctions – whether punitive, reputational or economic – and compliance. This productive tension is recognised in criminal law and in various theories of regulation (Reynaers and Parrado 2016). Novel regulatory approaches also recognize a productive tension between hard and soft law and incentives. Thus, a tension with normative directives may play out both in regard to punishments and in regard to rewards or positive effects of compliance or self-regulation. Such ‘smart mix’ regulation has been recognised as an emergent field in regulatory theory (Ruggie 2013; Kinderman 2016). However, as long as hard enforcement institutions are a rarity in regard to transnational economic conduct, there is a strong case for multi-stakeholder processes designed so as to provide for the legitimacy that is required for a compliance pull.

In this regard, the theory of reflexive law offers an explanatory model for understanding why some of the processes set out above were effective in delivering a normative output at all, and why others were not. A theory on regulated self-regulation, reflexive law is premised on a combination of systems thinking and discourse ethics as a philosophy for providing law-making with legitimacy (Teubner 1983, 1984). The systems thinking that contributed to shaping reflexive law as a regulatory theory perceives of society – as based on the core – rationality of a function rather than the institution itself. Habermasian discourse ethics contributed

through its emphasis on a procedural design providing those who will be subject to a new rule with a stake in defining that rule. Reflexive law is explicitly designed to take integrate both perspectives into a theory for developing rules through a participatory process in which actors, such as companies, are enabled to understand how their actions are seen by other stakeholders, such as consumers, investors or politicians, and to integrate social expectations and needs (Teubner 1983, 1984). The theory is designed particularly for situations in which detailed regulation by public regulators is not possible or appropriate, for example due to jurisdictional limitations or because the detail of the intended norm calls for the defining regulatory action to be closer to the level of implementation. While reflexive law theory functions well as an explanatory model for certain forms of multi-stakeholder regulation and has helped drive forms of citizen-inclusive regulatory processes, for example in the environmental field in Scandinavia (Dalberg-Larsen 1991), it does not offer a detailed model for the procedure to be applied during the reflexive regulatory process. It also does not deliver a solution for how to deal with power disparities, although it recognizes that balancing power is significant for the legitimacy of the process (Teubner 1986:316).

The discourse ethics theory that informs reflexive law theory is centred on the idea of the better argument winning the argument simply by force of its quality, and the ideal conditions for a discourse on a political issue to evolve into norms to occur (Habermas 1986). In some of his later work that emerged after reflexive law theory was proposed, Habermas (1996) develops points on the process and stakeholder participation into more detail. The process takes centre stage: without a process that is legitimate, the output – the normative product – will not be legitimate. Proceduralization of the process is necessary to obtain the ideal conditions for the rule-making process to bring forth deliberation for the formation of a common will or at least negotiations or ‘bargaining’ that lead to an agreed compromise. Emerging in the mid-1990s, the detailing of proceduralization it is a decade younger theory than reflexive law and therefore has not informed that theory. It is therefore relevant to consider how the procedural aspects of deliberative law-making can enrich reflexive law theory, in particular in regard to the gap concerning balancing power disparities to avoid regulatory capture resulting from power disparities.

To Habermas, law is the primary medium of social integration in modern society. Law is power that extracts obedience from its subjects. However, power by itself cannot grant legitimacy in modern society, so law must derive its validity from the consent of the governed. For this reason, law as output must be generated through a procedure of formation of opinion and will of those subject to the intended rules. To sustain their legitimacy, formal processes of law-making in modern societies must take the concerns of ordinary citizens into account, and must allow for civil society to act on their behalf (Habermas 1996: 366–68). Civil society organizations come in a number of forms and sizes and may organize individuals as well as a diverse range of other organizations, including businesses. At the national level, the conditions for civil society’s interaction with the public sphere are constituted through fundamental (or human) rights such as the freedoms of association, assembly and speech. As civil society organizations act as channels for the collective views of groups of citizens,

proceduralization is needed to ensure their rights to participate in the regulatory process. This requires not just formal guarantees of rights to express their views, but also to ensure opportunities to equally exercise those rights. An institutionalized procedure supports the process towards delivering the necessary framework for common will or a negotiated result to emerge. If the procedure provides for equal access and participation, the result will reflect the common sum of good will, intentions and interests in a balanced way (Habermas 1996).

Multi-stakeholder processes like those that led to the UN Global Compact or the UN Framework can be explained as processes of reflexive law (Buhmann 2018b). Similarly, EU Multi-Stakeholder Forum on CSR can be explained as reflexive law (Buhmann 2012). The failure of the EU's Multi-Stakeholder Forum to deliver the intended normative output indicates that regulatory capture is a real problem. Legitimacy critique that has been raised of the UN Framework and the UNGPs due to the role of business in the regulatory process underscores the importance of a procedure to balance the power and role of diverse stakeholder groups in order to provide throughput legitimacy.

In the emergent transnational legal order, non-state actors already enjoy degrees of rights to be involved in certain regulatory processes (such as NGOs in consultative status with the UN, or non-state actors invited into the process of developing the UN Global Compact or UN Framework). These rights remain limited compared to those of states. In other contexts, non-state actors have considerable informal powers (as in the case of the EU MSF where, as elaborated below, certain business organizations because of past experience with EU rule-making and access to EU policy bodies were able to exert decisive influence during the process and therefore also the output). Members of the UN in 2005 adopted the Almaty Declaration (UN 2005) in an effort to shift to the international level the objective of a strongly inclusive process in environmental decision-making that is regulated for the national level by the Aarhus Convention. The Almaty Declaration has particular regard to environmental issues, and in line with the Aarhus Convention to access to information, public participation and access to justice in environmental matters. Yet, little is known about the internal norms and organization of a multi-stakeholder process that can support turning a broadly representative input into a normative result (output) in such a manner that the output enjoys a high degree of legitimacy to support organizational uptake without strong enforcement institutions.

Input legitimacy is a characteristic of a procedure that is open to and takes account of views expressed by individuals and groups. Input legitimacy requires inclusiveness (as opposed to for example a process that excludes affected groups) (Slaughter 2000, p.525). International human rights instruments like the Universal Declaration of Human Rights (art. 21) and the International Covenant on Civil and Political Rights (art. 25(1)) recognize the right of citizens to take part in the conduct of public affairs, directly or through elected representatives. However, this is not just relevant at the top levels of the political process. The Vienna Declaration and Programme of Action, adopted by UN Member States after the World Conference on Human Rights in 1993, recognized is several contexts that public participation also extends to decision-making at the community level, and that it is essentially about taking part in all aspects of society. This suggests that as societies develop and political

processes evolve, we should extend our appreciation of public participation from the central level of state governance both ‘downwards’ towards localized policy and rule-making processes, and ‘upwards’, such as to processes that concern policy and norms at the level above nation states.

Output legitimacy refers to the quality of the rules produced through a process. Output legitimacy is two-pronged in referring to the output being both acceptable and effective in addressing the public policy need it was designed for (Pauwelyn 2012). The two are closely linked because lack of acceptance will compromise effectiveness, especially when compliance has to work independently of sanctions. Consider these examples: The Draft UN Norms: they were perceived by certain business associations as illegitimate, because these associations felt inadequately included in the process of developing norms of conduct pertaining to business conduct. The UN Global Compact was threatened to be illegitimate in the eyes of civil society because of imbalanced and late representation of NGOs. The vague output of the MSF were perceived by several human rights NGOs as being an illegitimate product of process, because business associations were perceived to have a privileged representation and access to the powerful EU DG Enterprise (Buhmann 2017).

Connecting the process aspect of input transformation and the substantive quality and acceptance of the output, throughput legitimacy refers to the quality of the process through which rules are made, that is, the transformation of input to output and the conditions for such transformation. It includes the design of a process of deliberation or negotiation to provide for equalized participation and decisions based on reason (‘the better argument’ rather than asymmetric power of one or more participants or networks (Deitelhoff and Müller 2005). Equalized participation in a process producing or processing input for the norms of conduct implies that actors recognize each other as equals and have equal access to a discourse that is generally open in nature (Risse 2000).

To Habermas, legitimacy and effectiveness of law are closely related, with both being connected to a qualified participation in the law-making process by those who are subjected to the rules. While deliberation is the ideal, bargaining is acceptable when conflicting interests are too strong to be completely aligned. Here too, power disparities may affect the legitimacy of the output. If framed (and contained) by procedure that balances power disparities, bargaining may lead to results that are legitimate (Habermas 1996, pp.103–104, 167–177). Through the political process, civil society influences will and opinion, which is formed into law to be applied or enforced by public institutions. It presumably has a compliance pull because it is based on common will. If not complied with, enforcement is in place, again because the norm is based on common will and equal access to participation in deliberation on interests. However, as noted, in transnational contexts, legally institutionalized enforcement is often lacking.

Along similar lines, Shelton (2000, p.16) highlights non-state actors’ participation in a (soft law) drafting process for their willingness to comply. Thus, when non-state actors’ compliance is intended by a transnational norm or inter-governmentally initiated normative process or product, then participation, legitimacy and compliance pull may be intertwined.

The Habermasian approach to legitimate law-making addresses the significance of legitimacy in a community comprising authorities as well as civil society, not only as bearers of rights and duties, but also as law-makers. Such a pluralistic community is closer to that which has spurred public-private development of CSR normativity and rule-making at intergovernmental level and in transnational contexts, than is the state-centrist structure of international law which Franck targeted.

In more recent work, Habermas (1998, 2008) argues that the UN system and other international governance systems must adapt to better integrate the views of the world's civil society. Currently, these governance systems neither respond fully to the needs of a global public, nor are they able to deliver regulation based on global will-formation created through deliberative practices that sufficiently include civil society representing the global public.

However, as discussed above, the inclusion of non-state actors that are the potential holders of new duties, whether (soft law) responsibilities or (hard law) obligations, offers a risk of capture if the process is not carefully designed and managed, but also a possibility for support and output legitimacy, if it is well designed and managed. Participation in a process is important for participants to perceive their needs and concerns addressed, but participation must be equalized in regard to access and power in order to avoid the risk of capture and illegitimacy due to or actual or perceived imbalance.

Dominated by political science, the deliberative turn in the social sciences that builds on habermasian deliberative theory has tended to focus more on the debate that unfolds within a proceduralized forum for deliberation than on the procedure itself. In line with the socio-legal approach adopted and to respond to the research question, this chapter focuses instead on proceduralization of the regulatory process. The subsequent sections show how proceduralization can complement reflexive law that already incorporates elements of a debate and exchange of views for co-creation of norms of conduct. The formality provided by procedure creates the stable and predictable framework necessary for the substantive elements of a qualified deliberation or other debate that is balanced in terms of power. Proceduralization through specific steps strengthens this framework with regard to particular elements of the process that are significant for legitimacy and, ideally, a compliance pull.

4 The Need for Proceduralisation to Avoid Regulatory Capture

Non-state actor participation in private or hybrid regulatory processes on responsible business conduct is already common. Giving non-state actors a formalized say in international law establishing duties for businesses and rights for those affected by business activities may offer an alternative to a situation where non-state actors resort to other measures, such as lobbying, in order to have their views voiced in a negotiation context in which they have no direct access. This would follow the

analogy from the state-centrist system of international law-making and Franck's idea of international law carrying an inherent compliance pull, because its duties and rights are formulated by those to whom it pertains and made through a process considered legitimate.

Drawing on established set-ups for organizations with consultative status at international organizations such as the UN, non-state actors' participation in rule-making may be expanded in a way that would provide wider and balanced representation. The design of the institutional set-up would need to consider methods for providing for representation of competing views and interests and balancing power disparities. Procedures would therefore be needed, yet the design should not only build on procedures, but should be aimed at supporting and promoting rule-making as an activity to deliver outputs. Thus, the process would need to be proceduralized.

The processes and outputs of efforts at developing norms on sustainability related issues through the empirical processes noted in Sect. 2 suggest that for the effective delivery of an output that is substantively normative, representation of those interests that are the most opposed to the intended regulatory output is significant (for details, see Buhmann 2017). They also underscore the importance of balancing power disparities to neutralize privilege of knowledge or access in a multi-stakeholder regulatory forum for the process to be effective and legitimate. Moreover, reactions by stakeholders such as civil society or companies to the initiatives (e.g., reactions by civil society to the Global Compact idea) or their outputs (e.g., opposition by some business associations to the draft UN Norms) indicate that unless participation of the interests of those opposed to the intended normative output is balanced by others that are in favour or neutral, the legitimacy of the process and its output may be compromised. To appreciate why this occurs it is useful to keep in mind that procedure has an objective beyond formalities. Formality by itself can stifle a process of debate and decision-making rather than support it. To be meaningful, procedures must support a process towards a qualitative decision to that is to be made. Procedure establishes the outer framework for trust, without which legitimacy of a process or an output will be inadequate.

Proceduralization defines the conditions that allow not only for a participatory production of norms per se, but for the production of norms that are legitimate due to a qualified form of communication, which is designed or structured so as to provide for equalized participation and balance power disparities as part of throughput legitimacy. This builds on a combination of bottom-up and top-down reach: it is about providing rule-making with relevance to those whose concerns and needs are at stake, and providing it with a support and acceptance by those to whom norms of conduct apply in a manner that may be likened to Franck's 'compliance pull'. The participatory deliberative or bargaining process makes a resulting rule relevant, because it has taken the concerns and needs of both those whom it intends to protect and those who are subject to follow the rule into account. In line with this habermasian aspect, reflexive law assumes that law-making through a process which includes those (for example, business enterprises) who will be subjected to the normative directives will ensure a dual relevance: that the rule will be relevant to

address societal needs, and that it will be relevant to application by the entity which is expected or required to observe it.

Habermas (1996) assumes that such a rule will generate support and acceptance, because it leads to a common formation of will and opinion – at least in principle, and based on balanced participation and power. When the formation of a common will and opinion is not possible, the alternative of bargaining generates acceptance as a compromise that is balanced because all have had a say in the negotiated output. This say may be direct or indirect, but the process through which it occurs is transparent. For such a balance to be achieved, power must be equalized through procedure. For power to be equalized, participation in the law-making process must also be equalized through procedure. Accordingly, proceduralization is a key concept to collaborative regulation. It is through proceduralization of the process that participation is equalized, and through the equalization of participation that power disparities are managed. Proceduralization sets the framework for the regulatory process so that the substantive elements of exchanges of views and the collaborative development of norms through deliberation or bargaining/negotiation can occur in a climate of trust and confidence among participants as to their access to the process and prior knowledge, the concerns that they represent, and interests at stake.

Because it stresses the quality of participation in law-making through common will-formation and not just formal access, and because it notes procedural rights as elements in ensuring equalised participation, habermasian deliberative theory can be drawn on for qualitative guidance for management of reflexive law fora on how to live up to the requirement of reflexive law theory that power disparities between participants should be balanced. In *Between Facts and Norms* Habermas's theory on legitimate law-making (Habermas 1996) not only explicitly addresses the very power disparity issue that Teubner skirts in his theoretical development of reflexive law in the 1980s (Teubner 1983, 1984, 1986), but also prescribes the conditions that the law-making procedure should honour in order to provide for legitimacy. Habermas explicitly recognizes that divergence in strength may be due to differing social conditions and forms of organization. For the production of law to be legitimate, participants should have equal rights not just in formal but in actual terms.

What is at focus here is distinct from deliberation or bargaining in terms of cleverly arguing a case, that is, the habermasian deliberative better argument. Power disparities may result for example from politically based power based on alliances or networks, experience with the politics and negotiation patterns of a particular organization or institutional setting, and sometimes disproportionately favourable representation. Asymmetrical power may result in negotiation outputs that are also disproportionate to the concerns and policy needs intended to be promoted or protected through the reflexive law forum itself. The quality of management of the reflexive forum may be addressed through design of the reflexive procedure, criteria for inclusion of actors, and authorities' role in directing the process of negotiation. Whether the aim is fully-fledged deliberation or bargaining, design and management of reflexive regulatory forums matter.

The production of norms through a collaborative regulatory process should be procedurally structured so as to even out formal, informal but explicit, or even implicit power disparities in order to stimulate the mutual appreciation of concerns and needs as well as knowledge with a view to create pro-active regulation. In addition, it should provide for actual participation in a balanced way. Similar to reflexive law, which contains a normative aspect in relation to balancing power disparities, proceduralized deliberation contains a normative element related to the quality of conditions for an exchange of arguments and a quality of debate to be conducive to consensus or at least bargaining, ideally leading to common acceptance of resulting norms.

In the context of multi-stakeholder regulatory processes, whether explicitly organized as reflexive law-making or more other forms of hybrid rule-making on business social responsibilities, these points provide reason to both acknowledge the potential legitimacy of informal procedures and outputs, and to seek to integrate institutionalized rights-based procedures in processes of rule-making at the super-national level.

By focusing on what goes on during the law-making process, habermasian theory offers a potential solution to the power-related problems in reflexive law. Although it does not deliver a blue-print, habermasian theory on deliberative law-making has the capacity to offer some of the directives that Teubner's reflexive law theory neglected to detail with regard to achieving balanced power between participants in a reflexive law forum. The theoretical insights and practical steps provided in here are applicable beyond reflexive law.

Managing power disparities is also significant for the legitimacy of conventional law-making processes and resulting outputs (including for law-in-process). As international policy and law-making continues to address sustainability issues, whose solutions (as demonstrated by the SDG's focus on partnerships) require cooperation between the public and the private sectors, the importance of addressing non-state actors' concerns will continue as well.

In formal terms, the balancing of power disparities is already an entrenched part of the procedure in many processes of conventional regulation, especially democratic national law-making. The pressure on international law to expand its reach beyond the state-oriented approach to duty-holders and to move towards a broader transnational focus that also includes non-state actors, and in particular responsibilities of business enterprises for their societal impact, makes it relevant to also consider power disparities and how to balance them in that context. While not a parallel to the involvement and role of states in international law-making, the inclusion of non-state actors as active participants in international law-making and as potential new duty-holders arguably may represent an early step in a gradual integration of non-state actors in international law. Consequently, this may also be seen as an early step in providing such actors not only with international legal subjectivity in terms of being duty-holders, but also in terms of being participants in certain law-making processes.

5 Towards Collaborative Regulation: General and Specific Proceduralization

Applying proceduralization to address the gap in reflexive law theory in regard to addressing power disparities that may lead to regulatory capture, this section discusses what should be considered for a proceduralization at an overall level of principle, whether undertaken under state-centred international law or a hybrid transnational or multi-stakeholder process. This approach to a proceduralized multi-stakeholder regulatory process constitutes *collaborative regulation*.

Collaborative regulation is both substantive and procedural, combining the two aspects with strong emphasis on their interrelatedness. The substantive aspects are concerned with concrete (substantive, material) outputs, such as norms of conduct, that are legitimate precisely due to the presence and quality of procedure for the throughput transfer of input into output. This dual perspective on law as procedure and law as output mean that the procedure of law-making draws legitimacy from a process in which citizens (as participants in the law-making process) “*reach an understanding* about the rules for their living together” (Habermas 1996, pp. 83–83). The procedural aspect is an inherent part of the legitimate throughput and therefore the process. Without legitimate procedure, the normative result will not be legitimate. Legitimacy of output and the process which leads to the output are therefore inextricably linked. Such legitimacy may be obtained through proceduralization of the process, in order to ensure an equalised participation with a balanced representation of stakeholders and of their power.

Ensuring broad, balanced and equalized participation in deliberation or – for perhaps the majority of practical purposes – bargaining and negotiation through procedure entails a series of steps. The steps occur in two different phases: during the *establishment*, and during the *implementation*, of a multi-stakeholder regulatory process. The higher the quality of the establishment and implementation of the process in regards to equalized participation provided through proceduralization, the better the opportunity that the input will be transformed into a legitimate output through a balanced and legitimate process that provides for an inherent compliance pull.

The establishment phase connects input to throughput. The implementation phase connects throughput and output, and if effective provides for reflection corresponding to reflexive law at the second level, which in turn may generate reflection at the third level, and therefore a change in norms of conduct of relevant actors.

Collaborative regulation turns on equalized participation with broad representation of affected interests set up in such a way that it ensures that concerns and insights of groups otherwise typically removed from public policy-making and law-making processes will be put on the table, discussed and addressed in the output. Such multi-stakeholder law-making should take into account, to the extent relevant, views of common people who may not even be aware of the law-making process or its potential implications for their lives, regardless of whether they live in the capitals

of Africa, the Americas, Asia, Europe or Oceania, or in the suburbs or small towns of those, regions, or on the countryside; and regardless of their degree of literacy, knowledge of major languages, and connection to the internet. On the other hand, collaborative law-making should also make use of available resources to ensure input from all such corners of the world, as this will provide a broad picture of concerns and needs as well as interests that are necessary for the resulting regulatory output to be relevant to the level of implementation, issues at stake, and legitimacy in the eyes of those affected. Electronic communication, may be an excellent source of communication, both for bottom-up flows and top-down flows. The process needs to take account of power disparities in this context too, as well as the different backgrounds and IT resources that may frame the bottom-up feed from within the large group of citizens, and which may differ very much from those available to the top-down feed.

To provide for equal participation, the debate and exchange of views (in the form of deliberation or bargaining) need to take place according to institutionalized procedures. Procedures to equalize participation make it clear to participants what they can expect and what rights and opportunities they have; and it provides organizers of the regulatory process – whether reflexive law or more conventional law-making – with a set list of steps to be taken and procedures to be observed.

For collaborative regulation at super-national level, an important challenge is for the agency in charge to define criteria to ensure that relevant interests are represented, and to ensure that those who claim to or are asked to represent the interests of others (whether civil society organisations or networks) do indeed represent the interests of the pertinent stakeholders. A national, regional or international business association does not necessarily represent the interests or concerns of all relevant businesses in a sector or region. Similarly, one or more existing not-for-profit civil society organisation, whether constituted as NGOs or other forms, are not necessarily representative of all relevant civil society interests. For example, competing interests in a community may require different channels of representation.

Developing proceduralisation for equalised participation and balancing power disparities in super-national collaborative regulation does not occur in a vacuum, nor do the foundational ideas and needs arise only for that context. Similar issues are well-known in national public law for individuals participating in decision-making processes whether general policies or specific acts, and in procedural administrative law applying to situations when authorities make decisions pertaining to individuals. Institutionalized procedures for equalization of power disparities may obtain inspiration from civil and political human rights as institutions, and from the institutionalized procedures that have been developed in national public law to ensure participation, access and transparency. Rights of expression, information, and direct or indirect participation in political decision-making at different levels of governance often translate into procedures for access to information, to express oneself, and to participation. Procedural national administrative law is a case in point. Proceduralization is a key element in national administrative law to provide for prevention of bias, rights of consultation, access to information and to correct factual mistakes. Procedural administrative law is established in statutory law in many

countries, where it forms a back-bone of rule of law and legal certainty for citizens. Similarly, proceduralisation may in principle be institutionalized in international or transnational law as a modality for multi-stakeholder processes to provide for a balanced throughput process to transform input into a normative output. In principle, such an institutionalization may be implemented through a treaty. A treaty might address multi-stakeholder regulatory processes initiated by public international organisations, such as the UN, and/or processes that involve public organisations (including representatives or national governmental authorities) as well as non-state actors. Pending the political support for a move towards such an instrument, proceduralization could be developed and implemented on a case-by-case basis. This would provide opportunities for testing and perfecting various approaches in different context. Insights from this could feed into the elaboration of a potential treaty on proceduralization of multi-stakeholder regulatory processes to avoid regulatory capture.

A general proceduralization means formalizing procedural rights of participants – including not-for-profit as well as for-profit non-state actors, provided their relevant interest in the regulatory issue at hand – to take part in such law-making processes. As importantly, it also involves a general designation of procedural steps to be followed by the organizing organization in the establishment of a regulatory process as well as steps to be followed by participants during its implementation. The former may lean on political and participatory rights already developed in human rights law (albeit for other contexts and for other subjects); the latter may lean on procedural rules familiar from national administrative law. In a context with highly diverging power constellations, including experience and knowledge, formal procedural rights may not be highly effective without proceduralization to provide for equalized and informed participation to enable those with less power at the outset to actively make use of their rights.

Specific proceduralization at the level of individual regulatory processes is necessary to close the gap in reflexive law theory in terms of procedure for balancing power disparities. Specific proceduralization may occur already before the general proceduralization. Due to the variety in issues and forms, some or all elements of it will most likely also have to be considered at a more informal and more context-specific manner in every individual multi-stakeholder regulatory process organized even after a general proceduralization has taken place.

It is a key element of specific proceduralization that power relations are continuously re-assessed during a regulatory process. Power relations may dynamically change during an interactive process. It may also be the case that previous assessments and steps taken to ensure balance have been inadequate. Recurrent assessments should be undertaken by the agency or individual charged with managing the process. As part of this it should be considered how the process evolves and affects interests and interests-holders. To pre-empt capture of the process or output it should also be considered how a potential output at a given time may affect participants' power and power relations *after* the possible agreement on that output. If the output leads to change of current power relations, this is likely to affect the views and

willingness to change stances during the regulatory process. Such issues must be taken into account.

Pending formalization, for example through a prospective treaty, proceduralization may and ideally should evolve on a softer basis. Such a process would develop important experience that may feed into the contents of a treaty on non-state actors' participation in international or transnational law-making. The overall process, which would entail a series of individual processes targeting a variety of issues set in a variety of contexts, would itself be a learning opportunity. Lessons would be developed that could take account of experience gained through collaborative regulation processes with diverse compositions and functioning in diverse contexts.

6 Steps in Specific Proceduralization

6.1 Inclusiveness and Representation

Criteria for inclusion may be developed in collaboration with other organizations with insight into the substantive matter at hand. This may also offer a way to benefit from other networks and include these, so as to provide for coherence with other or related normative regimes or multi-stakeholder regulatory processes. For sustainability related issues, it is important that the mapping of interests and identification of criteria of participation consider the situation of vulnerable groups. Following the habermasian line of thought, such interests may be represented by civil society organizations. Indeed, some sustainability NGOs work across national or regional boundaries to draw attention to the problems and interests of vulnerable groups. Yet the very fact that the interests of the most vulnerable are being represented by others necessitates careful consideration of whether representative organizations are truly representative. It is important for legitimacy of the process and the output that such organizations fully consider and have insight into all interests of stakeholders that expect to or may make a claim to be represented, and to avoid trade-offs which will effectively render some interests dis-represented. The issue of representation through civil society or other representative organizations, including business associations, is one of the most challenging and most important ones for the balancing of power in multi-stakeholder regulatory processes. Careful proceduralisation offers a modality precisely towards balancing power disparities in this context.

Developing relevant criteria may be time consuming and resource demanding. Yet the effort would be worthwhile because of the significance for throughput legitimacy that true representation ensures. Careful pre-assessment and screening of pertinent interests and representative organizations need not lead to an extensive expansion in stakeholders to be included. It may just as well lead to a decrease in stakeholders or interests, because it may become clear that there are overlaps in interests or representative organizations. Ensuring representation through a careful mapping and selection from the outset may reduce arguments on stakeholder

participation and interests during the forum, reduce disagreement and concerns related to input legitimacy, and contribute to the effectiveness of the forum.

For a process to be inclusive it should be open to participation by those who can explain a relevant concern or need in relation to the topic that is subject to the regulatory process and may be addressed or affected by the intended normative output. Inclusiveness also requires paying attention to language barriers and resources, whether human or financial. For representation to be balanced it is important to be aware of such issues in order to handle them during the process. This may require help to balance resource disparities, for example through making documents available in local languages and providing translation during a meeting, training in arguing a point, IT-training if the process is conducted online or to ease participation in online exchanges taking place during a process, and financial assistance to enable a physical presence for a broad representation of concerns and stakeholders in the actual regulatory process.

6.2 Declaring Interests and Connections

To avoid legitimacy of the process being harmed by the mere suspicion that any members may have privileged knowledge or access to political or legal decision-makers, any such issues should be declared to the agency in charge of the process. That information should also be made accessible to other participants before the first meeting of the multi-stakeholder group. There may be solid reasons for such individuals or organizations to participate nevertheless. They may have expertise, which is both welcomed and necessary for the exchanges and learning to take place. However, declaring interests and sharing these in a transparent way will enable other participants to take account of the possible impact of this. As importantly, it will enable the agency in charge of the process to ensure that the process is not captured by such interests, ensuring at the same time that such interests may become voiced rather than simply subdued or excluded because they existed prior to the regulatory process being launched.

Experience with related processes or types of rule-making in organizational or (inter-)governmental settings similar to the pertinent one should also be declared at the time when the specific process is being organized. This too will enable the agency or individual in charge to take account of whether some participants need to receive instruction or training in the functioning of regulatory, multi-stakeholder processes or negotiation technique in order to balance disparities of experience that might skew participants' power in the forum. While training may not fully provide for equalization, it can mitigate strong disparities. Along with transparency about such experience it may enable participants and the agency or medium in charge to take issue with disparities or existing connections with formal decision makers as they become evident. The agency in charge of the regulatory process may assist participants in discussing and agreeing on solutions to power disparities when these become apparent during the functioning of the regulator process.

6.3 *Including Stakeholders in Preparing for Interaction*

To ensure equalized participation in a multi-stakeholder regulatory process, the agency or person in charge of the process should send out draft agendas for comments a reasonable period of time prior to any, meeting and to allow participants to invite and obtain input from their constituencies. Final agendas should be circulated in time for participants and individual members of particular participant organizations to be able to make an informed decision on whether and how to participate, and to reach out to the constituencies that they represent for views and input for feed-back. Procedural rules should clearly describe how participants may indicate points they want addressed on the agenda. Discussion and possible revision of the procedural functioning and rules for a particular regulatory process should be a point at the agenda of any meeting in order to ensure continuous re-assessment and introduce adjustments as necessary.

7 Conclusion

Adverse impact on sustainability that is currently caused by business organizations and which often affects other non-state actors (individuals or groups) is often also beyond the boundary of home-state jurisdiction due to the transnational character of the business operations or of the activity itself. There is a need for rule-making that effectively targets the activities and actors that cause this impact. This calls for a shift towards processes that allow for the participation of non-state actors. Explaining a theory basis and steps for ‘collaborative regulation’, this chapter contributes to addressing that gap.

The chapter has demonstrated that attention must be paid to procedure in order for a multi-stakeholder based regulatory process that presumes an exchange of views and needs to progress in a manner that is effective in delivering the intended output, and which is legitimate in terms of process as well as the output. With a focus on throughput legitimacy as a condition for a norm to have an inherent ‘compliance pull’, the chapter has shown that procedure is a key element for the design of a multi-stakeholder process to avoid regulatory capture by handling power disparities. The empirical examples noted in Sect. 2 illustrate having strong procedures in place for balancing power can be overlooked. The reason for such oversight in the design and management of a regulatory process may well be a focus on the substantive quality of the exchanges of views that take place within the regulatory process. However, as the chapter has shown, without procedure, there is a risk that the quality of that debate does not support the substantive elements, or that the output will not be recognised as legitimate, because the process has been seen to be skewed in favour of already powerful participants. As a result, the process suffers in terms of trust, the effectiveness of the process to deliver the intended objective decreases, and both process and output are deficient in terms of legitimacy.

The development of sustainability norms of conduct and related rule-making for transnational application may be strengthened in terms of process as well as output by an inclusive and balanced increased participation of stakeholders. Allowing not only states, but also other representatives of civil society to take part in the processes, this may be achieved by involving NGOs and other civil society actors, and to ensure a broad representation of interests, including – as relevant – economic, social or others.

The theory of reflexive law can explain the functioning of examples of multi-stakeholder regulatory processes aiming at developing soft-law-type norms of conduct on sustainability concerns to be applied in transnational contexts. Experience shows that interests represented by particular stakeholders can be both a major driver and, in some cases, a major obstacle to the normative comprehensiveness of the outputs. Damaging throughput and output legitimacy, power disparities can lead to the related interests becoming dominant or distorting the process. The influence of such imbalances speaks to the significance of the gap in reflexive law theory to explain how power disparities may be handled.

Habermas' theories of discourse ethics and deliberative law-making, and Teubner's reflexive law theory employ share the same aim of promoting the relevance and legitimacy of law-making to provide for the common good and connect specific concerns with the requirements of a normative framework. Both are concerned with process as an element in law-making and with the formation of common will as a factor that provides resulting norms with effectiveness in terms of a 'compliance pull'. Teubner places faith in the reflexive law forum *per se* to frame a communicative process and deliver an output that begs adherence. Habermas emphasises the deliberative quality of the communicative process as a key element for the capacity to deliver an output that is valid in the sense of being perceived as legitimate and complied with. Developed after reflexive law, his theory on deliberative law-making heightens the focus on equalized participation and procedure. This provides a bridge back to reflexive law to help fill the theory lacuna in terms of ensuring a balanced representation of interests, and to balance the sometimes-diverse powers of civil society organisations, such as between business and NGOs, or between diverse networks. It also provides a general approach to the design of multi-stakeholder regulatory processes that function outside guarantees of equalized participation such as those that may exist in some national contexts.

At the overall, general level, proceduralization to ensure effective implementation of rights of participation whether through direct or indirect representation lend themselves to elaboration and formalization through international law. Initially this may be soft law and experimentation. In due time it may become hard law, such as a procedural treaty for multi-stakeholder regulatory processes. Whether formalized or in a softer context, specific steps will need to be undertaken in each process. This should include steps to ensure inclusiveness and representation, that specific interests and connections are declared so as to manage and neutralize privilege, including participants and their constituencies in preparing and defining interaction. Throughout, there must be awareness of ensuring a continuous (re-)assessment of the process

to balance power disparities and a readiness to introduce adjustments as necessary. This too should involve participants in an equalized manner.

The chapter contributes to the legal sustainability literature through theory-building on a regulatory process that is inclusive while also balancing power disparities. It has introduced the theory of collaborative regulation to prevent regulatory capture by actors in multi-stakeholder regulatory processes. Taking point of departure in empirical data and theory that jointly speak to the importance of a multi-stakeholder regulatory process to deliver a normative output developed in such a way that it is likely to contain a compliance pull for organizations subject to the norms, the chapter has argued that proceduralization of the multi-stakeholder process can be deployed for this purpose, and that this holds potential to fill a theory gap in reflexive law theory in regard to balancing power disparities between participants in a multi-stakeholder regulatory process. The chapter responds to a theory gap on the internal norms and organization of a multi-stakeholder process that can help enable it to turn a broadly representative input into a normative result (output) in such a manner that the output enjoys a high degree of legitimacy to support organizational uptake without strong enforcement institutions.

The analysis does not cover effectiveness in terms of actual compliance. Such an analysis, potentially based on empirical studies of the organizational uptake of a series of norms of conduct, could deliver important further insights to complement and potentially adjust the theory of collaborative regulation described in here.

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Right to Development and Right to Environment: Sustainable Development Perspectives



Ivana Savić

1 Introduction

Human Development and Human Environment are intricately linked. Nevertheless, without favorable environmental and climatic conditions, human development is not possible. Technological and scientific development facilitated gaining knowledge on the processes in nature which has allowed us to modify the environment, take advantage of the environmental and climatic conditions and direct the changes in the environment and the natural processes as we found appropriate. Knowledge on the world of nature and natural processes enables us to survive the harsh environmental and climatic conditions, build resilience, adapt to changing the landscape and grow. However, with the growing human population and their activities, including *inter alia* resource intense economic growth, the issue of the limits to growth came into prominence. In an update to their famous report titled “The Limits to Growth” from 1972, Meadows, Randers and Meadows (2004) found that unless sustainable development path is undertaken, human population and human activities will grow beyond limits and overshoot the physical limitations of the planet ultimately resulting in the restoration of balance through collapse and the brutal forces of nature.

The limits to growth have been predominately conceptualized as a conflict between development and environment, and at the best possible version as a tension, whereby the full potential of human development cannot be reached due to environmental and physical limitations. Since the 1960s, there has been an abundance of literature on this topic. Legal theory and practice have not been silent on the relationship between development and environment, and limits to growth. The negative interactions between environment and development *inter alia* gave rise to

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the emergence of the international environmental law (Brown Weiss 2011) as well as to human rights relating to environment and development (Boyle 2006). Sustainable Development, a holistic paradigm of development, has been recognized to have the ability to allow humans to reach their full potential, enable human flourishing while respecting the physical limitations of nature. Thus, the key to development is the integration and balancing of different dimensions of development. With the adoption of the Sustainable Development Goals (SDGs) (UNGA 2015), the landscape of the development has been changed. Le Blanc (2015) argued that because SDGs is structured as a network of targets, they constitute the most integrated system up to date, which has the potential to lead to integration at last. Indeed, SDGs are defined as “integrated and indivisible” and goals that “balance the three dimensions of sustainable development: the economic, social and environmental” (UNGA 2015, Preamble). Furthermore, SDGs should be implemented “in a manner that is consistent with the rights and obligations of States under international law” (UNGA 2015, para 18). In that regard, among the international legal scholars, two forces could be identified- a force on fragmentation and a force on the integration of international law, whereby integrationist force is reinforcing sustainable development (Ellis 2009; Barral 2012; Peters 2017; Megiddo 2019).

Human rights obligations constitute a significant set of State’s obligations under international law. Particular attention of both scholars and practitioners attract human rights obligations relating to environment and development (Boyle and Anderson 1998; Sengupta 2001; Boyle 2006; Arts and Tamo 2016). Knox (2015), at the time Special Rapporteur on human rights and the environment, found that although SDGs promoted human rights obligations related to environmental protection, some of the targets were neither specific nor closely linked to the existing obligations. In 2016, Human Right Council (2016) decided to appoint a Special Rapporteur on the Right to Development, whose mandate *inter alia* include “promotion, protection and fulfilment of the right to development in the context of the coherent and integrated implementation of the 2030 Agenda for Sustainable Development and other internationally agreed outcomes of 2015” (para. 14(a)). Although not in the context of the human rights obligations, Voluntary National Reviews (VNRs) and numerous scholars and practitioners have emphasized the existence of the negative interactions among SDGs, also defined as trade-offs represent a significant challenge in implementation of the SDGs (Le Blanc 2015; Nilsson et al. 2016; Stafford-Smith et al. 2016; UN 2016; ICSU 2017; Nilsson et al. 2018). In the human rights context, trade-offs are equivalent to a situation where enjoyment of one right constitutes or contributes to the violation of another right or other rights.

Lately, the interactions between the right to environment and the right to development have been considered in the context of the implementation of SDGs, and more specifically climate change and the right to sustainable development (Gupta and Arts 2018). However, the literature review suggests that there has not been a comprehensive analysis of what is referred to be a conflict between the right to environment and right to development, and especially not in the context of the implementation of SDGs. Therefore, this chapter is an initial step in addressing the research gap. The main research question is whether under the current international

law, there is a genuine conflict between the right to environment and the right to development, and if so, how this conflict of rights could be resolved. Genuine conflict between these rights is defined as a conflict that can be resolved through the use of the interpretative means in order to harmonize these two rights. Machingura and Steven Lally (2017) highlight the existence of SDGs paradoxes; thus, this chapter also aims at identifying potential human rights-environment-development paradoxes. This chapter is divided into four sections. In Sect. 1 of this chapter, the right to environment and right to development under international law are briefly examined. This is followed by the examination of the potential conflict between these two rights, arguing that there is no genuine conflict of rights. Section 3 of this chapter discusses the relevance of the right to environment and right to development in the context of SDGs. The final section concludes.

2 Right to Development and the Right to Environment

The right to development and right to environment belong to the so-called third generation of human rights. Although, universal human rights treaties do not explicitly proclaim the right to environment and the right to development. Nevertheless, the right to environment and right to development are derived from the fundamental human rights, such as the right to life and right to health. While human rights instruments recognize the right to development as a fundamental human right (UNGA 1993, para 10), the right to the environment has not received such recognition. Nevertheless, the constitutional recognition of the right to the environment (Boyle 2006; Boyd 2012), and practice of the states, especially regional human rights case law support the argument that the right to the environment has a status of the fundamental human right.

2.1 Right to Development in the International Law

Within the body of international human rights law, only the Convention on the Rights of the Child (CRC) (UNGA 1989) in article 6 “recognize that every child has the inherent right to life” and that the states “shall ensure to the maximum extent possible the survival and development of the child.” The CRC is the only human rights treaty that articulates the obligation of the State in regard to the survival and development of the individuals. Furthermore, the UN Committee on the Rights of the Child (2003) identifies that the right to life, survival, and development is one of the general principles of the CRC and that it “expects States to interpret “development“ in its broadest sense as a holistic concept, embracing the child’s physical, mental, spiritual, moral, psychological and social development. Implementation measures should be aimed at achieving the optimal development for all children” (para. 12). The implications of the right to life, survival and development as one of

the fundamental principles of the CRC means that without realization of the right to life, survival and development (article 6), but also of the right to non-discrimination (article 2), of the right of the best interest of the child (article 3) and of the right to express his or her views (article 12), no other rights from the CRC could be realized. In that sense, these four rights are the *condicio sine qua non* for the realization of the CRC rights.

However, article 1 of the CRC only applies to “every human being below the age of eighteen years unless, under the law applicable to the child, the majority is attained earlier.” The question that arises here is whether the State also has an obligation to ensure to the maximum extent possible the survival and development of every human being above the age of eighteen? The intuitive answer to this question would be affirmative. All human beings have the right to life, development, and survival. For instance, International Covenant on Civil and Political Rights (ICCPR) (UNGA 1966a) in article 6 proclaims the right to life, while in the article 4 it stipulates that even in the case of emergency, the derogation of the right to life is prohibited. Even though the treaties do not make reference to the right to development, this right can be derived from the rights recognized by ICESCR (UNCESCR 1991, 1999) and other human treaties, such as CEDAW.

Generally speaking, article 6 has a great significance in the context of the implementation of the SDGs as it could serve to determine the most appropriate course of action for meeting the goals simultaneously and by all. Sustainable Development Goal number 7 on Energy can be used as an excellent example to demonstrate this point as universal access to energy and modern energy services is critical to the child’s physical, mental, spiritual, moral, psychological and social development (UNICEF 2015). By the same token, energy is also critical for the physical, mental, spiritual, moral, psychological, social and economic development of all individuals irrespective of their age. Access to energy is a necessary condition for the development and provision of the public and urban services, such as the provision of basic health services. In that regard, energy is an enabler of universal access to health care (WHO and WB 2014, pp. 15–20). Ironically, the provision of energy can pose significant environmental and health risks. For instance, coal power plants in Western Balkans produce concerning the level of air pollution in the region, EU and beyond, causing 3000 premature deaths, and costing health systems and economies a total of EUR 6.1–11.5 billion (Matkovic Puljic et al. 2019). This example demonstrates the burden that the energy sector has on the environment, social and economic development. Moreover, it seems that we are faced with the energy-development paradox where energy is at the same time an enabler of development and its most significant risks.

Energy-Development Paradox impacts the lives of billions of people around the world and poses significant practical and political challenges. Therefore, if the States are committed to substantially increase the share of renewable energy in their own and global energy mix, the legal and non-legal means for achieving this objective should not be at the burden of the child’s right to life, survival, and development. This does not imply that the article 6 or any other article of the CRC has primacy in the international law, it just states that increasing the share of renewable energy

should not be achieved at any cost and by any available means. That is when actually technical solutions and innovations to the social issues come into play.

In overall, the corpus of so-called socio-economic rights could be understood to refer to different aspects of development and survival. Hence, socio-economic rights set minimum standards for ensuring to maximum possible extent survival and development of all persons above the age of 18. In addition to human rights treaties, article 1 of the Declaration on the Right to Development (UNGA 1986) states:

1. The right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized.
2. The human right to development also implies the full realization of the right of peoples to self-determination, which includes, subject to the relevant provisions of both International Covenants on Human Rights, the exercise of their inalienable right to full sovereignty over all their natural wealth and resources.

Although the right is formulated as an individual right (UNGA 1986, article 1–2), it also has features of collectivism. As for the collectivistic features of the right, Sanders (1991, pp. 368–369) makes a distinction between group and collective rights, whereby group rights represent a sum of the rights of the members of a group, while collective rights are the rights of individuals that are brought together by internal cohesiveness. In the context of the right to development, right holders are individuals, groups and collective as a nation/state. Notably, Agenda 21 articulated the group right to development through the establishment of the mechanism for the participation of diverse groups in the international sustainable development deliberations. This mechanism for the involvement of different groups was named Major Groups. Until the end of the Rio + 20 process, the right to participation of the nine groups was recognized, and these were: Business and Industry, Children and Youth, Farmers, Indigenous Peoples, Local Authorities, Non-Governmental Organizations, Scientific and Technological Community, Women and Workers and Trade Unions. However, during the post-2015 process, the right to participation was extended to other groups without necessarily listing them, and these other groups go under the name of “other stakeholders” (UNDESA n.d.).

Based on the formulations of the right to development in the CRC and the Declaration, it can be concluded that the right to development entails physical, mental, spiritual, moral, psychological, economic and social development of individuals, groups, and nations as well as entitlement to participate in, contribute to, and enjoy economic, social, cultural and political development. However, can the right to development be realized without adequate environmental conditions? The immediate answer to this question is negative as “the environment is a precondition to the enjoyment of human rights,” while human rights and environment are integrated under the concept of sustainable development (Human Right Committee 2011, para. 7–9).

2.2 *Right to Environment in the International Law*

Contrary to the right to development, none of the universal human rights instruments recognizes the right to environment, although the formulation of the rights makes references to the environment. Nevertheless, the right to environment is derived from other rights such as the right to health recognized in the Universal Declaration on Human Rights (UN General Assembly 1948), CRC, International Covenant on Social, Economic and Cultural Rights (UN General Assembly 1966b) and other treaties. In that regard, Hayward (2004, p. 14) argues that the right to the environment is an emerging right of the international human rights law. It is worth noting that there is no declaration on the right to environment, although there is a record of the attempts to develop and adopt such a declaration. In the Draft Declaration of Principles on Human Rights and the Environment (UNCHR 1994, ANNEX I, para 2) the right to environment is defined as a right of all persons to have “a secure, healthy and ecologically sound environment.”

Nonetheless, the practices of the states suggest that the right to the environment is a part of the international customary human rights law (Boyle 2006). For instance, the right to environment is articulated in the regional human rights treaties and constitutions. In the Americas, the Protocol of San Salvador (OAS 1999) in article 11 proclaims that “everyone shall have the right to live in a healthy environment and to have access to basic public services.” In Europe, even though none of the human right treaties articulates the right to environment, the right has been protected in connection to the right to health, right to life, respect for private and family life (COE 2012). The African Charter on Human and Peoples’ Rights (OAU 1982) in article 24 stipulates that “all peoples shall have the right to a satisfactory general environment favorable to their development” while article 21 provides that “all peoples shall freely dispose of their wealth and natural resources.” Both regional and constitutional formulations of the right to environment emphasize that the right to environment entails the right to the specific quality of the environment.

Boyle (2006) and Francioni (2010) make a distinction between the right to environment, environmental rights, and greening human rights. In overall, the right to environment is formulated in a way that it contains freedoms and entitlements. The states have an obligation to prevent and safeguard against environmental degradation that threatens life (Sub-Commission on Prevention of Discrimination and Protection of Minorities, 1994, para 175). In that regard, “the duty to protect the right to life would entail an obligation of the State to establish and operate adequate monitoring and early-warning systems to detect environmental hazards before they threaten human survival” (Maldives 2008, p. 43). Like the right to development, the right to environment is an individual, group and collective right. Boyle (2012, p. 613) argues that the right to environment “above all [...] helps to promote the rule of law in this context: governments become directly accountable for their failure to regulate and control environmental nuisances, including those caused by corporations, and for facilitating access to justice and enforcing environmental laws and judicial decisions”.

3 Conflict of Rights: Illusion or Genuine Conflict

The relationship between environment and human development is a complex one. Although human life and development are physically dependent on the environment, humans and environment are inextricably linked as all human activities impact the environment, and environment impacts humans in all aspects of their lives. Whilst human life and human development is not possible without the environment adequate to human life; the environment can exist independently of human life and human development as the nature had existed significantly long before humans. In other words, the environment will continue to exist in one form or another regardless of the presence of human beings as environment is *condicio sine qua non* for humans, while humans are not *condicio sine qua non* for environment. Moreover, human development is conditioned with the relationship humans have with nature. For instance, if in the dominant political discourse there is a paradigm of separation of humans from nature, human development will reflect this underlying belief through excessive and uncontrolled environmental degradation, where self-destructive forces are confused with forces of creation. That is why environment-development nexus should be interpreted in the context of fundamental human rights whereby

Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. In this respect, policies promoting or perpetuating apartheid, racial segregation, discrimination, colonial and other forms of oppression and foreign domination stand condemned and must be eliminated (UNGA 1972, Principle 1 of the Stockholm Declaration).

This Principle 1 could be interpreted as to lay down foundations for the recognition of the right to environment and right to development. The Stockholm Declaration certainly was a milestone in formulating the concept of sustainable development, which is a holistic paradigm of development. The importance of considering the relationship between environment and development in the context of human rights, and more specifically right to environment and development is threefold. Firstly, human rights provide a conceptual framework for development initiatives and problem-solving. Secondly, the realization of human rights ensures that a person regardless of his or her personal or any other characteristics can reach his or her full potential, and live a healthy, and productive life in harmony with nature. Thirdly, human rights set standards on the process and outcomes of development, that also includes how humans interact with nature.

Right to environment and right to development belong to the corpus of human rights. Human rights are interrelated, interdependent and indivisible, meaning that deprivation of one right will adversely impact the realization of other rights. For instance, exposure to high levels of outdoor air pollution due to industrial activities, traffic or energy poverty, especially over a certain period of time will highly likely constitute a deprivation of the right to environment. Denial of the right to environment manifested as high levels of outdoor air pollution will adversely impact the

physical and mental health of individuals, especially of those individuals belonging to vulnerable groups, such as children below the age of five. In the worst-case scenario, deprivation of the right to health due to pollution could result in the inability of an individual to sustain his or her life, ultimately leading to deprivation of the right to development and right to life. Because right to environment and right to development are two fundamental human rights that are interrelated, interdependent and indivisible, they cannot genuinely be in conflict because that would mean they would have become less meaningful and less secure.

Bearing in mind the characteristics of this physical world or ours, no human survival nor development is possible without an environment adequate to human health. Nevertheless, real-life situations, challenges, conditions and events paired with perceptual limitations of the dominant underlying philosophies of the human development that are rooted in the binary perception of the world manifest themselves in the decision making that entails making a choice between two separate “goods” in a way that one of the fundamental goods is lost. This reflects a binary vision of the world, whereby development and environmental protection are mutually excluding, and whereby artificial dominance hierarchy between these two is established. In other words, one always has to be at the expense of others, which is a fallacy. It can be observed that often, development is perceived to be at the expense of the environment, and *vice versa*.

Changes come in many shapes and forms, and their causes and impact are not always easily identifiable. Particularly from the perspective of law, the concept of changes, and especially the concept of environmental changes and their classification is essential. In overall, the changes in the environment are neutral in their value. However, once the changes in the environment are assessed against the criteria of what is considered an individual, group and collective wellbeing, the environmental changes can be classified in numerous ways. One of the possible ways of classifying the environmental changes is based on the criteria of whether outcomes are beneficial or detrimental to the individual, group and collective wellbeing or if it contributes to human development. Wellbeing should be measured against human rights standards.

However, it should be noted that human rights are relative and context-dependent. If the environmental changes, according to the available knowledge are beneficial to human wellbeing, these changes are considered as beneficial environmental changes. An example of beneficial environmental change would be energy-independent school made of recycled materials with the appropriate ventilation system that utilizes renewable sources of energy. However, if the change adversely impacts the wellbeing, such changes are considered as environmental degradation. Indeed, deforestation is an example of environmental degradation as it contributes to the increase in air pollution. Finally, the third type is the one where the impact cannot be determined. The inability to determine the impact of the environmental changes yield the most concern, and the consequences of inability can be detrimental to human life and well-being. Hence, there have been different approaches to address the uncertainty from the legal perspective. The inability to assess the impact of the environmental changes on the human well-being can be due to the lack of scientific

and technological knowledge and tools to evaluate the impact. In the situation of scientific uncertainty, the precautionary principle should be applied in decision making. The application of the precautionary principle means that environmental protection and safety is a preference for the decision makers. The inability to assess the environmental impact can also be a basis for invoking the invalidation of the treaty as per article 48 of the Vienna Convention on the Law of Treaties because “the error relates to a fact or situation which was assumed by that State to exist at the time when the treaty was concluded and formed an essential basis of its consent to be bound by the treaty” (UNGA 1969). Finally, the third cause is negligence, that includes legal wrongdoing, misconducts and creation of unnecessary and avoidable risks. However, it should be noted that assessment of the impact that human activities have on the environment is subject to change over time and across territories, and that law and policy often appropriately regulate these changes.

Particularly neutral changes in the environment are the ones that often create or contribute to the creation of the conflicts, or at least what is perceived to be a conflict between environment and development. Furthermore, perceptions of the tensions and conflicts between the right to development and the right to environment, two fundamental rights, and in overall different aspects of sustainable development across its three dimensions (McInerney-Lankford 2009; Guo and Ma 2008) influence legal and policy domain, which translate these perceptions into competing policy objectives, but also in the conflict of norms and the conflict of laws relating to the different dimension of development. This brings us to the issue of whether conflict between the right to environment and the right to development at the standard setting level exist or not. As it was already mentioned, none of the human rights treaties proclaims the right to environment nor development, which makes it a bit challenging to determine the exact content of these rights. Nevertheless, bearing in mind that both rights originated at the Stockholm Conference and that they address different aspects of the same issue they try to address as reflected in the Principle 1, it is highly unlikely that there could be a conflict between these two rights at the standard setting level.

Based on the literature review, Young et al. (2010, p. 3979) identify six categories of conflicts: (1) conflicts over beliefs and values, (2) conflicts of interests, (3) conflicts over process, (4) conflicts over information, (5) structural conflicts and (6) interpersonal conflicts.¹ Although this typology of conflicts is not entirely applicable to the issue of the conflict of two human rights, it is critical for better understanding of how the conflict of environment and development came into being, especially as the conflict between the right to environment and development could be due to the interpretation of their content. Like with the conflict at the standard setting level, the interpretation conflict of these two rights is not possible as these two rights are mutually reinforcing.

¹I would like to thank the anonymous reviewer for bringing my attention to this essay, and for reviewer's valuable comments and suggestions.

It is essential to emphasize that the global concepts, including the concept of climate change, are not given but very successfully created, while it is a scientific fact that the climate changes. Therefore, it is critical to reassess the underlying philosophies and decision making. In that regard, the main question that arises is whether we have ensured informed decision making in development. It seems that the core issue of development is the availability of the resources. While resources on our planet are limited, the resources on our planet are also at the same time unlimited given Nature's restorative capacity, although not available at all times. Availability of the resources is relative to natural processes, time, space, geography, location, but also social, economic and cultural institutions. However, the question whether available resources are enough to meet the needs of individuals, communities and nations, including the question of the access to and distribution of these resources is often replaced with the question whether the resources are limited and unlimited. Nature's regenerative capacity serves to ensure that nature is often able to provide more than enough resources for sustaining human life and ensure enough for human thriving. Thus, the issue of the access to resources is often included in the situations when the right of one group is conflicted with the right of another, for instance, in situations with a right of the local community and a contradicting right of an investor. However, it should be noted that the outcomes of the collision of rights of two groups are relative to time and territory. This should be exemplified on the case of *Ethyl Corporation v. Canada*, whereby the investor challenged Canada's Manganese-based Fuel Additives Act (MMT Act) under NAFTA/UNCITRAL (Swan 2000). Although the use of MMT raises serious public health concerns (Zayed 2001), Ethyl Corporation was successful in challenging Canada's regulation of products that was based on public health and environmental concerns. In other words, through MMT Act, Canada applied the precautionary principle, which was perceived a breach of Chap. 11 of NAFTA. Canada was not successful in protecting public health as economic interests had more weight. *Ethyl Corporation v. Canada* was the first case that resulted in the payment of the compensation as Canada settled the case, and as such the case raised numerous concerns in regards of the primacy of the investment and trade regimes over human rights and environmental protection (Markell and Knox 2003, pp. 182–183).

Contrary to Canada, when the EU regulated the use of MMT in the Fuel Quality Directive, Afton Chemicals, a sister company of Ethyl Corporation (NewMarket 2019), immediately sued on several grounds. However, the Court's approach in balancing of different interests, in this case, was significantly different in comparison to the Ethyl Corporation Case as the Court of Justice of the European Union (CJEU 2010) found that

Where it proves to be impossible to determine with certainty the existence or extent of the alleged risk because of the insufficiency, inconclusiveness or imprecision of the results of studies conducted, but the likelihood of real harm to public health persists should the risk materialize, the precautionary principle justifies the adoption of restrictive measures, provided they are non-discriminatory and objective (para. 61).

Furthermore, CJEU (2010, para. 69) “acknowledged that the European Union legislature may, under the precautionary principle, take protective measures without having to wait for the reality and the seriousness of those risks to be fully demonstrated” and found that the Directive “is not invalid by reason of the infringement of the precautionary principle and the principle of proportionality” (para. 62).

4 The Right to Environment and the Right to Development: Sustainable Development and SDGs

The world is in “*status transitus*, involving a passage into an assignable entity while being as yet inassignable” (Katz and Sherry 2012, p. 1552). Thus, we are transiting from the development founded in the paradigm of separation to sustainable development, a holistic paradigm of development. Because we have not entirely shifted to sustainable development, we experience both developments in silos and holistic development. That is why even in the context of the SDGs, the trade-offs are still present, although trade-offs are incompatible with the idea of balancing and integration. The idea of trade-offs could be understood to refer to the existence of “policies promoting or perpetuating apartheid, racial segregation, discrimination, colonial and other forms of oppression and foreign domination” (UN General Assembly 1972, Principle 1). For example,

the changes that have been made to ecosystems have contributed to substantial net gains in human well-being and economic development, but these gains have been achieved at growing costs in the form of the degradation of many ecosystem services, increased risks of nonlinear changes, and the exacerbation of poverty for some groups of people. These problems, unless addressed, will substantially diminish the benefits that future generations obtain from ecosystems (Millennium Ecosystem Assessment 2005 p. 1).

In addition,

while degradation of some services may sometimes be warranted to produce a greater gain in other services, often more degradation of ecosystem services takes place that is in society’s interests because many of the services degraded are ‘public goods’ (Millennium Ecosystem Assessment 2005, p. 10).

As it was already mentioned, the environment and development are interconnected and interdependent. The right to the environment should be understood as a right to ecosystem services that contribute to human well-being of all whereas the answer to the question of how many people on which level of human well-being still needs to be further specified. As human activities significantly influence the ecosystem services, standards of accessibility, adaptability, acceptability, and adequacy should be applied to ecosystem services (UNCESCR 1991, 1999). Besides, it is critical to ensure universal access to ecosystem services, including universal access in obtaining benefits of these services. Provision of ecosystem services is pre-condition for human development. The notion of development is deeply encoded in the human consciousness, and as such, it guides and influences individual, group

and collective behaviors. Furthermore, the idea of development also entails one of the basic human instincts - an instinct to survive. However, development is not only about surviving, but also about thriving as articulated in article 6 of the CRC (quoted above at the beginning of Sect. 2.1.). Moreover, ensuring thriving requires that the needs are neither undermet nor overmet. In that regard, the law is one of the most critical tools for ensuring that these needs are being met.

The last three decades have been characterized by the proliferation of norms in relation to all spheres of life, which poses significant challenges. Especially within the domain of the international environmental law scholars have addressed the issue of over-complexity and over-regulation of the environmental law followed by the lack of coordination, integration, and balancing that is summed up under the phenomenon of “treaty congestion” (Hicks 1999, Anton 2013). Similarly, the International Law Commission (2006) acknowledges the fragmentation of international law and difficulties arising from the diversification and expansion of international law. Also, the International Law Commission (2006 para. 491) notes that “only a coherent legal system treats legal subjects equally”. As equality is at the core of SDGs, SDGs can only be achieved through the coherent legal system. By the same token, fragmentation of international law is one of the main challenges of sustainable development and one of the core obstacles in implementing SDGs (Le Blanc 2015).

There is no hierarchy of legal regimes in international law. Trade, investment, environmental and human rights law are designed with the purpose of ensuring the individual, group and collective progress and expansion. In that regard, Koskeniemi and Leino (2002 p. 578) note that

a human rights body, a trade regime or a regional exception may each be used for good and ignoble purposes, and it should be a matter of debate and evidence, and not of abstract “consistency” [...] The universalist voices of humanitarianism, human rights, trade or the environment should undoubtedly be heard. However, they may also echo imperial concerns....

Therefore, regimes are neither inherently good nor bad. This claim is particularly important in the context of the trade and investment disputes, whereby it appears that investment and trade regimes are indirectly given the power to derogate human rights and lower environmental standards (OHCHR *n.d.*; Bettwy 2012).

Human rights are a conceptual and practical framework for the process of implementation of SDGs. They raise a question of accountability for the development planning, implementation and monitoring, both in regards to the developmental process and outcomes of development. The political function of human rights in development is ensuring depoliticization of development (Cornwall and Nyamu-Musembi 2004; Grégoire et al. 2017), which can be of a particular benefit in the context of addressing negative interactions between and among SDGs.

Particularly in the context of the Agenda 2030, the notion of trade-offs has a negative connotation as some of the terms used in the VNRs to refer to the trade-offs were “negative impact or consequences”, “policy conflict”, “tensions”, “conflict of priorities/goals”, “at the expense of” (UNDESA 2018, p. 7). From these references

to trade-offs, several conclusions could be drawn. First of all, trade-offs are perceived realities. Secondly, trade-offs are perceived as an inevitable loss of one good over the other, and thus “necessary evil.” Finally, they refer to the outcomes of the developmental deliberations and problem-solving process, ultimately implying the existence of the hierarchy of goals, and priorities based primarily on the individual preferences of the states. In that regard, the Kingdom of Netherlands (2017) in its Voluntary National Report noted

Achieving sustainable and inclusive development is essentially a political process. No matter how elaborate the evidence base and policy guidance, or how extensive the number of indicators and targets, achieving the SDGs with limited resources requires trade-offs and tough decisions on allocation (p. 15).

For instance, while there might be a declarative commitment to the environmental protection, omission to report on the progress related to “environmental” SDGs, for example, SDG 15, or omission to include some, if not all environmental SDGs in the list of implementation priorities could imply two things. The first implication is that the state of the environment is at a satisfactory level, meaning that almost all targets are being met or close to being achieved. However, the review of the progress made suggests otherwise (UN 2016), which leads to the second implication.

The second implication is that there is a domination of the economic and/or social dimensions of development over the environmental aspect, implying that human development is at the expense of the environment that humans are dependent on. Such and similar implications to the implementation of the SDGs are incompatible with SDGs purpose and functions. This incompatibility is important as it highlights the plurality of the developmental assumptions, and points out to the ongoing process of harmonization, integration and balancing of different aspects of development. In that regard, it is critical to emphasize that integration and balance of different aspects of development cannot be achieved by exercising power, domination, and supremacy, but only the process founded in the principle of equality and diversity is able to transcend the limitations. Hence, arguing that power, domination, and supremacy contribute to integrated, responsible and balanced development is the equivalent of claiming that hate speech promoting discrimination and violence is an exercise of the freedom of speech, and as such contributes to the overall realization of fundamental human rights.

5 Conclusion

Achievement of sustainable development and implementation of SDGs require the reassessment of the legal theory and practice. Although sustainable development is a preferred model of development, the so-called unsustainable development is the dominant model of development. One of the main characteristics of such development is the ongoing state of conflict and inability to integrate and balance different aspects of development. In such a model of development, there is a core tension

between the environment and development, and this tension could only be resolved by losing one of the goods- either development or environment. This paradigm of development is reflected in the VNRs through the concept of trade-offs, although there are examples of good practice in regards to integration and balancing of different dimensions of development.

The examination of the right to environment, and right to development, as a representation of the concepts of environment and development suggest that these two rights are fundamental human rights. The analysis points out that there is no genuine conflict between these two rights and that the references to the conflict of rights are a misinterpretation of the core issue in question, and assumptions based on fallacies. In that regard, the successful implementation of the SDGs will depend on the ability to identify and address these misinterpretations and pre-conceptions. Similarly, integration and balancing of different aspects of development will require a development of the new legal tools, devices, and mechanism able to entail both the outcomes and the process of human development. However, further research is needed in order to identify what kind of legal interventions are needed in order to address the challenges efficiently.

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Peace as a Right of Humanity



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1 Introduction

You cannot simultaneously prevent and prepare for war. (Albert Einstein)¹

The concept of rights of humanity derives from the idea of the human rights of the third generation, proposed by Vasak (1977). In the 1970s, he announced the emergence of a new group of human rights – the rights of the third generation based on solidarity, whose subjects, in contrast to previous human rights, were collective ones: peoples and nations (Vasak 1977). The first and second generations of human rights focus on respectively civil and political, and social human rights of an individual. Instead, third generation human rights are intended to be collective ones. The third-generation human rights were introduced as a response to the phenomenon of global interdependence (Bülent 2004, p. 125). Freedman (2013) calls them a hybrid construct of international human rights law. In turn, Bülent (2004) criticizes the very idea, arguing that the very concept of the “generation of rights” is false. The researchers emphasize the problem of identifying a subject of the third-generation human rights. Vasak (1977) named groups, nations and peoples as the subjects of these rights.

However, peoples and nations have a political dimension, which is controversial by nature. Besides, they represent limited groups of people, and global issues like peace require all-encompassing approach. In this context the rights of humanity as a continuation of the third-generation human rights present the possibility to bring more clarity to the discussion of their subject. It unites people, instead of creating

¹Message sent to Congressman Robert Hale of Portland, Maine (4 December 1946), cited by: Einstein 1960, p. 397.

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divisions, thus protection will be provided to all human beings, regardless of any characteristics they might have.

Rights of humanity, including the right to peace, right to healthy environment and sustainable development (Ivankiv 2019), require a broad understanding of the protection mechanisms beyond the 'traditional' human rights protection mechanisms. Many researchers discussed the problems of the right to peace (see Nagórny 2004; Perry et al. 2015). They interpret the right to peace and its subject differently; however, they agree that this right is essential for the further development of humanity. The rights of humanity are mentioned predominantly as obligations *erga omnes*, or as a certain set of moral values. Teitel (2011) discussed the humanity law from a standpoint of right to self-defense against the global danger of terrorism, for the sake of protection from which humanity must unite.

Given the value of peace for survival and development of humanity in general, this chapter describes the right to peace as a right of humanity. In the large-scale violations that occur during an armed conflict, it is often impossible to secure the rights of an individual. The use of international protection mechanisms will potentially be more effective if the main beneficiary of the right to peace would be humanity, with undisputed importance of respect for individual human rights.

The chapter is structured as follows. First the nature of rights of humanity is briefly discussed. This new concept offers global perspective to protection of the common values of humanity. Then analysis is presented of the connection between the right of humanity to peace and human rights, because such connection is crucial not only for the protection of human rights, but also may lead to more sustainable development in global scale. The review of the international soft-law documents is provided for understanding of the steps taken by the global community to formally recognize peace as a human right and goal of the humanity. Finally the UN Sustainable Development Goals (SDGs 2015) are analyzed with the emphasis at the Goal 16. The interdependence between the human rights, peace, and development helps better understanding of future implementation of the possible mechanisms of protection and promotion of these values. The structure of the chapter is designed to provide different arguments to the possible recognition of humanity as the subject of the right to peace, along with its connection with the sustainable development.

2 Nature of Right to Peace as One of the Rights of Humanity

The rights of humanity, as well as other third-generation human rights, are in the process of development. Therefore, their catalogue, subject, and key characteristics are still debatable. They are based on the values that require participation and cooperation of all individuals and peoples, because in the modern global community alienated existence is practically impossible. It is worth mentioning that I consider

rights of humanity from the position of *lex ferenda*, recognizing their emerging nature.

It can be argued that the rights of humanity include the right to peace, right to healthy environment and sustainable development (Ivankiv 2019). They are interconnected and share the same distinguishing characteristics, which are the following ones:

- 1) humanity is a subject of these rights;
- 2) there is direct interdependence between rights of humanity and human rights;
- 3) rights of humanity protection require their implementation for all with respect to individual rights;
- 4) extraterritoriality;
- 5) belonging to different generations of humanity (Ivankiv 2016, p. 56 – original in Ukrainian, own translation; Ivankiv 2017, 2019).

Recognition of peace as *conditio sine qua non* for the realization of the human rights led to the necessity of its recognition as a human right, at least in legal theory for now. Modern approach to understanding of the right to peace “is based on the relationship between the right to life and human rights, peace, and development, the notion of human dignity, the role of women in building peace, and the importance of prevention of armed conflicts in accordance with the UN Charter and other UN resolutions and international law” (Perry et al. 2015, pp. 149–150). As mentioned by Nagórny, “peace is an essential dimension of the common good of the whole of humanity, and as such is associated with human rights” (Nagórny 2004, p. 238 – original in Polish, own translation). In many soft-law documents, peace was recognized as a prerequisite for the realization of the right to life. Consequently, there is no doubt that peace is one of the main needs of humanity. The key problem of this concept has always been a subject of this right.

It is worth looking at the arguments of Lauterpacht as described by Sands (2017, p. 416–417– original in Ukrainian, own translation) about the problems which may arise in the case of protection of a particular group in an armed conflict. It can be not only a national minority, but also the people or nation. Special protection of the group may result in its objectification, and eventually a greater violation of its members’ rights. He drew attention to the need to protect the rights of an individual, because violation of these rights “can affect the moral principles of humanity” (Sands 2017, p. 416 – original in Ukrainian, own translation). Lauterpacht concentrated on the protection of human rights through crimes against humanity, his main idea was the value of an individual, which could be jeopardized in the event if greater protection is given for the group (as broadly discussed in Sands 2017). The complexity of the modern world does not allow focusing on protecting the rights of a particular group, since it is often difficult, if at all possible, to clearly define this group. However, in case of massive violations, it will not be enough to talk about individuals or groups, but rather about humanity. This subject does not contain discrimination on any ground and does not create a conflict between groups, which often leads to radicalization.

The definition of ‘humanity’ can be retrieved from general dictionaries: (1) the quality or state of being humane; the totality of human beings, the human race

(Merriam-Webster Online); (2) all people in the world as a whole, or the qualities characteristic of people (Cambridge Academic Content Dictionary). Falk (2009, p. 200) describes humanity as common ground for achieving the goals of global democratic society. In his opinion, humanity can be considered as “valuable source of collective identity” (Falk 2009, p. 200), mentioning also law of humanity as a postmodern notion associated with future (Falk 1995, p. 14). Based on presented approaches and including the necessity to have an inclusive subject for the current discussion about the rights of humanity, the following understanding of humanity is suggested: humanity is a global community of human beings, connected through the virtue of common human values, acting as a separate subject of global affairs. It includes past and future generations.

3 Right of Humanity to Peace and Human Rights

The human rights and peace are interconnected: human rights violations can become a catalyst or cause of armed conflict, which in turn leads to violation of human rights. This vicious circle poses a threat to the normal existence of societies. Therefore, such great importance is attached to the right to peace.

An attempt to talk about the right to peace usually leads to criticism about the unrealistic nature of this right. There is also often an argument that the war is a normal (albeit undesirable) process that is regulated by international humanitarian law (IHL). Even though war waged in accordance with the IHL mandatory rules cannot be considered a violation of human rights *per se*, it is important to note that according to art. 20 of the International Covenant on Civil and Political Rights, the propaganda of war should be prohibited by law.

In addition, aggression is recognized as an international crime in art. 8bis of the Rome Statute of the International Criminal Court (ICC) (UNGA 1998), over which the ICC has jurisdiction since 17 July 2018 (ICC 2017). Researchers have called this step one of the main contributions of humanity to the cause of protecting peace (Fernandez and Puyana 2017, p. 388). Therefore, it is not necessary to see war as a normal state of affairs and objective reality, which should be tolerated.

The anthropologist Fry proves in his works that peace is an inherent feature of human society, and war is not common in all societies (see: Fry 2011, 2012, 2014). This researcher notes that in the Western society starting from St. Augustine to Hobbes and Freud the human nature was presented as destructive and dangerous. Therefore, to prevent the destruction there is a need of a ruler who can prevent constant wars. Such ideas of human nature have formed the “Culture of War” and supported its existence and development. However, Fry shows many examples that humanity is not obliged to consider war as inevitable. People are able to create a peaceful society and make it sustainable (Fry 2012, pp. 118–120).

According to some studies, people began resorting to wars as a way of resolving disputes not earlier than 10,000 years ago, and before that there was no such practice (Fry 2012, p. 122). I agree with Fry’s opinion, that: “social changes in the human

family are a rule and not an exception” (Fry 2012, p. 125). Therefore, humanity, as a species, has the ability to evolve into a society where war ceases to be a way of solving conflicts.

In 1949 Kertesz (1949) analyzing human rights in peace treaties, pointed out that even though in the seventeenth to nineteenth centuries human rights were not explicitly mentioned in such treaties, the religious freedom or the protection of national minorities rights were mentioned, which proves that even in those times the peace was regarded as a fundamental value and a precondition for human rights protection. In his opinion, this trend continued in 1946, when the UN Economic and Social Council recommended the inclusion of human rights clauses in peace treaties (Kertesz 1949, p. 633). This example shows that the connection between peace and human rights is not a new phenomenon, but has deep historical roots.

Modern understanding of peace was precisely described by Fernández and Puyana (2017, p. 392): “peace” is a holistic concept that extends beyond the strict absence of armed conflicts; it is also linked to the eradication of structural violence that results from economic and social inequalities, and to the effective and indiscriminate respect for all human rights and development”.

This approach is crucial for understanding the right to peace, as it is simultaneously a basis for individual human rights and so-called umbrella for their protection. There is a strong causal link between the violation of international obligations to protect peace and violation of human rights. In international human rights law, a state’s *raison d’être* is to protect individual human rights. Thus, the *raison d’être* of the global community is to ensure the rights of humanity, *inter alia*, right to peace (Ivankiv 2019).

4 Right to Peace in International Documents

In international law, peace is often mentioned in the preambles, as well as in articles defining the goals and objectives of the international organizations and the world community. The issues of peace, education for peace and related topics are highlighted in a large number of resolutions and decisions of international organizations. Mostly peace is discussed in soft-law documents, as well as other documents, which recognize it as the only mean for international dispute resolution, and that it is crucial for human development.

Table 1 provides short description of the innovations for the right to peace and legal definition of peace in the analyzed below international documents.

4.1 Right to Peace in International Soft-Law Documents

One of the important elements in constructing an understanding of the approaches to international peace and establishing a relationship with human rights was the

Table 1 Chronology of innovations to the right to peace in international law

Year, body	Document	Nature	Innovation for definition of the right to peace
1975 CSCE	Helsinki Final Act of the Conference on Security and Co-operation in Europe	Soft-law	Human rights are recognized to be an “essential factor” of peace. Introduced comprehensive approach to security (para VIII).
1978 UNGA	Declaration on the Preparation of Societies for Life in Peace	Soft-law	Every nation and every human being have a right to life in a peace (art. 1). Peace is described as a necessary condition for the progress of all nations in all spheres of life. Peace belongs to different generations of humanity
1981 OAU	African Charter on Human and Peoples’ Rights	Binding for member- states	First and only binding international document recognizing peoples’ right to national and international peace and security (art. 23)
1984 UNGA	Declaration of Peoples’ Right to Peace	Soft-law	International recognition that all peoples have a right to peace (art. 3). Peace is connected with development and full realization of human rights and fundamental freedoms.
1999 UNGA	Declaration and Programme of Action on a Culture of Peace	Soft-law	Linked peace with human rights, the right to development, the principles of freedom, justice, solidarity Culture of peace is named a concern of all humanity (art. 1)
2003 AU	Protocol to the African Charter on Human and Peoples’ Rights on the Rights of Women in Africa	Binding for member- states	Specific groups (women) right to peace at binding level was defined. Women have the right to a peaceful existence and the right to participate in the promotion and maintenance of peace (art. 10)
2012 ASEAN	ASEAN Declaration on Human Rights	Soft-law	Recognized both individual and collective right to enjoy peace: every person and the peoples of ASEAN have the right to enjoy peace (art. 38)
2017 UNGA	Declaration on the Right to Peace	Soft-law	First international document recognizing directly

(continued)

Table 1 (continued)

Year, body	Document	Nature	Innovation for definition of the right to peace
			everyone's right to enjoy peace such that all human rights are promoted and protected and development is fully realized (art. 1)

Helsinki Final Act of the Conference on Security and Co-operation in Europe (CSCE 1975). Paragraph V reinforced the obligation of the participating States to use only peaceful means of settling disputes (the procedural aspect of the right to peace). Paragraph VII stipulates that the participating States recognize the universal significance of human rights and fundamental freedoms, respect for which is an essential factor for the peace, justice and well-being necessary to ensure the development of friendly relation and co-operation among themselves as among all States.

Recognizing that human rights are an “essential factor” of peace is important given the understanding of the interdependence between them, as well as through the consensus-based decision-making process in the OSCE (formerly CSCE). Obviously, this document does not refer to the right to peace, but its procedural aspect is of key importance, namely, the peaceful settlement of disputes. The use of soft-law obligations combined with a consensus-based decision-making process can play an important role in ensuring human rights in the region and monitoring their violations, including the right to peace.

Subsequently, in 1978 the General Assembly of the United Nations (UNGA 1978) first recognized the right to peace in the Declaration on the Preparation of Societies for Life in Peace. The Declaration states that peace between peoples is the main blessing of humanity and a necessary condition for development. The declaration appeals to all States and international organizations to facilitate the implementation of this right in every possible way. It should also be mentioned that the preamble to this Declaration describes the right of individuals, states and humanity to live in peace. Further on, part I § 1 also recognizes the inalienable right to life in a peace belonging to human beings and nations without any restrictions. Respect for this right is described as a necessary condition for the progress of all nations in all spheres of life. Although such a description does not mean normative recognition of the right to peace, it was the first step towards it.

Only in case of adherence to and non-violation of peace within the state and internationally, the progressive development of human rights, as well as their more effective protection would be possible. The duty to protect the right of peoples and nations to self-determination, the right of states to independence, equality, sovereignty, territorial integrity and inviolability of borders, and the right to determine their own path of development without intervention or interference in internal affairs by other states – are mentioned as a corresponding duty of states in Part I of the Declaration.

The Declaration in Part I indicates an important feature of the right to peace, namely its belonging to different generations. This feature is an essential one for the rights of humanity, which distinguishes them from the individual rights.

The next important document is the Declaration of Peoples' Right to Peace, 1984 (UNGA 1984), which states that peace is of primary importance not only to the material well-being and development of individual countries but also to the full realization of human rights and fundamental freedoms. The achievement of lasting peace is a basic condition for the survival of humanity, and therefore the Declaration recognizes that all peoples have a right to peace, and that observance of this right is a fundamental obligation of each country, which also includes the elimination of the threat of war and the elimination of the use of force in the international disputes, and settling them peacefully (Nagórny 2004, pp. 240–241 – original in Polish, own translation). In addition, § 4 calls on all States and international organizations to make efforts to implement the right of peoples to peace by adopting appropriate measures at the national and international levels.

Even though recognition of the right of peoples to peace in the Declaration is more formal and symbolic than legal, but peace as a right of peoples was enshrined at the UN level, which allowed in subsequent documents described in the following going a little further in the clearer definition of this right.

Another important document was the Declaration on Fact-finding by the United Nations in the Field of the Maintenance of International Peace and Security in 1991 (UNGA 1991). This Declaration helps understanding the tools of peace. The preamble states that the ability of the UN to maintain international peace and security depends to a large extent on adequate information, as well as on the principles of information gathering and the need for cooperation between States for creating opportunities to obtain unbiased and objective facts. From the operational point of view, it is worth mentioning the Declaration on the Enhancement of Cooperation between the United Nations and Regional Arrangements or Agencies in the Maintenance of International Peace and Security (UNGA 1995). It highlights the importance of cooperation between the UN and regional organizations, and emphasizes the role of the latter in respecting peace and security in the respective regions of the world.

Next documents in this area were the 1999 Declaration and Programme of Action on a Culture of Peace (UNGA 1999). These documents clearly link peace with human rights, the right to development, the principles of freedom, justice, solidarity, etc. It is important to draw attention to the fact that the culture of peace in art. 1 of the Declaration is a comprehensive concept, perhaps even too broad. Nevertheless, it indicates the need for cooperation between governments, civil society, educators, as well as the multidimensionality of such co-operation: from the local to the international level. The culture of peace should be concern of all humanity, united in various organizational forms (civic organizations, governments, international organizations, etc.).

An extremely important step towards the legal recognition of the right to peace was the need to adopt the Declaration on the Right to Peace (UNGA 2017). The preparatory works included many years of discussion and preparation of various text

variants. It is necessary to distinguish the expert meeting in Las Palmas, Spain, in 1997 with the support of UNESCO, which was recognized (Fernandez et al. 2017, p. 102): “the intimate linkage between human rights and peace in accordance with international human rights law”, as well as “that the human right to peace should be recognized, guaranteed and protected at the international level through the preparation and adoption of a Declaration on the Human Right to Peace”. Later that year, a meeting took place in Oslo, Norway, where the draft of the mentioned declaration was created. *Travaux préparatoires* and international negotiations ended on 19 December 2016, when the UN General Assembly adopted the Declaration on the Right to Peace (UNGA 2017) by a majority of Member States.

The researchers Fernández and Puyana (2017, p. 384), called the adoption of this Declaration “a step ... that can be meaningful for generations to come” and “would send to Humanity ... a very much needed message of peace and hope [..., and] will represent a little step forward toward the fulfilment of the solemn promises we made in 1945” (p. 385). They describe difficulties in preparing the text of the Declaration, which in the first version of Art. 1 contained a reference to the subject of the right to peace – namely peoples (Fernández and Puyana 2017, p. 384). However, under the influence of some States-parties, the UN Human Rights Council, which prepared the document, made the following formulation of the final version of Art. 1 of the Declaration (UNGA 2017): “Everyone has the right to enjoy peace such that all human rights are promoted and protected and development is fully realized”.

It is worth mentioning that Fernández and Puyana, in this connection, are paying attention to changing the wording from “right to peace” to “right to enjoy peace”. They note that the addition of the word “enjoy” changes the focus, turning the right to peace to rather the entitlement (Fernández and Puyana 2017, p. 393), and thus removes it from the catalogue of human rights. They further analyze the difference between “to have right to something” and “to be entitled to something” (Fernández and Puyana 2017, p. 393).

This distinction is significant, since the use of different linguistic construction shows that it is not about human rights, but about something else: the possibility of use, authority, etc., and therefore the standards of protection are lower, which is also indirectly according to the wording used by Fernández and Puyana (2017, p. 392): “Member States [should] take a step forward in the promotion of peace by adopting a declaration that proclaims the human right to peace, or at least the “right to enjoy peace”.

In the context of the researched right of humanity to peace, it is important to draw attention to the fact that the Preamble of the Declaration refers to the responsibility of present generations to ensure that both they and future generations learn to live together in peace with the highest aspiration of sparing future generations the scourge of war. The belonging of the right to peace to different generations is one of its distinctive features. The existence of the Declaration on the Right to Peace raises the level of discussion from a purely theoretical and philosophical to possibility of legal definition and creation of real mechanisms of protection.

The analyzed soft-law documents may seem unpractical in terms of protection of the right of humanity to peace. However, as Malanczuk (2000) accurately notes:

adoption of such agreements often contributes to the consensus, which is almost impossible to achieve by means of “hard” law only (Malanczuk 2000, p. 94 – original in Ukrainian, own translation). Due to this reason, the declarations often become the first step towards the establishment of conventional mechanisms for the inception of international protection of human rights, or to stronger regional protection. Detailed analysis is important for understanding of the development directions of international law, including the right to peace.

4.2 Right to Peace in Regional Human Rights Documents

Unlike the European Convention for the Protection of Human Rights and Fundamental Freedoms (CoE 1950), which is the main instrument for the protection of human rights at the European continent, and focuses on the rights of individuals, the African and Asian regional human rights systems attach great importance to the rights of groups, peoples and nations. They also recognize the right to peace. At the same time, the American system of human rights protection does not mention the right to peace within the catalogue of human rights (see: OAS 1969).

African System

The African Charter on Human and Peoples’ Rights, adopted in 1981 by the Organization of African Unity (the African Union since 2002) (OAU 1981), has become the first and remains the only binding international instrument that recognizes the solidarity rights of peoples, in particular the right to peace, development, self-determination, and environment. It is the essence of the African philosophy of *Ubuntu*, which considers a human being as an intrinsic part of the community (Winks 2011, p. 453).

Part 1 of Art. 23 of the African Charter (OAU 1981) stipulates that all peoples should have the right to national and international peace and security. In order to strengthen peace, solidarity and friendly relations, part 2 of this article provides for the right to shelter for everyone and the prohibition of the use of territories for sabotage or terrorist activities. In this regard the researchers point out: “The recognition of a right of the African peoples to peace should be seen as an aspiration common to all peoples of the world. The importance of this provision seems clear with respect to the direct or indirect repercussions of armed conflicts on the situation of the African peoples concerned” (Fernández et al. 2017, p. 89).

However, these researchers also question the possibility of securing the right to peace, as the African Charter does not provide sufficient guidance on the implementation of this right (Fernández et al. 2017, p. 90).

The recognition of the right to peace under article 10 of the Protocol to the African Charter on Human and Peoples’ Rights on the Rights of Women in Africa (AU 2003) is very important. It seems appropriate to quote the article:

Article 10. Right to Peace

1. Women have the right to a peaceful existence and the right to participate in the promotion and maintenance of peace.
2. States Parties shall take all appropriate measures to ensure the increased participation of women:
 - a) in programmes of education for peace and a culture of peace;
 - b) in the structures and processes for conflict prevention, management and resolution at local, national, regional, continental and international levels;
 - in the local, national, regional, continental and international decision-making structures to ensure physical, psychological, social and legal protection of asylum seekers, refugees, returnees and displaced persons, in particular women;
 - in all levels of the structures established for the management of camps and settlements for asylum seekers, refugees, returnees and displaced persons, in particular, women;
 - in all aspects of planning, formulation and implementation of post conflict reconstruction and rehabilitation.
3. States Parties shall take the necessary measures to reduce military expenditure significantly in favor of spending on social development in general, and the promotion of women in particular.

The need for a separate recognition of the right to peace in the Protocol on the Rights of Women to the African Charter (AU 2003) is conditioned by the increased vulnerability of women to the violation of the right to peace. Women suffer the most from the so-called “unconventional wars”, because they run right through the village and their accommodation. In addition, the statistics of rape in armed conflicts of recent decades in Africa is alarming (The Economist 2011). Women, in addition to the losses everyone experience, are subject to suffering from sexual violence (The Economist 2011).

For these reasons, the recognition of women’s rights for peace in the Protocol to the African Charter (AU 2003) is extremely important. Studies also indicate that rape continues after the end of hostilities (The Economist 2011). It reaffirms the thesis that the peace is not a mere absence of war, but a complex societal phenomenon. Article 10 of the Protocol refers to the need to take measures to involve women in education about the culture of peace and the restoration of peace in general. They play a central role in the struggle for peace (Peace Direct 2017), since they are the most affected by its absence.

The right to peace in the understanding of the African doctrine of human rights is a collective right and applies to peoples and groups, in particular women. The African continent is suffering from wars and internal armed conflicts far more than any other part of the world (Dörrie 2016). Perhaps it is the reason why the peace is a recognized right in a binding document.

Asian System

Association of Southeast Asian Nations (ASEAN), which brings together ten countries (Philippines, Malaysia, Indonesia, Singapore, Thailand, Brunei Darussalam, Vietnam, Laos, Myanmar, Cambodia) (ASEAN n.d.) on 17–18 November 2012 adopted the ASEAN Declaration on Human Rights (ASEAN 2012). Article 38 of this Declaration reads as follows:

Right to Peace

38. Every person and the peoples of ASEAN have the right to enjoy peace within an ASEAN framework of security and stability, neutrality and freedom, such that the rights set forth in this Declaration can be fully realized. To this end, ASEAN Member States should continue to enhance friendship and cooperation in the furtherance of peace, harmony and stability in the region.

It is worth noting that the right to enjoy peace has been mirrored from this ASEAN Human Rights Declaration to the UN Declaration on the Right to Peace (Fernandez et al. 2017, p. 97)

The right to peace in the ASEAN Declaration (ASEAN 2012) belongs to both individual and peoples, thus it has a dual nature. This is important for further analysis of the subjects of the right to peace. In addition, the wording of art. 38 points to the causal link between the right to peace and human rights (ASEAN 2012): “Every person and the peoples of ASEAN have the right to enjoy peace . . . that the rights set forth in this Declaration can be fully realized”. The understanding of the right of humanity to peace must be grounded on this connection and be viewed as a necessary condition for the full realization and inviolability of human rights and fundamental freedoms.

The analyzed regional human rights documents show the different approaches to the definition of the right to peace and, in particular, its subjects. The lack of consensus on this issue is not a sign of the insignificance of this right, but rather that the concept of the right to peace is currently at the stage of active development. Therefore, its research is extremely relevant for the development of the doctrine of human rights, as well as international development in general.

5 Interdependence of Sustainable Development, Human Rights and Right of Humanity to Peace

The sustainable development as a recognized goal of humanity is highly dependent on the security and peace, and at the same time provides ground for the better protection of human rights. In the analyzed soft-law and regional human rights documents, right to peace is rightfully linked with human development, security but also effective justice and the rule of law.

In this regard, it is particularly important to refer to the Goal 16 of the UN Sustainable Development Goals (SDGs) (UNGA 2015), which stands for promoting peaceful and inclusive societies for sustainable development, providing access to justice for all and building effective, accountable and inclusive institutions at all levels. This complex legal construct includes many sub-goals and indicators, describing various layers of peaceful societies, or as argued in this chapter – the right of humanity to peace.

Sub-goals 16.6–16.8² stress the need for development and improvement of institutions at all levels. It is very much in line with the current research in the field of effective human rights protection that requires well-functioning institutions. Their stability and resistance to influence from external forces, as well as their ability to respond in a legal and legitimate manner to unlawful interests of certain groups, determines how successful the state will be in human rights protection, and preserving peace and security.

This approach can be extrapolated to international institutions, which essentially create a global government. Szpak (2017), in this regard, talks about international solidarity as a moral and legal principle for the SDGs and international institutions in general. This is also covered by sub-goal 16.8, which includes an indicator of proportional membership and voting rights of developing countries in international organizations. Equal representation of different regions in the global institutions will create the possibility of dialogue and means to peaceful resolution of conflicts through negotiation. The need to change the way of governance is precisely described by McInerney (2005, p. 114): “In a world of increasing complexity, traditional approaches to governance no longer work”. The traditional international institutions often fail their role to secure international peace, which leads to what is called a ‘violent peace’ (Arrighi 2015, p. 97 - original in Spanish, own translation). This applies in particular to the cases closing borders, economic blockade, mutual military build-up (Arrighi 2015, p. 97), which cannot be called peace in the full sense. Arrighi (2015, p. 97) calls the weakness of public authority and their inability to provide services to all citizens, including international organizations, one of the reasons for ‘violent peace’.

The right to peace is violated mainly in regions where human rights protection is extremely poor, and the responsible actors do not perform their functions properly (Arrighi 2015). Analysis of different international reports (Schwank 2014; OHCHR 2019; Freedom House 2018; Amnesty International 2018, etc.) suggests that armed conflicts arise primarily in states or between the states that have not established an adequate system of the minority rights protection. The right to a healthy environment is violated where the control mechanisms for polluting industries are lacking or weakened by corruption (see: Orellana 2018; Peters 2018).

The right to sustainable development is violated when the ruling elites of states or regions resort to corruption, thereby violating the ability of peoples to develop. Transparency International (2017) reported that “corruption, foreign bribery, tax evasion and related illicit financial flows which collectively deprive developing countries of around US\$1.26 trillion per year”. Therefore, the connection is also reflected in the SDGs. Researchers draw attention to the correlation between the level of freedom of the society and the economic development of the state: a higher

²SDGs 2015: Sub-goal 16.6 Develop effective, accountable and transparent institutions at all levels; Sub-goal 16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels; Sub-goal 16.8 Broaden and strengthen the participation of developing countries in the institutions of global governance.

level of freedom and respect for human rights means higher economic indicators of the state, which leads to a higher index of human development.

Davis (2013) mentioned that the market economy and human rights install the limitations at the state authorities and allow broadening the rights and opportunities for individuals: they are the two sides of the same coin (Davis 2013). He summarizes that the functional rule of law and the independent judiciary, which complies with respective legislative provisions, have a positive effect on the economy and human rights protection (Davis 2013). In turn, respect for human rights is essential for the prevention of conflict and for sustainable development. Sub-goal 16.3 refers to the promotion of the rule of law and ensuring equal access to justice for all, connecting these purely legal concepts with sustainable development. This pattern is described in various studies, in particular, the research of the Danish Institute for Human Rights states the following (Marslev 2016, p. 7): "...promotion and protection of human rights related to discrimination and inequality hold significant potential to address some of the root causes of conflict and instability. In particular, the promotion of human rights may lower the risk of conflict by ensuring equal and non-discriminatory access to social services and political participation, and by providing vulnerable groups with mechanisms of accountability and grievance redress".

Indeed, the balanced development of a society where all members have equal access to basic public services without being subjected to discrimination on any ground, helps avoiding tension and conflict. Such conditions provide for more balanced development, because conflicts and unrest require reaction such as spending from public budget for military needs, conscription, restructuring of the destroyed infrastructure, conflict-related death and injuries, refugees and IDPs problems, which limit opportunities for development. The indicator 16.1.2 of the SDGs refers to reducing the number of the conflict-related deaths, which proves once again the connection of the peace and development capacity.

In Freedom House Report (2018) the classification of the states to free, partially free, and not free status was presented. Schwank (2014) presented the world map of political conflicts with statistics on the prevalence of armed conflict in the world. The correlation between the level of freedom and conflicts suggests the following: the less the rights are protected, the more significant and violent conflicts arise in the area. There is also a reverse correlation, namely: human rights are usually violated because of the conflict. It shows once again the interdependence of right of humanity to peace and human rights. Hence, regardless of what actually comes first, better and more effective protection of both human rights and rights of humanity helps preventing armed conflicts.

There is a similar relationship between the level of human rights protection and the right to development, although it is more difficult to trace it in statistical data. In the ranking of countries with the highest indices of the index of human development are those with a high level of human rights protection. For example, in 2018, Norway, Switzerland, Australia, Ireland and Germany led the UNDP ranking for the Human Development Index (UNDP 2018). These countries also have high rates in all spheres of human rights protection, according to the UN, Amnesty

International, Freedom House, etc. (OHCHR 2019; Freedom House 2018; Amnesty International 2018). On the other side of the international rankings there are the countries whose population is suffering from human rights violations, armed conflicts, environmental pollution, and accordingly the low level of human development (for example, Niger, Central African Republic, South Sudan, Chad and Burundi).

The SDGs play crucial role in systematizing the protection of the rights of humanity as well as coordination of international efforts in this area. The rights of humanity create a basis for the effective functioning of human rights and an umbrella that protects them from violations, therefore their protection will improve the situation with human rights. Needless to remind, that the dependence is reciprocal. Even though there remains a need in more profound research and advocacy to create the effective mechanisms of implementation of the rights of humanity, still protection of both sets of rights would lead to improvement in each one of them. The sustainable development, as the one of humanity's rights, can only be achieved through thorough protection of the right of humanity to peace and individual human rights.

6 Conclusion

The concept of the rights of humanity as continuation of the human rights of the third generation, including right to peace, healthy environment and sustainable development is a response to growing interdependence of global problems. These rights are defined due to specific needs of societal changes, where the humanity has become a subject of social relations. The international community has the responsibility to protect these rights as they are crucial for sustainable development and human rights protection.

Recognizing the right of humanity to peace will allow taking into account global co-dependency and avoiding unequal protection or discrimination on any grounds.

The recognition of the right to peace in the Declaration on the Right to Peace was the first step towards its recognition at the international arena. It can be advised to propose the recognition of this right as a right of humanity in future international instruments.

Sustainable development goals can be considered a procedural aspect of the right to sustainable development, as well as joint action plan to fulfil the rights of humanity, including the right to peace. Ensuring sustainable development in different parts of the planet, avoiding disparities in opportunities and living conditions, as well as protecting the environment and guaranteeing human rights, are simultaneously the goals of sustainable development and the essence of rights of humanity.

There is mutual dependency between the protection of rights of humanity and human rights. The protection of the latter ensures a balanced development of society and helps avoiding conflicts. In turn, the protection of the former, especially the right to peace, creates a potential for more sustainable development.

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NGOs as Loudspeakers: Potential Role of NGOs in Bridging the North-South Gap in International Environmental and Sustainable Development Law Making Process



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1 Introduction

State and non-state actor dichotomy has played a central role in the development and expansion of international law (Nijman 2010). Being a branch of public international law, international environmental law borrows the main tenets of public international law, such as the fact that states are the central actors of international law-making and implementation (Chinkin et al. 1998). However, the reality within the international arena is quite different from the theories. Non-state actors have always been an intrinsic part of the environmental law-making process (Sand and Peel 2018; Peters et al. 2009; Charnovitz 2006). However, as the law stands, only states are recognized as having international legal personality. Despite the lack of international legal personality, non-state actors and specifically non-governmental organizations (*hereinafter* NGOs) have contributed progressively through their lobbying efforts and mobilization (Sands and Peel 2018). The significant role attached to the NGOs in the environmental issues is identified in the Rio Declaration and Agenda 21 (UN 1992), which identify the relevance of NGOs in building partnerships. Rio +20 Summit in its report titled *The Future We Want* (UN 2012), highlighted the need for broad public participation and access to information and judicial and administrative proceedings as essential for the promotion of sustainable development.

Most of the existing literature in the relevant area is based on the theme of North-South dimension in global governance (Rajagopal 2003). There is a dearth of literature on the potential contribution of NGOs to raise the Southern voice at international law-making forums on sustainable development. Equity needs to be derived, not only from the equal distribution of resources, but also from the North

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accepting sufficient representation of the South at global law-making forums in such ways that are fairly reflected in their outcomes (Cassese 1986).

The underlying premise of this chapter is that Southern concerns have been consistently marginalized in international environmental law processes as a result of the resource deficiency, lack of bargaining power of the Southern states resulting in its inability to exert significant influence in the Northern dominated global legal system (Anand 2004). From the perspective of the South, many sustainable development negotiations led by the North are unfair and inequitable (Najam 2005). This is evident from the law-making process within the United Nations, the constitution of the Security Council and the International Court of Justice. This work will be looking mainly at how to mitigate North-South dimension in the international environmental and sustainable development law-making process through the use of NGOs.

This chapter is structured as follows: the first section evaluates the role of NGOs in law-making and environmental governance and connects this role with promotion of sustainable development. Secondly the chapter will evaluate what is meant by southern concerns for the purposes of this research, which would lead to the discussion on the need for inclusion of southern voices in the international law making and governance aspects. The third section of the research sets out the role of NGOs in sustainable development. The fourth section analyses the existing legal framework in relation to NGO participation in environmental and sustainable development law-making process. The purpose of this section is to evaluate whether international law legal framework adequately recognizes the role of NGOs in law-making and to assess whether within the current framework the capacity of the NGOs in bridging the gap in representing the concerns of global North and South in the law-making process related to environment and sustainable development. Finally, the chapter discusses a framework for the enhanced role of NGOs in promoting the southern concerns and the research links the discussion to sustainable development.

The findings of this paper are based primarily on an in-depth literature review. Methodology embraces an interdisciplinary approach to international law and international relations in order to establish a broader and more contemporary application of traditional international legal forums. Hence the scope of the NGOs evaluated in this paper is limited to the international level. The centrality of the law in defining standards and obligations related to sustainable development will be analyzed through the Third World Approach to International Law (TWAIL). TWAIL is not a political strategy for international law engagement; it is rather defined by a common set of concerns that the 'third world states' attempt to raise from the 'global south' (Eslava and Pahuja 2012). This TWAIL approach is used in the sense of forming the decolonization and anti-imperial efforts and represents the aspirations of the 'third world' states such as: full respect for the principle of sovereign equality of the states, non-aggressive international relations and limitation of use of force, global justice through progressive development of international law, its structures and processes (Baxi 2006). This TWAIL approach is used due to the focus on the concerns of the global South that this theory attempts to raise and hence can be used as a justification for the premise of this research, regarding the role of the NGOs in law-making. This is because, as Eslava and Pahuja (2012) indicate, TWAIL

attempts to unpack the dichotomies in traditional international law theory using the critical law theory, feminist theory, Marxism, post-colonial studies etc. and goes beyond the concerns of north and south division to critique and reform international law.

This research stresses the need for the traditional framework of international law-making process to be reconsidered and replaced by a structure whereby NGOs represent Southern concerns in order to face the challenges brought about by the rapid changes in globalization (Charnovitz 1997), in the law-making process related to environment and sustainable development. This is because the southern states by themselves do not possess the bargaining power and the negotiation power necessary to introduce their concerns into the law. Another reason why NGOs can play an important role is that they occupy a unique space in the international law-making scene, which enables them to act as an equalizer in balancing the south-north concerns. However, it is necessary to develop appropriate yard-sticks for ensuring that the networks abide by the principles of legitimacy and accountability. Therefore, this research suggests that, with the caveat that they meet acceptable standards of performance, transnational NGO networks could prove invaluable in mitigating the disadvantages faced by the South, which have been so apparent in its past participation in environmental governance (Tusikov 2017).

Sustainable development specifies measures and standards for both the North and the South. However, the work argues that the impact made by these international standards in each country could be varied depending on the capabilities of the countries. For this purpose, the work will draw on two important factors. Firstly, the Southern concerns should be considered equal in terms of the sovereign powers at the international law-making forums (such as the representation at the UN Security Council and the powers exercised by the global North being historically unbalance) to that of the North at the law-making process. This chapter suggests that such inequalities can particularly hamper the achievement of sustainable development, since even though the southern needs might have been considered, the southern capacity to implement the goals and targets are not adequately considered within the process. Secondly, the work highlights the role of non-traditional actors such as NGOs to bridge the gap between North and South in this aspect (Willems 2000).

2 International Law-Making Process, Environment and NGOs

The role of the NGOs in relation to the environment can be identified through their potential to influence the international law-making process and in environmental governance. This chapter focuses on the role of NGOs in these two aspects with specific reference to the concerns of the global South and their potential to implement sustainable development. Therefore, section will firstly provide the definition

of NGOs adopted by this research, the status and role of NGOs at an international level and how proliferation of NGOs has led to their enhanced role in environmental matters.

2.1 What Is an NGO?

It is difficult to pin-point a specific form or structure of an NGO. Their activities are widespread, and their structures vary from formal organizations to networks with or without a formal structure. There is no agreed definition of the NGOs and the attempts at such by scholars have focused on the composition, role and function, powers and legitimacy and accountability or the geographical scope. For the purpose of this research, the definition of NGOs by Charnovitz (1997, p.186) is used, which states that NGOs are “groups of individuals organized for the myriad of reasons that engage human imagination and aspiration. They can be set up to advocate a particular cause, such as human rights, or to carry out programmes on the groups, such as disaster relief. They can have membership ranging from local to global.” This definition is used due to the fact that highlights the polycentric and multi-focal nature of NGOs, which is a key feature of the NGOs that operate in international law making and standard-setting processes. Varella (2013) points out that the term non-government, having a qualifying adjective, points to the difficulty in defining NGOs, and lack of clarity in terms of the space and position held by NGOs in the international arena. The European Convention on the Recognition of the Legal Personality of International Non-Governmental Organizations, (CoE 1986; Article (1) provides, for the conditions to recognize an NGO, including that it should be not-for-profit, and that there should be a constitutional act recognized by domestic law, and a presence in at least two countries. When the international requirement is taken out, the common points that are useful are the non-profit objective and common goals. One of the challenges that Varella (2013) notes in relation to the NGO definition is whether profit-making entities that work on environment-related issues should be recognized. Such a position is not advocated in this chapter, due to the potential for confusion regarding the identification and characterization of the actors. Therefore, the useful characteristics to recognize an NGO would be (1) a legal entity, (2) for a non-profit objective (3) with common goals.

2.2 Status and Role of NGOs in the International Level

NGOs in the environmental field are wide-ranging and ever-growing, they are active of different levels of geopolitical environmental law-making and governance and on different thematic issues. Hence the NGOs are active on in the local, grassroot, national and international levels and in fields such as science, health, sustainable development, climate change, environmental protection, biosafety, disasters and

conflicts, biodiversity and ecosystems and a host of other related themes. This proliferation of NGOs in many of the different areas have had significant impacts on the law making and legal principles in the international and national levels. A multidimensional framework of governance includes states, intergovernmental organizations, non-governmental organizations (NGOs), private entities and other parties of civil society (McGann and Johnstone 2006; Clarke 1998). This proliferation of NGOs has resulted in NGOs becoming “decisive actors” in the formation of international law (Varella 2013), and in increasing the participation, creation and implementation of international law and especially international environmental law (Sands and Peel 2018). However, in the dogmatic international law theory, NGOs are still not regarded as subjects of international law with international legal personality, even though international law has made certain progress towards identifying the need of non- state actors such as NGOs to participate in the process and through processes such as multilateral environmental agreements (Varella 2013; Zovko 2005).

Varella (2013) notes that despite the lack of international personality, one of the crucial roles of NGOs is to counterweigh the North-South inequality. In this regard, the NGOs support the concerns of the South and provide more balance. It is noted that NGOs can act to defend the common concerns such as human rights and environmental protection (Boyle 2012; McBride 2004). While bringing forth the southern concerns to the international fora, NGOs can also encourage and even force the south to discuss environmental matters, encourage implementation of the laws and policies.

In relation to the NGO role in international law-making, Sands and Peel (2018, p. 89) identify three ways in which NGOs contribute towards the development of international law in general:

1. through identification of issues requiring international legal action;
2. participation as observers in international organizations and treaty negotiations; and
3. participation in the national and international implementation of principles and rules adopted at regional and global levels.

In the field of environmental law due to the global and complex nature of the problems that the law is expected to address, legal and policy making tend to be polycentric, and largely based on soft law, combined with international and transitional law-making and governance. This chapter limits the discussion to international level.

2.3 NGOs and International Environmental Governance

Environmental governance was not a priority within the international relations or international governance system for a long time. The United Nations Conference on Human Environment held in Stockholm, in 1972 and its outcomes such as

the establishment of the United Nations Environment Programme and the United Nations Declaration on Human Environment brought the first concerted effort by the global leaders to achieve better environmental standards. Bodansky (2010) notes that Stockholm conference is significant due to its lasting impact on global environmental governance. However, at this time, states were still the focal point in governance systems contemplated. With the rise of neo-liberalism, the regulatory structures of the states have changed (Broomhill 2002; Dominguez and Flores 2018). Governments are increasingly finding it difficult to address the modern, global concerns within their traditional, hierarchical administrative structure (Vallejo and Hauselmann 2004; Pereira 2015). With these complexities, the global governance structure is shifting towards soft law based, multi-stakeholder governance systems where the traditional administrative agencies are no longer at the center (Vallejo and Hauselmann 2004; Dominguez and Flores 2018; Chiu 2018). This decentralization of global environmental governance has led to increasing the importance of the role played by the NGOs and giving them institutional significance (Raustiala 1997).

The current global environmental governance system, which involves various processes, procedures, institutions and international treaties, determines how decisions are taken in the light of managing resources and interests, how conflicts are resolved and how the different actors arrive at agreement in relation to NGO role in environmental governance, Gemmill and Bamidele-Izu (2002, p. 1) have noted five main roles that NGOs can play, namely: “collecting, disseminating, and analyzing information; providing input to agenda-setting and policy development processes; performing operational functions; assessing environmental conditions and monitoring compliance with environmental agreements; and advocating environmental justice.”

In these roles that the NGOs play, however, southern concerns have been consistently marginalized due to South's material weakness and inability to exert significant influence in the Northern dominated global system. As a consequence of a long historical process, several political, economic, military, social and cultural differences have emerged between North and South (Williams 1993, p. 9) creating a “North-South dimension”, to global environmental governance. Through the lens of TWAIL north represents the industrialized developed countries and the South represents developing third world countries (Baxi 2006). The paper argues that differences between the two groups play a crucial role in global governance, where the global decision-making is happening. The South is critical of the imposition of Northern priorities over immediate concerns of the South that happens as a result of several reasons including the dominance of western science and research, handicap negotiating skills, lack of expertise, resources and technology (Anand 2004). From the perspective of the South, many environmental negotiations led by the North are unfair and inequitable (Gonzalez 2015; Beyerlin 2006).

3 Legal Framework for NGO Participation

There are the four main ways that NGOs maintain formal cooperation with the UN within the existing legal format (Ripinsky and Bossche 2007, p. 19): to obtain consultative status with ECOSOC; to get accredited to particular UN conferences (such as the COPs under the UN framework); to establish relations with particular UN programmes or specialized agencies, and; to become associated with the UN Department of Public Information. Although NGOs are not treated as formal subjects within international law, these four methods offer considerable opportunities for participation in the international negotiations with limited capacities. Among many progressive developments in NGO participation in the international legal system, the most commonly discussed and most influential, internationally agreed provision is contained in Article 71, Chapter X of the UN Charter (UN 1945), which states:

[T]he Economic and Social Council may make suitable arrangements for consultation with nongovernmental organizations which are concerned with matters within its competence. Such arrangements may be made with international organizations and, where appropriate with national organizations after consultation with the Member of the United Nations concerned.

Article 71 also carefully selected the words “consultative status” to signify NGO’s level of access regarding decision-making, consequently, the Article only guarantees consultative and not participatory status. As Willets (2000, p. 191) observes: “The term consultative status was purposely chosen to indicate a secondary role – being able to give advice but not being part of the decision-making process”. Later, however, several amendments were made in order to increase NGO’s influence within the consultative status framework. Later, as a result of the enormous impact made at UNCED in 1992, the NGOs worldwide showed they were capable of greater levels of cooperation, together with states, in international decision-making. Consequently, the international community granted them a higher status, thus, both states and international organizations, became the beneficiaries of the greater accessibility that had been opened up for NGOs (Beyerlin 2006).

One of the mechanisms for engagement of the NGOs is through the establishment of consultative relationships between UN and NGOs (Boyle 2012). In the case of national organizations, consultation with concerned member states is required and any NGO that applies for consultative status should attest that it has been officially registered with the appropriate authority for at least two years from the date of receipt of the application by the Secretariat (ECOSOC Resolution 1996).

Further, the establishment of general consultative status enhanced the ability of NGOs to influence UN agendas and it is organizations which have been accorded general consultative status that are mainly concerned with ECOSOC and its subsidiary bodies (ECOSOC Resolution 1996). Therefore, according to the report titled ‘Uniting for the 2030 Agenda for Sustainable Development -Best Practices of NGO Involvement (2017) and the requirements set out in the UN website for NGOs to apply for consultative status at the UN these NGOs are required to demonstrate that

they have substantive and sustained contributions to make by representing their concerns and in furthering UN objectives in international, economic and social cooperation.

Special consultative status will be given to organizations with special competence in areas that only cover a few of the activities that come under the ECOSOC. In relation to the NGOs with general consultative status, these organizations cover a more limited scope of subject area within ECOSOC. By the time of the introduction of the provisions on consultative status to the NGOs in 1968, the expectation on NGOs was affected by the decolonization process. The Resolution from 1968 emphasized some significant areas of international politics that occurred during the era immediately following the decolonization period, when NGOs with special consultative status were encouraged to promote areas such as human rights, fundamental freedom and timely issues, such as combating colonialism, apartheid and racial discrimination (ECOSOC Resolution 1968).

NGOs can engage in another manner through the status of roster. That is similarly provided for in Paragraph 19 of the ECOSOC Resolution 1296 (1968) and Paragraph 24 of another Resolution from 1996 (UN 1996). Resolution 1296 provides for roster status to NGOs that do not qualify under general or special consultative status, but may still be able to contribute to the work of the Council, or its subsidiary bodies, or other UN bodies, within their competence. NGOs in consultative status with a specialized agency or a United Nations body can also be included in the roster.

An NGO can be listed in the ECOSOC Roster in three ways: firstly, on the recommendation of the Committee on Non-Governmental Organizations, secondly, by action of the Secretary-General and thirdly, by virtue of their consultative status with specialized agencies or other UN bodies. The privileges enjoyed by NGOs listed in the Roster are:

1. the provisional agenda of the Council and its subsidiary organs will be communicated to them
2. the provisional agenda of sessions of commissions and other subsidiary organs of the Council will be communicated to them,
3. they may have representatives present at public meetings of the Council and its subsidiary bodies if the discussed matters are within their field of competence,
4. they may submit written statements to the Council, however, only on invitation by the Secretary-General, in consultation with the President of the Council, or the Council or its Committee on Non-Governmental Organizations and
5. they may submit written statements to a subsidiary organ, however, only on the invitation of the Secretary General or the subsidiary organ itself (1993/31 ECOSOC Resolution).

The UN framework on consultative status of NGOs, which provides the primary basis for NGO participation in UN negotiations, has also been guidance for many other international and regional provisions in different international documents on NGO participation. With the introduction of supplements to Article 71 of the Charter by various Resolutions provisions in, the participation space within the legal framework for NGOs gradually expanded and this was visible in most of the conferences

taking place during and after the 1990s. The regular presence and valuable contributions of NGO in these conferences demonstrate the necessity for broader participation in global governance to the extent where a standard procedure for accreditation for conferences was introduced. This development increased the possibilities for the participation of NGOs in all UN conferences without them having to follow the same ECOSOC procedures.

Many Southern States are unable to meet the standards of international agreements for several reasons, which include the lack of finance and/or expertise or because of their different developmental priorities; as Karen T. Litfin (1998, p. 7) states:

Many “sovereign” Third World states even lack sufficient funds to send delegates to international treaty negotiations. Thus, a formalistic understanding of sovereignty as constitutional independence offers little insight into the environment/sovereignty nexus, either in the Third World or elsewhere.

In this sense, NGO participation might be considered to be an incentive for Southern governments to face up to the challenges of becoming involved in international decision-making. However, the limit of NGO participation is formally decided by the legal boundaries which are strictly maintained by traditional state-centred legal interpretations, as mentioned earlier.

The research recommends alternative arrangements negotiated by an international NGO network (ex: Climate Action Network (International) that combines NGOs working on climate change in different countries and regions) that will be in a better position to offer a variety of options. This is due to the fact that such a network provides for a multidimensional phenomenon by encompassing local, national, and supranational systems of environmental governance; lack of bureaucratic ties; lack of nationalistic ties; the great number of NGOs in existence and their diversity which is particularly important. The NGOs that have international reach play a key role in shaping attitudes and opinions, they can also be seen as agents in assisting and encouraging the governments to implement and give effect to international agreements. For this recommendation, as it explores the possibility of international NGOs voicing the developing countries claims and concerns in global environmental negotiations (Gemmill and Bamidele-Izu 2002). In addition to this, the recommendation argues for the development of a greater vision in order to enhance the legitimacy of NGO participation. This is because Beyerlin (2006, p. 281) has noted that because its basis relies on principles of equity, fairness and justice in global governance, it has explored the different dimensions of NGO networks giving close regard to their ability to establish legitimate representation of Southern environmental claims (Bodansky 2010; Beyerlin 2006). Such legitimacy means that the NGOs are allowed to participate in the negotiation process in a more direct manner, rather than the indirect, informative, background role that they play currently.

While there are challenges in such a format due to the diversity of the states that fall into the southern cluster, and this diversity creates nuanced differentiation in their position and demands in relation to international environmental law.

4 Southern Concerns and NGOs

North-South dimension in global environmental governance has not significantly changed, despite the various efforts that have been attempted by the Southern countries. The South has not yet succeeded in establishing equal, fair and justice grounds with the North in global environmental decision-making forums. Karlsson (2002) notes that this north-south divide is made out of multiple and multi-layered gaps in terms of basic environmental and social data, monitoring the changes and assessment, capacity and resources, and research.

The North-South dimension explains the reasons for glaring disparities in global environmental governance. The primary end-goals of Southern agendas, which are based on economic growth, poverty reduction, and industrial transformation, (Timmons and Parks 2007, p. 51) tend to focus more on immediate environmental necessities, such as safe drinking water, population growth and desertification. By contrast, the North has passed the stage where policy making is guided primarily (by such developmental considerations. Consequently, the developed countries tend to engage over wider global issues, as Bodansky (2010, p. 19) explains:

In part, economic development may help explain the growth of environmental awareness. As societies grow richer, they can afford to focus not just on the provision of basic human necessities, such as food and housing, but also “luxury goods,” such as a cleaner environment.

North-South division is based on environmental, economic and social criteria. The South is rich in natural resources and bio-diversity, whereas the North wields the most financial, military and political power. In addition, Northern dominance in scientific and expertise in environmental research contributes heavily to regional inequalities in global environmental governance (Karlsson 2002). There are knowledge and technical barriers that prevent South from participating effectively and actively in global efforts. (Anand 2004, p. 43) notes that, “dominance of western science and research, [the] imposition of the western agenda and priority setting according to the Northern concerns [is the] unfair conditionality attached to aid and technology transfers”. Consequently, decisions made regarding the world’s natural resources display the uneven power relations between the environmentally-rich South and the politically and economically-rich North.

By the time of the development of Brundtland Commission report, *Our Common Future* (WCED 1987), there were more emphasis on the improvement of economic and trading standards of the south. This, coupled with the shift of focus towards environmental governance, increased the relevance of north-south dimension. *Our Common Future* report linked environmental concerns with economic growth and introduced a paradigm shift in both economic and environmental decision making and governance. This shift influenced the southern concerns, from being entirely focused on development towards sustainable development, which incorporates the equitable, fair and just model of north-south environmental governance (Banuri 1999; Bell and Cheung 2009).

With this shift, international declarations and reports increasingly paid heed to the southern concerns and the needs of the developing countries. For example, Agenda 21 recognizes the need for governance that is transparent and democratic in nature, by guaranteeing a balanced and equitable representation of interests of developing countries (UNGA Resolution 1997).

Today, there is increasing recognition that international environmental governance system should provide a governing structure to balance the anthropocentric and ecocentric approaches, since both are required for equitable, fair and just decision making (Bodansky 2010). With this objective, international environmental law has developed international principles to guide environmental decision making and governance. In this section three of these principles are discussed. They are: state sovereignty, right to development and common but differentiated responsibilities.

This chapter focuses on these concepts as general principles of international law. As noted by Anand (2004, p. 123) the general principles of international law have been created to determine equity, fairness and justice fail to fulfill their purpose because in global negotiations “[they] would be guided by principles of power politics with the industrialized North manipulating the international legal framework to forward their agenda in the name of justice”. Parks and Roberts (2006) note that there is a phenomenon of ‘triple inequality’ that has led to injustice in climate change negotiations. They are: unequal distribution of impacts, unequal responsibility for climate change and unequal cost for mitigation and adaptation. Gupta (1997, p. 44) places perspective of the northern countries on climate change demands on two spectrums: the lowest is “problems with the organizational setting within which the rules and processes are adopted and projects selected,” and the highest is “problems with the ideological basis within which the organizations operate and influence the rules, norms, processes and projects”.

4.1 State Sovereignty

International law has from its inception highlighted the right of all states to political determination over their own affairs, highlighting the concept of non-intervention of one state in the internal affairs of another (Noelkaemper 2009, p. 313). In environmental law context this is reflected in the concept of state sovereignty over its natural resources. This concept has moved from the notion of absolute sovereignty over natural resources within the state territory towards a more limited notion of sovereignty where by the states are placed under different obligations in exercising their sovereign power.

Trail Smelter (United States vs. Canada 1938), resulted in reshaping of the idea of absolute sovereignty over natural resources towards a more nuanced version highlighting the responsibility of the sovereign states in the use of their natural resources. Hence, states are entitled to make decisions about their natural resources as long as they do not put other states in danger.

Hard law international development is yet to be made in terms of imposing limits on the state sovereignty over its natural resources. However, there is number of soft law developments that have significant influences on the international environmental decision making and governance structures. Principle 21 of the Stockholm Declaration (UN 1972) recognizes that:

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

This Principle was incorporated into Principle 2 of the Rio Declaration (UN 1992), which says that states have the sovereign right to exploit their own resources according to their own environmental and developmental policies. It further says that they also have a responsibility to ensure that no harm is caused to the environment of other states, or areas beyond their natural jurisdiction.

In many instances, international environmental standards that have been established with a biocentric focus often clash with the anthropocentric focus of the South. The international criteria limit a state's ability to exercise absolute sovereign authority over its natural resources. The 'permanent sovereignty and non-intervention over natural resources' principle was accepted in two UN declarations in 1965.

These are the Declaration on the Inadmissibility of Intervention in the Domestic Affairs of States and the Protection of Their Independence and Sovereignty, and the Declaration on Principles of International Law Concerning Friendly Relations and Co-operation Among States in Accordance with the Charter of the United Nations. These declarations highlight equality among states based on state sovereignty, and that one state cannot exploit another state's natural resources within its own territorial boundaries. These developments highlight the southern claims for sovereign rights regarding their environment and resources. This is because the South demand for sovereignty over its natural resources is inextricably linked to its right to development.

4.2 Right to Development

The next principle to be evaluated within this section that embodies equity, justice and fairness in the north-south dimension is right to development. The post-colonial demand of the South was mainly focused on economic development and environmental protection was viewed as an impediment to this goal. It was not until the Brundtland Commission Report (WCED 1987) that the link between economic development and environmental protection was highlighted through the concept of sustainable development.

The Declaration on Right to Development recognized that it is an inalienable human right. Article 5 of this Declaration provides that states should take the necessary steps to eliminate all sorts of discrimination, including “[. . .] colonialism, foreign domination and occupation, aggression, foreign interference and threats against national sovereignty, national unity and territorial integrity [. . .]”.

The right to development was also highlighted in the Rio Declaration (UN 1992), which recognizes states’ sovereign rights to exploit their own resources according to their environmental and developmental policies. Later, the Johannesburg Declaration (UN 2002) highlights in Article 5 the need for a collective effort in achieving the three pillars of sustainable development: economic development, social development and environmental protection.

These provisions within the declarations reflect the intrinsically linked concerns of the South being attached to the right to development, and how the right to development is seen as embodying the demands of the South.

4.3 Common but Differentiated Responsibility

Moving on to the third general principle that elaborates on the south concerns, it should be noted that it is a highly contended principle within the global international law-making fora. Principle 7 of the Rio Declaration indicates that common but differentiated responsibility highlights that responsibility for taking actions to overcome and prevent further environmental damage should be differentiated based on the state’s contribution to past and present pollution (UN 1992). The North should take responsibility and leadership in implementing international environmental standards and policies because they are the main contributors of the global environmental crisis (Anderson and Hey 2005, p. 2016). This principle is premised on the multilateral environmental agreements (MEAs) that incorporate provisions to assign more commitments to the north in terms of implementation of environmental policies. The United Nations Framework Convention on Climate Change – UNFCCC (UN year) acknowledges the differentiated responsibility of the north and the south in creating global climate change issues, per paragraph 2 of the UNFCCC “[. . .] the largest share of historical and current global emissions of greenhouse gases has originated in developed countries [. . .] per capita emissions in developing countries are still relatively low [. . .]”. The north-south dimension in handling the environmental crisis, also points at the capacity and vulnerability of the global south. It is well established that the countries that are most vulnerable to the impacts of environmental pollution such as climate change induced disasters, have the least capacity to address such impacts.

One of the instances in which the common but differentiated responsibility is highlighted in the international level is the Paris Agreement, which recognizes different responsibility in respect of the Annex 1 and other countries. These principles indicate the need for the South to gain negotiating power in the international decision-making process. This chapter posits that the main reason for southern

environmental concerns not being addressed in the international legal instruments is caused by lack of effective representation. And in order to be effective in this, they require expertise, technical capacities and facilitation, which the NGOs can provide for in a more effective manner, due to their global presence, resources, agendas, capacity and diversity.

5 Sustainable Development Law and NGOs

NGOs have played a critical role from the inception of the global sustainable development movement; through campaigning, advocacy, knowledge sharing and capacity building (IISD 2013; Yamin 2001). This is recognized in Goal 17 of the Sustainable Development Goals (UN 2018), which identifies the need to mobilize investors and networks, and public interest groups to increase and expand sustainable business process and building a healthy global economy. It also highlights the need to engage political, business and other leaders of society to shape global, regional and industry agendas (UN 2018). What is noteworthy in terms of the role of NGOs in sustainable development and in relation to the South is that the international legal arena on environmental law and sustainable development increasingly highlight the business sector and industry (Vallejo and Hauselmann 2004). Vallejo and Hauselmann (2004, p. 4) explain how the NGOs were involved in the sustainable development law process in the following terms:

From the Rio Declaration (UNCED 1992) through the Millennium Development Goals (UN 2000) to the WSSD Plan of Implementation (UN 2002), multi-stakeholder processes and partnerships between the State, the business sector, social and environmental NGOs and other civil society actors have become a common call in international environmental policy to forge sustainable development.

Sustainable development law highlights the importance of multi-stakeholder global governance which is defined by the Commission in Global Governance as “the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and cooperative action may be taken. It includes formal institutions and regimes empowered to enforce compliance, as well as informal arrangements that people and institutions either have agreed to or perceive to be in their interest” (GDRC 1995). GDRC also notes that the NGO community has resulted in creating changes and shifts in the economic and social patterns through activism in areas such as trade unions, whereby they have been able to create changes in the free market patterns and labor relations.

Sustainable development goals highlight the importance of good governance and legitimacy in governance structures and the NGOs facilitate this by increased public participation in governance and increasing public awareness and knowledge in relation to the critical issues (UN 2018).

Hence, the role of NGOs is recognized very clearly in sustainable development and NGOs are identified as one of the stakeholders in the process (Vallejo and Hauselmann 2004). Yamin (2001) highlights that in this process NGOs face challenges in facilitating sustainable development particularly due to the face that unsustainable practices that have been in place within the economic structures for decades cannot be uprooted within a few years. Further, NGOs have a difficult task in sustainable development: that of integrating environmental concerns and development aspirations at every level of governance, and this can pose a challenge to the developing countries. This however, links to the argument of this chapter, that NGOs in integrating these two aspects provide for practical means of achieving sustainable development. Further, due to the role and functions of the NGOs, they are in a better position to advocate for the concerns of the South through agenda setting, negotiations and lobbying (Yamin 2001).

6 Suggested Framework for NGO Role

The north-south dimension is very prominent in the law-making or influencing role of the NGOs. NGOs in the North were created for the strengthening of civil society, focusing on corporation that do not question the legitimacy of the states that are considered as legitimate while in the South, the same organizations are involved in the process of development and even act as substitutes in the absence of state action, rather than cooperating with the states. Therefore, it is necessary to be mindful of the potential role of the NGOs.

NGOs contribute to the process of weakening the governments of the South, questioning their legitimacy, authority, and politics; and thus, contributing to the spread of neoliberalism, even while fighting it (Makoba 2002). This result, in general, is not considered in the projects managed by NGOs, as much in the North as in the South. According to this theory, the process evolves cyclically: the State loses its place and becomes absent, while NGOs have more free space and make themselves felt. NGOs contribute to the loss of the State's authority, which is contradictory given the context of respect for the division of labour between the activities of states and NGOs. It would be better if they worked in cooperation with the states of the South, to strengthen them, especially in areas where they are weakest, giving them management skills in areas important to the South.

Some NGOs contribute, in part, to the weakening of the State, but this is not as important as critics claim (Makoba 2002). The involvement of NGOs is hardly felt in the absence of the State (Makoba 2002). NGOs offer solutions to some social problems, but do not succeed in delivering them broadly (Rautsiala 1997). Despite all their efforts, even in countries where their contribution is greater, their activity affects a tiny proportion of the population suffering from the absence of the State (Rautsiala 1997). There would be a loss of ground for the State if NGOs were true competitors, but they are not (Rautsiala 1997). The retreat of the State in countries of the South has its origin in the expansion of neoliberal ideas, economic restructuring

programs led by the International Monetary Fund, and the interests of multinationals, rather than the activity of NGOs. Thus, their participation continues to be complementary, and their cooperation with public authorities, and other NGOs, remains a key to understanding this reality.

There are also concerns regarding the objectives promoted by the NGOs within the states, as they are driven by their own agendas and the objectives promoted by their funding agencies and bodies. However, this is a boarder issue of legitimacy concerning the operation of the NGOs. These issues can be balanced off by recognizing the participation and the role of the NGOs within the international law-making and governance process.

As noted in section, the proliferation of the domestic, international and transnational NGOs has resulted in the democratization and reorganization of the global decision making and governance. Scholars have associated the NGOs with a leading role in the national context and have described NGOs as the underlying pillars of transnational mobilization, which influences national environmental policy and legal reforms (Longhofer 2016).

Some scholars who have dealt with the manner in which NGOs should engage have come up with two competing models: accommodationists and restrictionists (Ripinsky and Bossche 2007). They define accommodationists as those who argue for greater NGO participation in the international system and restrictionists are wearier of wide and free NGO participation in the international law-making process (Ripinsky and Bossche 2007). They subdivide them into two categories: radicals and moderates. Radical accommodationists favor equal status of NGOs with states in terms of participation, representation and even voting rights in decision-making bodies. Moderate accommodationists, who support full integration of NGOs in international decision-making panels, believe that opening up more access to participation, oral statements and a formal legal framework would provide them with more opportunities to enhance the global decision-making system. Opposing the view of the accommodationists scholars is the view of the restrictionists, who do not believe in NGO participation in international decision-making alongside states and who argue for constraints in the process (Ripinsky and Bossche 2007).

Both the above viewpoints are logical. The accommodationist argument is based on the nature of the multilateral function of global politics in that states can no longer act in a manner that takes little regard of other actors who have proved that they are capable of influencing crucial decision-making. Whereas the restrictionist argument is based on the sovereignty of the state, in that they represent the people within a sovereign boundary, since they have been democratically elected. By contrast, NGOs are not democratically elected.

In order to voice Southern environmental concerns, NGOs, at both national and local levels, must be able to participate in global negotiations, since their contributions are significant in order to deliver Southern environmental agendas at international decision-making fora. However, as has been suggested above, NGO participation is often questioned for not having a legal personality, therefore, in order for this discussion to be expanded, it is important to understand their conduct

in the international legal arena, because it has been difficult to restrict them to rigid international boundaries.

7 Conclusion

This chapter argued for the need for a mechanism to recognize and incorporate the contribution of the NGOs. One of the most significant challenges that the transnational NGO networks need to address is that Southern groups within the networks are supposed to be at centre-stage and not on the periphery. The application of principles of equity, fairness and justice within the networks should overcome the barriers of limited capacity, resources and political power of diverse range of NGOs within the network. When transnational NGO networks represent Southern concerns at global level to better represent the needs of the South they should truly be accountable to those who are being represented by them. Therefore, all networks should clearly understand the real aspirations that lie behind Southern environmental interests since historically as TWAIL points out the international law-making process has paid heed to the interests, objectives and agendas of the North.

This research looked at the notion of NGO participation in the global environment decision making and governance through the lens of sustainable development and highlighted that it can be used as a mechanism to balance to south-north dimensions in environmental decision making. Raustiala (1997) has observed that NGO inclusion does not mean the exclusion of state power or centrality, rather what it means is enhancement of ability, in terms of political and technocratic aspects of the states to regulate through the international treaties and for the states to have extended and coordinated regulatory power.

Therefore, this research contends that the traditional doctrines of international law ought to change in recognition of the wide and far reaching role played by NGOs in not only lobbying and facilitation but influencing international law and policy and implementation. Sustainable development still exists within the sphere of soft law and therefore has no binding obligations within the international legal sphere that is applicable in a general manner within public international law. However, this research indicates that in the future development of sustainable development law within the national and international spheres there is a wide role for the NGOs to play in its inception and implementation.

Further, with the increasing complexity of the issues faced in environmental sphere, a multi-pronged approach such as sustainable development is necessary. However, such a complex phenomenon cannot be accommodated within the traditional state centric international law. Therefore, this research advocates that there is future avenue to explore the possibility to expand the notion of international legal personality within international law to reflect the modern developments and proliferation of actors involved in international relations, law-making and governance, who are not reflected within the international law.

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Claims in Environmental Civil Public Interest Litigation in China: Problems and Solutions



Xuemin Chen and Tianbao Qin

1 Introduction

In 2013, China formally established its system of environmental public interest litigation through revising its *Civil Procedure Law* (NPC 2013), though the system had been piloted for several years in practice. Much attention has been paid to the standing of environmental public interest litigation, rules of evidence, and bearing of responsibility, but rare efforts were given to claims for environmental civil public interest litigation. As an indispensable part of civil procedure law, litigation claims are at the core. However, the current provisions of the Civil Procedure Law only require a plaintiff to assert “specific” claims against the defendant (NPC 2013, a119), *The Interpretation of the Supreme People’s Court regarding Several Issues on Application of Law in Environmental Civil Public Interest Litigation* (Supreme People’s Court 2014a, b, a1) (hereinafter referred to as “Environmental Civil Public Interest Litigation Interpretation”) also copies this provision. Since the claim is that the plaintiff has appealed to the court for the rights under the abnormal state, the plaintiff hopes to obtain the protection and relief of the state. As a specific claim, it reflects the plaintiff’s purpose of litigation. However, China’s civil litigation system follows the principle of “ubi non accusator, ibi non iudex” (no judge no plaintiff). Generally speaking, the court will hear exactly the scope of the plaintiff’s claims. Namely, the plaintiff’s claim is directly related to the scope of his own rights and interests. In the case of environmental civil public interest litigation, the purpose of the plaintiff is to safeguard the environmental public interest.

The right of a plaintiff to sue is to represent general public, rather than specified person(s), consequently, plaintiff could not arbitrarily file a claim, but must orient

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the claim(s) towards the maximum protection of environmental public interest, which directly reflects the realization of function of the environmental civil public interest litigation. Therefore, ensuring the reasonableness and completeness of litigation claims is essential to protect the environmental public interest. This article intends to use cases of environmental civil public interest litigation before and after 2013 as samples to analyze the differences, development trends and problems of claims of environmental civil public interest litigation claims before and after its legal establishment, in order to improve China's environmental civil public interest litigation system through standardizing litigation claims in particular and promote sustainable development in general.

2 Factors of Constraint on Claims of China's Environmental Civil Public Interest Litigation

2.1 Judicial Power

In China, all public authorities, such as administrative organs, procuratorial organs and public security organs, have their own scope of duties when there are (environmental) cases. Similarly, the court has its own scope of duties, which is the judicial power. This kind of power decides which cases can be accepted by the court for trial, that is to say, not all disputes can enter the court's door, and the cases that can be dealt with by the court must be within the scope of judicial power. The nature of judicial power is passive because "ubi non accusator, ibi non iudex" is the basic principles of litigation. If the plaintiff does not clarify the complaint and there is no request in the proceedings, the court does not and shall not judge. In addition, the judicial power is neutral, which means that the judge must be impartial in the trial of the case. All evidence and facts must be proved, cross-examined and fully debated in the trial. This is not only a characterization of the trial of courts changing from the inquisitorial system to the adversary system in China, but also an inevitable requirement for establishing a "trial-centered litigation system."

2.2 Legal Provisions

As a statute law country, in China the trial process of a court is the process of finding law, interpreting the law, and applying the law. Although the *Civil Procedure Law* (NPC 2013, a55) does not impose excessive restrictions and requirements on the plaintiff's claim, the *Environmental Civil Public Interest Litigation Interpretation* has more explicit provisions on the litigation claim (Table 1). The provisions stipulate the court's explanation rights and scope of the plaintiff's claims, which

Table 1 Relevant provisions on the litigation claims in the *environmental civil public interest litigation interpretation* (Supreme People's Court 2015)

Provisions	Contents
Article 9	If the court considers that the plaintiff's claim is not sufficient to protect the public interest, it may explain to the plaintiff on about to change or increase the claims of cessation of infringement and restitution.
Article 17	In the course of the trial of environmental civil public interest litigation, if the defendant files a claim in the form of counterclaim, the court shall not accept it.
Article 18	The plaintiff may request the defendant to bear civil liabilities such as cessation of infringement, removal of obstacle, elimination of danger, restoration of original condition, compensating for loss, and making an apology for the environmental pollution and ecological destruction which has already harmed the public interest of the society or has a significant risk of harming the public interest.
Article 19	In order to prevent the occurrence and expansion of ecological environmental damage, the plaintiff may request the defendant to cease infringement, remove obstacles, and eliminate danger. The people's court may support it according to law. If the plaintiff requests the defendant to bear the expenses incurred in order to cease infringement, remove obstacles, eliminate danger and take reasonable measures for prevention and disposal, the court may support it according to law.
Article 20	Where the plaintiff requests to restore original condition, the court may, according to law, decide the defendant's restoration of ecological environment to the state and function before the damage occurred. If it cannot be completely repaired, an alternative repair method may be permitted. The court may determine the ecological environment restoration expenses that the defendant should bear when failing to perform the repair obligation while determining the defendant's restoration of the ecological environment; or directly determine the defendant's responsibility for the restoration of the ecological environment.
Article 21	If the plaintiff requests the defendant to compensate for the loss of service function during the restoration of the ecological environment to the original state, the court may support it according to law.
Article 22	If the plaintiff requests the defendant to bear the costs of inspection and appraisal, reasonable attorneys' fees, and other reasonable expenses for litigation, the court may support it according to law.
Article 26	If the competent department for environmental protection performs its supervisory duties according to law and the plaintiff's litigation request is fully realized, the plaintiff shall apply for the withdrawal of the lawsuit, and the court shall grant permission.

indicates which litigation claims could be supported by the court, and which litigation rejected.

Obviously, based on the provisions it can conclude that in order to protect the environmental public interest, the plaintiff's discretion and decision-making power on the claims are much widely restricted, and the court's powers are greatly enhanced in the environmental civil public interest litigation.

2.3 *Legal Liability*

The plaintiff claims in the lawsuit in order that the court could order the defendant to bear the corresponding legal liabilities. It is undeniable that environmental civil public interest litigation is a new type of civil litigation. The provisions on civil liability in the General Principles of Civil Law (NPC 2017) also apply to environmental civil public interest litigation. The public interest litigation occurs because the defendant pollutes or destroys the ecological environment and violates the environmental public interests, therefore, the tort liability is the starting point of the litigation, and the content of the litigation claim is also the end of the litigation, which limits the scope of the court's judgment and determines the size and degree of the defendant's liabilities. In addition, as the special regulation on environmental civil public interest litigation, the provisions of the *Environmental Civil Public Interest Litigation Interpretation* also limit the content and scope of litigation claims (see further in Table 2).

2.4 *Functions of Environmental Civil Public Interest Litigation*

The purpose of establishing an environmental civil public interest litigation system is to provide remedies to environmental public interests that have been damaged, specifically, to restore the ecological environment that has been polluted or destroyed, to fill in the lack of function of ecological environment services during the restoration period, and to stop the behavior that damages the ecological environment, etc. Generally speaking, the system's functions include remedies, reparation and restoration, and prevention, etc. . .

In summary, to fully realize the functions of environmental civil public interest litigation, the claim filed by the plaintiff must fall within the jurisdiction of judicial power. As a statute law country, the claim filed by the plaintiff is subject to the existing relevant laws. At the same time, for the purpose of public interest, the right of a plaintiff to sue could be not used to obtain economic benefits, nor could it violate public order and good customs. When the plaintiff files an environmental public interest litigation, the litigation claim exceeds its private interest, and its legal effect is external and non-exclusive. Therefore, compared with traditional (private) interest litigation, environmental civil public interest litigation claims are subject to more restrictions.

Table 2 Relevant legal provision on civil liabilities

Heading	<i>General principles of civil law</i>	<i>Tort liability law</i> (the Standing Committee of the NPC 2010)	<i>Environmental protection law</i> (the Standing Committee of the NPC 2015)	<i>Environmental civil public interest litigation interpretation</i> (Supreme People’s Court 2015)
Effective date	October 1, 2017	July 1, 2010	January 1, 2015	January 7, 2015
Article and content	Article 179: Civil liability shall be assumed primarily in the following manners:	Article 15: Tort liability shall be assumed primarily in the following manners:	Article 64: If damage is caused by polluting the environment and destroying the ecology, the polluter or destroyer shall be liable for infringement in accordance with the relevant provisions of the Law of the People’s Republic of China on Tort Liability.	Article 18: The plaintiff may claim the defendant to bear the cessation of infringement, removal of obstacle, elimination of danger, restoration to original condition, compensation of loss, making an apology for the environmental pollution and ecological destruction which has already harmed the public interest of the society or has a significant risk of harming the public interest. (six in total)
	(1) cessation of infringement;	(1) cessation of infringement;		
	(2) removal of obstruction;	(2) removal of obstruction;		
	(3) elimination of danger;	(3) elimination of danger;		
	(4) restitution of property;	(4) restitution of property;		
	(5) restoration to original condition;	(5) restoration to original condition;		
	(6) repairing, reworking, or replacement;	(6) compensation for loss;		
	(7) continued performance;	(7) making an apology		
	(8) compensation for loss;	(8) elimination of adverse effects and rehabilitation of reputation; (eleven in total)		
	(9) payment of liquidated damages;			
	(10) elimination of adverse effects and rehabilitation of reputation;			
	(11) making an apology (eleven in total)			

3 Status Quo of Claims of China's Environmental Civil Public Interest Litigation

In practice, many courts regard ascertaining of a litigation claim as the starting point for the trial of the case in the “Guidelines for the Handling of Civil Cases”. The very famous Judge Zou Bihua (Zou 2010) also treats ascertaining of right claims as the first step of the nine-step trial in his book “The Nine Steps of the Judgment in the Trials”; the claim for rights is specifically expressed as litigation claim (Zou 2010). Since the court's judgment is around the claims, the reasonableness, completeness and specificity of the plaintiff's claim is directly related to the extent to which the infringed right is remedied.

3.1 Practices of Claims of China's Environmental Civil Public Interest Litigation

In 2013, the environmental civil public interest litigation was formally stipulated in the *Civil Procedure Law*. The paper compares the typical cases of environmental civil public interest litigation case before 2013 (Annex 1) and after 2013 (Annex 2) in order to show the difference of claims of China's environmental civil public interest litigation in different periods, and to explore the development trend of claims of environmental civil public interest litigation in China.

In the second case that happened prior to 2013 and mentioned in Annex 1, according to the plaintiff's application, the court entrusts the Guiyang Environmental Monitoring Center to sample and test the sewage involved in the case, resulting in a related testing fee of 1500 RMB, which is paid in advance from environmental public interest litigation assistance fund.

In the third case of Annex 1, 155,293 RMB consists of two parts, testing fee of 132,520 RMB for pollution control of Kunming Academy of Environmental Sciences and special emergency environmental monitoring fee of 22,773 RMB by environmental monitoring centers. The court holds that the first costs are the expenses incurred in the lawsuit of this case, not the expenses incurred by the environmental administrative organ in performing its statutory duties; therefore, it shall be borne by the defendant. As for the other monitoring cost, it belongs to the daily administrative costs of the environmental organ, which shall not be borne by the two defendants.

The fifth case mentioned in Annex 1 is the first public interest litigation in China with an individual as plaintiff. The defendant in the said case has been sentenced to 2 years and 6 months imprisonment for environmental pollution and illegal business with a criminal fine of 100,000 RMB by the Environmental Protection Court of Qingzhen based on the same fact. The plaintiff believes that the fine is not enough to repair the damaged water environment, therefore he filed another environmental public interest litigation.

Annex 1: Cases of Environmental Civil Public Interest Litigation before 2013

Number	Time	Case	Plaintiff	Claims	Judgment
1	2008	Guangzhou Haizhu District People's Procuratorate v. Xinzhongxing Water Washing Plant Environmental Pollution Case	Procuratorate	1. Immediately stop illegal discharge of sewage;	Defendant to bear:
				2. Compensation for economic loss caused by environmental impacts by direct discharge into Shiliu River from the sewage	Civil liability for environmental damage caused by illegal sewage disposal
					Immediately stop infringement and;
					Compensate losses for environmental pollution totaling 11,7289.2 RMB;
2	2010	All-China Environment Federation (ACEF), Guiyang Public Environmental Education Center v. Guiyang Wudang District Dingfu Paper Mill Water Pollution Case (Supreme People's Court 2010)	Environmental organizations	1. Immediately stop discharge of sewage into the river, eliminate danger of production wastewater to its downstream Nanming River and Wujiang River;	Defendant to bear:
				2. Pay a reasonable fee of 10,000 RMB (attorney fee) for plaintiff's expenditure;	Immediately stop discharging sewage to the Nanming River and eliminate the harm to the Nanming River;
					Plaintiff's attorney fee of 10,000 RMB within 10 days from the effective date of the judgment;
				3. Bear litigation costs of this case.	Testing fee of 1500 RMB;
3	2010	Kunming Environmental Protection Bureau	Environmental protection department	1. Immediately stop infringement;	Litigation cost of 60 RMB
					Defendant to bear:

(continued)

Annex 1 (continued)

Number	Time	Case	Plaintiff	Claims	Judgment
		v. Kunming Sannong Agriculture and Animal Husbandry Co., Ltd. and Kunming Yangshuo United Wood Industry Co., Ltd. water pollution case (Supreme People's Court 2011)		2. Compensation for the clean-up cost of Dalongtan water pollution temporarily calculated to be 4,172,100 RMB;	Immediately stop the infringement of the environment;
				3. Compensation for the special emergency environmental monitoring fee and pollution control cost generated by the water pollution accident 155,293 RMB;	Payment of 4,172,100 RMB to "Kunming Environmental Public Interest Litigation Special Fund" within 10 days after the effective date of this judgment;
				4. Litigation cost	Payment of evaluation fee of 13.225 million RMB to "Kunming Environmental Public Interest Litigation Special Fund" within 10 days after the effective date of this judgment; Other claims dismissed.
4	2011	ACEF v. Guizhou A Dairy Co., Ltd. Water Pollution Liability Case	Environmental organizations	1. Immediately stop the illegal discharge of standard-excessive wastewater, stop pollution of both sides of the sewage channel, and Taoyuan River, Qingshui River and Wujiang River downstream;	The case is resolved by mediation with following agreed points:
				2. Eliminate dangers caused to both sides the sewage channel	Defendant voluntarily donates 100,000 RMB for

(continued)

Annex 1 (continued)

Number	Time	Case	Plaintiff	Claims	Judgment
				and rivers at the downstream, and take measures to reduce the pollution caused to the channel and rivers downstream;	environmental pollution remediation and environmental pollution supervision in Guiyang;
				3. Compensate the environmental pollution, amount, which shall be determined as 5 times of defendant's sewage charge, which is used to pay the relevant environmental restoration;	Defendant bears plaintiff's travel expenses, attorney fees and testing fees of 75,765 RMB incurred by the case;
				4. Bear the litigation costs including the plaintiff's transportation and accommodation fee of 24,725 RMB, attorney's fee of 50,000 RMB, and the testing and appraisal fee of 1040 RMB.	Guiyang Public Environmental Education Center shall perform supervision duties as third-party. If the third party finds problems in the supervision, the third party shall report to the plaintiff, Environmental Protection Court of the Qingzhen, and Xiuwen County Environmental Protection Bureau.
5	2012	Mr. Cai, a volunteer of Guiyang Public Education Center v. Mr. Long for a water pollution liability case	Natural person	1. Pay 1,073,000 RMB for the treatment of environmental pollution;	Defendant to bear:
				2. Bear litigation cost.	Compensation of 300,000 RMB for environmental pollution damages and

(continued)

Annex 1 (continued)

Number	Time	Case	Plaintiff	Claims	Judgment
					rejected the plaintiff's remaining claims.
					Litigation cost of 14,457 RMB.

In the first case beginning with the new legal situation in 2013 and mentioned in Annex 2, the defendant Wang Shengjie had been sanctioned by local environmental protection department for the same fact to stop operating the quartz plant.

In the second case mentioned in Annex 2, due to the same fact, Guiyang Provincial Environmental Protection Department has ordered Tianxin Phosphorus Company to take measures to eliminate the pollution impact and potential dangers. The Kaiyang County Environmental Protection Bureau has imposed administrative punishment on illegal discharge of Tianxin Phosphorus Company.

In the fourth case mentioned in Annex 2, on November 25, 2014, the Kenli County Court sentenced Wang Hongguang to 2 years and 6 months imprisonment for environmental pollution, suspended for 3 years, and fined 50,000 RMB simultaneously; Zhou Jingchao was sentenced to 2 years imprisonment, suspended for 3 years, and fined 50,000 RMB simultaneously; Wang Jiangwei was sentenced to 2 years imprisonment, suspended for 3 years, and fined 50,000 RMB simultaneously (Wang 2018).

In the fifth case mentioned in Annex 2, on May 22, 2015, Yuhang District Court sentenced Jiande Chemical No. 2 Plant to a criminal fine of 63 million RMB for environmental pollution crime; Hongan Freight Company was fined 13 million RMB; Hangzhou Rongsheng Company was fined 2.4 million RMB; Xu Guofu was sentenced to 5 years and 6 months imprisonment and fined three million RMB; Hu Zhihong was sentenced to 9 years imprisonment for environmental pollution crime and non-state staff accepting bribes crime, and fined 50,000 RMB (Supreme People's Court 2014a, b).

3.2 Characteristics of Claims of China's Environmental Civil Public Interest Litigation

Based on Part 3.1, we can find out some characteristics of China's environmental civil public interest litigation.

Annex 2: Cases of Environmental Civil Public Interest Litigation after 2013

Number	Time	Case	Plaintiff	Claims	Judgment
1	2014	Lianyungang City Ganyu District Environmental Protection Association v. Wang Shengjie Environmental Pollution Case	Environmental organizations	1. Compensation of 109,000 RMB for environmental pollution;	Defendant to bear:
				2. Attorney's fee of 3500 RMB.	1. Compensation of 51,000 RMB for damage caused to the environment paid to financial account designated by the court within 10 days after the effective date of this judgment for the restoration and treatment of the ecological environment;
					2. A total of 960 h of environmental public welfare work (at least 6 times a month, no less than 6 h each time) after the effective date of this judgment will be provided during 2 years to cover the shortfall of environmental damages; and the implementation is supervised by Lianyungang Ganyu District Environmental Protection Bureau;
					3. Payment of 3500 RMB for the plaintiff's expenses for public interest litigation within 10 days after the

(continued)

Annex 2 (continued)

Number	Time	Case	Plaintiff	Claims	Judgment
					effective date of this judgment.
2	2015	Guiyang Public Environmental Education Center v. Guizhou Kaiyang Guohua Tianxin Phosphorus Company Water and Air Pollution Case	Environmental organizations	1. Immediate cessation of discharge of sewage into the environment;	The case is resolved by mediation with following agreed points:
				2. Immediate improvement and normal operation of environmental protection treatment facilities to ensure that the exhausted gas meets the standards;	1. completion of environmental pollution control before the end of March 2016;
				3. Compensation of 15,000 RMB for the plaintiff's expenses for the expert fees, investigation fees, attorney's fees, etc.;	2. Litigation cost of 5683 RMB, expert fees, investigation fees, lawyer fees and other reasonable expenses of 15,000 RMB, and the evidence preservation of 13,400 RMB. All those fees are 34,083 RMB in sum;
				4. Entire litigation costs of.	3. Voluntarily acceptance of public supervision for 2 years.
3	2015	ACEF v. Jinghua Group, Zhenhua Corporation Air Pollution Case	Environmental organization	1. Immediately cessation of stop discharge pollutants exceeding standard into the air; add air pollution prevention and control facilities; only after approval from the environmental administrative department can production and	Defendant to bear:

(continued)

Annex 2 (continued)

Number	Time	Case	Plaintiff	Claims	Judgment
				operation activities be carried out.	
				2. Compensation 20.4 million RMB for loss caused by pollutants discharged exceeding standard (calculated according to the cost of operating air pollution control facilities of the defendant);	1. Compensation of 21.9386 million RMB for loss caused by discharge of pollutants exceeding standard within 30 days from the effective date of this judgment to Dezhou Special Fund for restoration of atmospheric environmental quality in Dezhou City;
				3. Compensation of 7.8 million RMB for loss due to the refusal to correct the discharge of pollutants exceeding the standard.	2. Making an apology to the public in media at the provincial and above level;
				4. Making an apology to the public in media at the provincial and above level;	3. Payment of 100,000 RMB as evaluation fee to ACEF within 10 days from the effective date of this judgment;
				5. Expenses for litigation, inspection, appraisal, expert witnesses, and attorney fees.	4. Dismiss other litigation claims of the plaintiff—ACEF.
4		ACEF v. Shandong Haike Chemical Group Co., Ltd., Wang Jiangwei, Wang Hongguang, Zhou Jingchao Environmental Pollution case	Environmental organizations	1. Immediate cessation of illegal disposal of sewage;	The case is resolved by mediation with following agreed points:
				2. Compensation of 8,790,750 RMB as ecological restoration cost of environmental pollution	1. Compensation by four defendants of full amount of 8,790,750 RMB for the ecological

(continued)

Annex 2 (continued)

Number	Time	Case	Plaintiff	Claims	Judgment
				damage, which is used to entrust third-party organizations to carry out ecological restoration of the polluted local environment.	restoration of the contaminated soil. If the actual restoration expenditure exceeds the amount, four defendants continue to bear the corresponding expenses.
5		ACEF v. Zhejiang Xinan Chemical Group Co., Ltd. Jiande Chemical No. 2 Plant etc. environmental pollution cases	Environmental organizations	1. Cessation of illegal disposal of hazardous waste “phosphate mixture”.	Defendants to bear:
				2. Elimination of potential danger to the environment caused by the phosphate mixture, that is, a joint compensation of 22.74 million RMB for disposal cost of hazardous waste of (according to the evaluation of the appraisal and evaluation agency), for entrusting a third party with waste disposal qualifications to legally dispose above waste.	1. Immediate cessation of illegal transportation of phosphate mixed liquor.
				3. Joint payment of totaling 678,860 RMB of reasonable expenses paid by plaintiff including transportation fees, accommodation fees and attorney fees.	2. Compensation of 22.74 million RMB for environmental pollution control expenses within 10 days after the effective date of this judgment for environmental

(continued)

Annex 2 (continued)

Number	Time	Case	Plaintiff	Claims	Judgment
					restoration and treatment.
				4. Joint payment of litigation costs.	3. All five defendants shall be jointly liable for the above-mentioned compensation.
					4. a joint payment of 120,000 RMB for ACEF's attorney fee within 10 days after the effective date of this judgment.
					5. Dismiss the plaintiff's other claims.

Firstly, Litigation claims filed by plaintiffs are all around the legal liability stipulated in relevant law, but more concrete, such as requesting “immediate cessation of damage to the environment of Hongfeng Lake and its upstream Yangchang River in Guiyang City” instead of “cessation of infringement”, requesting “removal of dangers of production wastewater to the downstream Nanming River and Wujiang River” instead of “removal of obstacles”. However, there are also some innovations. For example, in the case of Shandong Dezhou Air Pollution, All-China Environment Federation (ACEF) claimed from the court to order Zhenhua Company to “compensate for the loss of 7.8 million RMB caused by the refusal to correct the discharge of pollutants exceeding the standard”, which is typical punitive compensation.

Secondly, Before 2013, most of the claims were traditional tort liability, such as cessation of infringement, elimination of danger, and compensation of loss etc. After 2013, the plaintiff began to claim of reparation and restoration or payment ecological environment restoration cost and ecological function service fees to a special fund, which are more ecological claims.

Thirdly, the amount of compensation for damages becomes more and more specific, from the claim for “compensation for environmental pollution repair costs” and “payment of pollution control costs” to the exact amount, such as 109,000 RMB as pollution reparation fee in the Lianyungang City Environmental Protection Association v. Wang Shengjie environmental pollution case which has been tested judicially by Lianyungang Environmental Science Research Institute.

Fourth, there is no exception that all plaintiffs claim defendants to bear all litigation related expenses, including lawyer fees, appraisal fees, and transportation expenses, and litigation cost.

Lastly, whether some kind of claims are supported by the courts or not, depends to a great extent on who is the plaintiff. If the plaintiff is an environmental protection organization, its claim that defendant shall bear reasonable expenses incurred in obtaining the monitoring data usually obtain support of the court; but when the plaintiff is an environmental administrative department, its claims on costs of monitoring are denied by the court.

In general, litigation claims in environmental civil public interest litigation in practices can be divided into: (1) preventive claims, namely, cessation of infringement and elimination of danger; (2) restorative claims, that is, reparation and restoration; (3) remedial claims, namely, compensation for loss; and (4) spiritual claim, that is, making an apology.

4 Problems in Claims of China's Environmental Civil Public Interest Litigation

At first glance, litigation claims are filed by a plaintiff, reflecting rights which need protection and remedy from the court. During this process, it seems that the plaintiff plays a decisive role and there is not so much room for public authority. However, from the perspective of procedural law and litigation principle, the plaintiff could not claim whatever he wants. Especially in the field of public interest litigation, a litigation claim is highly related to extending of the remedy of public interest, to the scope of *res judicata* (validity of judicial decision) of the judgment of the court, to the rationality of the use of judicial resources, and also to the efficiency of the judiciary. Therefore, it is necessary to solve existing problems in the claims of environmental civil public interest litigation.

4.1 Unclear Limitation of Disposition of Claims

In the traditional (private interest) litigation, as long as the plaintiff's claim does not violate the law and public order and good customs, it can be disposed optionally by the plaintiff. In China's public interest litigation, the *Environmental Civil Public Interest Litigation Interpretation* obviously imposes many restrictions on the plaintiff's right to dispose. The key is to find the balance between the plaintiff's right to dispose claim and protection of the environmental public. For this end, there are some potential questions to be solved:

1. completeness of claims. As a party to file a lawsuit, plaintiffs undoubtedly have information of the defendant's infringement of ecological environment, knowing

which claim can comprehensively remedy the invaded environmental public interest. But, what to do if the plaintiff only files some of the claims, the environmental public interest is not fully remedied and there are no other agencies and organizations which will file a public interest lawsuit again?

2. application of mediation. China does not prohibit the application of mediation in environmental civil public interest litigation. However, mediation means discounting the litigation claim. Only some of the claims are recognized under the auspices of the court. What is the limitation of mediation in environmental civil litigation?
3. exercise of court's explanation right. Article 35 of the *Regulations on Evidence of Civil Procedure* (FaShi [2001] No. 33) (Supreme People's Court 2001, a35) Article 9 of the *Environmental Civil Public Interest Litigation Interpretation* (Supreme People's Court 2014a, b) provides that judges could remind the parties of missing of key litigation claims or obvious error of the litigation claims. But it is the judge's right or duty? If it is a right, whether or not the judge's explanation is in its disposition of the right; but if it is a duty, the judge will bear responsibility when not explaining, and even become one of the reasons for plaintiff's appeal. In addition, if the plaintiff accepts the proposal to change is claims and the court's judgment does not support the claim or plaintiff even loses the case, who is responsible for the result. On one hand, the judge/court will not bear civil liability for their own judgment; on the other hand, the plaintiff is not likely to claim state compensation for the explanation of the judge. If the plaintiff does not accept this explanation, what shall the court do? If the plaintiff is punished for the refusal, is it a violation of the principle of "ubi non accusator, ibi non iudex" (no claim no trial)? If the plaintiff accepts the proposal to change or add claims, and the court also supports the claim, is it fair to the defendant?

4.2 Undivided Judicial and Administrative Power

From a practical point of view, most of the plaintiffs of environmental civil public interest litigation are non-governmental organizations (NGOs). Majority of China's environmental NGOs have a very short history and are not prepared to file environmental civil public interest litigation as the plaintiff in terms of legal profession. Claims filed by these plaintiffs some times did not make distinction difference between judicial power and administrative power. It has been criticized by some au For example, in *Zhu Zhengmao and ACEF v. Jiangyin Port Container Company Environmental Pollution case* (Annex 2), ACEF claims that defendant shall obtain an administrative license within a time limit and take measures to meet water discharge standard; in *ACEF v. Jiangsu Ninghu Highway Co., Ltd. noise pollution case*, ACEF claims that defendant shall take measures to achieve noise standard; in the *ACEF vs. Yixing Jiangshan Biologics Co., Ltd. environmental pollution case*, ACEF claims that defendant take measures to rectify and submit a rectification report. It is noted that all these litigations are environmental civil public interest

litigations. Those claims mentioned above are administrative liability such as treatment or rectification within a time limit. It not only exceeds the power of the court but also brings about a problem of implementation: what can the court do if the defendant does not rectify and meet the standards within the time limit? In a water pollution case of China Biodiversity Conservation and Green Development Foundation (CBCGDF) v. Longde County People's Government of Ningxia Hui Autonomous Region and other eight defendants, the plaintiff CBCGDF claimed that Longde County Government was negligent in supervision and tolerated for a long-time local enterprises to discharge pollutants into the river, resulting in pollution of the drinking water source in the downstream of Jingning County. It is quite questionable that Longde County Government was filed as a defendant in an environmental "civil" public interest litigation.

4.3 Low Consideration of Fulfillment

As there is no right without relief, there is no remedy of right without subsequent fulfillment. For the purpose of fully and comprehensively protecting the damaged right of the public, any plaintiff shall take the likelihood of the defendant's performance and/or the feasibility of the court's enforcement into account after the claims were accepted by a court and, especially

1. when a third party is needed for assistance, does the third party have the willingness to do, 2. whether there are alternative, and if yes, 3. what are the applicable conditions for the alternative?

For example, if the claim is to stop the infringement, the simple request has the duty of action, as removing the plank road, removing the breeding facilities, making the harmless treatment; adding air pollution control facilities, getting environmental protection permit and putting into use before production; and the duty of inaction, such as ceasing sewage discharge, ceasing construction. Among them, when the defendant is required to take positive actions, some need the defendant to pay a higher economic input (such as dismantling the sightseeing elevator), some need certain technical supports (such as meeting a discharge standard), and some need engineering support (such as protecting a historic site), and some even need to make overall planning (such as re-planning a certain area). All these are difficult and costly, and means that there is a high possibility of being unfulfilled or not well fulfilled. Even as to property-based claims, there are already many cases, from hundreds of thousands to millions, even tens of millions RMB, and so on. After the Taizhou public interest litigation with 160 million RMB compensation which was recorded in the history, the Tengery desert pollution case has ushered in a new high ecological restoration fee of 600 million RMB. This may reverse the situation of "pollution cost lower than the law-compliance cost", and the economic entity does not dare to keep the mind of "For the pollution, I have paid; I have paid so that I could pollute" to continue polluting the environment and destroying the ecology.

However, these compensations are undoubtedly a huge pressure to those defendants. When the defendant is unable to pay, the question arises: Is it appropriate to let the economic entities going bankrupt? Can property payments be replaced by behavioral payments? Is there any condition for the replacement of property payments by behavioral payments? In the case where the defendant has been criminally and/or administratively fined, can the civil compensation be correspondingly and appropriately reduced? Currently, there are a wide range of denominations concerning compensation of environmental civil public interest, such as environmental protection and governance recovery fees, special funds for environmental public interest litigation relief, ecological restoration fees, loss of ecological service functions, environmental damage compensation, etc. What is their legal nature? What is the relationship between them? Can they be overlaid? All these questions are not answered yet.

4.4 Over Reliance on Inquisitorial System

The purpose of Article 9 to Article 26 of the *Environmental Civil Public Interest Litigation Interpretation* is not only to regulate the plaintiff's litigation claims, but also to reflect that the judicial power in the environmental civil public interest litigation has been greatly strengthened. Although the defendant is liable for polluting the environment, destroying the ecology and infringing public interest, the plaintiff is given the standing to file an environmental civil suit for the protection of the environmental public interest. Morally, the plaintiff stands on the commanding heights from the very beginning; but legally, both the plaintiff and the defendant are equal before the law, and civil litigation emphasizes more the equality of the two parties and the nature of the judicial power is neutral, which means that in the face of the plaintiff and the defendant, the court shall be impartial regardless of whether one party is out of public welfare or private interests.

However, It appears that in the environmental civil public interest litigation, the judge's authority has been intensified again. In addition, the law allows public authorities such as environmental protection agencies, procuratorial organs etc. as supporters to participate in environmental civil public interest litigation, which makes a new situation, namely in China's environmental civil public interest litigation, a social organization is the party who just files litigation before the court. The court, the environmental administrative agency, and the procurator would work together to deal with polluters and destroyers. In such condition, to obtain in the judgment the conviction of the defendant is difficult. This is why the most environmental civil public interest litigations need a second trial and even retrial.

5 Improvement of Claims of China's Environmental Civil Public Interest Litigation

From the perspective of environmental governance and sustainable development, the environmental civil public interest litigation demonstrates very well the fundamental principle of public participation in environmental matters, meaning stakeholders jointly carry out environmental protection. Considering that the subject matter is a public interest, the principle of “party autonomy” in civil litigation will be greatly restricted in civil public interest litigation. However, this does not necessarily mean that the judicial power shall be strengthened, nor does it mean the involvement of other public authorities. It is necessary to improve the environmental civil public interest litigation system through the way of regulating claims of environmental civil public interest litigation, and divide clearly the function and responsibilities of courts, administrative branches and organizations. This is a necessary path to environmental governance under the rule of law.

5.1 *To Clarify the Limitation of Disposition of Claims*

First of all, it is vital to understand that in the environmental civil public interest litigation, the plaintiff has no direct interest that has been infringed by defendants. A plaintiff's standing to sue is not based on the natural right to sue, but on the representation of interests of the general public. Therefore, a plaintiff cannot dispose of the right as free as a plaintiff of the private lawsuit can do. Its right to dispose of claims shall be restricted. Specifically, when a plaintiff's claim is not sufficient to fully protect the infringed public interest, the plaintiff and other social organizations can not sue the defendant before the court based on same facts according to the principle of “Ne bis in idem” (one can't sue to the court again based on the same fact). And now, it is time to introduce to right to explain of the court. From the original intention of establishing the right to explain, it means a reminder of the judge to the plaintiff in the course of litigation when the plaintiff's claim is unclear, easy to cause ambiguity, or the claim is not accurate, the judge will remind the plaintiff. The statement of Prof. Taniguchi “the court's interpretation (explanation) is an obligation to a certain extent, and becomes a right within such extent. If it exceeds such extent, it is illegal (violation of the principle of debate)” (Taniguchi 1996, p. 181), vividly reflects the difficulty of the court in grasping the limitation and extent of explanation, and also reflects the complexity of the nature of explanation. However, one of the baselines that must be followed in application of the right to explanation in litigation is to adhere to the equality of all parties before the law and the court, and to eliminate any “biased” situation but actually in the face of “explanation”. In the environmental civil public interest litigation, the court's right to explanation is also subject to restrictions. The applicable conditions include but maybe not limited to: (1) The claims filed by the plaintiff is not sufficient to protect the public interest; (2) claims

such as cessation of infringement and restitution are missing. The court can explain to the plaintiff only if the plaintiff's missing claims are so important that the environmental public interest cannot be fully protected. In a certain sense, when the plaintiff adopts the explanation of the court, it is equivalent to becoming the spokesperson of the judge's point of view; and the judge also has a greater sense of identity with such litigation claim. It will easily break the balance between plaintiff and defendant, and the parties being unequally confronted, the litigation structure of the court's neutral judgment no longer exists. But of course, it depends on the willingness of the plaintiff to accept or ignore the explanation by the court.

As for mediation, the following situation is common: the plaintiff claims compensation of 100,000 RMB, the defendant is only willing to pay 60,000 RMB. After mediation through the court, the compensation will eventually be agreed but actually "discounted" at 75,000 RMB. In environmental civil public interest litigation, it is common to require the defendant to compensate for the damage caused by environmental pollution, or to pay the ecological restoration fund. Now the question is, does mediation also mean that the compensation is discounted? From the Tengger Desert pollution case just settled by mediation, this did not happen. But it is not sure if the future cases have no discounted compensation by mediation. It is obviously not welcome to quickly settle environmental civil public interest litigation cases at the expense of reducing the compensation. It is necessary to consider whether the settlement by mediation is conducive to the restoration of the ecological environment, including whether the compensation is sufficient, and whether the defendant takes proactive measures, etc. All of these shall be based on the maintenance of environmental public interest.

5.2 To Distinguish Judicial and Administrative Power

Protecting the environment and safeguarding the public interest are the duties of the environmental administrative departments, and litigation is the last resort for safeguarding the public interest of the environment. Therefore, no matter if it is an environmental protection organization, a procuratorial organ, or an administrative agency, when the plaintiff files an environmental civil public interest litigation, the court must determine at first whether the plaintiffs have exhausted all administrative remedies. When an NGO has filed a lawsuit as a plaintiff, the court shall notify this to the relevant administrative department. If the administrative department can solve environmental problems within a reasonable time and achieve the purpose of the environmental civil public interest litigation by the NGOs, the court shall allow the plaintiff to withdraw the lawsuit. If the plaintiff does not withdraw the lawsuit, the court may decide to reject the claim.

When the procuratorate intends to file a lawsuit as a plaintiff, it shall first issue a prosecutorial recommendation to the relevant administrative department to urge the performance of its duties. If the administrative department fails to solve the problem, the procuratorial organ may file an environmental civil public interest

lawsuit. When the administrative department is reluctant to perform its duties, the procuratorial organ shall file an environmental administrative (not civil) public interest lawsuit.

When an administrative organ files a lawsuit as a plaintiff, the court shall examine whether it has taken corresponding administrative measures, to prevent the administrative organ from occupying judicial resources to resolve matters within its own scope of responsibility.

Under this premise, it is understandable such as daily punishment, order to restrict production, order to stop construction/production/operation and rectification, treatment with a time limit, reinstatement, are all environmental administrative measures; and if the companies do not perform and do not file an administrative reconsideration or an administrative lawsuit within a certain period of time, the administrative organ may take administrative compulsion measures.

The court can only exercise judicial power within its scope of power to order manners of liabilities such as cessation of infringement, removal of obstacles, elimination of danger, restoration of the original condition, compensation of loss, and make an apology, otherwise it is *ultra vires* (cross-boundary of authority). Correspondingly, a plaintiff must file the corresponding claims within the above judicial power. It is not professional to have a mentality of “the more claims, the better”, not to mention the waste of judicial resources.

In short, the content and scope of the plaintiff’s claims that can be supported reasonably by the court shall be appropriate, certain and conclusive. “It prevents the court from taking time to determine the plaintiff’s meaningless rights, and also prevents the defendant and other persons claiming rights protection from being improperly infested (Yan 2012, p. 75)”.

5.3 To Optimize Claims Based on Reality

In China’s environmental civil public interest litigation, it is only a starting point for the plaintiff to file litigation before the court. It is essential for the plaintiff to collect evidence, investigate facts, and apply for test and identification. This preliminary work will enable the plaintiff to understand the actual situation of the pollution or destruction more comprehensively, integrally, and objectively, and which in turn helps a plaintiff to file reasonable and targeted claims.

The common claim “restoration of original conditions” can be presented as an example. When it is difficult or impossible for the defendant to recover the ecological environment to the original state and function before the damage occurred, it is unreasonable to stubbornly request “restoration”. This manner of liability is designed for traditional property damage, but the object of public interest litigation is “ecology and environment”. It is obviously a misunderstanding to equate “ecological restoration” with ecological “restoration of original conditions”. It is not feasible to achieve the best restoration and rehabilitation state in all cases. Especially in the cases of air pollution, cross-basin water pollution, etc., the plaintiff’s claim to restore the original state ignores the objective reality, and it is inconsistent with

accepted scientific knowledge environmental protection experience. In some cases, restoration of the original condition is not necessarily the best option; it could be costly and also cause secondary pollution or damage (Peter 2002, p. 124).

As for the compensation for loss, the full meaning of fair compensation is: First, the amount of compensation can make up for the damage of the ecological environment and restore the ecological environment; second, the compensation paid by the defendant shall be equivalent to the damage caused by pollution or destruction. At this time, in addition to reasonable determination based on relevant factors (Supreme People's Court 2014a, b, a23), it shall be considered whether the defendant has been criminally sentenced and/or fined, or punished with administrative liabilities (including administrative fines), and whether positive measures have been taken to reduce the adverse effects. Although in theory, even if criminal liability is pursued, it is still possible to request the defendant to bear civil liability. However, when traditional criminal litigation and civil litigation coexist, what criminal litigation protects is in the public (namely national) interest, and what civil litigation guarantees is in the private interest of an individual victim. But in the case of the coexistence of environmental criminal litigation and environmental civil public interest litigation, both what they protect are environmental public interest.

In case "criminal fines" have been imposed in the previous (criminal) litigation, the latter environmental civil public interest litigation requires to compensate for environmental damages and is then suspected of repeated punishment. Even if the fine is not enough to make up for the damage caused by the defendant to the environment, "it shall enforce by improving the fine structure and increasing the fine amount, rather than dealing with the individual through civil public interest litigation" (Gong 2016).

5.4 To Relax the Court's Reliance on Inquisitorial System

China is a country with a strong tradition of inquisitorial system. Under the inquisitorial system, the judge will guide the parties to file claims, investigate facts and collect evidences, and determine the facts according to the materials of the investigation and evidences. However, more recently, China realized and learned from gradual advantages of the adversary system. Namely, the judge shall be only the guide of the lawsuit, instructing the proceeding of the procedure. And main actors of the trial are the parties, not the judge. In the court, the plaintiff filed claims, facts and reasons, and the other party defended around them. The plaintiff and the defendant debated and challenged in the court, and the judge found out the facts through the process and can only judge based on the facts ascertained in the court.

The purpose China's ongoing reform of the "litigation system centered on court trials" is to change the current pattern of litigation, and gradually shift from an inquisitorial system to an adversary system. No matter whether it is civil private interest litigation or civil public interest litigation, the parties participating in the litigation are all equal before the court, and the judge can only make a judgment

according to the proofing ability of both parties. Otherwise, it will violate the neutrality principle of judicial power. Although in term of protection of the environmental public interest, there have been concerns of “government failures” and “judicial failures”, it is still not acceptable for the court to be too active and even to dominate everything during the trial leaping over the parties, which of course violate the principle of judicial neutrality.

6 Concluding Remarks

Many people have proposed to reward the plaintiffs for environmental public interest litigation (Wang 2016; Li and Chen 2015). The judicial interpretation also clarifies that “the costs incurred by the plaintiff in order to cease infringement, remove obstacles, eliminate dangers and take reasonable prevention and disposal measures, could be claimed to the defendant, the people’s courts may support them according to law (Supreme People’s Court 2014a, b, a19).” “If the plaintiff claims the defendant to bear the costs of inspection, appraisal, reasonable lawyers’ fees, and other reasonable expenses for litigation, the people’s court may support it according to law.” (Supreme People’s Court 2014a, b, a22). “The necessary expenses for investigation and evidence collection, expert consultation, inspection, appraisal, etc., which are required by the lost plaintiff in the environmental civil public interest litigation, may be paid from the above-mentioned funds as appropriate.” (Supreme People’s Court 2014a, b, a24). All these provisions fully demonstrate the affirmation of the role of social organizations in protecting the public interest. Accordingly, social organizations shall cherish the qualification for public interest litigation. Before filing a lawsuit, social organizations shall investigate facts; the collected materials can be used as evidence of a correlation between environmental damage and behaviors of the defendant, and used by the court to consider proper compensation for environmental damages. This is the true environmental fairness, balances the interests between environmental protection and economic development, and embodies the spirit of environmental public interest litigation. It will help to eliminate such misunderstanding that environmental civil public interest litigation is one-sided “political show” in which environmental protection organizations with courts, environmental administrative agencies, and procuratorates counter together polluters.

However, from the perspective of current legal provisions and from the trial practices of environmental civil public interest litigation, the court’s dominance in such litigations far exceeds in other kinds of traditional cases. The court relies heavily on the inquisitorial system, and plaintiffs is more like a “postman” who has the standing but just undertakes tasks such as filing litigation and participating in trials. Once the case and enters the trial procedure, the right of the plaintiff (NGOs) to speak is limited. It is acceptable in the initial development stage of public interest litigation. But if this phenomenon continues, it will affect the maturity and improvement of the environmental civil public interest litigation system.

When the environmental civil public interest litigation develops to a higher stage, the court shall change its role into a guide of the procedure. How the case is heard, whether the plaintiff can win the case or not, and how many liabilities the defendant shall bear, depends closely on the evidences collected and claims filed by the plaintiff. This is also the inevitable result of the litigation system reform centered on the court trial. When the adversary system gradually prevails and eventually replaces the inquisitorial system, the accuracy, appropriateness and rationality of the plaintiff's claim for litigation will directly affect the judgment result of the said case.

Therefore, as environmentally good governance with the rule of law is China's goal, when China improves its environmental civil public interest litigation system, it shall not only clarify litigation rules, regulate court's trial activities, but also instruct the behavior of the plaintiffs who have been granted the standing to sue. The more explicit the facts are, the more recognized evidences, the more likelihood the claims of the plaintiff will be accepted by the defendant and supported by the court. And then we can say that we have established a true environmental public interest litigation system, aiming at promoting environmental governance and sustainable development in China.

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Part VI
Specific Aspects: Biodiversity & Biofuels –
Access and Benefit Sharing, Indigenous
Peoples' Knowledge, and Local
Implications

Rules and Practices of International Law on Benefit-Sharing for Sustainable Development



Jorge Cabrera Medaglia and Frederic Perron-Welch

Legal Terms and Abbreviations

Agreement on Part XI	Agreement Relating to the Implementation of Part XI of the UN Convention on the Law of the Sea
ABS	Access and Benefit Sharing
Bonn Guidelines	Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization
CCAD	Comisión Centroamericana de Ambiente y Desarrollo
CHH	Common heritage of humankind
FAO	Food and Agriculture Organization
GHG	Greenhouse gases
GMBSM	Global multilateral benefit-sharing mechanism
GR	Genetic resources
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights

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IGC	Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore
ILA	International Law Association
ILO	International Labour Organisation
ISBA	International Seabed Authority
MAT	Mutually agreed terms
MLS	Multilateral system
Moon Agreement	Agreement Governing the Activities of States on the Moon and Other Celestial Bodies
Nagoya Protocol	Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Resulting from their Utilization
NBSAPs	National biodiversity strategy and action plan
NIEO	New International Economic Order
OAS	Organization of American States
PGRFA	Plant genetic resources for food and agriculture
PIC	Prior informed consent
Plant Treaty	International Treaty on Plant Genetic Resources for Food and Agriculture
PSNR	Permanent Sovereignty over Natural Resources
REDD+	Reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
SADC	South African Development Community
SICA	Sistema de la Integración Centroamericana
TFRK	Traditional forest-related knowledge
TK	Traditional knowledge
TKIP	Traditional knowledge, innovations and practices
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNHRC	United Nations Human Rights Council
UNOOSA	United Nations Office for Outer Space Affairs
WIPO	World Intellectual Property Organisation

1 Benefit-Sharing for Sustainable Development

Benefit-sharing can be conceptualized as “the concerted and dialogic process aimed at building partnerships in identifying and allocating economic, socio-cultural and environmental benefits among state and non-state actors, with an emphasis on the vulnerable” (Morgera 2016). A growing number of international legal materials refer to benefit-sharing with regard to natural resource use (UN 1979; UNCLOS 1982; CBD 1992, 2010; FAO 2001; Morgera 2016). It can be argued that it can be considered, in its normative core, a general principle of international law; the manifestation of consensus among developed and developing countries (Morgera 2018b). Yet it likely cannot yet be described as a specific, established principle of international law, and even less as customary international law (Morgera 2016). A common understanding does not exist as to the content of the principle, nor does *opinio juris*. The best-known elaboration of the principle in the context of natural resources law is in biodiversity law, specifically in relation to the use of genetic resources (CBD 1992, 2010; FAO 2001). Its origins also come from the field of human rights law, primarily the right to self-determination, the right to development, the right to enjoy the benefits of scientific progress and technology, and the rights of indigenous peoples and local communities (UNGA 1948, 1975, 1986, 2007; ICCPR 1966; ICESCR 1966; ILO 1989; Morgera 2018a).

The link between benefit-sharing and sustainable development is made explicit in the preamble of the 2002 International Law Association (ILA) New Delhi Declaration of Principles of International Law Relating to Sustainable Development, which defines the objective of sustainable development as “a comprehensive and integrated approach to economic, social and political processes, which aims at the sustainable use of natural resources of the Earth and the protection of the environment on which nature and human life, as well as social and economic development depend and which seeks to realize the right of all human beings to an adequate living standard on the basis of their active, free and meaningful participation in development and the fair distribution of benefits resulting therefrom, with due regard to the needs and interests of future generations” (ILA 2002). Principles 1.2 (sustainable management of natural resources for development), 2.1 (equity as central to sustainable development), 2.2 (right of present generations and obligation to future generations), and 2.3 (right to development) provide an added lens through which the principle of benefit sharing can be assessed (ILA 2002).

Research on benefit-sharing as a general principle of international law has only recently emerged, primarily in the context of the BeneLex project led by Prof. Elisa Morgera at the University of Strathclyde (BeneLex 2018). The objective of this chapter is to undertake further research to add weight to the argument that benefit-sharing is an important principle of international law, especially in the context of sustainable development. The remainder of this chapter is divided into three sections. The first (Sect. 2) will examine the roots of the principle, international treaties and instruments related to the principle of benefit-sharing, and links to sustainable development. The second (Sect. 3) will summarize the legal obstacles facing the

implementation of benefit-sharing. The third (Sect. 4) will review areas for future research on benefit-sharing in different international fora.

2 Contributions of International Law and Governance to Benefit-Sharing for Sustainable Development

This section first addresses the historical roots of the concept of benefit-sharing for sustainable development, beginning with the international law principle of permanent sovereignty over natural resources and the right to development. The section continues with an assessment of the status of the principle in biodiversity law, climate and desertification law, human rights law pertaining to indigenous peoples, the law of the sea, and outer space law. It concludes with a brief description of the concept of benefit-sharing for sustainable development, and its different aspects, based on the provisions of the international instruments surveyed in this section.

2.1 Principle of Permanent Sovereignty Over Natural Resources

The principle that benefits from the use of natural resources should be shared is present in the earliest incarnations of the principle of permanent sovereignty over natural resources (PSNR), as first defined in the 1962 United Nations General Assembly (UNGA) Resolution on PSNR and which has evolved through normative resolutions originating from a variety of United Nations organs (Schrijver 2012). The roots of the concept are linked to the strengthening of the (political and economic) sovereignty of newly independent States, and the right of self-determination of peoples under colonial occupation and in non-self-governing territories (Schrijver 2012, 2015). The principle has been advocated by developing countries to secure the benefits arising from the exploitation of natural resources for colonial peoples, and as a legal shield protecting newly independent countries from infringements of their economic sovereignty (Schrijver 2012). It embodies the right of States and peoples to dispose freely of their natural resources and natural wealth, but exists as a qualified concept encompassing duties as well as rights (Schrijver 2012).

In one of its quasi-law creating effects, the 1962 Resolution vests permanent sovereignty in both peoples and States, and attributes to both the duty to exercise their sovereignty in the interest of national development and for the well-being of the people (UNGA 1962a; Schrijver 2015). It also makes reference to other principles relevant to benefit-sharing that are now part of the canon of international law, namely that the exploration, development and disposition of natural resources and the foreign capital required for these purposes are in conformity with domestic laws

on authorization, restriction or prohibition of such activities; that profits derived from the use of natural resources are shared in the proportions freely agreed upon by the investors and the recipient State; and that international development cooperation must be aimed at the independent national development of developing countries, based on respect for sovereignty over their national wealth and resources (UNGA 1962a; Schrijver 2015).

Yet, the United Nations also concurrently expressed concern for the sustainable management of natural resources for development, recognizing “the extent to which the economic development of the developing countries may jeopardize their natural resources and flora and fauna, which in some cases may be irreplaceable if such development takes place without due attention to their conservation and restoration” (UNGA 1962b) and recommending measures aiming at preserving, restoring, enriching and making rational use of natural resources and increasing productivity; observing international treaties on the preservation of flora and fauna; and, introducing effective domestic legislation aiming at eliminating the wasteful exploitation of flora and fauna (UNGA 1962b).

Soon after the adoption of the 1962 PSNR Resolution, developing countries sought to build upon the principle as a means to foster their economic development and to redistribute wealth and power in their relations with the industrialized countries (Schrijver 2015). The 1966 PSNR Resolution makes this evident, recognizing the right of all countries, and developing countries in particular, to have a greater share in the advantages and profits derived from natural resources on an equitable basis, with due regard for the development needs and objectives of the peoples concerned and to mutually acceptable contractual practices (UNGA 1966). The strength of the general principle is evident from its inclusion in the international human rights covenants on civil and political rights, and economic, social and cultural rights, which were adopted concurrently in 1966. Both indicate that all peoples may freely dispose of their natural wealth and resources based upon the principle of mutual benefit (ICCPR 1966; ICESCR 1966).

The concept of benefit-sharing subsequently evolved through developments in international law under the umbrella of the debate on a New International Economic Order (NIEO) (UNGA 1974), which has left its legacy in the global sustainable development agenda (Morgera 2016). According to the 1986 ILA Seoul Declaration, foundational principles of the NIEO include, among others, equity, solidarity, development assistance, the duty to cooperate for global development, permanent sovereignty over natural resources/economic activity/wealth, the right to development, substantive equality, and the right to benefit from science and technology (ILA 1987). After the NIEO debates, benefit-sharing made an appearance in several subsequent human rights instruments, such as the 1986 Declaration on the Right to Development, which indicates that States have the duty to formulate appropriate national development policies that aim at the constant improvement of the well-being of the entire population and of all individuals, on the basis of their active, free and meaningful participation in development and in the fair distribution of the benefits resulting therefrom (UNGA 1986).

In the most recent UN declarations on development, ranging from the 1990s to the present, the focus on PSNR has shifted to a greater focus on international cooperation for sustainable development (Schrijver 2012). PSNR is now well established as a source of international responsibilities requiring careful management of natural resources, imposing accountability at the national and international levels, and the taking into account of international law on sustainable development and the rights of future generations (Schrijver 2012). This is of pertinence to the discussion below, as the effective protection of biodiversity is possible only with international cooperation because many of the components of biodiversity, the threats to biodiversity and benefits therefrom have transboundary or global dimensions (UNHRC 2017). This is also the case for the protection of the climate, and the fight against desertification and land degradation.

2.2 Biological Resources Under National Jurisdiction

The most widely recognized application of benefit-sharing associated with natural resources is found in international biodiversity law, which builds on the principle of PSNR in its primary instruments: the 1992 Convention on Biological Diversity (CBD) (CBD 1992), the 2002 Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization (Bonn Guidelines) (CBD 2002) and the 2010 Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Resulting from their Utilization (Nagoya Protocol) (CBD 2010). The objectives of the CBD are the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources (GR), including by appropriate access to GR and by appropriate transfer of relevant technologies, and by appropriate funding (CBD 1992). The conservation of genetic diversity is aimed at preserving the total amount of genetic information of all living organisms, including wild as well as cultivated species (Matz-Lück 2012). Its operational scope applies to biodiversity in areas of national jurisdiction (CBD 1992), but it also applies to “processes and activities, regardless of where their effects occur, carried out under [each Contracting Party’s] jurisdiction or control, within the area of its national jurisdiction or beyond the limits of national jurisdiction” (CBD 1992) which could extend its scope to all biodiversity (Matz-Lück 2012).

It has been argued that the roots of access and benefit-sharing (ABS) in the CBD can be traced to colonialism and efforts by colonial powers to gain control of trade over key commodities for their own benefit, and that part of the rationale behind benefit-sharing is to avoid the exploitation inherent in many forms of resource extraction with a North-South legacy that have historically been associated with the unsustainable use of natural resources (Stoett 2004). Appropriation from the 1980s onward transitioned from the physical use of natural resources to the use of intellectual property rights (IPR) in the North to protect innovations based on

biodiversity. ABS was explicitly incorporated into the CBD due to the fact that many biodiversity hotspots with significant potential are located in developing countries. The CBD scheme on benefit-sharing is firmly based upon the concept of sustainable development, as States must aim to find an equitable balance between the interests of the countries of origin and those of States that have the technical and technological means to use GR develop and use technologies stemming therefrom (Matz-Lück 2012). The resulting approach allows States to control access by setting terms that allow them to profit from the potential value of their GR and biodiversity, creating an incentive to conserve and sustainably use the resources (Cabrera Medaglia 2015). ABS creates a new income opportunity for poor countries, which should place them in a better position to escape from poverty (Richerzhagen 2010).

The objectives of the CBD establish a clear link between the conservation and sustainable use of biodiversity, and the sharing of benefits resulting from access. This linkage is affirmed in the objective of the Nagoya Protocol on ABS, which associates fair and equitable sharing of the benefits arising from the utilization of GR with the conservation of biodiversity and the sustainable use of its components (CBD 2010). It also encourages users and providers to direct benefits arising from the utilization of GR towards the conservation of biodiversity and the sustainable use of its components (CBD 2010). The CBD is one of the only conventions to define the sustainable use of a resource, defining it as “the use of components of biodiversity in a way and at a rate that does not lead to its long-term decline, thereby maintaining its potential to meet the needs and aspirations of present and future generations” (CBD 1992). To clarify this definition, it also defines the terms biodiversity and biological resources — which include genetic resources (CBD 1992).

Sustainable use focuses on the active management of biological resources, which provide an incentive for conservation by allowing for benefits from use that does not threaten a species or ecosystem (Matz-Lück 2012). Including genetic and ecosystem diversity into the definition of biodiversity goes further than earlier treaties, which aim to protect enumerated species or areas from human threats and destruction or extinction (Matz-Lück 2012). At its core, the CBD makes it clear that biodiversity is not a shared global resource, but rather that States have sovereign rights over their own biological resources, and the sovereign right to exploit their own resources pursuant to their own environmental policies (CBD 1992). This point is reinforced by Article 15 which provides that national governments have the authority to determine access to GR based on national legislation, based on the sovereign rights of States over their natural resources (CBD 1992). This was a fundamental shift in international law, as genetic resources were formerly perceived as the common heritage of humanity (Cabrera Medaglia 2015). This shift is quite consequential, as most biological resources are found under the jurisdiction of States (Matz-Lück 2012).

Yet, the CBD also places limitations on the exercise of PSNR in ways that favour the sustainable management of natural resources for development. It establishes general measures that States must undertake for the conservation and sustainable use of biodiversity, namely the development of national strategies, plans or programmes for the conservation and sustainable use of biodiversity (aka NBSAPs),

or adapt for this purpose existing strategies, plans or programmes, and the integration of the conservation and sustainable use of biodiversity into relevant sectoral or cross-sectoral plans, programmes and policies (CBD 1992). Limitations on PSNR that apply specifically to GR include Parties endeavouring to create conditions to facilitate access to GR for environmentally sound uses by other Parties and not to impose restrictions that run counter to the objectives of this CBD, access based on mutually agreed terms (MAT) and subject to the prior informed consent (PIC) of the providing Party, and the taking of legislative, administrative or policy measures with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of GR with the Party providing the GR upon MAT (CBD 1992).

In regards to the sustainable use of biological resources, Parties must integrate consideration of the conservation and sustainable use of biodiversity into national decision-making; adopt measures relating to the use of biological resources to avoid or minimize adverse impacts on biodiversity; protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements; support local populations to develop and implement remedial action in degraded areas where biodiversity has been reduced; and encourage cooperation between its governmental authorities and its private sector in developing methods for sustainable use of biological resources (CBD 1992). The Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity elaborate on these obligations in the context of adaptive management, interdisciplinary research, minimizing waste and environmental impact and optimising benefits from uses, the needs of ILC and fair and equitable sharing of benefits, and the internalization of costs of management and conservation (CBD 2004). In 2007, the United Nations Conference on Trade and Development (UNCTAD) elaborated a set of BioTrade Principles and Criteria based on the Addis Ababa Principles and Guidelines in order to buttress the links between sustainable use and benefit-sharing (UNCTAD 2007). These Principles and Criteria are now being expanded and adapted to cover the marine environment through the concept of Blue BioTrade (UNCTAD 2018).

In less stringent terms, the CBD also provides for an additional form of benefit-sharing relating to the conservation and sustainable use of biodiversity in recognition of the value of the traditional knowledge, innovations and practices (TKIP) on biological resources of indigenous and local communities (ILC) embodying traditional lifestyles and the desirability of sharing equitably benefits arising from the use of TKIP (CBD 1992). These TKIP can provide a lead to GR with beneficial properties and can thus be linked to ABS. In consequence, the CBD requires each Party to, “as far as possible and as appropriate” and “subject to its national legislation” respect, preserve and maintain the TKIP of ILC embodying traditional lifestyles relevant for the conservation and sustainable use of biodiversity, and promote their wider application with the approval and involvement of the holders of the TKIP, as well as encouraging the equitable sharing of the benefits arising therefrom (CBD 1992). The Nagoya Protocol goes further and states that Parties shall take legislative, administrative or policy measures, as appropriate, in order that the

benefits arising from the utilization of traditional knowledge (TK) associated with GR are shared in a fair and equitable way with indigenous and local communities holding such knowledge (CBD 2010).

The Bonn Guidelines were adopted in order to clarify the benefit-sharing provisions found in the CBD in a voluntary manner. They were the first to establish the link between CBD Articles 8 (j) (TKIP), 10 (c) (customary sustainable use), 15 (access to genetic resources), 16 (access to and transfer of technology) and 19 (handling of biotechnology and distribution of its benefits) (CBD 2002). Importantly, they provide guidance on the content of benefit-sharing agreements to assist in the development of MAT that ensures fair and equitable benefit-sharing (CBD 2002). They indicate that MAT may cover the conditions, obligations, procedures, types, timing, distribution and mechanisms of benefits to be shared, which will vary depending on what is regarded as fair and equitable in the circumstances (CBD 2002). Near-term, medium-term and long-term benefits should be considered, including upfront payments, milestone payments and royalties, with the time frame of benefit-sharing clearly stipulated. The balance among near, medium and long-term benefits should be considered on a case-by-case basis (CBD 2002). Benefits should be shared fairly and equitably with all those who have been identified as having contributed to the resource management, scientific and/or commercial process. The latter may include governmental, non-governmental or academic institutions and indigenous and local communities, and be directed in order to promote conservation and sustainable use of biodiversity (CBD 2002). It is recommended that the mechanism for benefit-sharing vary depending upon the type of benefits, the specific conditions in the country and the stakeholders involved, and be flexible as it should be determined by the partners involved and will vary on a case-by-case basis (CBD 2002). Mechanisms should include full cooperation in scientific research and technology development, as well as those that derive from commercial products including trust funds, joint ventures and licences with preferential terms (CBD 2002).

The Bonn Guidelines were buttressed by the adoption in 2010 of the legally binding Nagoya Protocol, which provides a transparent legal framework for the effective implementation of the benefit-sharing obligations of the CBD, providing greater legal certainty for providers and users of genetic resources and helping to ensure benefit-sharing when GR leaves the providing country (Cabrera Medaglia 2015). By enhancing legal certainty and promoting benefit-sharing, it encourages the advancement of research on GR, which creates incentives to conserve and sustainably use GR, thereby enhancing the contribution of biodiversity to development and human well-being (Cabrera Medaglia 2015). The Annex to the Nagoya Protocol demonstrates the potential breadth of benefit-sharing and indicates how it may contribute to sustainable development, which could be of relevance to interpreting benefit-sharing in a broader context (CBD 2010).

2.3 *International Treaty on Plant Genetic Resources for Food and Agriculture*

The 2001 FAO *International Treaty on Plant Genetic Resources for Food and Agriculture* (Plant Treaty) has as its objective the conservation and sustainable use of plant genetic resources for food and agriculture (PGRFA) and the fair and equitable sharing of the benefits arising out of their use, in harmony with the CBD, to ensure sustainable agriculture and food security (FAO 2001). This objective is based on PSNR, as it builds on the pre-existing status of GR under the CBD. The preamble notes that, by exercising their sovereign rights over PGRFA, States can mutually benefit from creating an effective multilateral system (MLS) for facilitated access to a negotiated selection of resources and for the fair and equitable sharing of the benefits arising from their use. In this sense, the Plant Treaty “seeks to promote agricultural sustainability within a global system that recognizes the permanent sovereignty and exclusive control of States over PGRFA within their own jurisdiction” (Footer 2004) and lays the foundation for the establishment of an “equitable food and agricultural system for future generations, through a broader-based multilateral system of facilitated access and benefit-sharing of PGRFA, open to and including various different stakeholders” (Footer 2004).

Article 6 creates basic obligations relating to a sustainable use of PGRFA, namely that Parties develop and maintain the appropriate policy and legal measures that promote the sustainable use of PGRFA. Article 10 establishes the MLS, stating that Parties exercise their sovereign rights to establish an MLS that is efficient, effective, and transparent, both to facilitate access to PGRFA and to share, in a fair and equitable way, the benefits arising from the utilization of PGRFA, on a complementary and mutually reinforcing basis (FAO 2001). Although the Plant Treaty applies to PGRFA broadly, the MLS only covers access to the 64 food and forage crops listed in its Annex I, and strictly for the purposes of utilization and conservation for research, breeding and training for food and agriculture (other uses are subject to the CBD/Nagoya Protocol) (Cabrera Medaglia et al. 2013). Unlike the bilateral approach promoted by the CBD, the PGRFA are shared based on a standard material transfer agreement adopted by the Governing Body of the Plant Treaty, which includes the benefit-sharing provisions found in Article 13 (FAO 2001). Facilitated access to PGRFA which are included in the MLS is recognized as a major benefit of the MLS, and Parties have agreed that benefits accruing therefrom shall be shared fairly and equitably through the following mechanisms: exchange of information, access to and transfer of technology, capacity building, and the sharing of the benefits arising from commercialization (FAO 2001). This section of the Plant Treaty “seeks to redress some of the more obvious asymmetries between gene-rich developing countries of the South and the gene-hungry countries of the North with its inclusion of provisions relating to the sharing of monetary and other benefits arising from commercialization” (Footer 2004). There remain some significant challenges in the operationalization of the MLS, especially in terms of increasing non-voluntary monetary contributions (Wolff 2014; Tsioumani 2018).

The Preamble to the Plant Treaty also recognizes benefit-sharing as a fundamental aspect of Farmers' Rights. First, it affirms that these rights are inherent, and based on "the past, present and future contributions of farmers in all regions of the world, particularly those in centres of origin and diversity, in conserving, improving and making available these [PGRFA]" (FAO 2001). Second, it indicates "that the rights recognized in this Treaty to save, use, exchange and sell farm-saved seed and other propagating material, and to participate in decision-making regarding, and in the fair and equitable sharing of the benefits arising from, the use of [PGRFA], are fundamental to the realization of Farmers' Rights, as well as the promotion of Farmers' Rights at national and international levels" (FAO 2001). In a manner similar to the protection of the TKIP of ILC in the CBD, the Plant Treaty establishes that "In accordance with their needs and priorities, each Contracting Party should, as appropriate, and subject to its national legislation, take measures to protect and promote Farmers' Rights, including: protection of traditional knowledge relevant to plant genetic resources for food [PGRFA], [and] the right to equitably participate in sharing benefits arising from the utilization of [PGRFA]" (FAO 2001). Unfortunately, much remains to be done in regards to the implementation of these rights (Cabrera Medaglia et al. 2019).

2.4 Convention for the Conservation of the Biodiversity and the Protection of Wilderness Areas in Central America

The 1992 Convention for the Conservation of the Biodiversity and the Protection of Wilderness Areas in Central America aims to preserve the maximum possible biological, terrestrial and coastal-marine diversity of the Central American region for the benefit of present and future generations (SICA 1992). It contains several provisions relevant to benefit-sharing, firstly that the value of the contribution of the biological resources and the maintenance of biodiversity to economic and social development must be recognized and reflected in the economic and financial arrangements between the countries of the region, and between these and others that cooperate in their conservation and use (SICA 1992). The Convention also states that knowledge of biodiversity and the efficient management of protected areas should be encouraged in the region, and that the benefits of R&D on bio-materials or the management of protected areas should be made available to society as a whole (SICA 1992). Similarly to the CBD, TKIP developed by native groups in the region that contribute to the conservation and use sustainable use of biological resources should be recognized and recovered (SICA 1992). In regards to access to genetic resources and technology, it indicates that access to genetic material, substances, derivative products, related technology, and their conservation, is open, subject to the jurisdiction and control of the States through agreements mutually established with recognized organizations (SICA 1992). Lastly, it

promotes the elaboration of national laws for the conservation and sustainable use of the components of biodiversity (SICA 1992). In 1998, the Central American Protocol on Access to Genetic and Biochemical Resources and Associated Traditional Knowledge was adopted to provide a basis for the harmonization of laws and standards related to access to genetic and biochemical resources (CCAD 2003; Cabrera Medaglia 2003). However, it has not yet entered into force.

2.5 South African Development Community (SADC) Protocol on Forestry (Luanda Protocol)

The South African Development Community (SADC) Protocol on Forestry (Luanda Protocol) (SADC 2002) establishes that “to achieve the objectives of this Protocol, State Parties shall cooperate by promoting respect for the rights of communities and facilitating their participation in forest policy development, planning, and management with particular attention to the need to protect traditional forest-related knowledge (TFRK) and to develop adequate mechanisms to ensure the equitable sharing of benefits derived from forest resources and traditional forest-related knowledge without prejudice to property rights” (SADC 2002). A core principle of the Protocol is that “State Parties shall recognise that communities are entitled to effective involvement in the sustainable management of forests and forest resources on which they depend and to share equitably in the benefits arising from their use” (SADC 2002). More substantively, Parties must recognise, respect and protect the rights of individuals and communities over their TFRK and their right to benefit from its utilization (SADC 2002). Parties may, with a consultation with local people and communities, record, preserve and protect TFRK and provide for equitable benefit-sharing from its utilization among those who hold it, and develop relevant standards, guidelines and other mechanisms where appropriate (SADC 2002). Furthermore, Parties must adopt national policies and implement mechanisms to ensure that access to the forest GR is subject to PIC and MAT and equitable benefit-sharing from their use (SADC 2002). They will also develop a regional approach and harmonised national legislation regulating access to, and the management, development and use of forest GR and for equitable benefit-sharing (SADC 2002).

2.6 Relevance of the Rio Conventions

The United Nations Framework Convention on Climate Change (UNFCCC) (UNFCCC 1992) recognizes the key role and importance in terrestrial ecosystems of sinks and reservoirs of greenhouse gases (GHG) and the sovereign right of States to exploit their own resources pursuant to their own environmental and developmental policies (UNFCCC 1992). Basic principles of the UNFCCC include the right

to sustainable development, and the need for cooperation to promote a supportive and open international economic system that would lead to sustainable economic growth and development in all Parties (UNFCCC 1992). Parties commit to promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all GHG, including biomass and forests, as well as other terrestrial ecosystems (UNFCCC 1992). The 2015 Paris Agreement to the UNFCCC incorporates provisions that promote benefit-sharing for sustainable development. It states that Parties should take action to conserve and enhance, as appropriate, sinks and reservoirs of GHG, including forests, and encourages Parties to take action to implement and support, including through results-based payments: the existing framework for policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD+); and, alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests, while reaffirming the importance of incentivizing, as appropriate, non-carbon benefits associated with such approaches (UNFCCC 2015).

The 1994 United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD) (UNCCD 1994) notes in its preamble that desertification is caused by complex interactions among different factors (physical, biological, political, social, cultural and economic), recognizes the sovereign right of States to exploit their own resources pursuant to their own environmental and developmental policies, and bears in mind the contribution that combating desertification can make to achieving the objectives of the UNFCCC, CBD and other related environmental conventions (UNCCD 1994). In order to achieve the objective of the UNCCD to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, long-term integrated strategies will need to be adopted that focus simultaneously on improved productivity of land, and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level (UNCCD 1994). In addition to their general obligations, developed Parties commit to “promote and facilitate access by affected country Parties, particularly affected developing country Parties, to appropriate technology, knowledge and know-how” (UNCCD 1994). Although much of the UNCCD addresses this issue, which could be considered a mode of benefit-sharing, the paragraph below is restricted to benefit-sharing from the use of traditional knowledge, which contains language similar to the CBD.

In the context of scientific and technological cooperation, specifically information collection analysis and exchange, UNCCD Parties shall “subject to their respective national legislation and/or policies, exchange information on local and traditional knowledge, ensuring adequate protection for it and providing appropriate return from the benefits derived from it, on an equitable basis and on [MAT], to the local populations concerned” (UNCCD 1994). For R&D, Parties must support research

activities that protect, integrate, enhance and validate TKIP, ensuring, subject to national law and/or policies, that the TKIP owners will directly benefit on an equitable basis and on MAT from any commercial utilization or technological development derived from that knowledge (UNCCD 1994). In the context of transfer, acquisition, adaptation and development of technology, the Parties shall, according to their respective capabilities, and subject to their respective national legislation and/or policies, protect, promote and use in particular relevant traditional and local technology, knowledge, know-how and practices and undertake to ensure that such technology, knowledge, know-how and practices are adequately protected and that local populations benefit directly, on an equitable basis and as mutually agreed, from any commercial utilization of them or from any technological development derived therefrom (UNCCD 1994).

2.7 Rights of Indigenous Peoples

ILO Convention 169 Concerning Indigenous and Tribal Peoples in Independent Countries (ILO Convention 169) (ILO 1989) indicates that indigenous/tribal peoples also have the right to participate in the use, management and conservation of natural resources pertaining to their lands and territories (ILO 1989). Where States retain ownership of rights to natural resources pertaining to indigenous/tribal lands and territories, they must establish or maintain consultation procedures to determine the level of prejudice to indigenous/tribal interests before undertaking or permitting programmes for the exploration or exploitation of these resources, and wherever possible, the peoples concerned will participate in the benefits of such activities and receive compensation for damages which they may sustain (ILO 1989). Article 15 does not determine the precise scope of benefit-sharing, allowing for different interpretations in domestic legal systems and considerable scope for discretion in its implementation (Morgera 2018a).

Although the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) (UNGA 2007) and Organization of American States (OAS) American Declaration on the Rights of Indigenous Peoples (OAS 2016) also contain the right to participate in the management of natural resources use, and the right to redress, they do not make mention of the right to benefit from the use of natural resources where States retain ownership in these resources. Yet, Special Rapporteurs on the rights of indigenous peoples have gradually asserted that benefit-sharing is implicit in UNDRIP provisions on the right to natural resources (Morgera 2018a). The Nagoya Protocol does make explicit reference to the rights of indigenous peoples to benefit-sharing from their natural resources in Article 5 (2), stating that Parties shall take legislative, administrative or policy measures, as appropriate, with the aim of ensuring that benefits arising from the utilization of GR that are held by indigenous and local communities, in accordance with domestic legislation regarding the established rights of these indigenous and local communities over these GR, are

shared fairly and equitably with the communities concerned, based on MAT (CBD 2010).

2.8 *Law of the Sea*

As seabed resource exploitation is now becoming a possibility (Miller et al. 2018), it is important to discuss the benefit-sharing provisions of the United Nations Convention on the Law of the Sea (UNCLOS) (UNCLOS 1982). Firstly, UNCLOS contains benefit-sharing provisions relating to the non-living resources of the extended continental shelf (beyond 200 nautical miles), and these provisions are indirectly linked to the CHH principle (ILA 2008). These provisions establish an obligation for coastal States to make payments or contributions in kind relating to the exploitation of the non-living resources of their extended continental shelf through the International Seabed Authority (ISBA) (UNCLOS 1982). The ISBA will then distribute these payments/contributions to Parties, on the basis of equitable sharing criteria, taking into account the interests and needs of developing States, particularly least—developed/landlocked Parties (UNCLOS 1982). The ILA Committee on the Legal Issues of the Outer Continental Shelf proposes that it is up to the coastal State to determine the form, method and timing of benefit-sharing (ILA 2008). The criteria for payments and contributions are to be developed by the Council, the executive organ of the ISBA, in the form of rules, regulations and procedures for recommendation to the Assembly of the ISBA (UNCLOS 1982). The Assembly has the power to consider and approve, upon the recommendation of the Council, such rules, regulations and procedures, taking into particular consideration the interests and needs of developing States and peoples who have not attained full independence or other self-governing status (UNCLOS 1982).

Secondly, UNCLOS indicates that the Area (the deep seabed beyond national jurisdiction) and its resources are the CHH (UNCLOS 1982). Sovereignty or sovereign rights cannot be claimed or exercised over any part of the Area or its resources, nor can a State or person appropriate any part thereof (UNCLOS 1982).¹ All rights over resources in the Area are vested in humankind as a whole, and the ISBA acts on its behalf, establishing rules, regulations and procedures whereby minerals recovered from the Area can be alienated (UNCLOS 1982). Activities in the Area must be carried out for the benefit of humankind as a whole, taking into particular consideration the interests and needs of developing States and of peoples who have not attained full independence or other self-governing status (UNCLOS 1982). The ISBA is responsible for providing for the equitable sharing of financial and other economic benefits derived from activities in the Area through an

¹UNCLOS Article 133 defines “resources” as all solid, liquid or gaseous mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules, and that resources recovered from the Area are referred to as “minerals”.

appropriate mechanism, on a non-discriminatory basis, in accordance with the rules, regulations and procedures thereon proposed by the Council, taking into particular consideration the interests and needs of the developing States and peoples who have not attained full independence or other self-governing status (UNCLOS 1982). This mandate is consequential in the context of the development of draft regulations on exploitation of mineral resources in the Area, especially the discussions on how to operationalize the principle of the CHH, and the creation of a payment mechanism that delivers a fair and equitable return to the CHH, balances commercial interests and supports technological development and change, which is one of the most challenging aspects in negotiations (ISBA 2018).

2.9 *Celestial Bodies*

With the exploitation of the natural resources of celestial bodies on the horizon, it is also relevant to examine the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement) (UN 1979). Despite its limited number of ratifications, the Moon Agreement was adopted by the UNGA by consensus and provides the best available option for the harmonious development of space mineral resources (Lefeber 2016). The Moon Agreement builds upon the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (UN 1967), which has a much broader membership and is founded on common principles, including that the exploration and use of outer space are carried out for the benefit and in the interest of all countries, irrespective of the degree of their economic or scientific development, and be the province of all mankind; and that outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claims of sovereignty, by means of use or occupation, or by any other means (UN 1967, 1979; UNGA 1996).

The Moon Agreement elaborates on these common principles, noting that due regard shall be paid to the interests of present and future generations, as well as to the need to promote higher standards of living and conditions of economic and social progress and development (UN 1979). When exploitation of the moon's natural resources is about to become feasible, Parties will undertake to establish an international regime governing exploitation (UN 1979). The main purposes of the new regime would include the orderly and safe development of the natural resources of the moon, the rational management of those resources, and an equitable sharing by all Parties in the benefits derived from those resources, whereby the interests and needs of the developing countries, as well as the efforts of those countries which have contributed either directly or indirectly to the exploration of the moon, shall be given special consideration (UN 1979). Importantly, the provisions of the agreement relating to the moon also apply to other celestial bodies within the solar system, unless specific legal norms enter into force on those specific bodies (UN 1979). This

provision would therefore apply by default to other planets, their moons, comets, and asteroids (Crawford 2016; Barton and Recht 2018).

2.10 The Substance of the Concept of Benefit-Sharing

The concept of benefit-sharing as a contributor to sustainable development is derived from equity as a general principle of international law, which aims to balance competing rights and interests and integrate ideas of justice into a relationship regulated by international law (Morgera 2018c). It promotes both procedural justice (fairness) and substantive justice (equity) for the current generation (Morgera 2018c), as well as intergenerational equity. The principle applies to relationships between States (UN 1967, 1979; UNCLOS 1982, 1994; CBD 1992, 2010; UNFCCC 1992, 2015; SICA 1992; FAO 2001), within States (CBD 1992; UNCCD 1994; ILO 1989; UNGA 2007; OAS 2016) and between generations (UN 1979; CBD 1992; SICA 1992; UNFCCC 1992 2015). The concept may be populated with content by establishing a linkage with different international law subsystems, such as human rights law, especially the right to development (UNGA 1986), right to science and technology (UNGA 1948; ICECSR 1966; UNGA 1975), and the rights of Indigenous Peoples (ILO 1989; CBD 1992, 2010; UNCCD 1994; SADC 2002; UN 2007; OAS 2016; UNGA 2018).

3 Legal Obstacles Facing the Implementation of Benefit-Sharing for Sustainable Development

Benefit-sharing is employed in international biodiversity law as a treaty objective, an international obligation, a right, or a mechanism, which makes its status difficult to determine and operationalization uneven (Morgera 2016). It is also applied to relations that have different relevance under international law and are characterized by different de facto power asymmetries (inter-State sharing between developed/developing countries, intra-State sharing between States and communities/indigenous peoples, and between companies and communities) (Morgera 2018c). The provisions of international treaties relevant to benefit-sharing (e.g. CBD/Nagoya Protocol and Plant Treaty) have not been widely implemented in national law. In regards to this, the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment states that the “enormous problem is that [biodiversity agreements] have often not been effectively implemented and their goals have not been met” (UNHRC 2017). This makes compliance with the rules of international law on benefit-sharing particularly hard to enforce. The Nagoya Protocol does create procedural obligations to support benefit-sharing, such as obligations relating to monitoring the utilization of genetic

resources and compliance (e.g. opportunities for recourse, access to justice, mutual recognition and enforcement of foreign judgments) (CBD 2010), but the provisions are quite general and leave significant leeway to Parties. This may result in measures of limited effectiveness that perpetuate obstacles to benefit-sharing for sustainable development.

In terms of inter-State benefit-sharing, the balance between economic and non-economic benefits, and their relative importance, remains contested (Morgera 2018c). Non-monetary benefits (e.g. technology transfer, capacity building, research partnerships) are important in enhancing the ability of beneficiaries to share in monetary benefits in the long term, but they may also create dependency on external, ready-made solutions that may not fit particular circumstances or that may allow for the exertion of undue influence by donor countries (Morgera 2018c). There is a sense of frustration among countries in the global South due to the limited economic benefits that have been derived to date from bioprospecting projects and the application of ABS frameworks in general (Cabrera Medaglia 2015). It has also been difficult to find cost-effective legal solutions to cases of misappropriation of GR and associated traditional knowledge within the framework of national ABS legislation or intellectual property law (Cabrera Medaglia 2015).

There are also legal obstacles posed by the concept of CHH and its association with the NIEO agenda (Guntrip 2003). A concrete benefit-sharing regimes have not yet been established for the Area (Jaekel et al. 2016) and the legal regime for benefit-sharing from natural resources sourced from celestial objects remains to be negotiated (Lefeber 2016). The Chair of the ILA Space Law Committee noted that States “appear reluctant to engage in further binding obligations on the international arena when they do not know exactly what the balance sheet will be as technology continues to develop” (UNOOSA 2015). This observation is pertinent for both the exploitation of deep seabed resources and the resources of the moon and other celestial bodies, as technologies for both types of resource use are still in early stages of development, and the actual cost of commercial resource exploitation remains largely unknown.

4 Future International Law Research on Benefit-Sharing for Sustainable Development

The absence of instances in which fair and equitable benefit-sharing has been fully developed or made satisfactorily operational points to a significant research agenda. From a normative perspective, it is difficult to derive a common core with regard to its beneficiaries, for instance. Research is needed to determine the nature, extent, and implications of the principle. Legal analyses of benefit-sharing still remain to be systematically connected to ongoing theoretical discussions of different concepts of justice and possible trade-offs among them (Morgera 2018b). Recently, benefit-sharing has also become a recognized part of the emerging concept of markets or

payments for ecosystem services (e.g. ABS in the CBD/Nagoya Protocol and Plant Treaty context, and the Clean Development Mechanism/REDD+ in the climate context), which begins to disassociate the concept from its original rationale as a non-market-based scheme aimed at development and equity (Wolff 2014). It is questionable whether economic instruments are the most effective or legitimate instruments for the international governance of biodiversity and ecosystem services, especially in the development context (Wolff 2014).

From a practical perspective, it remains to be determined when and why benefit-sharing achieves its stated fairness and equity purposes. Situations in which it does not, due to unequal bargaining power and information asymmetries, have been well documented (Greiber et al. 2012; Morgera 2018b). Risks attached to different benefits and the costs and losses that may be associated with certain benefits have not been fully or systematically analysed. The interaction between benefit-sharing and procedural rights (e.g. access to information, engagement in decision-making, and access to justice) and legal empowerment approaches is also understudied. More empirical and inter-disciplinary research is needed to assess when and under which conditions benefit-sharing provides new perspectives and solutions that support the sustainable management of natural resources for development (Morgera 2018b).

Another normative question concerns future generations as there are few discussions of the contribution of benefit-sharing to inter-generational equity, despite indications in international law (mostly in the preambles of treaties) that global benefits arising from benefit-sharing may be geared towards reaching a wider group than those actively or directly engaged in bioprospecting, natural resource management, environmental protection or use of knowledge (Morgera 2018c). It remains unclear to what extent global benefits may also extend to future generations, as the nature of the benefits is commonly defined with regard to the parties to the triggering activity (Morgera 2018c). However, several immediate benefits shared among them are meant to preserve, restore, or enhance the conditions under which underlying global benefits (e.g. a stable climate system, food security, ecosystem services) are assured, which will benefit future generations by ensuring that development does not compromise the ability of future generations to meet their own needs (Morgera 2018b).

Preliminary research has been carried out on the relationship between private law and the Nagoya Protocol, which creates a private international law of access and benefit-sharing (Chiarolla 2013; Young and Walloe Tvedt 2017; Grosse Ruse-Khan 2019). Future work may need to be carried out on compliance measures to enforce benefit-sharing agreements, and the question of access to justice in user countries, especially in cases where access has taken place in violation of the laws, policies or administrative measures of a provider country but no contractual terms have been established (Chiarolla 2013). This touches upon the extraterritorial application of the domestic law of the alleged country of origin, which is heavily contested in many cases (Chiarolla 2013). The question of recognition and enforcement of foreign judgments and arbitral awards may also come into play as the MAT may establish jurisdiction in a different jurisdiction than the one where the user resides (Chiarolla 2013).

International law on benefit-sharing from natural resources in areas beyond national jurisdiction (ABNJ) is also under development. The Nagoya Protocol itself establishes in Article 10 that Parties will consider the need for, and modalities of, a global multilateral benefit-sharing mechanism (GMBSM) to address fair and equitable benefit-sharing derived from the utilization of GR and ATK that occur in transboundary situations or for which it is not possible to grant or obtain PIC (CBD 2010). The benefits shared by users through the GMBSM are to be used to support the global conservation and sustainable use of biodiversity, which will be controversial as benefits will not necessarily be aimed at developing countries despite their primary role in negotiating this provision (Young 2013; Wallbott 2014).

Separate discussions on ABNJ are taking place through the UNGA, which adopted a resolution in late 2017 convening an Intergovernmental Conference to elaborate the text of an international legally binding instrument under the UNCLOS on the conservation and sustainable use of marine biological diversity of ABNJ, with a view to rapidly developing such an instrument (UNGA 2017b). The Conference will meet four times, with the last meeting in mid-2020. Key topics under discussion include the utilization of marine GR and the question of benefit-sharing. The Intergovernmental Conference is building on the work of a Preparatory Committee, which issued a report of its discussions which indicates that further discussions are required on marine GR and benefit-sharing related to whether the instrument should regulate access; the nature of the resources covered; the benefits shared; intellectual property rights; and monitoring utilization of marine GR in ABNJ. Consensus exists on the following: the objective of contributing to the conservation and sustainable use of marine biological diversity in ABNJ, building the capacity of developing countries to access and use marine GR in ABNJ, and that the principles and approaches guiding benefit-sharing could include being beneficial to current and future generations and promoting marine scientific research and R&D (UNGA 2017a).

Discussions at the World Intellectual Property Organization (WIPO) at the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC) have been ongoing since its establishment in 2000. The IGC has held 35 meetings and is currently undertaking text-based negotiations with the aim of agreeing on a text/s of an international legal instrument/s, which will ensure the effective protection of traditional knowledge, traditional cultural expressions and GR. The goals of discussions in 2018–19 are to narrow existing gaps and to achieve a common understanding on core issues, including definitions, beneficiaries, subject matter, objectives, scope of protection, and what subject matter is entitled to protection at an international level, including consideration of exceptions and limitations and the relationship with the public domain (WIPO 2017). The WIPO General Assembly will take stock of progress in 2019 to decide whether to convene a diplomatic conference and/or continue negotiations, based on the maturity of the text/s (WIPO 2017). Supporting benefit-sharing from the use of GR and ATK is a primary issue of contention between WIPO Members.

As the ISBA moves towards adopting regulations under UNCLOS for mineral exploitation in the Area, it will be important to continue carrying out legal research on the appropriate mechanism for the non-discriminatory and equitable sharing of financial and other economic benefits derived from activities in the Area, which will require careful balancing of economic, social and environmental dimensions (ISBA 2015). It is important to continue reflecting on how the Agreement Relating to the Implementation of Part XI of the UN Convention on the Law of the Sea (Agreement on Part XI) will influence the implementation of the CHH principle as exploitation begins in earnest, as its preamble notes the “political and economic changes, including market oriented approaches, affecting the implementation of Part XI” (UNCLOS 1994). Given that it does not amend the UNCLOS, the Agreement on Part XI does not modify the CHH principle but rather affects the machinery by which it will operate. The limits of the CHH principle will become clearer when the distribution of benefits begins and evidence emerges on how they are being distributed to developing states (Guntrip 2003).

The Chair of the ILA Space Law Committee asserts that the prevailing view today is to keep the Moon Agreement alive even though it only has 18 Parties, and is questioned by some States as being part of international law or as being considered on the same level as the four other UN space treaties (UNOOSA 2008, 2015). Parties to the Moon Agreement have noted several advantages to its measures on natural resource use in Article 11, noting that it is the only provision in the UN outer space treaties which foresees the possibility of exploiting resources in outer space, providing an obvious legal solution as humanity approaches the time where such exploitation becomes possible (UNOOSA 2008). It does not propose a mechanism, but rather leaves it to States to negotiate and implement a regime that responds to the status of CHH and other principles of outer space law (UNOOSA 2008). This would allow States to take into account the reality of political, legal and technical facts, possibilities and requirements when exploitation becomes possible. The Moon Agreement is proactive, aiming to achieve a consensus among all nations, taking into account the interests of developing countries, and establishing a commitment to seek a multilateral solution for the exploitation of celestial resources (UNOOSA 2008). The Parties assert that it does not pre-exclude any modality of exploitation, whether by public or private entities, nor does it forbid commercial treatment, as long as it is compatible with the CHH principle (UNOOSA 2008). Given technological developments, the time has arrived to establish a more precise legal meaning of this controversial provision and to reconcile conflicting views and interpretations (UNOOSA 2015; Blanchette-Séguin 2017).² Some have argued that this should take place through the amendment of the treaty itself, including the Chair of the ILA Space Law Committee (UNOOSA 2015).

²Two States have adopted legislation on the matter. The United States *Commercial Space Launch Competitiveness Act* explicitly allows for private ownership of extracted space resources, while also not asserting sovereignty or jurisdiction over any celestial body. The Luxembourg *Law on the exploration and use of space resources* also allows for private appropriation, subject to Luxembourg's international law commitments.

The above research agenda only covers a part of the negotiations taking place that are pertinent to the development of benefit-sharing in international law. Many discussions are also taking place in the realm of soft law development, such as the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (FAO 2013), the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (FAO 2014), and in the work of the FAO Commission on Genetic Resources for Food and Agriculture. Given the diverse fora where negotiations involving the concept of benefit-sharing are taking place, future research on the topic will need continue to monitor and take into consideration work across the multiplicity of institutions where the future of the concept is being formalized in rules of international law that could contribute to sustainable development. As demonstrated above, much legal research remains to be done in this regard.

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Sustainable Use of Indigenous Ecological Knowledge: A Case Study for Implementing the Nagoya Protocol



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1 Introduction

The need to protect Indigenous ecological knowledge from misuse is recognized under several international instruments including the United Nations Declaration on the Rights of Indigenous Peoples (UN 2007, in the following shortly “UNDRIP”). In particular Article 31 of UNDRIP states:

1. Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, kinds of literature, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.
2. In conjunction with indigenous peoples, States shall take effective measures to recognize and protect the exercise of these rights.

However, UNDRIP is not a binding instrument but eminent scholars have argued that UNDRIP reflects certain norms of customary international law (Anaya and Wiessner 2007; Graham and Wiessner 2011; Davis 2012). Meanwhile, the two key international instruments which are binding in this context are the Convention on Biological Diversity 1992 (UN 1992, in the following shortly “CBD”) and its Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization 2010 (UN 2010, in the following “Nagoya

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Protocol”). Australia ratified the CBD in 1993 and is a signatory to the Nagoya Protocol, which calls for countries to put in place two main measures: (i) ensuring that prior informed consent of Indigenous communities is obtained for access to their traditional knowledge, more specifically Indigenous ecological knowledge, and (ii) that fair and equitable benefit-sharing mechanisms are agreed upon for the use of that knowledge, keeping in mind community laws and procedures as well as customary use and exchange (Nagoya Protocol Articles 7 & 13). Australia has yet to ratify the Nagoya Protocol, however, several Australian states and territories have already incorporated regulations that attempt to comply with the requirements of the Nagoya Protocol. But this piecemeal approach leaves much to be desired when striving for national consistency.

What has become evident in recent times is the improvement to Australia’s natural environment when a holistic approach to natural resource management is adopted incorporating Indigenous ecological knowledge (Commonwealth of Australia 2013). What also must be recognized is that, for Indigenous peoples, land and knowledge are inherently connected and access to traditional lands is an important aspect of cultural expression and well-being. Consequently, through a legal framework of recognition and protection of Indigenous ecological knowledge, the sharing of benefits from such knowledge can promote the achievement of economic self-sufficiency for those Indigenous communities (Stoianoff 2016). This will be illustrated through the project case study “Garuwanga: Forming a Competent Authority to protect Indigenous knowledge” (in the following “Garuwanga Project”). The term “Garuwanga” is in the D’harawal language and means ‘Dreaming Cycle’, a reference to both Aboriginal creation story and the climate and environmental cycles of the Earth.

The Garuwanga Project is about finding the best legal structure of governance for Indigenous Australians to manage their traditional knowledge and culture and enable Australia to comply with the Nagoya Protocol. The objective is to provide the communities with a path to sustainable development and capacity building. To achieve this, the Garuwanga Project has three aims (Indigenous Knowledge Forum 2018, p. 1):

1. identify and evaluate a variety of legal governance structures for a Competent Authority suitable for administering an Indigenous Knowledge protection regime;
2. facilitate Aboriginal Community engagement in making that determination; and
3. recommend a type of Competent Authority structure based on what is important to Aboriginal Communities and how such a Competent Authority should operate.

This chapter explains the theoretical framework for the Garuwanga Project emphasizing the significance of the methodology employed to ensure that Aboriginal community engagement is the driving force behind the solutions sought. Then, each of the milestones of the project is identified and discussed in the results section of the chapter before providing preliminary conclusions.

2 Theoretical Framework

2.1 *Competent Authority Framework*

Many Australian government programs recognize that Indigenous communities hold knowledge critical to the conservation of biological diversity and natural resource management. In research commissioned for the New South Wales (NSW) Office of Environment and Heritage (OEH) in 2013, the University of Technology Sydney (UTS)-based Indigenous Knowledge Forum (IKF) proposed a legislative ‘Competent Authority’ framework for recognizing and protecting Aboriginal Knowledge associated with natural resource management. The Authority would provide the governance framework for administering a legal regime covering the creation, maintenance and protection of Aboriginal community knowledge databases.

A ‘Competent Authority’ is any person or organization ‘that has the legally delegated or invested authority, capacity, or power to perform a designated function’ (European Commission 2018 p.3). Once ratified, Australia is required under Article 13 of the Nagoya Protocol to designate both a ‘competent national authority’ and a ‘national focal point’ on access and benefit sharing. The responsibilities of the Competent National Authority are for:

- (i) granting access or issuing written evidence that access requirements have been met; and
- (ii) for advising on applicable procedures and requirements for obtaining prior informed consent and entering into mutually agreed terms (Nagoya Protocol Article 13).

The National Focal Point, on the other hand, is responsible for providing information on procedures for obtaining prior informed consent and mutually agreed terms including benefit sharing as well as providing information on the competent national authorities, Indigenous and local communities, and third-party stakeholders (Nagoya Protocol, Article 13). As Article 13.3 of the Nagoya Protocol makes it possible for the competent national authority and the national focal point to be the same organization, it was quite reasonable for the Indigenous Knowledge Forum (IKF) to propose a Competent Authority to effectively perform both functions in its 2014 White Paper to the NSW Government entitled *Recognising and Protecting Indigenous Knowledge Associated with Natural Resource Management* (IKF 2014, in the following also “the 2014 White Paper”). The question then arose as to the legal structure such a competent authority would take.

2.2 *Garuwanga Project Case Study*

In answering that question, the Garuwanga Project addresses concerns over the form, independence and funding of such a Competent Authority, as well as local

Indigenous representation, by facilitating Aboriginal Community engagement in identifying, evaluating and recommending an appropriate Competent Authority legal structure. An action research methodology was employed within an Indigenous research paradigm. The anticipated outcome of the Garuwanga project is an appropriate legal structure for such a Competent Authority derived from an analysis of existing Australian Indigenous governance frameworks as well as those frameworks adopted in countries with existing Indigenous knowledge protection regimes.

What is significant about this project is the grassroots approach to achieving this outcome. The Garuwanga project was designed to ensure the engagement of Aboriginal Communities in the choice of the most appropriate governance framework for the Competent Authority providing transparency and accountability. While the initial impetus for research into the form of the Competent Authority emerged in relation to regimes proposed for the state of New South Wales, this project provides a model for an authority for a national regime with a similar purpose. Once ratified, Australia's obligations under the Nagoya Protocol will be national, not just state-based, but can be rolled out state by state and territory by territory and it is recognized that the concept of such an authority could be a local or regional community agency. Further, the determination of a Competent Authority acceptable to the beneficiaries it is meant to serve would have implications for nations in similar positions to Australia such as New Zealand, Canada and the USA.

The Garuwanga Project commenced during the second half of 2016 with a series of milestones to achieve over a 3-year period. In summary, the following Table 1 provides the outline of the activities and their timeframes. At the time of presenting this paper at the International Sustainable Development Research Society conference in Sicily in June 2018, Activities 1–5 had been completed.

The partner organizations involved in the Garuwanga Project represent different types of Aboriginal communities from across Australia. Consultations and discussions took place with Aboriginal communities and organizations in urban, rural and remote locations including Broome and the West Kimberley in Western Australia, as well as Sydney and the Southern Highlands/South Coast in New South Wales. Accordingly, the limitation of the results of these consultations is that they may

Table 1 Research plan and timetable

Activity	Description	Expected timeframe
Activity 1	Comparative study report	Year 1 first half
Activity 2	Research roundtable (RR) meetings for data gathering	Year 1 second half
Activity 3	RR meetings for evaluation of legal structures	Year 2 first half
Activity 4	Drafting of discussion paper	Year 2 first half
Activity 5	Community consultations	Year 2 second half
Activity 6	Transcription/analysis of community consultations	Year 3 first quarter
Activity 7	Report on preferred form of competent authority	Year 3 second & third quarter
Activity 8	Indigenous knowledge forum	Year 3 fourth quarter

not reflect the views and opinions of Torres Strait Islander communities nor Aboriginal communities from different regions around Australia. Informed consent was obtained for all community consultations. Consent processes were carried out in compliance with the University of Technology Sydney (“UTS”) ethics approval processes and principles. For these consultations, free, prior informed consent was sought, and obtained from all participants either in written form, or verbally as a group. The following section describes the methodology employed to achieve the outcome of a proposed legal structure for a competent authority.

2.3 Innovative Methodology

Employing a variation on the Delphi method (Guglyuvatyy and Stoianoff 2015), the Garuwanga Project is methodologically and conceptually innovative. The Project makes use of mixed modes of research applied in a structured way underpinned by an action research methodology. An Indigenous research paradigm is applied empowering Aboriginal communities in the research process thereby developing a model of respect, engagement and reciprocity for Aboriginal and non-Aboriginal researchers to work together.

2.3.1 Mixed Modes of Research

The use of mixed modes of research has been applied in a structured way, commencing with a doctrinally based comparative analysis of existing protection regimes employing a competent authority for their governance. Inspiration for the extent of the comparative study undertaken, 69 nations, came from attendance at the 2015 World Expo in Milan where numerous nation-states showcased their traditional knowledge and farming practices that resulted in potential export markets (Bureau International des Expositions 2015). Given the World Expo theme of “Feeding the Planet, Energy for Life”, it became apparent from that event that both government and non-government organizations were instrumental in promoting indigenous food resources and Indigenous knowledge regarding the same. Simultaneously, the project has collected data of Aboriginal governance case study examples in existence around Australia drawing upon the list of community concerns identified in the 2014 White Paper (IKF 2014) as the initial criteria for evaluating these different forms of governance.

The evaluation of these regimes and governance case studies has been carried out through the Research Roundtable employing a variation on a Group Delphi method. The Delphi method aims to obtain the most reliable consensus of a panel of experts. These experts are encouraged to revise their answers to a series of questions in view of “collective intelligence” so that the panel may move to a consensual view (Guglyuvatyy and Stoianoff 2015). While the Delphi method is traditionally based on anonymity utilizing a series of questionnaires, the ‘Group Delphi’ method

assembles the expert panel in a structured communication process often using rotating subgroups to address the relevant questions, building consensus and defining disagreement using plenary discussions between iterations to foster peer review (Stoianoff and Walpole 2016).

In the Garuwanga project, the expert panel is in the form of a Research Roundtable bringing together the chief investigators, the Aboriginal partner investigators and several other Indigenous and non-Indigenous experts (additional investigators) in a variety of relevant fields. Criteria have been identified and discussed in an open plenary process in order to achieve consensus for the preparation of a discussion paper presented to the Aboriginal communities being consulted via the project Aboriginal Partner Organisations. These consultations have been carried out in the form of focus group sessions with Elders and knowledge-holders from each of the communities. The outcome of those sessions is to be analyzed for incorporation into the drafting of the final report recommending the most appropriate and acceptable form of governance.

2.3.2 Action Research Methodology

Underpinning the Garuwanga Project is an action research methodology (Lewin 1946; Reason and Bradbury 2013) which emphasizes cooperative or collaborative inquiry whereby all active participants are fully involved in research decisions as co-researchers. Hence the Chief Investigators, Partner Investigators and members of the Partner Organizations are researching together through the mechanism of the Research Roundtable (See Appendix) and thereafter the community consultations as described above.

2.3.3 Indigenous Research Paradigm

The project applies an Indigenous research paradigm (Wilson 2001; Czaykowska-Higgins 2009) encompassing epistemologies (ways of knowing) through stories, narrative and reflection, connectedness to Country, culture and spirituality in a collaborative and interdisciplinary process. When referring to “Country” in this context, it is in recognition that ‘Aboriginal communities have a cultural connection to the land, which is based on each community’s distinct culture, traditions and laws’ and ‘takes in everything within the landscape - landforms, waters, air, trees, rocks, plants, animals, foods, medicines, minerals, stories and special places’ (OEH 2019). This proved successful under the 2014 White Paper (IKF 2014) process as a means of ensuring a deeper understanding of the concerns of Aboriginal communities, especially the knowledge-holders charged with protecting the knowledge of a community.

2.3.4 Aboriginal Empowerment

Australia has a history of paternalism in relation to the making of laws for the ‘benefit’ of Indigenous Australians (Maddison 2008). Consequently, it was imperative for this project that Aboriginal communities be empowered through direct involvement in the research process. In this way community-led solutions could be achieved through axiologies (ways of doing) and ontologies (ways of being), once again through the Research Roundtable and community consultation process.

2.3.5 Model of Respect, Engagement and Reciprocity

The model of respect, engagement and reciprocity for Aboriginal and non-Aboriginal researchers to work together to solve a problem was initiated under the process of developing the 2014 White Paper (IKF 2014). The Garuwanga Project provides a reinforcement of that model utilising the National Health and Medical Research Council (NHMRC) Guidelines for Ethical Conduct in Aboriginal and Torres Strait Islander Health Research (now updated NHMRC 2018) and the Australian Institute for Aboriginal and Torres Strait Islander Studies (AIATSIS) 2012 Guidelines for Ethical Research in Australian Indigenous Studies (AIATSIS 2012). The outcome is a more refined model of legal research and a mechanism for Aboriginal self-determination.

3 Results

3.1 Comparative Study

Most competent authorities around the world are government-based organizations or departments, however, Aboriginal communities have expressed great concern about such institutions having any form of control over their traditional knowledge (2014 White Paper, IKF 2014). Accordingly, what is unique about the Garuwanga Project is the proposal for a competent authority that is independent of the government. In the first activity for the project, a comparative study was prepared (Wright et al. 2017). The study focussed on the following issues:

- (i) the functions of the Competent Authority
- (ii) the structure of the Competent Authority including corporate structure and membership
- (iii) the funding of the Competent Authority, and
- (iv) the accountability of the Competent Authority including reporting obligations.

The legislations of 69 countries with Indigenous populations were examined. A Competent Authority regulating access to and benefit sharing in relation to the use of traditional knowledge was found in the legislation of 20 of the 69 countries examined. Of those 20 countries only two, Cook Islands and Vanuatu, established Competent Authorities separate from their government (Wright et al. 2017; for Cook Island and Vanuatu see Martin et al. 2019).

Meanwhile, each of the Aboriginal partner investigators prepared reports on the governance structures utilised by their respective Partner Organisations. Similarly, some of the additional investigators to the Research Roundtable prepared reports regarding the governance structures utilised in their respective organisations when dealing with Indigenous knowledge and culture. These reports were expanded during the course of the first 18 months of the project and incorporated in the ensuing discussion paper. In the Research Roundtable discussions that followed, it was evident that in order to properly evaluate these governance structures a more detailed set of evaluation criteria were required than originally anticipated. At the conceptual stage of the project the criteria for analysis of the various governance structures were:

- (i) suitability to the domestic legal and regulatory context;
- (ii) expectations of the functions and powers of competent authority to be established under the White Paper; and most importantly
- (iii) those Aboriginal laws and customs considered relevant by the Aboriginal partner investigators, and other Aboriginal members of the Research Roundtable.

However, the Research Roundtable determined it was necessary to identify first what constituted good governance from an Indigenous perspective. To this end a report was then prepared for consideration by the Research Roundtable in the formulation of a set of governance principles to be applied to the different legal forms of governance already in operation through different organisations operating in Australia.

3.2 Governance Principles

Dodson and Smith (2003 p. 1) considered governance for sustainable development of Indigenous Australian communities and defined governance as:

the processes, structures and institutions (formal and informal) through which a group, community or society makes decisions, distributes and exercises authority and power, determines strategic goals, organises corporate, group and individual behaviour, develops rules and assigns responsibility.

As to what constitutes good governance, consideration was given to the common principles identified by the United Nations Development Programme (UNDP 1999, pp. 5–6) as underpinning good governance, namely:

- (a) Participation in decision-making processed by all interested parties;
- (b) Operation in accordance with the rule of law;
- (c) Transparency in decision-making and other processes;
- (d) Responsiveness to all stakeholders;
- (e) Consensus oriented in the best interests of the group;
- (f) Equity toward all stakeholders;
- (g) Effectiveness and efficiency in the use of resources;
- (h) Accountability to stakeholders and the public; and
- (i) Broad and long-term strategic vision.

From an Australian governmental perspective, there are two examples of good governance principles that were considered relevant to the Garuwanga Project: Australian Public Service Commission ‘Building Better Governance’ Guide (Australian Public Service Commission 2007) and the Good Governance Guide produced for Local Government in the state of Victoria (MAV 2012). In both examples, much of the UNDP principles are included with some notable differences (Table 2).

What is interesting about the comparison in Table 2 is that the principles of good governance acknowledged by the Local Government groups closely reflect those espoused by the UNDP and are reflective of a grass-roots approach to governance. Meanwhile, the differences in the principles highlighted by the Australian Public Service Commission as listed in Table 2, reflect a top-down approach to governance emphasising a paternalistic view of governance. Clear further research was required in order to identify principles of good governance that would be acceptable for the establishment and operation of a competent authority.

To this analysis was added an exploration of recent research on Indigenous governance. As a guide for Indigenous communities and organisations, the Australian Indigenous Governance Institute established an online Indigenous Governance Toolkit (AIGI 2019). With a focus on effective or legitimate governance, the toolkit provides resources on various aspects of governance, including: understanding governance; culture and governance; leadership; rules and policies; management and staff; nation building and development. This is important as ‘achieving effective and legitimate governance can be particularly challenging because it involves working across Indigenous and western ways of governing, and trying to negotiate the demands of both’ (AIGI 2019). The Toolkit references significant research under the Indigenous Community Governance Project carried out by the Centre for Aboriginal Economic Policy Research at Australian National University. That project documented that Indigenous Australians across the country used similar culture-based principles to design their governing arrangements (AIGI 2019).

Table 2 Comparison of good governance principles

Common principles underpinning Good Governance (UNDP 1999, pp. 5–6)	Good governance guide for local government (MAV 2012)	‘Building Better Governance’ Guide (Australian Public Service Commission 2007)
Accountability	Accountability: Obligation to report, explain and be responsible for decisions and the consequences of such decisions.	Accountability — Being answerable for decisions and having meaningful mechanisms in place to ensure the agency adheres to all applicable standards
Transparency	Transparency: Decision making processes should be clear and easy to understand.	Transparency/openness — Having clear roles and responsibilities and clear procedures for making decisions and exercising power
		Integrity — Acting impartially, ethically and in the interests of the agency, and not misusing information acquired through a position of trust
Rule of law	Follows the rule of law: Decisions and actions are consistent with relevant legislation, regulations or policies.	
Responsiveness	Responsive: The organisation responds to needs of stakeholders ‘while balancing competing interests in a timely, appropriate and responsive manner.’	
Equitable	Equitable and inclusive: Decisions are made taking into consideration the interests of all stakeholders and all stakeholders have an opportunity to participate in the process.	
Effectiveness & efficiency	Effective and efficient: Processes should be followed and decisions made in a manner that makes ‘the best use of the available people, resources and time to ensure the best possible results.’	Efficiency — Ensuring the best use of resources to further the aims of the organisation, with a commitment to evidence-based strategies for improvement
Participation	Participatory: Decision making processes should allow for participation by all parties that are interested in or affected by a decision.	Stewardship — Using every opportunity to enhance the value of the public assets and institutions that have been entrusted to care
		Leadership — Achieving an agency-wide commitment to good governance through leadership from the top.
Broad and long-term strategic vision		

Specifically, the work of Hunt et al. (2008, p. 21) from the Centre for Aboriginal Economic Policy Research identified the following principles:

- ‘networked governance models; nodal networks and gendered realms of leadership;
- governance systems arising out of locally dispersed regionalism and ‘bottom-up’ federalism;
- subsidiarity and mutual responsibility as the bases for clarification and distribution of roles, powers and decision making across social groups and networks;
- cultural geographies of governance;
- and an emphasis on internal relationships and shared connections as the foundation for determining the ‘self’ in self-governance, group membership and representation’.

The culmination of these differing yet similar sets of governance principles led the Research Roundtable of the Garuwanga Project to consider formulating a set of governance principles that would assist in the identification and evaluation of the most appropriate legal structure for the Competent Authority. The principles build on those espoused in the Indigenous Governance Toolkit and provide the necessary criteria for developing the Competent Authority under the Garuwanga Project. The following principles were identified at the Garuwanga Research Roundtable Meeting on 16 October 2017:

- Relationships/Networks
- Trust/Confidence
- Independence from government
- Community participation
- Guarantees/Confidentiality
- Transparency/Accountability
- Facilitation
- Advocacy
- Communication
- Reciprocity.

An explanation for each of these principles can be found in the discussion paper for the Garuwanga Project (IKF 2018). The aim was to develop a set of culturally appropriate governance principles against which a variety of already existing governance structures could be evaluated in order to identify the most suitable structure for the Competent Authority. In so doing, these governance principles effectively define a model of governance that might be acceptable to Indigenous Australians more generally. As to whether a particular legal structure is more suitable to achieve such a governance model was the purpose of preparing a discussion paper and carrying out the focus group community consultations.

3.3 *Discussion Paper*

The discussion paper (IKF 2018) sets out the different steps taken by the Research Roundtable in carrying out the Garuwanga Project. It provides the key results of the Comparative Study and identifies the key features of available Australian legal structures. Using those key features, the discussion paper goes on to examine a range of examples of legal entities established for the benefit of Aboriginal and Torres Strait Islander Peoples. The examination covers governance structure, membership, key legislation and winding up of the entity.

The discussion paper (IKF 2018) goes on to analyse prescribed bodies corporate, which are Aboriginal and Torres Strait Islander Corporations created for common law native title holders to hold or manage native title, and independent statutory bodies. Differing forms of Aboriginal Land Councils in operation across Australia are examined, and then, after briefly exploring the role of the equitable construct of a trust, the key governance principles identified and developed by the Research Roundtable are outlined and applied to the Partner Organisations that form the case studies for the Garuwanga Project. As a result, each organisation meets those key governance principles differently (Table 3).

All four organizations met the governance principles in their own way but all with respectful regard for Aboriginal law, culture and traditions. This was able to be achieved while three of the organisations were required to comply with the abstract constructs of incorporation under federal and state laws of Australia, despite their grounding in colonial-based law. A full analysis of the range of examples of legal entities established for the benefit of Aboriginal and Torres Strait Islander Peoples has yet to be conducted in the light of the governance principles. However, the case studies in Table 3 provide encouraging results in this regard, emphasising that no matter the legal structure adopted under Australian law, the governance principles can still apply.

The discussion paper (IKF 2018) finished with a series of questions centred around the three project criteria for analysis of the various governance structures. During the project those criteria were revised as follows:

- suitability to the domestic legal and regulatory context;
- expectations of the functions and powers of the competent authority; and
- ensuring a Competent Authority reflects Aboriginal and Torres Strait Islander customary laws, and cultural protocols.

The discussion questions were developed to help determine what type of Competent Authority would suit the needs of Indigenous communities to protect Indigenous knowledge in Australia. The questions were designed to facilitate discussion for the engagement of Aboriginal and Torres Strait Islander Peoples in community consultations.

Table 3 Application of the governance principles (adopted from IKF 2018, p. 35–40)

Governance principles	Unregistered aboriginal organisation (a circle)	Incorporated not-for-profit Aboriginal Organisation	Incorporated registered charity aboriginal organisation	Indigenous business incorporated as a Proprietary Limited corporation
Relationships/networks	According to aboriginal cultural law	Registered under state associations legislation	Incorporated under state associations legislation and registered charity under national law	Indigenous business registered as a private corporation. Facilitates the delivery of legal and consulting services to aboriginal communities, companies, individuals.
Trust/confidence	Critical with decisions based on consensus	Decision – Making by consensus: Either unanimous or agree to not interfere if not agree	At the annual general meeting, members choose a 6 person governing committee. Code of conduct adopted.	Directors hold trust and confidence of the aboriginal organisations, elders and communities with which they work.
Independence from government	Totally	Independent other than for compliance with registration purposes	Independent other than for compliance with registration purposes	Independent other than for compliance as a registered proprietary company
Community participation	100%	100%	100%	Private organisation providing pro bono services to aboriginal communities, organisations and senior elders.
Guarantees/confidentiality	Issue to issue and no formal records	Board of Directors maintain confidentiality	Governing committee and managing director	Operate under legal practice ethical standards respecting aboriginal laws and traditions
Transparency/accountability	Processes understood by members – Consensus driven	Board proceedings are reported generally at the annual general meeting. The	Governing committee reports to members at annual general meeting with	Legal services operate under professional standards legislation and legal

(continued)

Table 3 (continued)

Governance principles	Unregistered aboriginal organisation (a circle)	Incorporated not-for-profit Aboriginal Organisation	Incorporated registered charity aboriginal organisation	Indigenous business incorporated as a Proprietary Limited corporation
		organisation provides an annual report but no financial reporting	financial accounts prepared and audited. Day to day operations managed by managing director	practice guidelines. Consulting services are in line with transparency +accountability requirements of grant agreements it manages
Facilitation	This is the purpose of the circle	Its function is to facilitate activities on behalf of or in support of interested stakeholders	It is a cultural broker into alternative and innovative indigenous community cultural and economic development, indigenous knowledge, the environment, rivers, natural resource management, mining and agricultural industries	Project and meeting facilitation and not-for-profit sector governance at local, regional, state and national levels, including to support indigenous organisations and business operators
Advocacy	On culturally specific and local issues	Local level advocacy	From local to national levels, from community to national academic and government research partnerships	The directors advocate on behalf of aboriginal interests in local, national, international forums
Communication	Outreach and education activities	Communication and outreach activities with other aboriginal organisations and local government	Using informal networks, local and national media, committee representation and conference presentations as well as publishing on own website	To clients and on behalf of clients according to professional standards legislation and legal practice guidelines
Reciprocity	Practice of recognition is through the circle. Recognised	Practice of recognition – Recognised by	Indigenous cultural framework grounded in collective wellbeing	Abides by aboriginal cultural protocols relating to

(continued)

Table 3 (continued)

Governance principles	Unregistered aboriginal organisation (a circle)	Incorporated not-for-profit Aboriginal Organisation	Incorporated registered charity aboriginal organisation	Indigenous business incorporated as a Proprietary Limited corporation
	by the circle then total acceptance	organisation then total acceptance	such that individual wellbeing is dependent on the wellbeing of the group	reciprocity, making every effort to maintain fairness and goodwill and consider reciprocity obligations

Under the criteria of ensuring a Competent Authority that reflects Aboriginal and Torres Strait Islander customary laws, and cultural protocols, the following questions were utilised:

- What do you consider to be the most important features for a Competent Authority?
- What existing organisations do you think provide effective models for Aboriginal and Torres Strait Islander interests?
- What existing organisations do you think provide ineffective models for Aboriginal and Torres Strait Islander interests?
- How should local competent authorities (LCAs) be formed?
- Should all employees, officers and councillors be Aboriginal or Torres Strait Islander people?

While the responses to these questions were still being analysed as in April 2019, there was little deviation from the presumptions underpinning the earlier research which led to the development of the White Paper in 2014 (IKF 2014). In the process of developing the White Paper in 2014, consultations were held with Aboriginal communities in north western New South Wales, the Gamilaroi Peoples. Despite being in remote rural country, their view points coincided with those expressed by the more urban-based Aboriginal communities around Sydney and the south coast of New South Wales which participated in the Garuwanga Project. This would seem to indicate the impact of a shared past given that New South Wales was first to be settled by British colonists and hence the Aboriginal peoples of New South Wales were the first Indigenous communities in Australia to be impacted by colonisation and to be dispossessed of their lands and waters. Meanwhile, the First Peoples of the Kimberley in Western Australia were one of the last to experience colonisation and have also taken much greater steps toward self-determination through the establishment of an Independent Land Council, native title land claims and establishment of a variety of cultural organisations.

When considering the expectations of the functions and powers of the Competent Authority, the participants in the community consultations were asked to consider:

- Should there be a single national competent authority (NCA)?
- Should an NCA carry out the duties of the NCA and the national focal point?

While there was overall recognition that a national body would be required for international reporting purposes under the Nagoya Protocol, discussions centred upon the need for local or regional control. This is in keeping with *Empowered Peoples Design Report* (Empowered Communities 2015, p. 22) which emphasizes the importance of widely sharing powers and responsibilities “among individuals, families and communities at the local, subregional and regional levels”. That report further notes that current practices of “placing nearly all responsibility with central governments disempowers Indigenous people and impedes development”, and so to reverse this impact and provide the means for empowerment, governments must share or relinquish “certain powers and responsibilities and [support] Indigenous people with resources and capability building to assume these powers and responsibilities” (Empowered Communities 2015, p. 22).

On the issue of the suitability of the structure and operation of a Competent Authority to Australian legal and regulatory contexts, the following questions were discussed:

- What form do you think the Competent Authority should take? (for example, an Aboriginal Corporation, statutory body, charitable trust, and how many tiers: local, regional, national?)
- How should decision-making within the Competent Authority operate taking into account that the Competent Authority needs to meet criteria under the Nagoya Protocol?
- Should the national registrars for men’s business and women’s business databases and registries be able to delegate authority to others in the Competent Authority?

Here again, the responses to these questions were still being analysed as at April 2019 but the discussion paper does provide a variety of options for consideration. What is apparent is the importance of “community ownership” in recognition that Indigenous communities across Australia are different with different needs, expectations and cultural protocols. The Australian Institute of Family Studies emphasised that, in order to facilitate trusting relationships, an organisation must ‘...work with existing Indigenous leaders and organisational structures established in the community;...seek feedback from both Indigenous peak bodies and community members’ (Australian Institute of Family Studies 2015). Further, to strengthen governance capacity of Indigenous communities, Tsey et al. (2012 p. 163) suggest that “community ownership “is required for Indigenous empowerment to flourish and that

[o]rganisational capacity strengthening for good governance can take many forms. Governance capacity is greatly strengthened when Indigenous people create their own rules, policies, guidelines, procedures, codes and so forth, and design the local mechanisms to enforce those rules and hold their own leaders accountable...

3.4 *Governance and Sustainable Development*

Capacity for governance is essential for sustainable development. Further, the United Nations Development Program considers the capacity for governance “a prerequisite for effective responses to poverty, livelihood, environmental and gender concerns” (Smith and Bauman 2014 p. 9). As sustainable development focuses on social and human, natural and economic factors, then by recognising and protecting Indigenous ecological knowledge each of these factors is addressed. Further, establishing a competent authority in accordance with the Nagoya Protocol to govern such a protection regime lives up to the expectations of the Brundtland Report (World Commission on Environment and Development 1987). In that report, only development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development 1987) is considered sustainable. Smith and Bauman (2014, p. 9) therefore point out that “[d]evelopment and governance are thus inter-linked” and go on to define “[g]overnance development” as

The processes by which people, organizations and groups as a whole, develop their abilities to do the collective and individual job of governing. That includes performing governing functions, designing institutions, structures and processes, solving problems and disputes, setting and achieving objectives, and understanding and dealing with their own development needs in a broader context and sustainable way (Smith and Bauman 2014, p. 9).

This is the whole point of the Garuwanga Project and why it was developed utilizing an action research methodology within an Indigenous research paradigm. Indigenous empowerment is crucial to achieving sustainable development. As the Empowered Peoples Design Report points out “a development approach foregrounds the role of individual, family and collective agency and responsibility” “in achieving “success in closing socioeconomic disparity “thereby avoiding the “crippling effect of dependence “that the current Australian social policies of welfare payments have produced (Empowered Communities 2015, p. 13).

Smith and Bauman (2014) explain the importance of Indigenous culture in the link between governance institutions and achieving development outcomes. Cultural practices can have a central role in Indigenous governance by “harness[ing] the strength and resilience of cultural roots in ways that are credible and workable today” (Smith and Bauman 2014, p. 10). This is why it was important for the Garuwanga Project to consider the development of relevant governance principles against which potential models for a competent authority could be assessed as

[f]or Aboriginal and Torres Strait Islander peoples, the challenge lies in how to achieve a balance in their governance arrangements between interrelated cultural, social and economic priorities and the other forces of ‘western’ governance acting upon them (Smith and Bauman 2014, p. 10).

4 Conclusions and Implications for a Sustainable Development

This chapter has reported on the governance model proposed by the Garuwanga Project for the establishment of competent authority to protect Indigenous knowledge and culture in Australia while complying with the Nagoya Protocol. The objective has been to provide Indigenous Australian communities with a path to sustainable development and capacity building. Through an extensive comparative study, detailed analysis of the range of legal structures available for the establishment of an independent competent authority under Australian law, and a series of focus group consultations across a range of Indigenous Australian communities, the Garuwanga Project has demonstrated the importance of Indigenous empowerment in achieving sustainable development. Central to Indigenous empowerment is the embedding of culture and cultural practices as the bedrock of Indigenous governance. In this way, governance capacity is strengthened enabling communities to define their “own need and then [design] and [control] the response” (Australian Institute of Family Studies 2015) and thereby achieve self-determination.

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Appendix: Garuwanga Project Research Roundtable Membership

Name	Organisation	Role
Uncle Gavin Andrews	Banyadjaminga Swaag incorporated	Partner Investigator
Aunty Frances Bodkin	D’harawal Traditional Knowledgeholders and Descendants Circle	Partner Investigator
Dr Virginia Marshall	Triple BL Pty Ltd./ANU	Partner/Chief Investigator
Dr Anne Poelina	Madjulla Association	Partner Investigator
Professor Natalie Stoianoff	University of Technology Sydney	Lead Chief Investigator & Chair, Research Roundtable
Professor Fiona Martin	University of New South Wales	Chief Investigator
Professor Andrew Mowbray	University of Technology Sydney	Chief Investigator
Dr Michael Davis	University of Technology Sydney	Research Fellow
Dr Evana Wright	University of Technology Sydney	Former Research Fellow/now Additional Investigation Team Member

(continued)

Name	Organisation	Role
Dr Ann Cahill	University of Technology Sydney	Former Research Fellow
Neva Collings	University of Technology Sydney	Garuwanga PhD Student
Paul Marshall	Triple BL Pty Ltd.	Additional Investigation Team Member
Ian Perdrisat	Madjulla Association	Additional Investigation Team Member
Associate Professor Gawaian Bodkin-Andrews	University of Technology Sydney	Additional Investigation Team Member
Dr Marie Geissler	University of Wollongong	Additional Investigation Team Member
Associate Professor Alexandra George	University of New South Wales	Additional Investigation Team Member
Professor Bradford Morse	Thompson Rivers University	Additional Investigation Team Member
Associate Professor Daniel Robinson	University of New South Wales	Additional Investigation Team Member

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Jatropha Cultivation in South India – Policy Implications



Lakshmi Gopakumar

1 Introduction

The world's energy demand is increasing at a rapid rate. According to the World Energy Outlook (WEO) 2007, energy from fossil fuels can meet about 84% of the energy demand in 2030 (Shafiee and Topal 2009). But the explosive augmentation of the population coupled with the limited supply of fossil fuels and improved standards of living is creating an increasing demand for alternative energy sources. The properties of fossil fuels like the high cost of production and limited availability in the nearby future is a challenging situation which every nation in the world will have to face. The maximum demand for energy sources is from the automobile sector, especially from rapidly developing economies like India and China, with the increasing number of vehicles introduced into the market every day. The energy budget of China, India, Russia, UK and USA comes to about half of the world's total energy budget. All the above nations are importers of energy, especially oil from other countries (Asif and Muneer 2007). This high demand for mineral energy sources cannot meet the present supply. Also, it is predicted that in some nations like Turkey, fossil fuel production will almost come to an end by 2038 (Ediger et al. 2006; Ediger and Akar 2007), which is a serious issue of concern. Generally, to meet the growing energy demand, the energy production should be above the rate of energy consumption but the energy production and consumption are not moving together at an agreeable scale as consumption always dominates over production. The over exploitation of mineral energy sources has led to an imbalance in production-consumption of fossil fuels (Asif and Muneer 2007; Ediger et al. 2006; Ediger and Akar 2007) and sets forth the option of alternate energy sources like biofuels for sustaining the energy needs of the future. Additionally, this global high demand for energy is a major threat as it contributes to environmental degradation,

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with accelerated climate change and greenhouse gas emissions. Hence, Countries, Companies and Academics are looking for renewable energy sources which have good scope in improving the current situation. Biofuels are mainly products from plant/animal biomass and are divided into first generation, second generation, third generation (Larson 2007; Mohr and Raman 2013) and fourth generation fuels (Aro 2016) based on the feedstock from which they are extracted. In the first generation fuels, the feedstock will be edible in nature and the fuel will be produced from the feedstock containing sugar, oils and cellulose (Aro 2016) by utilizing the conventional technology. In the second generation fuels, the feedstock will be non-edible and lignulosic, non-edible materials like straw, bagasse and forest residues and for the third generation fuels, the source of oil will be whole microorganisms like algae. The fourth generation fuels make use of synthetic biology tools and this is an interesting emerging concept (Aro 2016). The higher acceptance of first generation biofuels remained questionable due to certain factors like increasing food prices, negative impact on food security (Aro 2016) and their contribution to monoculture and deforestation (Altieri 2009). These factors have accelerated the development of second-generation biofuels, which generally uses less water and other inputs compared to first generation biofuels (Carriquiry et al. 2010). The additional interest over second generation fuel compared to the first generation fuels is that it will not cause food versus fuel conflict unlike first generation fuels. Generally, food versus fuel conflict can arise if agricultural land is used for cultivation of biofuel crops or if the food crops are used for biofuel production at a commercial scale, resulting in reduction in agricultural production, causing food scarcity. Hence, attention should be given to avoid the use of agricultural land for biofuel cultivation and adopt cultivation biofuel crops in other lands like marginal lands and unused lands to meet future energy demands. The future energy needs require more fuel to drive automobiles and *Jatropha* oil is expected to meet this demand in the future. As the biodiesel from *Jatropha* offers less pollution compared to diesel from the mineral origin, it can be a good option for sustainable development. Hence second generation biofuels like *Jatropha* have been used in connection with sustainable development as it will reduce the pressure on non-renewable energy sources in addition to meeting the increasing future energy demands. This will also help in minimal utilization of non-renewable energy sources like fossil fuels. Thus, the second generation biofuels are also considered as an option to reduce the ecological footprint on non-renewable energy sources.

Biofuels have many advantages over conventional energy sources. It ranges from increased utilization of land resources to reduction in environmental pollution. On the other hand, the extensive cultivation of biofuels mainly relate to reduction in biodiversity as biofuel cultivation can negatively affect the biodiversity of unused land. Biofuel plantations are monoculture plantations which can reduce the floral and faunal diversity of the cultivated land. This has also negative impacts of soil biota, and promotes the increased incidence of pests and diseases especially when coupled with the application of nitrogenous fertilizers (Scriber 1984) which is considered as an important disadvantage when advantages of biofuels over fossil energy sources are manifold (Table 1).

Table 1 Biofuels versus fossil fuels

Characteristics	Conventional fuels	Biofuels
Resource sustainability	Exhaustible	Non exhaustible (biomass being the main source)
Accessibility of raw materials	Not easily accessible(except coal in Indonesia, Germany, Australia etc)	Easily accessible
Production	Factories with good infrastructure is required at all the stages.	Factories are required only at the extraction stage. The cultivation and collection of biomass can be done at the micro level by farmers
Pollution prevention	Increases pollution emissions	Reduces pollution(biofuel plants fix atmospheric carbon in their biomass)
Contribution to climate change	Aggravates climate change by contributing to pollution	Reduces climate change by fixing atmospheric carbon

The advantages of biofuels over fossil fuels are important drivers while considering the environmental sustainability of biofuels. The major economic advantages lie in the availability of raw materials (plant/animal biomass), production units (factories) which helps to reduce the initial investments related to biofuel production. An added advantage is the environmental benefits like reduction of emissions from automobile exhausts and the corresponding reduction in atmospheric pollution compared to fossil fuels. In a global context also, biofuels offer sustainability contributing to carbon cycles, thereby reducing atmospheric carbon by carbon fixation. Hence the advantages of biofuels over fossil fuels is really advantageous while considering the economic and environmental point of view.

Studies show that the overall emissions of carbon dioxide, carcinogens, particulates and hydrocarbons is more in petrol diesel compared to B 100 diesel (100% biodiesel) (Yang et al. 2007) which shows that biofuel is a viable option to lower the atmospheric pollution by reducing the contribution of the harmful emissions from conventional petrol diesel. The reduced pollution offered by biofuels is a major driver which makes it ecofriendly as far air pollution is concerned compared to conventional fuels by reducing the emissions and hence, has positive impact on ecosystem management. But the cultivation of biofuel crops is still questionable and may not be ecofriendly while considering the case of soil and biodiversity. The cultivation of any plant at commercial scale implies the use of fertilizers, pesticides and insecticides to increase the yield and this is a major threat to biodiversity. The application of fertilizers and insecticides leaves the residues in soil and can affect the soil flora and fauna. The soil food webs get disturbed by the elimination/ reduction of beneficial animals like collembola, acari, nematodes and earthworms along with beneficial soil bacteria and fungi (Joy and Chakravorthy 1991; Neves et al. 2001; Thompson 1970). The increased application of nitrogenous fertilizers can attract more pests to the crops which again implies the use of more insecticides, which will in turn affect the biodiversity and the farmer's health. But considering the fuel

security of the coming generations, biofuels can be considered as a viable option for energy sustainability and hence the second generation biofuels becomes one of the major subjects of interest.

Jatropha curcas is a shrub belonging to family Euphorbeaceae. The plant, which is a second generation biofuel crop has many properties which makes it farmer-friendly like soil erosion control, reclamation of soils, use for live fencing, fodder etc. (Achten et al. 2010; Openshaw 2000). It also reduces atmospheric pollution by fixing atmospheric carbon in its wood biomass and has role in climate change mitigation. The oil from *Jatropha* has more viscosity than biodiesel, and hence can be blended with diesel and used as fuel. Authors have also proposed the use of *Jatropha*-palm oil biodiesel blends as fuels in Asia (Sarin et al. 2007). Literature shows that the plant is a non-edible oil-seed crop (Shinoj et al. 2010) that can survive in marginal lands (Jongschaap et al. 2007), which is advantageous to avoid the food versus fuel conflict. "Marginal lands are those lands which are unsuitable for food production, which refers to those lands with poor soil/ harsh weather conditions and land that has been degraded through activities like deforestation" (Renewable fuels Agency p.33). A simpler definition for marginal land will be those lands with low carbon stock (Shortall 2013). Ecologists have defined marginal land as the eco-tone of two or more than two heterogeneous systems (Li 2007) while economists consider marginal lands as those lands with as land uses at the margin of economic viability (Striker 2005). In other words, marginal land can supply food, fodder, medical plants, fertilizer and fuel to local people, but not through a structured, market-based approach (Liu et al. 2011). In this chapter, we defined marginal land as unused land with cultivable potential and not used for cultivation of food crops. As biofuel crops can compete with agricultural production by replacing food crops in agricultural lands, the concept of biofuel cultivation in marginal lands was introduced with a view to avoid a major threat for nation's food security- the food versus fuel conflict. The *Jatropha* mission in India expected that good yields of *Jatropha* could be obtained from the cultivation of the plant (Axelsson et al. 2012; Lakshmi 2017) in marginal lands as the plant was found to be having a less demanding nature for water and nutrients to survive (Nahar and Sunny 2014). This was a positive aspect which forced the government of India to select *Jatropha* as the biofuel crop to be cultivated in 13.4 million hectares of marginal lands (Axelsson et al. 2012; Lakshmi 2017; Government of India 2003). But studies have shown that the yields which can be obtained from *Jatropha* plants ranges from 2–7.8 tonnes ha⁻¹ year⁻¹ (Francis et al. 2005; Heller 1996) in semi-arid and wasteland soils with rainfall varying from 900–1200 mm with optimum management potential. Kandpal and Madan (1995) and Ginwal et al. (2004) reported oil content of about 33–39% from seed and 46–58% from Kernel respectively. Estimated costs for producing *Jatropha* oil in India also varies (Carriquiry et al. 2011). The various costs were divided into annual variable plantation cost, Annual variable logistic costs and annual extraction operating costs. The total costs varied from fourth year to tenth year of plantation. But promised yields in the workshops held at Coimbatore were 2470–7410 kg dry seed ha⁻¹ year⁻¹ from the first year based on cultivation inputs, and which could finally reach about 12,355 kg ha⁻¹ year⁻¹ afterwards (Axelsson et al. 2011). These

data suggest that *Jatropha* is not a plant that can grow and produce yield of its own, but requires external inputs like water, fertilizers and proper scientific management to produce marketable yields. Hence the research gaps on *Jatropha* include the assessment of its yielding potential, impacts on natural resources, impact on biofuel markets, impacts on marginal farmers and biodiversity. This study used data from a study conducted by Axelsson et al. (2012) and similar other studies on *Jatropha* plant to address these issues.

2 Implementation of *Jatropha* Cultivation in Andhra Pradesh and Tamil Nadu

The biodiesel blending programme of the National Biofuel Mission, implemented in 2003, suggests blending of biodiesel with high-speed diesel targeting and 20 per cent blending after 2017 (Aradhey 2017) and *Jatropha* programme was implemented in two South Indian states Andhra Pradesh and Tamil Nadu by various government departments (Axelsson et al. 2012; Lakshmi 2017) (Fig. 1).

The scheme was implemented with the support of District Water Management Agency (DWMA) in Andhra Pradesh and Department of Agriculture in Tamil Nadu (Axelsson et al. 2012). The farmers involved in Andhra Pradesh were 77 and Tamil Nadu were 29. The average area under *Jatropha* was 2.7 ha in Andhra Pradesh and 6.9 ha in Tamil Nadu. The cultivation started in 2005 while it almost came to an end in 2010 due to the poor performance of the crops. As a part of the programme, the farmers received free seedlings, subsidies, financial assistance from the government for land preparation, planting, irrigation and nutrient supply (pesticides, manures, fertilizers and insecticides). This was advantageous to the farmers at the initial periods of planting.

Implementation of *Jatropha* cultivation in South India follows a specific pattern (Fig. 2).

3 Models Involved in *Jatropha* Cultivation

Jatropha cultivation by farmers in South India followed certain models in relation to production, distribution and marketing (Table 2).

There were three models observed for the cultivation of *Jatropha* according to previous studies in the Indian context (Shinoj et al. 2010). They included farmer-centric models, government mediated production models and corporate production models. The same models of cultivation were followed in South Indian states also. The operator of the cultivation will be a farmer in farmer-centric production. The second model is government mediated production involving self-help groups of Joint Forest Management Council (JFMC) where the community lands were given

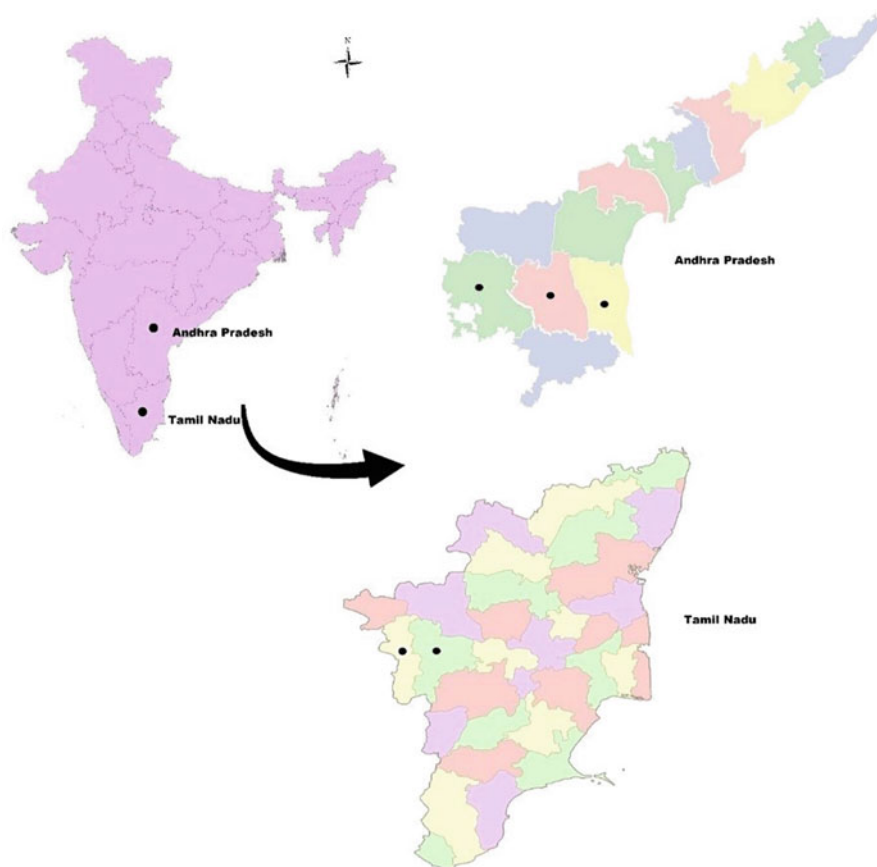


Fig. 1 Study areas in South India. The marked districts represent study sites Kadappa, Nellore, Anantpur in Andhra Pradesh; Coimbatore and Tirupur in Tamil Nadu. (Source: Wikipedia)

for lease to farmers for cultivation. The third was business-oriented model for cultivation with two subdivisions namely estate farming and contract farming. In estate farming, large companies cultivate *Jatropha* in either their own land or community land leased out from village councils (panchayats), which were local governing bodies (Axelsson et al. 2012). The contract farming model was implemented with buy-back agreements. The farmers are given the right to cultivate *Jatropha* and take the harvest from the plant and the company agrees to buy the seeds from the farmers at a fixed market price (Shinoj et al. 2010). As different strata of groups are involved in the cultivation, *Jatropha* cultivation models observed in South India is a good example for combining the marginal farmer, corporate and government sectors under a single umbrella. With the combination of all these three, perfect functioning of *Jatropha* system was assumed to be present in India (Pandey et al. 2012) comparing the advantages of *Jatropha* as a biofuel crop.

Fig. 2 General model of *Jatropha* cultivation in South India

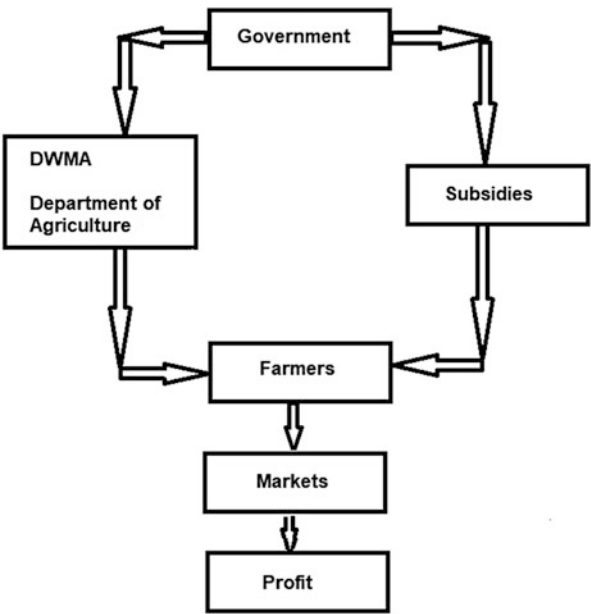


Table 2 Models of *Jatropha* cultivation in South India

Operator	Land ownership	Rights on harvest	Government role
Farmer	Farmer	Farmer	Subsidy on seedlings
Farmer (SHG/JFMC)	Community	Self Help Groups(SHG)/Joint Forest management Committee (JFMC)	Lease of land, subsidy on inputs, employment guarantee
Corporate	Private/ community	Corporate	Subsidy for setting up processing plants

Adopted from Shinoj et al. (2010)

4 Methodology and Background of the Study

The research involved assessing socio-economic impacts of *Jatropha* cultivation on the marginal farmers in South India. The farmers who had undertaken *Jatropha* cultivation in Andhra Pradesh and Tamil Nadu in 2005 and were reported to be still continuing were visited and interviewed through a survey method. Additionally, new farmers who had started *Jatropha* cultivation were also interviewed. The interview was done through semi-structured questionnaires. In short this is a revisit study in 2010 to the so-called *Jatropha* cultivated farmers. The results were analyzed in the light of National Biofuel Mission. The study is a part of the major study carried out by Axelsson et al. (2012) in which the farmers perspective regarding *Jatropha* cultivation were addressed. In that paper, the association of *Jatropha* with other natural resources, energy resources and rural development were considered. The

additional points which are considered in this study are the effect of *Jatropha* crops on agriculture, biodiversity, impact on ecosystem and energy resources etc. The impact of *Jatropha* crops on farmers livelihood are considered As subsidies played a major role in *Jatropha* cultivation, the impact of *Jatropha* on governments economy are also considered. The results were analyzed from the interview results which involved the general response of the farmers to *Jatropha*. Some of other results were also extracted from visual determination and informal talk with the farmer community. Considering all these factors, this study tried to examine the drawbacks of the biofuel programme and put forward certain points for rectifying the drawbacks which can be brought to the attention of the government and the policy makers.

5 Findings

The literature review shows that *Jatropha* programme was theoretically considered to be one of the programmes which could provide many benefits to people, mostly the marginal farmers (Sreedevi et al. 2009). The advantages which could be provided by *Jatropha* crop was mainly economic benefits to the farmers. In addition, the farmers could be also benefitted by reclamation of marginal lands through litter fall and nutrient maintenance in the soils by the plant root system (Islam et al. 2011; Singh et al. 2013). But this theoretical success was not obtained at the field levels. The major drawbacks regarding *Jatropha* programme are described in this section.

5.1 Impact on Ecosystem and Energy Resources

A major problem related to *Jatropha* was the impact on the ecosystem. Impact of ecosystem refers to impacts on natural ecosystems and impacts on agricultural ecosystems. A major concern while considering the impact on all ecosystems is the increased pollution which can occur due to *Jatropha* cultivation. The use of diesel power for irrigation is one such aspect where more pollution will be introduced into the agricultural ecosystems. Another problem was the addition of pesticides and fertilizers which degraded the existing soil quality.

The interview from the farmers by Axelsson et al. (2012) showed that farmers could use the marginal land for *Jatropha* cultivation using the inputs provided by the government. Hence the initial investment in cultivation on the farmers' side was almost zero, which was a positive aspect as far as *Jatropha* cultivation was concerned. But the conditions changed after a few months of planting. Andhra Pradesh being a drought prone region, the water demand by the plants could not be met by the farmers. Many of the farmers had to divert a part of the water supply from other crops to *Jatropha* plants or had to use additional water for the survival of the seedlings. This resulted in either reduction of production from other crops due to less water supply as poor farmers could not afford such a huge amount of investment

for irrigation, and over-exploitation of water resources in Andhra Pradesh (Axelsson et al. 2012). In Tamil Nadu water supply was not a major issue and the seedlings were supplied with ample quantities of water in order to support the growth. But in short, it can be inferred that the natural resources like water was rather wasted for no benefit to the crop.

Increased investment on energy resources concerned with *Jatropha* cultivation took place in in South India. There were mainly two types of plots based on rainfall which cultivated *Jatropha* namely irrigated lands and rain-fed lands. It was observed that the irrigated lands had to be supplied continuously with water while the rain-fed lands solely depended on rainfall as the water source for crops. The water inputs to the plant could be supplied in big irrigated fields only by using electric power. Hence electricity consumption was a major source of harnessing energy sources while cultivating *Jatropha*. Apart from electric power, diesel was also used as an energy source for certain irrigation pump sets in Tamil Nadu (Lakshmi 2017) and Andhra Pradesh. Also, the expense on irrigation was about Rs 144,000 acre⁻¹ year⁻¹ in Andhra Pradesh and Rs 720,000 acre⁻¹ year⁻¹ in Tamil Nadu, which was a huge sum for the marginal farmers. Using diesel as the energy source for pumpset, the consumption of more energy in combination with atmospheric pollution was another drawback related to exploitation of energy sources. Therefore, *Jatropha* cultivation in big irrigated plots was found to be more expensive as compared with rain-fed plots and such a huge investment and according to the survey, this was not much attractive to the farmers.

5.2 Impact on Agriculture

The main drawback of the program started with propagation of the plant itself. *Jatropha* could be cultivated from seeds and stem cuttings (Krishnan and Paramathma 2009). Both these two forms of cultivation could be observed from South India as per the studies of Axelsson et al. (2012) through the questionnaire method and direct observations. But studies prove that the plants propagated through seedlings will survive well and benefit the environment compared to those propagated from stem cuttings. Usually, the tap root of the plant absorbs nutrients and supply it to the soil making it more fertile by increasing the litter fall but the plants developed from stem cuttings usually do not develop a tap root (Severino et al. 2011) which is a major disadvantage concerned with the eco-friendliness and yield of the crop. Therefore, the mode of plantation of the crop is an important factor, but due care has not been given to the choice of planting material supplied to the farmers. Instead some farmers were also supplied with stem cuttings (Axelsson et al. 2012) which may be a primary drawback regarding the sustainability of the crop.

During the face to face survey with the farmers conducted in Andhra Pradesh and Tamil Nadu (Axelsson et al. 2012) it was found that many of the pesticides which were used for controlling pests of *Jatropha* were applied as cocktails by mixing two or three pesticides. This also pollutes the nearby agricultural crops and the

agricultural crops with which the *Jatropha* plant were intercropped. This also poses a serious health issue to the consumers of the agricultural production like vegetables and oil seeds, and also to the farmers who apply these chemicals without any proper safety measures, thereby causing a risk for respiratory diseases and other chronic ailments like cancers.

5.3 Impact on Poor Farmer's Livelihood

The farmers had to supply labor for cultivating *Jatropha* in their fields. In most cases, private labour was provided by the farmer himself along with his family. The labour was distributed into land preparation, pitting, planting, fertilizing and irrigation. The private labour was mostly used as hired external labor was expensive (Axelsson et al. 2012) which came to about Rs 2500 acre⁻¹ year⁻¹ for land preparation in Andhra Pradesh while no such expense was reported in the case of Tamil Nadu. But the farmers with acres of land depended on hired external laborers who were paid on daily basis. The labour which could be utilized for other agricultural crops like cereals, pulses and oil seeds was used for nurturing *Jatropha* plants but it was of no use as the yields obtained were very low. Hence wastage of human energy and income was one of the most important drawbacks of cultivating *Jatropha* while considering the supply of labor. Also, the other expenses incurred like investments on fertilizer and manure (Rs 5000 acre⁻¹ year⁻¹ in Andhra Pradesh and Rs 3000 acre⁻¹ year⁻¹ in Tamil Nadu), to nurture the plants, and additional manpower needed for their application to *Jatropha* plants.

The main problems faced by 97% of the marginal farmers who resorted to *Jatropha* cultivation were lack of yields and the absence of a proper market for selling the seeds. The study by Axelsson et al. (2012) indicates that even if the plantations are properly maintained with sufficient inputs, yields were low (2470–12,355 kg ha⁻¹ year⁻¹). About 80% of farmers in Andhra Pradesh who opted *Jatropha* cultivation had taken loans from money lenders at a high rate of interest and were hoping of repaying the loans from the profit obtained from selling the seeds. In Tamil Nadu, no farmer was reported to be taking loans from money lenders or from bank to support *Jatropha* but they used their own income to cultivate the plant. As no profit could be obtained from selling *Jatropha* seeds, the farmers were plunged into more and more debts which could not be paid back. Also, 7 farmers expected that they may get profit from the few plants which remained in the fields, and hence tried to nurture the plants by providing fertilizers and manure. The increased amount of debts again forced the farmers to borrow more and more money at high rates of interests from the money-lenders which affected the poor farmer's livelihood. They could not support their family having large size with at least 5–10 members including children. The children also suffered from malnutrition, lack of educational facilities and lack of other basic amenities.

The face-to-face interview with the farmers revealed that there were three farmers who have obtained yields from *Jatropha* during the fourth or fifth years of planting

by giving due care to the plant through irrigation, supply of fertilizers and organic manures like cow dung. But the yields so obtained were futile as the farmers could not find a market for selling the seeds. Even though two farmers were aware of one market which collected the seeds, they faced much difficulty in getting access to these areas. But in fact, there were no proper established markets for selling *Jatropha* seeds. This was a major drawback to even the supporters of the crop who got good yields.

The villages who have undertaken *Jatropha* were mainly concentrated in the rural areas. For example, the districts like Kadappa, and Anantpur in Andhra Pradesh out of the three districts under study were not developed and lacked proper infrastructure and transportation facilities. About 70% of the farmers preferred to walk to their destination to sell their agricultural produce due to non-availability of public transport. These farmers were too poor to afford private transport systems and most of the village roads were unfit for implementing private or public transportation, especially in Andhra Pradesh. Hence even if the farmers had some yield, it was meagre and they could not sell those yields travelling to long distances. Hence, in short it was found that the yields were not sustainable to support the farmers (Axelsson et al. 2012).

5.4 Impact on Government's Economy

A project will be considered beneficial to the government based on its success at various levels. While considering the case of *Jatropha*, success could be obtained at three levels according to the Government's perspective (MNRE 2008), namely the farmer's level, the market level and the environment level. The first was at farmer's level, where the marginal farmer would be utilized for harnessing the energy sources. This was in fact, a bottom-up approach and a good move from the government's side which was anticipated to be successful. But the unscientific method implementation proved to be a real hindrance for achieving this target. The marginal farmers opted *Jatropha* over other crops, spared their agricultural lands for its cultivation spending their time and energy and ended up in ultimate loss (Axelsson et al. 2012). Hence the implementation at farmer's level failed. The second level was at the market level where profit could be obtained from selling the biofuel crop and reducing India's expense on energy costs. But this target could also be met as expected production of *Jatropha* oil could not be obtained (Axelsson et al. 2012). The third target was focused on environmental sustainability by utilizing marginal lands, increasing the vegetation cover, improving the soil quality and reducing the carbon footprint in the ecosystems. But this goal also failed as the plants could not survive in the marginal land due to lack of inputs like water and nutrients. Hence the mission totally failed and this caused a huge economic loss at the government's side.

6 Discussion

Jatropha cultivation in India was not properly framed in relation to National Biodiesel Mission. The mission was introduced in a large scale manner anticipating that it will be beneficial to farmers and government. But the mission failed despite its potential benefits which supported other studies in Tamil Nadu (Ariza-Montobbio et al. 2010; Ariza-Montobbio and Lele 2010). It was still true that *Jatropha* could be cultivated in marginal lands with minimum inputs, thus making it a good option for wasteland management and reclamation, but the criterion for a land favourable for *Jatropha* is not defined. For example, if *Jatropha* can be cultivated in wastelands, the optimum range of soil fertility parameters, moisture content, salinity level and soil texture needs to be defined. The main economic problems concerning the failure of *Jatropha* biofuel mission was the lack of yield as expected before its cultivation and non-survival of the plants and absence of a proper market for selling the oil seeds but there were also other ecological problems like the impact of ecosystem and biodiversity as well as the impact on agriculture. A major social problem related to *Jatropha* in South India was the impact on marginal farmer's livelihood. Hence, the discussion can be divided into four main sections namely Impact of *Jatropha* cultivation on ecosystem, Impact on agriculture, Impact on poor farmers' livelihood and Impact on government's economy.

6.1 The Impact on Ecosystem and Energy Resources

Jatropha crop was introduced without doing the scientific examination of the soil like soil testing. Hence, *Jatropha* cultivation also contributed to increased pollution loads in the soil. The effects on biodiversity were a major issue related to *Jatropha* cultivation. Studies suggest that cultivation of biofuels and other oil crops can reduce the biodiversity of forests (Savilaakso et al. 2013, 2014). Biofuel cultivation in marginal lands is the process of conversion of a non- agricultural land into a monoculture. While the leaf litter and flora can increase the biodiversity of the area, the problems related to monocultures like reduction in plant diversity and gradual reduction of soil quality is a major issue of concern. This can cause a reduction in soil biodiversity due to loss of soil organisms. The expansion of biofuel crops can lead to habitat loss of flora and fauna which is a serious problem. The reduction in biodiversity usually occurs when areas with high biodiversity are converted into monocultures. This will, in turn, eliminate native species through habitat loss (Joly et al. 2015). But no reduction in biodiversity was reported if the plant was cultivated in hedgerows (van Eijck et al. 2014). But generally, while considering the effects on biodiversity and ecosystem, *Jatropha* cannot be considered much 'ecofriendly' to the ecosystem. As in the case of Andhra Pradesh, other studies show that in regions with water scarcity, agrofuel production may lead to water scarcity in the future for irrigation and other activities (Shattuck 2008).

6.2 The Impact on Agriculture

While taking the case of Andhra Pradesh and Tamil Nadu, it was seen that ‘the other agricultural crops’ were affected by *Jatropha* cultivation (Lakshmi 2017). In Andhra Pradesh, ‘other agricultural crops’ refers to oil seeds like sunflower, sesame, groundnut, cereals like rice, maize, millet, corn and pulses like grams in addition to crops like vegetables. In Tamil Nadu, coconut was major agricultural product. The cultivation of *Jatropha* as an intercrop in many cases competed with the traditional plants which were used for intercropping. For example, many of the farmers had opted for cultivating *Jatropha* anticipating the subsidies from the government and the huge profit which could be obtained, as told by many government officers. This was in fact, a threat to the existing traditional intercrops like groundnut (Lakshmi 2017) and gradually reduced the agricultural diversity in the fields. Another major point of concern was the pest attack which was observed in *Jatropha* plants in Tamil Nadu. The pest mealy bug (Francis et al. 2013; Sakthivel et al. 2012) mainly attacked the plant which later spread to the nearby agricultural crops where *Jatropha* was grown as an intercrop. This seriously reduced agricultural production in the corresponding fields. Even though *Jatropha* was considered to be pest free, pests like *Agonosoma trilineatum*, *Scutellera nobiliis* were reported in the plant (Chithra and Dhyani 2006; Terren et al. 2012). All these pests can be pests to the nearby crops also and this will be a major concern in pest management. Studies also support that the excessive use of chemical nitrogenous fertilizers can lead to nutritional imbalances in plants, in addition to pests and diseases (Conway and Pretty 1991; McGuinness 1993).

6.3 The Impact on Poor Farmers’ Livelihood

A major challenge raised by *Jatropha* cultivation was the lack of support provided to the poor farmer’s livelihood. The crop affected the poor farmer and caused a number of issues. The most important among them was the ‘food versus fuel conflict’. This has occurred when the food crops were substituted with *Jatropha* and when the agricultural land was used for *Jatropha* cultivation apart from marginal lands. Thus, the major highlight of the crop that it offers no competition with the food crops was found to be futile. Another conflict which emerged as a result of *Jatropha* was land and water-use conflict (Gerbens-Leenes et al. 2009a, b).

The second impact of *Jatropha* on farmers was a reduction in the main source of income from agricultural production. As many farmers had substituted food crops with *Jatropha* (substituting for other crops or in the form of intercropping and in certain cases, removing the entire crop for *Jatropha* cultivation), the farmers lost the income from the traditionally cultivated crops. Also the spread of pests from *Jatropha* like mealy bug to other crops added to the loss of income from agricultural production. This was most prominent in Tamil Nadu (Lakshmi 2017) when compared with Andhra Pradesh.

One of the subsidiary problems faced by the poor farmer was a shortage of edible oil and fuel in their households (Lakshmi 2017). Edible oil crop cultivation was reduced resulting in a reduction in edible oil production. Also, there was a reduction in the amount of fodder plants cultivated by the farmers. This was a huge loss because in Andhra Pradesh many farmers owned cattle, goat and buffaloes. Getting fodder for them from their own fields was a cost-effective method to the farmers. But reduction of fodder from their fields forced them to purchase fodder from external agencies at a high cost which was a blow to the economic subsistence of the poor farmer in South India. A similar result was reported by Findlater and Kandlikar (2011) in Rajasthan.

In summary, the impact of *Jatropha* cultivation on the marginal farmer is multifaceted. The impacts include mainly impacts to the farmers and impacts to biodiversity. While the impacts to farmers included Energy loss (Wastage of labor for planting, irrigation), economic loss due to reduced agricultural production from other crops, Loss of fuel oil and edible oils from other plants like sesame, sunflower etc. in addition to loss of fodder crops for the cattle. The farmers also faced increased debts by borrowing money from money lenders at a high rate of interest. The environmental impacts included exploitation of natural resources like water, exploitation of electrical energy for power supply to run the diesel pumpsets for irrigation etc. (Lakshmi 2017).

6.4 The Impact on Government's Economy

The government of India had provided subsidies to the farmers for plantation, seedlings, irrigation to promote the programme, trainings for educating the farmers regarding the cultivation etc. According to the National Biofuel Policy of India, loans could be provided to farmers by National Bank for Agriculture and Rural Development (NABARD), while Indian Renewable Energy Development Agency (IREDA), Small Industries Development Bank of India (SIDBI) and other commercial banks would be providing financial assistance to biofuel chain at various levels (MNRE 2008). But in spite of the financial support, the government suffered loss from the programme. This was a massive failure, and was against the popular belief that *Jatropha* cultivation could be a successful venture in marginal lands (Axelsson et al. 2012; Ghosh et al. 2007).

7 Conclusion

Jatropha cultivation in India was not properly framed in relation with the National Biodiesel Mission. Even though it was introduced in a large scale anticipating many benefits to the farmers and government, it could not be achieved. The farmers who were the proposed stakeholders were the most adversely affected. The absence of a

good yield and proper marketing platform for the product was considered to be the most severe problem related to *Jatropha* cultivation in India. Sustainable development can be achieved only if all sections of the society who are proposed beneficiaries of a project are benefitted. While taking the *Jatropha* programme, it can be seen that sustainable development could not be achieved as per expectation. The expected outcome was the economic upliftment of the marginal farmers but it could not be achieved as yields could not be obtained. More focus has to be given to marginal farmers whose socio-economic level will be improved through such programmes.

The Biofuel programme of India is a very representative example of a government project which failed as a result of improper planning, lack of coordination and absence of scientific management. Starting from the root level, the selection of a mode of propagation of the plants itself was a failure. Hence care should be taken to select the method of propagation which is easy, cost-effective and beneficial to environment. Hence as a primary step, proper selection of planting materials should be done. Conducting a germplasm study, identifying the superior varieties which can provide good yield will help in this aspect.

Before doing cultivation of a certain crop, its nutrient needs and soil preferences should be listed out. Undertaking a soil survey in the proposed areas of biofuel crop cultivation, listing the soil properties and mapping the land use of proposed areas of biofuel cultivation and its nearby land areas will be helpful to understand the soil properties. *Jatropha* was a crop suited to marginal soils in a region itself shows spatial variations. For example, sodic soils have been reported (Mandal et al. 2009; Bhattacharyya et al. 2015) in many regions of Andhra Pradesh. In the three districts of Andhra under study, sodic soils are found in Nellore (13,076 km²) and Anantpur (19,130 km²) districts. The response of biofuel plants cultivated in soils with variable properties will show variation in yields. This point was not considered before *Jatropha* implementation at a large scale. The third main drawback was the presence of food versus fuel conflict by introducing *Jatropha* in South India. Care should be made to avoid this issue by allotting *Jatropha* exclusively in marginal lands and sparing the agricultural lands. Also intercropping with *Jatropha* has to be promoted only in the fields where food crops are not used for intercropping. This can be achieved through monitoring by the local government bodies, like panchayats (village council, the basic local self-governing bodies in villages), with the support of the agricultural department. This will also help to avoid the associated issues like fuel shortage, edible oil shortage and fodder shortage. The environmental impact of biofuel cultivation like exploitation of water resources and exploitation of energy sources can be rectified by proper management of the irrigation systems. Conducting an environmental impact assessment study and take steps to mitigate the environmental degradation through agriculture-related activities causing pollution. Drip irrigation can be made available to the plants which will reduce the total expense of water and reduce the power consumption for irrigation. Subsidies can be provided for drip irrigation with government support. The major problem faced after yield like the non-availability of markets can be rectified by implementing government offices like agricultural officers for the collection of yield and later selling them in the market. This will help the poor farmers to find a market and sell their production at a

fair price. The research organizations can easily undertake this task and this will help to fully harness the energy potential of the plant. Conducting training programmes which are scientifically organized with the active participation of research departments rather than government offices alone is another important step which can be adopted.

There is a need for increased number of biofuel markets in India. This can be achieved by the introduction of value added products in relation with a biofuel crop. These products can have use as food, fodder, cosmetics and household items in addition to the major product (biofuel). This can be undertaken at the government sector. Another matter of concern is the need for pilot studies related to biofuel crop cultivation. No scientifically designed studies have been conducted so far to ensure the sustainability of any biofuel crop in relation to biodiversity and soil quality. For example increased cultivation of biofuel crops can challenge the sustainable biodiversity of the cultivated area. The cultivation of biofuel crops implies the use of pesticides and fertilizers which will gradually reduce the soil quality and eliminate the beneficial organisms. To address this issue organic farming is a good option. It has been found that *Jatropha* performs well in soils with organic manure than chemical fertilizers (Openshaw 2000; Francis et al. 2005) The use of organic pesticides, fertilizers and insecticides instead of conventional chemical fertilizers and pesticides will help to increase the fertility of the soil, increase the number of soil fauna through improving the organic carbon status of the soils etc. But no studies have been conducted on this aspect to quantify the use of organic/inorganic inputs for *Jatropha* cultivation and its impacts on biodiversity. This is a major gap and the keystone area to address because solving this issue will solve the related issues on biofuel crop cultivation on biodiversity and soil quality.

The policy subsidies from the government to the farmers should be combined with long-term incentives targetting markets (like buy-back agreements) which are properly framed. Comparison of the returns obtained from the crop with other biofuel crops used nationally/internationally will be an added advantage to identify scope for improvement. It will be good to conduct a cost-benefit analysis regarding the economic feasibility of implementation of biofuel projects. Biofuel promotion programmes should protect the interests of the poorest farmer of a country. Conducting a socio-economic survey focusing on the economic condition of the farmers and prospects of socio-economic development which can be attained from the project's implementation has to be done.

A proper and transparent communication mechanism should be adopted with the aid of visual media like television and the internet regarding *Jatropha* for the farmers to keep trust in the crop. A citizen science concept should be incorporated in biofuel cultivation models where the farmers can actively maintain contacts with scientific experts and researchers on biofuels.

This chapter gives an overall idea about *Jatropha* programme in South India concentrating more on the reasons of failure and its impacts on the marginal farmer's livelihood. The failure of *Jatropha* cultivation is a very representative example which should be studied by the policy makers and government departments before considering the implementation of similar schemes. The implementation of any such

policy should be scientifically examined by considering all its advantages and disadvantages. The feasibility studies and socio-economic impact studies undertaken before a project will help the government and policy makers to take a decision upon its mode of implementation and effect on the proposed stakeholders. The defects of the existing biofuel policy in India has to be rectified while using any other target biofuel crop to ensure its success. The strength of a properly framed policy implementation relies on the success of target population. In a country like India, many policies are framed targeting farmers as the major beneficiaries. Hence understanding farmers issues in relation to a policy will be the major factor to ensure its success in the future.

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Part VII
Specific Aspects: Invasive Alien Species &
Oceans – MEAs Integration, Marine
Resources and Law of the Sea

Invasive Alien Species – The Eradication or Use of Invasive Alien Species Under EU Law



Felix Frommelt

1 Introduction

In 2015, the global community committed itself “to achieving sustainable development in its three dimensions – economic, social and environmental – in a balanced and integrated manner” and hence adopted the Sustainable Development Goals (“SDGs”) (United Nations General Assembly 2015, p. 3). The achievement of the SDGs is, *inter alia*, affected by the negative environmental, economic and social impacts alien species may have, when introduced into a non-native environment. Yet not all alien species have such adverse impacts, as some cannot survive in new environments, others may be even beneficiary. The type of alien species that establishes, reproduces and spreads excessively is commonly referred to as invasive alien species (“IAS”) (EC 2013, pp. 5 and 8). IAS are “one of the primary threats to biodiversity” (CBD COP 2002, p. 1) and among the five “most important drivers of change in ecosystems” (Millennium Ecosystem Assessment (“MEA” 2005, p. 67). Their impact may be direct or indirect, often part of complex interactions, as they decrease genetic diversity (e.g. through hybridization, competition, or displacement), transmit diseases, change soil chemistry, cause soil erosion or even lead to the extinction of native species, e.g. through predation (CBD SBSTTA 2001, p. 7). In socio-economic terms, IAS may have adverse effects on human life or health. It has been found, for example, that common ragweed and giant hogweed cause severe burning, rhinitis, dermatitis, or asthma (EC 2013, p. 9), and the associated costs are significant. In the EU alone the total monetary impacts caused by IAS are estimated

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to be as much as EUR 12.5 billion each year, whereby EUR 9.6 billion result from damage caused and EUR 2.8 billion are spent on controlling IAS (Kettunen et al. 2009, p. 27).

In an attempt to tackle the IAS-threat, on 22 October 2014 the EU adopted the “IAS Regulation” (EU 2014),¹ which entered into force on 1 January 2015. This article outlines the structure of the IAS Regulation and the approach it is based on. It furthermore provides an overview of the obligations and exceptions laid down. Subsequently, the criteria that determine whether an IAS may be included on the so-called “Union list” are discussed. The scope of this article is threefold:

- the EU Member States’ (“MS”) obligations to rapidly eradicate or manage IAS and the respective provisions that may allow to derogate from these obligations;
- analyse the exceptions set forth in Art 8 and 9 and develop concrete examples of “compelling public interest”; and
- determine the meaning of “commercial use” of IAS pursuant to Art 19 in relation to the former exceptions.

2 The IAS Regulation

To meet Target 9 of the Aichi Biodiversity Targets (CBD COP 2010, pp. 1 et seq.), the IAS Regulation transposes Art 8 of the Convention on Biological Diversity (“CBD”) into the EU legal framework (Recital 4; Council of the European Communities 1993). The IAS Regulation has not only environmental implications, but touches upon areas of international trade law too, namely the WTO Agreement on Sanitary and Phytosanitary Measures (WTO 1994), and the internal market. Thus, as in other cases of transposing international environmental agreements organizing international trade, the EU relied upon a Regulation (Krämer 2011, pp. 49 et seq.). Contrary to Directives, Regulations directly and uniformly bind MS, supersede conflicting national law and do not require national implementation (Art 288 Treaty on the Functioning of the EU, EU 2012; Jans and Vedder 2012, pp. 139–178).

The IAS Regulation follows a three-stage hierarchical approach which is in line with No 2 of the Guiding Principles adopted by the sixth CBD Conference of the Parties (“COP”) (CBD COP 2002):

- preventing the introduction of IAS,
- early detection and rapid eradication of IAS, and
- management of IAS that are already widely spread.

Reflecting this approach, Art 1 envisages that the “Regulation sets out rules to prevent, minimise and mitigate the adverse impact on biodiversity of the introduction and spread within the Union, both intentional and unintentional, of invasive

¹Any provision in this article without explicit reference to a legal act refers to the IAS Regulation.

alien species”. The scope of the IAS Regulation seems *prima facie* quite broad as it “applies to all invasive alien species” (Art 2(1)) and alien species are defined as “any live specimen of a species, subspecies or lower taxon of animals, plants, fungi or micro-organisms introduced outside its natural range; it includes any part, gametes, seeds, eggs or propagules of such species, as well as any hybrids, varieties or breeds that might survive and subsequently reproduce” (Art 3(1)). This encompasses not only species from outside the EU’s territory but also species that are native in one MS but alien to another MS. To fall within the IAS Regulation’s scope, alien species must be invasive, i.e. their “introduction or spread has been found to threaten or adversely impact upon biodiversity and related ecosystem services” (Art 3(2)). Having said this, Art 2(2) contains seven exceptions from the scope of application. These were necessary to integrate the IAS Regulation into existing EU legislation (rules had already been in place for genetically modified organisms, pathogens, species used in aquaculture, harmful organisms under the plant health regime and micro-organisms used in plant protection products and biocidal products). It is worth noting that “species changing their natural range without human intervention, in response to changing ecological conditions and climate change” are specifically excluded too – the EU does not intend to hinder natural migration of alien species, even when invasive (Recital 7; Art 3(7)).

The “backbone” of the IAS Regulation is the so-called “Union list” (Genovesi et al. 2015). It lists the IAS of Union concern and its adoption automatically triggers the restrictions provided for in Art 7 that, concisely, ban the import, trade or use of listed IAS. Therefore, the EU follows a “blacklist” approach (Burgiel et al. 2006). However, it is possible to derogate from these restrictions as MS’ authorities may issue permits for research activities, *ex-situ* conservation and scientific production and subsequent medicinal use of products derived from such IAS of Union concern in accordance with Art 8. Moreover, the European Commission (“EC”) may exceptionally authorize the issuance of permits for activities of compelling public interest (Art 9). Following Art 13, MS have to identify the priority pathways of unintentional introduction of IAS of Union concern and put action plan(s) in place to prevent it. Art 14 through Art 18 oblige MS to establish a surveillance system, to conduct official border controls at points of entry, to notify the EC and other MS of the detection of IAS of Union concern and to eradicate them. As mentioned earlier, the eradication obligation is not absolute as MS may derogate from it. In case the IAS has already widely spread, MS must take management measures (Art 19). This provision also regulates the “commercial use” of such IAS. Art 20 contains provisions to restore damaged ecosystems.

Furthermore, the IAS Regulation introduces the fairly new concept of ecosystem services (“ES”) in an EU legislative act. ES are referenced throughout the entire act. Art 3 No 6 defines ES as “the direct and indirect contributions of ecosystems to human wellbeing”. Generally, four categories of ES are distinguished: provisioning (products obtained from the ecosystem), regulating (benefits obtained from regulating the ecosystem processes), cultural (non-material benefits) and supporting services (necessary to provide other ES; MEA 2003). The concept is supposed to allow for the quantification and valuation of these services and their incorporation into economic analysis aiming to provide an objective basis for decision makers by

producing a “price tag” (Brouwer et al. 2013), as for example, the Economics of Ecosystems and Biodiversity (“*TEEB*”) demonstrates ES’ value in economic terms (TEEB 2008, 2010). As different approaches to this concept exist, it was found that “[t]he role of biodiversity remains ill-defined in all the existing ecosystem service classifications” (Brouwer et al. 2013, p. 52). Furthermore, its anthropocentric focus – namely, services for human well-being – was criticized as it is “firmly located within the narrative horizon of sustainable development, and aims at optimizing economic performance through the employment of a number of econometric tools and market instruments in line with neoliberal, market-oriented environmental policy approaches” (Lucia 2015, pp. 113 et seq.). Also Norgaard (2010, p. 1226) points out that it is a “mistaken presumption that we can analyze a global problem within a partial equilibrium economic framework”, yet he acknowledges that the ES approach “can be a part of a larger solution”. As argued below, the ES concept might enable decision makers to apply a more methodological and verifiable approach instead of relying on (rather subjective) value judgements. However, it has been remarked before the entry into force of the IAS Regulation, that this concept has not yet acquired a “true status in general environmental legislation and is barely mentioned in European and national statute and court law” (Kistenkas 2015, p. 546). Thus, only time will tell whether and how it will be recognized among law professionals and be ultimately acknowledged by courts (see Mauerhofer and Laza 2018).

3 The Union List

The Union list and its updates are implementation acts by the EC. Generally, the EC compiles IAS of Union concern for the draft, while MS may submit requests to the EC to include IAS in the Union list (Art 4(1) and para(2)). The aforementioned acts are adopted via the comitology-examination procedure. Hence, the drafts are submitted to the IAS Committee, which is formed by the MS (Art 27). In this process, the scientific forum exercises its advisory role (Art 28).

So far, the Union list (EC 2016a) and its updates (EC 2017, 2019) list 66 species. The Union list contains (only) IAS of Union concern. Other types of alien species that can be distinguished (e.g. IAS of the outermost regions (“*ORs*”), IAS of regional or MS concern in accordance with Art 3 No 4 and Art 11 et seq.) are not addressed here. IAS of Union concern are defined as “an invasive alien species whose adverse impact has been deemed such as to require concerted action at Union level pursuant to Article 4(3)” (Art 3 No 3). Against this background, Art 4(3) lays down five criteria an IAS must cumulatively meet to be included in the Union list. The IAS is,

- based on available scientific evidence, alien to the territory of the EU (excluding *ORs*);
- based on available scientific evidence, capable of establishing a viable population and spreading in the environment under current conditions and in foreseeable

climate change conditions in one biogeographical region shared by more than two MS or one marine sub-region (excluding ORs);

- based on available scientific evidence, likely to have a significant adverse impact on biodiversity or the related ES, and may also have an adverse impact on human health or the economy; whereby
- it is demonstrated by a risk assessment in accordance with Art 5, that concerted action at EU level is required to prevent the IAS' introduction, establishment or spread; and
- it is likely that the inclusion on the Union list will effectively prevent, minimize or mitigate its adverse impact.

The risk assessment under Art 5 provides the basis for deciding whether these criteria are met. From the pool of IAS meeting these criteria the EC picks candidates for the Union list. According to Art 4(3)(b) it is apparent that an IAS does not yet have to be present in the EU and certainly not be established in three MS to be listed as Köck opines (2015, p. 170). The “three MS-criterion” relates to the biogeographical regions of which the EU has nine – only the Alpine, Atlantic, Boreal, Continental, Mediterranean, and Pannonian region fulfil this requirement, but not the Black Sea and Steppic region; the Micronesian region encompasses the ORs (EC 2018).

When selecting IAS for listing, the EC must additionally take Art 4(6) into account which demands a balancing of interest and prioritization. The EC has to consider costs for implementation and inaction, cost-effectiveness as well as socio-economic aspects. Priority must be given to IAS of Union concern that (i) are not yet present in the EU or at an early stage of invasion and are most likely to have a significant adverse impact and (ii) IAS of Union concern that are already established in the EU and have the most significant adverse impact.

Pursuant to Art 7(1), IAS of Union concern that are included in the Union list cannot intentionally be: brought into the territory of the EU (transit under customs supervision is not permitted); kept, bred, or permitted to reproduce; grown, or cultivated (not even in contained holding); transported to, from or within the Union (except for the transportation to eradication facilities); placed on the marked, used or exchanged, or released into the environment. These incisive and comprehensive restrictions are automatically triggered when IAS are listed, meaning no further legislative or executive act is needed. Nevertheless, Art 31 and Art 32 provide for transitional provisions for commercial and non-commercial owners of listed IAS and Art 8 and 9 for explicit exceptions (concerning transitional provisions see Frommelt 2018). Due to the transboundary nature of IAS and the fact that the IAS Regulation is based on the solidarity and subsidiary principles (EC 2013) this article does not subscribe to the notion that it is “surprising and indeed of some concern from a legal point of view” that the restrictions shall apply within the whole EU, regardless of the invasiveness of an alien species in a MS (Köck 2015, p. 170).

4 Eradicate or Derogate?

4.1 *Detection and Eradication*

The surveillance system (Art 14), official controls at the border (Art 15) as well as the action plan(s) on the priority pathways (Art 13) serve the purpose of early detecting and confirming the introduction or presence of listed IAS. The MS must notify the EC in written form and inform other MS of the appearance of listed IAS in its territory, if the IAS' presence was previously unknown in (part of) its territory; or re-appearance of listed IAS that have been already reported as eradicated (Art 16(2)). Despite "early detection" being defined as "the confirmation of the presence of a specimen or specimens of an invasive alien species in the environment before it has become widely spread" (Art 3 No 12), Art 16 should nevertheless include situations where the listed IAS is already widely spread but so far undetected.

Interestingly, the EC opined that "[w]hen a species observation can be considered an early detection will depend on an evaluation of the associated risk. It is up to each MS to evaluate when even just a casual observation may present risks making it important to alert the Commission and other MS. If the casual observation involves no risk, there is no need to notify. But if there is for example a suspicion of risk of establishment, a notification should occur" (EC 2016b). In contrast, Art 16 unambiguously stipulates that the notification/information obligation is triggered by the detection of the introduction or presence, more specifically the appearance and re-appearance of listed IAS. Additionally, notifying the EC and informing other MS must occur "without delay". Consequently, the EC's proposed interlinkage of risk (of establishment) and notification must be dismissed as having no legal basis.

Detection is coupled with rapid eradication measures at an early stage of an invasion, since establishment and spreading of IAS are most effectively and less costly prevented as long as there are just few specimens (Recital 24). Such eradication measures might encompass trapping, hunting and shooting, poisoning, destruction of eggs, use of pesticides and herbicides, or manual removal of plants (i.e. cutting, digging or destructing seeds and seedlings; Olszanska et al. 2016) as well as biological eradication actions such as releasing biological control agents. When choosing the lethal or non-lethal eradication method the MS must ensure that the IAS population concerned is completely and permanently removed (Art 3 No 13).

Concurrently, MS must safeguard that invasive "animals are spared any avoidable pain, distress or suffering" and pay "due regard to human health and the environment" (Art 17(2)). I.e. eradication measures must be specifically targeted at IAS as adverse impacts on the environment (non-target species and their habitats) and humans should be prevented. For example, the first biological control agent used in Europe was a psyllid from Japan. It was released to control the highly invasive Japanese knotweed. However, such release inherently bears the risk that the "agent may not prove specific enough and end up attacking non-target native species, thus aggravating the problem instead of solving it" (Brunel et al. 2013, p. 496). In case

biological or chemical agents might rinse into surface- or groundwater, affecting its status, the prohibition of deterioration under Art 4 Water Framework Directive (“WFD”) (EU 2000) must be considered. In Germany for example, chemical measures are no longer accepted due to their negative environmental and health impacts (Schmiedel et al. 2016). Furthermore, it seems likely that IAS will spread in areas that are under special protection, e.g. Natura 2000 conservation sites. Concerning the latter, eradication measures constitute “necessary conservation measures” pursuant Art 6(1) Habitats Directive (“HD”) (EU 1992). Thus, no Art 6(3) HD-assessment is required.

Moreover, the best available technical means and best practices developed under the auspices of the World Organization for Animal Health (“OIE”; Guiding Principles on Animal Welfare; OIE 2016a, b), the International Plant Protection Convention (“IPPC”; Guidelines for pest eradication programs; IPPC 2016) or other relevant international bodies should be taken into account. If MS rely on private operators (e.g. involving hunters in eradicating efforts; Cerri et al. 2016) those have to meet the aforementioned requirements too (Recital 25).

In accordance with Art 17(1), MS have to apply eradication measures after the IAS’ detection and within three months after notifying the EC and informing MS. Although MS are generally obligated to take eradication measures immediately, they are granted two months to determine whether the requirements for derogating from this obligation are met. Additionally, MS have to monitor the effectiveness of such eradication measures and their impact on non-target species (Art 17(3)). From Art 17(2) one may deduce that possible impacts on the general environment and human health should be monitored too, despite para(4) only mentioning non-targeted species. MS must inform the EC and other MS of these monitoring results and of the eradication of IAS (Art 17(4)).

4.2 Derogation

The four exceptions in Art 18(1)(a) through lit(c) provide MS with opportunities to abstain from eradicating any detected IAS of union concern, if:

- the eradication is technically unfeasible, because eradication methods available cannot be applied in the environment where the IAS is established;
- a cost-benefit analysis demonstrates on the basis of available data with reasonable certainty that the costs will, in the long term, be exceptionally high and disproportionate to the benefits of eradication;
- there are no eradication methods available; or
- they are available, but have very serious adverse impact human health, the environment or other species.

While technical unfeasibility and lack of available eradication methods are unequivocally drafted, the remaining two exceptions are not self-explanatory. The cost-factor-exception is narrowly defined, as the requirements and thresholds for the

cost-benefit analysis are remarkably high. Striking is, that eradication cannot be refused based on the argument that costs at the beginning are exceptionally high, because they must be calculated in the long term. This approach is justified, since costs will regularly decline over time (specifically, if measures are successful). And even if costs are exceptionally high in the long term, they must be disproportionate to the benefits of eradication. Therefore, such cost-benefit analysis should include damages caused by IAS to biodiversity, ES, and adverse impacts on human health as well as the economy. Additionally, the costs for management and restoration measures in accordance with Art 19 and 20 should be taken into account, because these provisions apply in case the MS “refuses” to eradicate IAS (Art 18(6)). Concluding, even eradication measures that are exceptionally costly in the long term must be taken, if benefits prevail, i.e. proportionality between benefits of eradication and costs of action, and inaction. Concerning the determination of costs and benefits, it seems pertinent to rely upon the concept of ES, which allows their expression in monetary terms (despite Art 18 lacking any explicit reference).

The second case of Art 18(1)(c) sets forth that MS may not take eradication measures that “have very serious adverse impact on human health, the environment or other species”. Arguably, warning signs informing people of dangers relating to certain eradication methods may reduce adverse impacts on human health, yet this might not be the case when herbicides, pesticides or biocides are applied. Such agents might rinse into surface- or groundwater, be dispersed by the wind or end up in the food chain and adversely impact human health or the environment. It is problematic that the vague threshold “very serious adverse impact” is not defined – albeit, it is clear that such threshold must be considered to be significantly high, thus still “tolerating” grave adverse impacts. In this respect, it seems questionable whether the same threshold should be applied to the different protected objectives. Generally, the protection of human health is considered of higher value requiring a lower threshold than “very serious adverse impact”. Furthermore, it is not clear whether or how adverse impacts of eradication measures relate to the IAS’ “significant adverse impact on biodiversity or the related ecosystem services” and “adverse impact on human health or the economy” (Art 4(3)(c)). It is advisable to weigh these adverse impacts to strike a balance – if the adverse impact of IAS is more damaging than the damage of eradication measures, the measures should be taken. Inaction (i.e. derogating) in such situations would have more serious consequences. Additionally, one should take into account whether management measures constitute a viable, less harmful option compared to eradication measures, as they might be still able to minimize the IAS’ adverse impact (and must be taken anyway, if MS derogate).

Regardless on which exceptions MS rely upon, the decision to derogate must be “based on robust scientific evidence”. Lacking a definition, it may be analogously derived from case law of the Court of Justice of the EU (“*CJEU*”) that it shall mean conclusive or comprehensive, leaving no lacunae for reasonable scientific doubt (CJEU 2016a, paras 50–51). Therefore, in case of scientific uncertainty MS cannot invoke these derogations. This interpretative approach is in line with the precautionary principle.

Although derogation decisions must be taken within 2 months of detecting listed IAS, the tight time-frame seems appropriate, because eradicating IAS is most effective and cost efficient if taken early. Since gathering and compiling “robust scientific evidence” imposes a significant burden on competent authorities, MS should continuously review scientific and technological advances to promptly produce the evidence required.

MS have to notify the EC of a derogation decision and attach the underlying evidence (Art 18(1)). If the conditions under Art 18(1)(a) through lit(c) are not met, the EC may reject the derogation decision by means of an implementing act. The latter act is adopted in the comitology procedure, involving the IAS Committee (Art 18(2) and para(3)). In case the decision is rejected, MS must apply eradication measures without delay. If the decision is confirmed, MS must take management measures (Art 18(5) and para(6)). Until the final decision is taken, MS are obligated to take containment measures. Albeit Art 18(4) stating that the spread of IAS to other MS has to be prevented, Art 3 No 15 indicates that MS have to avoid the spreading of IAS within their own territory too. These containment measures aim at creating barriers to minimize the risk of IAS “dispersing and spreading beyond the invaded area” (Art 3 No 15).

5 Managing IAS

If listed IAS are already widely spread, the “window” for rapid eradication has closed and MS must take management measures instead. An IAS is considered to be widely spread if its “population has gone beyond the naturalization stage, in which a population is self-sustaining, and has spread to colonize a large part of the potential range where it can survive and reproduce” (Art 3 No 16). Thus, a listed IAS that is established and spreads falls within this definition. The management measures aim at minimizing the adverse impact on biodiversity, related ES, human health or the economy (Art 19(1)). Accordingly, MS are not (generally) obligated to eradicate IAS that are already widely spread (EC 2016c, p.3).

Pursuant to Art 19(1), management measures need to be based on a cost-benefit analysis, including (as far as feasible) restoration measures (Art 20), be proportionate to impacts on the environment and appropriate to specific circumstances of MS. Again, the concept of ES provides a useful tool in facilitating an inclusive analysis.

Concerning the “level of ambition” when taking management measures, the EC held that it “will very much depend on the species and on the specific circumstances of each MS and that it is thus not possible to define a specific level of ambition”. However, the EC expects MS “to examine carefully the circumstances and make a good faith effort to devise measures that successfully minimize or mitigate the impacts, which the constraints posed by the specific circumstances, the impact on the environment, the risks entailed in that particular area of a MS territory and the resources available” (EC 2016b p. 3).

Additionally, management measures need to “be prioritized based on the risk evaluation and their cost effectiveness” (Art 19(1)). This provision is somewhat ambiguously drafted as it contains the term “risk evaluation”. It is unclear whether it refers to the risk assessment under Art 5 or obligates MS to conduct a risk evaluation specifically tailored to the circumstances in their territories. The German, French or Italian version use the same term in Art 5 and 19, suggesting using the risk assessment of Art 5. This notwithstanding, there are good reasons indicating a different interpretation since other language versions, e.g. the Spanish or Dutch version, contain the term “risk evaluation” too. In addition, management measures must be proportional to adverse environmental impacts of the IAS concerned and appropriate to MS’ circumstances. In cases of linguistic divergences, a provision “must be interpreted by reference to the purpose and general scheme of the rules which it forms part” (CJEU 2000, para 21). Thus, the arguments lead to the conclusion that a risk evaluation, specifically tailored to MS’ circumstances, is necessary to determine the proportionality and appropriateness of measures. This interpretation is supported by the fact that another MS than the one taking management measures might have carried out the Art 5-risk assessment leading to the listing of the IAS. In such situations, the risk assessment might lack the in-depth assessment of specific circumstances. The EC’s statement to “examine carefully the circumstances” supports the latter interpretative approach (EC 2016b, p. 3).

Management measures consist of lethal or non-lethal physical, chemical or biological measures aiming at the eradication, control or containment of IAS populations (see examples above). If eradication is not feasible, IAS populations must at the very least be controlled, i.e. “keeping the number of individuals as low as possible” to minimize their invasive capacity and adverse impacts. Containment measures on the other hand aim at creating barriers to minimize the IAS population’s risk of dispersing and spreading beyond invaded areas (Art 3 Nos 14 and 15). Additionally, these measures must include actions to increase the resilience of receiving ecosystems to current and future invasions (Art 19(2) and Art 3 No 17). Adoption must occur within 18 months from the inclusion of IAS on the Union list. Given the negative impacts of IAS, *Davies’* (2016, p. 205) critique that the time limit is “less than ideal” is rather an understatement.

When choosing and implementing management measures, MS must consider their possible negative impacts on the environment, particularly non-targeted species and their habitats, and human health. Without compromising the effectiveness of measures, they must ensure that invasive animals are “spared any avoidable pain, distress or suffering” (Art 19(3)). Note that “[t]he risk management decisions in relation to IAS that are widely spread thus lie with the Member States” (EC 2016c). Furthermore, the public must be given “early and effective opportunities to participate” in the preparation, modification or review of management measures (Art 26). Public participation is needed to gain crucial support for the successful implementation of management measures.

Regarding the listed red swamp crayfish two illustrative examples of management measures can be given: (i) the introduction of eels that prey on them as biological control agents (Aquiloni et al. 2010), and (ii) “the release of large numbers of sterile,

but sexually active, males into the wild to mate females, who will then produce non-viable eggs” combined with trapping (Souty-Grosset et al. 2016).

A MS must notify the EC and other MS in case there is a significant risk that IAS of Union concern will spread into the territory of other MS. In such situations, MS should implement jointly agreed management measures (Art 19(5)). These coordinated measures highlight the transboundary nature of the IAS-risk, since inaction of one MS can undermine the management efforts of neighboring MS (Art 22). Thus, a coordinated management approach might not only prove to be more effective, but also cheaper. Furthermore, the need of third country cooperation (Art 22(2)) is illustrated by the Round Goby found in the Rhine River that is among Europe’s 100 worst invaders but not yet listed (DAISIE 2006). Despite being a bad swimmer and hydropower dams blocking its way, it might make its way upstream from Switzerland to Lake Constance due to human recreational activities (N’Guyen et al. 2016, p. 282). In this sense, the Bern Convention provides a framework to expand action beyond EU borders (Trouwborst 2015).

In comparison to Art 17 and 18, a noteworthy deviation is that MS do not have to notify the EC of adopted management measures. Conversely, the surveillance system must be designed to allow the monitoring of the effectiveness of management measures. The information gathered is reported earliest by 1 June 2019, afterwards every 6 years (Art 24(1)). With regard to sharing best practices concerning applied management measures, the IAS Regulation would have benefited from an immediate, mandatory information exchange.

6 Exceptions and Commercial Use

Notwithstanding Art 8 and 9 specifically setting forth activities that may still be executed despite the restrictions of Art 7, Art 19(2) contains a further exception. It allows the commercial use of already established IAS as part of the management measures. This commercial use is temporary, requires strict justification and it must be ensured that “all appropriate controls are in place to avoid any further spread”. Thus, this exception constitutes a somewhat “foreign matter” considering that Art 19 (2) lays down the management measures (aiming at eradication, population control or containment of IAS concerned) and Art 8 and 9 contain the exceptions.

6.1 Exceptions – Compelling Public Interest

Pursuant to Art 8(1) MS must establish a system to issue permits allowing to derogate from the Art 7-restrictions – except for placing listed IAS on the market or releasing them into the environment – for purposes of research on and *ex-situ* conservation of listed IAS. Facultatively, MS may include “scientific production and subsequent medicinal use within their permit system”, but only in cases “[w]here the

use of products derived from invasive alien species of Union concern is unavoidable to advance human health”. Remarkable is the restrictive definition of research (Art 3 No 8). Its aim is twofold: (i) obtaining new scientific findings and (ii) developing new products. To this end, genetic features of IAS can be isolated and bred into non-invasive species, except for invasive features (e.g. resilience, fast growth, or adaptability). This is rather peculiar as these are regularly the sought-after features.

These activities can only be conducted in contained holding, i.e. “keeping an organism in closed facilities from which escape or spread is not possible” (Art 3 No 9) and unauthorized persons cannot remove IAS. Through cleaning, waste handling and maintenance protocols it must be ensured that specimens or reproducible parts cannot escape, spread or be removed. The removal, disposal, destruction or humane culling must be done in a way excluding propagation or reproduction outside the holding (Art 8(3)).

Whereas Art 8-permits are limited to three activities, Art 9 allows “[i]n exceptional cases, for reasons of compelling public interests” to issue permits for any other activity after prior authorization by the EC. Art 9 does not stipulate from which Art 7-restrictions one may derogate. From the context of the transitional provisions (Art 31 f) and the explicit references to Art 8 – particularly to the requirements of contained holding and the conditions set forth in Art 8(2) – it may be unambiguously concluded that placing listed IAS on the market and releasing them into the environment is prohibited. In any case, activities can only be authorized “for reasons of compelling public interest”. The implication of this is unclear. The Union legislator at least clarified that interest of social or economic nature are encompassed. For its interpretation, parallels may be drawn to Art 6(4) HD and 4(7) WFD, as they contain similar language, and corresponding CJEU case law (Köck 2015).

Art 6(3) HD sets forth that plans and projects (“PoP”) likely to have a significant effect on special areas of conservation are “subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives”. If the result of the assessment is negative or uncertainty remains (i.e. lacking certainty that the PoP “will not have lasting adverse effects on the integrity of that site” (CJEU 2013, paras 40f and 46), PoP may only be permitted in accordance with Art 6(4) HD. This provision states that in the absence of alternative solutions PoP can be still carried out for “imperative reasons of overriding public interest, including those of a social or economic nature”. Additionally, compensatory measures must ensure the coherence of the Natura 2000-network. Concerning priority habitats and/or species, only certain imperative reasons may be raised: human health, public safety, beneficial consequences of primary importance for the environment and other interest following the EC’s opinion.

“The assessment of any imperative reasons of overriding public interest and that of the existence of less harmful alternatives require a weighing up against the damage caused to the site by the plan or project under consideration” (CJEU 2014, para 36; 2016a, para 61). Thus, as key requirement, the PoP’ implications on the conservation objectives relating to the site must be identified. Although it is further assessed below what “imperative reasons of overriding public interest” encompass,

Art 6(4) HD indicates that considerations may also include the interest of social or economic nature (Pürgy 2005 184).

From the wording of Art 6(4) HD it is unambiguous that any interest capable of implementing PoP must be “public” and “overriding”. This “means that it must be of such importance that it can be weighed up against the directive’s objective of the conservation of natural habits and wild fauna and flora” (CJEU 2012a, para 75, b, para 121). Whether the public interest in conserving protected sites is considered to be of lower or higher value depends on the value or number of affected species or habitats and the significance of PoP’ adverse effects on it as well as its incompatibility with the objectives of conservation of that site (Gellermann 2001, p. 92). Accordingly, public interest of implementing PoP must outweigh the protection of natural assets (Apfelbacher et al. 1999, p. 76).

In addition, the reason itself must be “imperative”. Thus, not every overriding public interest may trump conservation interest – the preponderance must downright impose the subordination of conservation interest (Gellermann 2001, pp. 92f).

Since the crucial factor is that PoP serves the public interest, it is irrelevant whether public or private parties carry them out. Therefore, PoP “that lie entirely in the interest of companies or individuals would not be considered to be covered” (EC 2000, p. 43; Ramsauer (2000) 603). Yet PoP of private character may nevertheless present an overriding public interest “by its very nature and by its economic and social context” (CJEU 2012a, para 77). Examples given are the strengthening of a region’s economic power, the improvement of the business/industry hub, and the creation or retention of jobs (Gellermann 2001, p. 92; Ramsauer 2000, p. 605), as they are of national economic interest and do not (solely) serve economic objectives of individuals (Pürgy 2005, p. 185). Furthermore, short term economic or other interest that would only yield short-term benefits for society “would not appear to be sufficient to outweigh the long-term conservation interests protected by the Directive”; i.e. only long-term interest may qualify as “overriding” (EC 2007, pp. 43f). Examples found in case law are the irrigation of water (might “have beneficial consequences of primary importance for the environment”), supply of drinking water (CJEU 2012b, paras 124–126) and a “platform designed to facilitate the movement of disabled persons “(human health) (CJEU 2016b, para 77). Moreover, the importance of mining activities, namely security of supply and maintenance of employment has implicitly been recognized as possible interest (CJEU 2011, paras 109, 193–195).

Also, Art 4(7) WFD contains similar language – overriding public interest. Art 4 (1) WFD stipulates the environmental objectives of protecting, enhancing and restoring surface- and groundwaters as well as a “prohibition of deterioration” (CJEU 2015, para 70; 2016c, para 59). Art 4(7) WFD provides for prerequisites for derogating from those obligations. Modifications or alterations (“*MoA*”) which lead to a deterioration of or failure to achieve the stipulated water status, must cumulatively meet the requirements under Art 4(7) WFD, *inter alia*: (i) the reasons for *MoA* must be of “overriding public interest and/or the benefits to the environment and to society of achieving the objectives set out in paragraph 1 are outweighed by the benefits of the new modifications or alterations to human health, to the

maintenance of human safety or to sustainable development”, (ii) the beneficial objectives served by MoA “cannot for reasons of technical feasibility or disproportionate costs be achieved by other means, which are a significantly better environmental option”, and (iii) steps to mitigate adverse impacts (see CJEU 2016c para 66).

The size of MoA is irrelevant, because the application of Art 4(7) WFD is triggered by the deterioration or prevention of achieving the stipulated water status. Human activities that adversely affect the water body shortly and allow it to recover quickly without any restoration measures do not fall within the scope of Art 4 (7) WFD (e.g. maintenance works) (EC 2009, p. 25). Furthermore, the EC acknowledges the similarities between the WFD and HD and opines that the overriding public interest refers to situations where projects are indispensable within the framework of (i) actions or policies aiming to protect fundamental values for citizen’s lives (health, environment, safety); (ii) fundamental policies for the state and the society; and (iii) carrying out activities of an economic or social nature, fulfilling specific obligations of public services (EC 2009, p. 27; EC 2007). According to the CJEU, supply of drinking water, irrigation and power generation, namely the promotion of producing renewable energy through hydroelectricity, qualify as overriding public interest. The latter contributes to environmental protection, sustainable development, security and diversification of energy supply as well as meeting the Kyoto Protocol targets faster (CJEU 2016c, paras 71–74).

These findings clarify “reasons of compelling public interest” under Art 9, albeit two fundamental differences being prominent:

- no “classic” interference into nature leading to adverse impacts or significant effects is intended under Art 9, since any activity is carried out in contained holdings; and
- Art 9 does not include the term “overriding”.

Thus, neither mitigation or compensation measures nor the assessment of alternatives is necessary. Yet, it is apparent that not every activity which serves a public interest may be permitted in accordance with Art 9 – it must be “compelling”, whereas under the HD and WFD it must be “overriding”, requiring a balancing of various public interest. With respect to HD “imperative reasons”, *Gellermann* opines that these cannot be fulfilled if there are arguments in favor of permitting or rejecting PoP (*Gellermann* 2001, p. 93), since the public interest is neither sufficiently manifest nor overriding (*Apfelbacher et al.* 1999, p. 76). *Ramsauer*, explicitly distinguishing between the terms “imperative reasons” and “overriding”, concludes that the reason itself must be of a quality that demands the assertion of public interest. Consequently, reasons of dispositive or optional nature are excluded. Conversely, said qualification does not bear meaning to the term “overriding”, but merely indicates that the pursuit of such public interest seems reasonably appropriate (*Ramsauer* 2000, p. 604).

Since Art 9 does not refer to “overriding”, but to “reasons of compelling public interest” and no opposed public interest are set forth under that provision, it seems more than questionable whether the balancing of interest as required under the HD and WFD can be simply transferred to the IAS Regulation. Art 9 rather requires a

determination and evaluation of public interest: Is the public interest compelling, i.e. imperative, indispensable and absolutely necessary or – in *Ramsauer's* words – not of dispositive or optional nature, but on the contrary of a quality demanding the assertion, then the activity may qualify for authorization pursuant to Art 9.

In any case, regarding the task of determining and evaluating the compelling/overriding nature or balancing of any public interest, the concept of ES might provide a promising and (more) objective approach, compared to (ultimately, rather subjective and somewhat arbitrary) value judgements. Concerning value judgements under the HD, *Pürgy* stated that competing interest are mostly not calculable and hence cannot be compared based on numerical sizes. Accordingly, it is necessary to lay down the argument for and against each PoP explicitly to conduct a value judgement that is as transparent and comprehensible as possible (*Pürgy* 2005, pp. 188f). Therefore, the ES concept might enable decision makers to apply a more methodological and verifiable approach. Consequently, said decisions can be made in accordance with common business principles (e.g. cost-benefit analysis) which would also strengthen accountability.

Because Art 8 specifically refers to research, *ex-situ* conservation and scientific production and subsequent medicinal use of products derived from such IAS of Union concern, it is not *a priori* apparent which activities are covered by Art 9. It is assured that such interest must be “public” and meet the “compelling”-threshold and that interest of economic or social nature are encompassed.

Furthermore, the findings above suggest that it is irrelevant whether the public or private sector carries out such activity, as the decisive criterion is whether the activity's very nature and its economic and social context is of compelling public interest. Art 9-activities must serve the fulfilment of national economy and not individual interest (e.g. creating or maintaining jobs and maintaining or improving the local economy). Additionally, the public interest must be “compelling”, i.e. indispensable or absolutely necessary. In this regard, *Davies* critically questions whether “those involved in the pet trade [might] successfully apply for such a derogation permit in relation to a species on the List if it would otherwise mean the collapse of a lucrative economic market? Might an argument submitted by a company in the horticultural industry with regard to a number of IAS of Union concern similarly be treated as amounting to ‘exceptional circumstances’ if it would otherwise lead to the demise of a key employer?” (*Davies* 2016, p. 217). Since Art 9-activities can only be carried out in contained holding and the marketing of living IAS (or parts of IAS that might survive and subsequently reproduce) or release into the environment cannot be authorized under any circumstances and irrespective of any economic loss, *Davies' concerns* are unfounded.

It is ascertained that climate regulation and the production of renewable energy (i.e. combating climate change and accomplishing international climate goals) as well as diversifying and securing energy supply which ultimately supports sustainable development, but also the supply of drinking water are of compelling public interest (see above CJEU 2012b, 2016c). This is also generally true for measures reducing the reliance on petro-chemistry (e.g. natural fibre instead of fibre produced from petroleum). Based on the findings above and considering that the category of

“human health” partially falls within the scope of Art 8, illustrative examples can be deduced:

Use of IAS to produce renewable energy (e.g. plants may be used as biomass for combustion processes or digested to biogas; Meerbeek et al. 2015) or to obtain various chemicals from biomass (Cherubini 2010, p. 1412). It is also known that some IAS positively influence climate regulation (e.g. shelled molluscs, corals or algae may have positive impacts on carbon sequestration; Katsanevakis et al. 2014, p. 405). Furthermore, one may produce textiles from plants (e.g. flax, hemp, or stinging nettles; Vogl and Hartl 2003), paper, cosmetic products or agricultural fertilizers (Katsanevakis et al. 2014, p. 404). Plants can be also used in sewage water treatment and to purify water (e.g., certain macrophytes absorb pollutants, Katsanevakis et al. 2014, p. 404; or seaweed as biofilter, Schuenhoff et al. 2006).

Other activities, such as fish or shellfish farming (e.g. Italy is Europe’s biggest producer of Japanese carpet shells with a market worth over EUR 100 million; Otero et al. 2013, p. 80) or fur farming (EU fur farmers make up nearly 50% of the global fur production; FurEurope 2018) might be subsumed under the category “interests of social or economic nature”. Yet, activities under this category may be only authorized considering their very nature and economic and social context. Furthermore, from a biodiversity perspective some risk exists as such IAS might not be listed in the first place, because of the balancing under Art4(6) – socio-economic aspects might outweigh other interests. The EU and MS are well advised to not shy away from listing such “beneficiary” IAS as they might be authorized under Art 9, thus merely prohibiting activities that are not environmentally sound. In this regard, one has to acknowledge the EU’s commitment with regard to listing red swamp crayfish, despite its huge economic significance for Spain, the world’s third largest crayfish producer (Souty-Grosset et al. 2016, p. 83).

Furthermore, it was criticized that no exceptions for “possession or marketing” of alien species that do not display invasive characteristics in certain MS exist (Köck 2015, p. 170). In this regard, it should be considered that – facing inevitable climate change – ecological conditions are going to change and alien species might become invasive in biogeographical regions where they have not been invasive so far (Art 2 (2)(a)). Additionally, in an internal market without borders, it seems virtually impossible to guarantee that the possession or marketing of such IAS would not, eventually, result in their escape or spreading, undermining the efforts of all other MS. For the same reasons, the EC highlights too that “[r]egional variation in invasiveness cannot be taken into account” (EC 2016c). Since “invasive alien species prevention efforts are like a chain whose strength is determined by its weakest link” (Burgiel et al. 2006, p. 9), it is apparent why possessing or marketing of alien species cannot be exceptionally granted in one MS, because the species is not invasive there. Concluding, it is justified that Art 7-restrictions apply EU-wide and derogation is only possible for certain activities that meet the requirements under Art 8 or 9.

6.2 *Commercial Use*

Applying the findings regarding Art 8 and 9 to commercial use pursuant to Art 19(2), several differences are striking: (i) commercial use is carried out in nature and not in contained holding; (ii) neither a prior authorization by the EC is required (iii) nor is the MS obligated to make information publicly available; (iv) “strict justification” is not defined, while Art 8 and 9 provide for specific catalogues of requirements that must be met; (v) no (compelling) public interest is needed for the commercial use. Concluding, purely private interest does suffice. However, commercial use cannot be the sole measure in accordance with Art 19. It must be part of a bundle of management measures with the specific aim of eradicating, controlling population or containing IAS.

Undoubtedly, it is up to MS to clarify the term “strict justification” and set up a permit system. Considering the conditions under Art 9(4), the minimum requirements should be (at least) a detailed description of envisaged commercial uses and assessments of the risk of spreading.

Examples of commercial use may be “fishing, hunting or trapping, or any other type of harvesting or consumption or export, provided that these activities are carried out within a national management programme” (Recital 3 of Implementation Regulation (EU) 2016/1141). According to the EC, restocking of IAS for commercial use is prohibited. However, it opined that selling of live specimens is possible given the IAS cannot escape and that transporting IAS to or through another MS is only permissible where those MS provide for this in their management measures (EC 2016c).

These statements by the EC are more than questionable. First, Art 8 and 9 specifically set forth that marketing live IAS is impermissible – so why should it be permissible under Art 19(2)? Second, selling of IAS stocks subsequently to its listing is merely allowed for commercial stock keepers for a limited period and IAS must be kept and transported in contained holding (Art 31 and 32). Third, Art 19 does not indicate from which Art 7-restrictions commercial users may derogate. It merely allows to temporarily use listed IAS as part of a broader management approach.

As the CJEU held “for the purpose of interpreting a provision of EU law, it is necessary to consider not only its wording but also the context in which it occurs and the objectives pursued by the rules of which it is part of” (CJEU 2018, para 35). Considering the above, an interpretation of commercial use against the background of settled CJEU case law would “merely” encompass the placing on the market of non-living IAS or IAS parts that are incapable of survival and reproduction to minimize the risk of escape or spread. Art 19(2) supports this interpretation. It sets forth that “all appropriate controls are in place to avoid any further spread”. The transport and marketing of living specimens and parts capable of reproduction would significantly increase the risk of escape and spread into non-invaded areas. Furthermore, the EC seems to disregard the temporal element of commercial use. Although Art 19(2) lacks any indication how long “temporarily” is this term unequivocally indicates that management models aiming at an everlasting commercial use cannot

be permitted. The EC's interpretative approach enables MS to continue with "business as usual", ultimately undermining the Regulation's objective. In conclusion, the EC's understanding of commercial use lacks any legal basis and runs contrary to the legislation's objective.

7 Conclusion

With the adoption of the IAS Regulation the EU took an important, but overdue step in protecting the Union's biodiversity against IAS and now complies with Art 8 (h) CBD. This article highlights that the restrictions set forth in Art 7 are incisive, but necessary. Furthermore, it was shown that the concept of ES should be relied upon when making eradication, management or permission/authorization decisions as it allows for inclusive and (more) objective decisions compared to value judgements. Although the EC promotes quite a lenient interpretation of commercial use it was found that a more restrictive interpretation is in fact in line with the objective of the IAS Regulation. Thus, this article finds that the commercial use must be embedded in the management measures, limited in time and transportation and marketing of living IAS is impermissible. This is largely derived from a thorough analysis of the exceptions stipulated in Art 8 and 9. Whereas Art 8 specifically states the activities for which MS may issue permits, Art 9 merely refers to "reasons of compelling public interests". Although lacking a definition, comparable language under the HD and WFD, and CJEU case law was used in this article to develop an understanding and provide concrete categories of activities of "reasons of compelling public interest". However, it will have to be monitored how the EC, MS and courts apply the IAS Regulation and whether it will prove to be effective in protecting biodiversity and ES and hence sustainable development in its three dimensions – economic, social and environmental – against the IAS threat.

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The Limited Contribution of Environmental Law to the Sustainable Management of Marine Resources in Brazil: The Need for an Integrated Approach



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1 Introduction

Brazilian environmental law contributes insufficiently for the sustainable management of marine resources. Procedural and substantial environmental norms follow a sectoral approach based on the management of land resources rather than marine ones. Therefore, it is not yet possible to argue that Brazilian environmental law has contributed to the integration of different sectors, such as mining, oil exploitation, fishing, navigation, towards an environmental protection perspective, given the lack of an integrated approach. Before analyzing this insufficiency, it is important to describe the context of the sustainable development and sustainable management of

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marine resources, the definition of an integrated approach, due diligence and the context of the Brazilian marine environment.

The principle of Sustainable Development appeared on the international stage during the 1980s with the Brundtland report “Our Common Future”, published by the United Nations World Commission on Environment and Development and found widespread international recognition as “the development that meets the needs of the present without compromising the ability of future generations to fulfil their own needs” (WCED 1987 p. 54). In 2015, the 2030 Agenda for Sustainable Development was launched by the United Nations (UN) with 17 Sustainable Development Goals – SDGs. The fourteenth Sustainable Development Goal, entitled “Conserve and sustainably use the oceans, seas and marine resources for sustainable development”, seeks to “minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels” (target 14.3), and to “increase scientific knowledge, develop research capacity and transfer marine technology” (target 14.a). The notion of sustainable development has, however, generated much discussion across different disciplines. There is still considerable debate in legal academia as to its legal status (Schrijver and Weiss 2004; Yoshifumi 2008, p. 69) and it has been understood and applied differently by States and international jurisdictions. For example, the International Court of Justice (ICJ) has interpreted sustainable development differently in the *Gabčíkovo-Nagymaros* case (ICJ 25 September 1997, paragraph 140), in the *Pulp Mills* case (ICJ 20 April 2010, paragraph 177) and differently from the Permanent Court of Arbitration in the *Iron Rhine* case (PCA 25 May 2005, paragraphs 59 and 243). The last one is much more precise than the others to use sustainable development as a legal source.

Sustainable development requires decision-makers to balance the impact of economic development in the present by considering the social and environmental needs of future generations. However, the achievement of this balance is tricky and varies widely (Mauerhofer 2016). In order to give a concrete and more precise content to sustainable development, based on the action that needs to be taken by decision-makers and by society, the term sustainable management seems more appropriate. This term has been used in some international and national norms such as in New Zealand (Makgill and Rennie 2012, pp. 143–148; Makgill 2014, pp. 909–932) and in the *Watercourses Convention on the Law of the Non-Navigational Uses of International Watercourses* adopted in New York on 21 May. Article 24 of this Convention mentions that “(…) ‘management’ refers, in particular, to: (a) Planning the sustainable development of an international watercourse and providing for the implementation of any plans adopted...”. The *Watercourses Convention* uses the term “management” to refer to the practical application and to the process of actualizing the goal of sustainable development.

The definition of an integrated approach relates to a more precise implementation of the sustainable development. This type of approach was provided in principle 13 of the *Stockholm Declaration* (UN 1972), with the following terms: “In order to achieve a more rational management of resources and thus to improve the environment, States should adopt an integrated and coordinated approach to their development planning so as to ensure that development is compatible with the need to protect and improve environment for the benefit of their population”. Article 4 of the

Rio Declaration (UNGA 1992b) also provides for a definition of the integrated approach, as a principle, but with more indirect wording (Viñuales 2015, pp. 175–179; Dernbach 2003, pp. 247–248; Sands 1995, pp. 53–61). This is a quite general and abstract provision, but it was recognized as a principle rather than a concept or a goal (Viñuales 2015, p.161). Agenda 21 (UNGA 1992a) on the conservation and management of resources for development highlights the procedural nature of the principle by stating that States should integrate environmental considerations in their decision-making process, but the outcome of this integration falls within the realm of State sovereignty. Its Section II provides for a more substantive content of the principle stating that sustainable development is an objective to be achieved through integration. In relation to the marine environment, Chapter 17.5a of the Agenda 21 on the protection of the oceans and all kinds of seas and coastal areas and the protection, rational use and development of their living resources highlights that Coastal States commit themselves to “provide for an integrated policy and decision-making process, including all involved sectors, to promote compatibility and a balance of uses”. It can be therefore noticed that integration has the purpose of facilitating the relationship between different norms and sectors by using instruments such as environmental impact assessments and principles related to participation, prevention and precaution in planning and in decision-making process.

Even before the Rio Declaration and the Agenda 21 were adopted, the integrated approach was also provided by some international norms directly related to marine resources. The OSPAR Convention (1992) referred to the idea of integration within its substantive provisions as article 6(2)(d) requests the parties to consider the “need for an integrated planning policy consistent with the requirement of environmental protection”. The International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (FAO 2001 paragraph 9.3) encourages States to take a comprehensive and integrated approach in the following way:

Comprehensive and integrated approach: Measures to prevent, deter and eliminate IUU fishing should address factors affecting all capture fisheries. In taking such an approach, States should embrace measures building on the primary responsibility of the flag State and using all available measures in accordance with international law, including port State measures, coastal State measures, market-related measures and measures to ensure that nationals do not support or engage in IUU fishing. States are encouraged to use all these measures, where appropriate, and to cooperate to ensure that measures are applied in an integrated manner. The action plan should address all economic, social and environmental impacts of IUU fishing.

Specific and more concrete obligations for the adoption of sustainable management of marine resources are identifiable by interpreting the concept of due diligence. In this sense, both the Seabed Mining Advisory Opinion 17 (ITLOS 2011) and the Advisory Opinion 21 (ITLOS 2015) regarding the request for an advisory opinion by the Sub-Regional Fisheries Commission Advisory Opinion (Advisory Opinion 17) were examined as well as the interpretation of due diligence developed in earlier International court of Justice (ICJ) jurisprudence. In Advisory Opinion 17 (ITLOS 2011, p.117), the Chamber provides a more detailed discussion on the relationship between due diligence and protection of the marine environment

in the specific case of deep seabed mining. It also clarified some aspects related to the responsibility of the sponsoring State in these situations. The Chamber found that the State had the obligation to implement norms and regulations to ensure that persons operating under their jurisdiction complied with certain measures and environmental standards. These preventive measures and standards generally include the requirement for the adoption of the precautionary approach, best environmental practice and environmental impact assessments (Makgill and Linhares 2016, pp. 238–241; Anton et al. 2011, pp.60–65) and the adoption of laws that ensure the payment of reparations for any damage caused by failure to comply (Anton 2012, p.241; Lima 2014, pp. 20–26). Therefore, due diligence compliance requires, amongst other things, (1) preventive measures, even in face of scientific uncertainty, (2) best environmental practices and (3) Environmental Impact Assessments. The failure to comply with the precautionary principle may trigger liability if a State has not adopted legislative and regulatory framework which would have enabled it to become aware of the risk, to measure its probability and gravity, and to take measures aimed at preventing the harm.

In this context, the adoption of a sectoral approach renders the implementation of a coherent regime for sustainable management of marine resources difficult. This is the case in Brazil, where the implementation of the sustainable management of marine resources does not yet follow an integrated approach (Makgill and Rennie 2012, pp. 135–142) neither within nor beyond environmental law.

The sectoral approach is limited to considering linkages between inland, coastal and ocean uses. The ecosystem approach can be considered as an evolution of the integrated management, with a more precise focus on ecosystem implications, an understanding that was declared in a UN Report (2006) regarding Oceans and the law of the Sea (Garcia et al. 2003, p. 7). However, there are substantial difficulties to implementing the ecosystem approach based on the difficulties to delimitate the ecosystem's boundaries and to determine the appropriate scale for management (Tanaka 2008, p.79; Haeuber 1996, p. 6; Juda 1999, p. 92). In this sense, it is still debatable whether and to what extent the ecosystem approach can legally orientate the sustainable conduct of States. Both approaches, the ecosystem and the integrated one, provide for the need to adopt and adapt sustainable management to new rules and governance models. Some examples can be pointed out in this sense: design of marine protected areas; multi-sectoral co-operation within a national, regional and international context; coordination between national and international bodies with competence over similar resources.

The predominance of the sectoral approach for the management of marine resources in Brazil can be observed from the different activities and sectors developed in its marine areas. The most important activities developed in the marine areas under Brazilian jurisdiction are: (1) oil exploration and exploitation, (2) mining, (3) navigation, (4) fishing and (5) aquaculture. Each activity is regulated by different administrative bodies and the environmental impact related to these activities is mainly managed by the Ministry of Environment and by its executive Bodies. The problem is that these administrative bodies do not communicate with each other and

the Ministry of Environment does not have a central position on the design of administrative actions.

Considering that Brazil has signed most of the above-mentioned conventions, it has some international obligations related to the sustainable management of marine resources. This paper will provide inputs on how Brazil has addressed these obligations and commitments to highlight which are the Brazilian gaps concerning the implementation of its international obligations and consider the possible interpretations of Brazilian environmental law towards an integrated approach. It can be noticed that there are limited contributions of the sectoral approach currently adopted in Brazilian environmental law for the sustainable management of marine resources regarding procedural and substantial norms. However, there are some possible interpretations of Brazilian environmental law towards an integrated approach.

2 Limited Contributions of the Sectoral Approach for the Integration of Procedural Requirements

Although there is a formal institutional framework for the management of marine resources, in practice, their management is based on a sectoral approach and varies according to the resource and to the marine environment. It is worth analyzing the institutions and the instruments that demonstrate the lack of an integrated approach in Brazilian environmental law for the sustainable management of marine resources.

2.1 Environment Ministry as a Secondary Actor in the Sustainable Management of Marine Resources

Concerning the institutional framework for the sustainable management of marine resources, the Environment Ministry is not a central actor in the coordination of the different sectors. Both living and non-living resources agendas are usually separated and there is a lack of communication between them. There are some institutions which are responsible for the management of marine resources and the marine environment such as:

1. the National Mining Agency and the Ministry of Energy and Mining (Brazil 1967, Decree n. 227/1967, Article 2);
2. the Maritime Authority (Brazil 2002, Decree n. 43/2002);
3. the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA) (Brazil 1989, Law n. 7735/1989);
4. the National Petroleum Agency (Brazil 1997, Law Decree n. 9.478/1997);
5. the Fisheries Secretary regulating fisheries connected to the Ministry of Agriculture (Brazil 2019).

6. the Environment Ministry regulating, for example, marine biodiversity (Brazil 2019, Decree n. 9669/2019).

The Intergovernmental Commission for Marine Resources (in Portuguese, *Comissão Interministerial para os Recursos do Mar* – CIRM) is the administrative body responsible for the implementation of policies for the marine environment. This organization is coordinated by the Navy Ministry and a formal integration can be identified under the structure of the Secretary of the CIRM (SECIRM). However, this integration is not yet well implemented due to a focus much more concentrated on non-living resources. CIRM was created in 1974 by Decree n. 74.557 with the objective to coordinate marine resources issues (Brazil 1974). It is composed by a coordinator, who is a navy commander, and 18 representatives from different Federal Administrative Bodies. Some policies have been established since the Commission's creation and are known as the National Policies for the Marine environment. The first policy was published in 1980 and the last one in 2005 (Brazil 2005) under Decree n. 5.377/2005. According to this Decree from 2005, one objective of these policies is, broadly speaking, to

(...) guide the development of activities that are related to the use, the exploration and the exploitation of marine living, minerals and energetic resources placed on the Territorial Sea, on the Economic Exclusive Zone and on the Continental Shelf, following national interests in a rational and sustainable way in order to achieve a social and economic development.

Another objective is to promote the integrated management of the coastal and marine environment, aiming at sustainable use of marine resources, including the protection of ecosystems, of the biodiversity and of the genetic, cultural and historical heritage of the marine environment covered under national jurisdiction. This broad policy is implemented through Plans and Programs, such as the National Plan for the Coast Management established by Law n. 7.661/1988 (Brazil 1988a) and regulated by Decree n. 5.300/2004 (Brazil 2004a).

As mentioned, the CIRM is a formal institution responsible for the integration of different sectors connected to the marine environment. However, the protection of the marine environment is not a central objective of its policies. Even if there are general policies which seek to integrate different sectors, in practice, the general policies adopted by CIRM are connected to the following sectors: defense, navigation and non-living resources. Among the Plans and Programs of the Secretary are:

1. the Sectoral Plan for Marine Resources (in Portuguese, *Plano Setorial para os Recursos do mar* – PSRM);
2. the Brazilian Antarctic Program (in Portuguese, *Programa Antártico Brasileiro-PROANTAR*);
3. the Plan of mapping the Brazilian Continental Shelf (in Portuguese, *Plano de Levantamento da Plataforma Continental Brasileira* – LEPLAC),
4. the Program of maritime conscience (in Portuguese, *Programa de Mentalidade Marítima* -PROMAR); and
5. the National Plan for Coast Management (in Portuguese, *Plano Nacional de Gerenciamento Costeiro* – GERCO).

The most recent Sectorial Plan dedicated to Marine Resources was adopted in 2016 (Brazil 2016) by Decree n. 8.907/2016 and will remain in force by the end of 2019. The necessary actions required for the implementation of this plan involve both living and non-living resources. Among the ten actions defined, only one is coordinated by the Environment Ministry and it is called REVIMAR. This specific action requires evaluation, monitoring and conservation of marine biodiversity. Despite this requirement, no data has been published. The other actions required are coordinated by other Ministries, such as the Ministry of Science, Technology, Innovation and Communication (MCTIC) which coordinates the actions related to the development of marine biotechnology. There is no evidence of formal communication between the MCTIC and the Environment Ministry concerning marine biodiversity (Girão 2017, p.272).

It is worth mentioning that the navigation sector is not covered by the regulations adopted under the Policy for the Marine Resources (Brazil 2005) and therefore it is not among the activities that should be integrated for the sustainable management of marine resources which include, according to Article 3 of this Policy, fisheries, biodiversity, minerals, energy resources, aquaculture and tourism. The policy clearly excludes the transport of cargo and no reasonable justification exists to explain why the navigation sector was left out of the marine policy. Legally speaking, this sector has an independent policy, which does not contribute to the integrated approach.

In this context, even if the policies, plans and programs mentioned above highlight the need of integration between the different sectors, there are not many joint decision-making or joint management methods and connected responses for their implementation. Moreover, there is no connection between the policies for the 12 nautical miles territorial sea boundary and areas beyond this. A joint policy would promote the sustainable management of marine resources and activities on the territorial sea, the Exclusive Economic Zone – EEZ and the continental shelf. Regarding the environmental objectives, approaches, principles and rules, they are not shared and pursued in the same way by each member of the CIRM. As mentioned above, there is a central focus on activities related to non-living resources and this increases the difficulty for the Environment Ministry and for environmental law instruments to be the protagonists in stimulating the sustainable management of marine resources.

For example, in Brazil, quotas and closure periods are one of the limits and prohibitions imposed to the fishing sector (Brazil 2009a, art. 3). Ecological limits are imposed to fishing based on specific biological issues with a scientific basis and these limitations may lead to the integrated approach. However, it is still mainly sectoral, since they are mandatory restrictions normally applied through normative rulings adopted by the IBAMA (2006, 2007), which is the administrative environmental control agency, such as the “*Instrução Normativa*” n.144/2007, and n.138/2006. Even if these environmental administrative measures are adopted by the IBAMA, which has the competence to analyze the impact assessment studies and determining the environmental limits to the activity, the actual regulation of the sector is developed by the Fishing Special Secretariat and by the Maritime Authority with regards to the connection between navigation and fishing. In this context, it is

important to highlight the substantive integration of environmental concerns within the sectoral norms of the fishing sector. These are the main ecological restrictions that can be identified in Brazilian fishing regulations. They integrate an ecological perspective by establishing limitations which must be enforced by different administrative bodies. In this sense, the integrated approach appears due to the necessity of the integration of different sectors and institutions in order to implement the policies. Nevertheless, the dialogue between the environmental bodies and the fishing bodies and sector is still delicate, since it is difficult to reach a full agreement on environmental limitations.

One example of this difficulty is noticeable in the “*Tainha*” case which stands for a fish species (namely *Mugil platanus* e *M. liza*). A Public Civil Action, filed in by the Brazilian Federal Prosecution Service (in Portuguese, *Ministério Público Federal* – MPF), aimed to suspend the over exploration and industrial fishing of the *Tainha* while a Recovery Plan was being implemented through an executive normative ruling n. 171/2008 adopted by IBAMA (2008). The industrial fishing was impairing in a Public Civil Action the species’ quantity and its reproduction because of the aggressive methods employed for fishing (Federal Regional Tribunal 2017). However, the executive normative ruling was not effective, and the fishing continued occurring. Artisanal fishers had their right to fish the *Tainha* guaranteed in justice (through a writ of mandamus) since inspectors considered that the suspension applied only to the industrial fishing (Federal Justice 2014). The judge understood that artisanal methods of fishing are not as aggressive as the industrial’s ones, and therefore the suspension should not be applicable to them.

Even though the determination of environmental limits established for one activity may consist in an opportunity to implement an integrated approach, whether it is in navigation, whether it is to limit fishing activities, the implementation of the integrated approach still seems limited by a sectoral performance of the administrative bodies competent to regulate the marine environment. However, it can be noticed that the possibility of sharing competences to address the impact of fishing activities and navigation constitutes a pattern towards an integrated approach. This path can also be identified within environmental law instruments.

2.2 *Environmental Law Instruments Not Adapted to the Marine Environment*

Brazilian environmental law instruments were not designed for the protection of the marine environment (Oliveira et al. 2015), but most part of its instruments are applicable to both terrestrial and marine environment. The consolidation of environmental law only took place in the 1980s when the Federal Constitution of 1988 (Brazil 1988b) established it as one of its competence and recognized its general

guiding principles as constitutional ones. An earlier law (Brazil 1981) n. 6.938/1981, provides concepts and instruments that are still considered as part of the Brazilian environmental policy. These instruments are entrenched in this Law's article 9, alinea 13 and consist in:

1. the environmental zoning;
2. the evaluation of environmental impacts;
3. the authorizations for potentially polluting activities;
4. economic instruments;
5. the creation of protected areas;
6. the establishment of an information system; and
7. administrative and criminal sanctions.

Most parts of the environmental policies established after the 1980s include these instruments in their texts. However, the National Policy for Marine Resources (Brazil, 2005) does not provide for the same environmental instruments. Its article 5 points out the following instruments:

- (a) the Federal Constitution (Brazil 1988b);
- (b) the National Maritime Policy (Brazil 1994);
- (c) treaties and soft norms, such as
 - the Montego bay Convention (UN 1982);
 - the Convention on Biological Diversity (UN 1992);
 - the Agenda 21 (UNGA 1992a);
 - the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters (IMO 1972) and
 - the Code of Conduct for Responsible Fisheries adopted by FAO (1995).

Within these norms, there are some instruments related to environment protection, but they are not focused only on this perspective.

Article 7.2.2 of Decree n. 8.907/2016 by the Brazilian Government (2016), that approves the ninth sectoral plan for marine resources, identifies the following instruments:

- monitoring of the marine ecosystem and species;
- the evaluation and increase of marine protected areas;
- the evaluation of the status of conservation of marine species in order to support conservation policies including lists of threatened species;
- and administrative procedures connected to fishing.

These instruments are much more connected to environmental protection than those presented by the Decree of 2005 (Brazil 2005). In this sense, in order to connect environmental law to the marine resource policy, environmental instruments should be interpreted in a way adapted to the marine environment.

For instance, the establishment of marine protected areas can be pointed out as one important instrument of both policies (marine and environmental). On 19 March 2018, four marine protected areas were created (*archipelagos São Pedro and São Paulo* in the state of Pernambuco and *Trindade and Martim Vaz* in the state of Espírito Santo) respectively (Brazil 2018a, b). Currently 25% of the marine space in Brazil is covered by marine protected areas (*Instituto Chico Mendes de Conservação da Biodiversidade – ICMBIO*). However, this does not mean that all marine protected areas, more than 100, are monitored and sustainably managed.

Another measure that may be adopted by the Environment Ministry that is directly connected to marine policies is the publicity of the lists of aquatic species threatened of extinction. However, the recognition of these species is not made in coordination with other Ministries and Secretaries, such as those in charge of fisheries. This frequently creates disputes between different sectors (Silva et al. 2016, pp. 33–50). Different procedures related to the authorization of activities can also be adapted to the marine environment, but there is still a lack of regulatory framework able to facilitate this integration. For instance, the authorizations for mining on the continental shelf are not directly connected to environmental authorizations (Pereira 2017). This results in some mining authorizations without the environmental operation license.¹ The result is a sectoral regulation for mining and for environmental protection (Pereira 2017).

In a prospective analysis, marine environmental issues should be managed by specific instruments able to integrate the coastal zone and the marine space (Spolidório 2018). More criteria and standards should also be adopted to measure the ocean resilience (Scott 2015, pp. 463–489; Long et al. 2015, pp. 53–60; Warner 2015, pp. 291–311; Elferink 2012, pp. 449–480). Moreover, economic instruments directly connected to environmental services, such as specific certifications, can be used to evaluate and better control the use of marine resources. Other instruments, such as: marine special planning; report on the monitoring of the quality of the marine environment; national report on the fishery production; marine inventory on critical and vulnerable species; strategic environmental evaluation and adaptive licensing would also be more adapted to the marine environment.

Besides these procedural requirements that emphasize the limitation of the sectoral approach, it is important to analyze the limited contributions that Brazilian environmental law has for the integration of substantial requirements for the management of marine resources.

¹Research done by Raquel Lima (Brazilian PhD Candidate at the University of Brasília), who has identified some procedures for mining authorization without the environmental operation license. For instance: National Department of Mining Production, *Administrative process n. 02001.003444/2009-69. Exploração de Sedimento Biodetrítico Marinho – SBM (Litoral Norte do ES) – Algaedermis industria e Comercio Ltda. Exploração de Calcário Marinho.*

3 Limited Contributions of the Sectoral Approach for the Integration of Substantial Requirements

General and specific environmental policies related to climate change, water, waste, and biodiversity provide rules and principles much more connected to land than to marine resources. However, they are equally applicable to the marine environment. Other norms, such as a Law from on the prevention, control and inspection of the pollution caused by the release of oil and other dangerous substances on waters under national jurisdiction (Brazil 2000a), are directly applicable to marine resources. These specific norms do not provide, however, for a precise and complete regulation of all activities that take place in the Brazilian coastal zone and marine space. Therefore, the limits of some principles and rules that were not delineated to regulate specifically the marine environment will be pointed out.

3.1 *Limits Related to the Interpretation of Some Environmental Principles*

Brazilian environmental law has a set of constitutional and infraconstitutional principles that provide for a better interpretation of issues related to the environment (Milaré 2014, pp. 258–283; Machado 2013, pp. 65–141; Sarlet and Fensterseifer 2014). Principles such as prevention, precaution, polluter pays, participation, and access to information contribute to the interpretation of different norms when environmental disputes arise. They are among the international obligations pointed out in the introduction of this paper that must be implemented by States under national law. Nevertheless, some approaches that are directly related to the marine environment, such as the ecosystem approach, are not entrenched in environmental norms. Moreover, some principles have not yet been precisely interpreted by Brazilian tribunals. In this sense, gaps and imprecise interpretation are identifiable in both environmental constitutional and infraconstitutional principles.

The imprecise interpretation of some environmental constitutional principles limits the sustainable management of the environment and, therefore, of the marine resources. For instance, there is an imprecise interpretation of the prevention and of the precautionary principle. The precautionary principle has the purpose of blocking actions when scientific uncertainty exists in relation to the degree of the environmental risk and possible damages. It is indirectly entrenched in the Constitution under Article 225, first paragraph (Brazil 1988b) and directly recognized under

1. the National Policy for waste (Article 6, I; Brazil 2006);
2. the National Policy on Climate Change (Article 3; Brazil 2009b) and
3. the National Strategic Plan for Protected Areas (Article 1.1, XXV, Brazil 2006).

The prevention principle, which imposes a prohibition, a mitigation or a compensation for actions or omissions able to cause environmental risks and damages, is

also presented in the Constitution through the instrument of environmental impact assessment (Article 225, first paragraph, alinea IV; Brazil 1988b). It stimulates the adoption of measures when it is certain that a considerable environment impact will occur. However, this distinction between prevention and precaution is not always made and this creates confusions on their interpretation (Oliveira et al. 2018a, b). The precautionary principle has sometimes been interpreted (Federal Supreme Court, 2008, 2011; Superior Court of Justice 2003, 2008; Federal Regional Tribunal 2004) as an objective and other times as a rule and as a principle. Sometimes it has been used as the *ratio decidendi* (Federal Regional Tribunal 2013).

The implementation of the precautionary principle for marine resources is pointed out in Article 1 and Article 5, X, of the Decree from 2005 (Brazil 2005) and in a Law from 1988 (Brazil 1988a). The National Policy for the Marine Resources (Brazil 2005) also presents the precautionary principle under Article 4. However, its interpretation and implementation also lack clear criteria. For example, even if the precautionary principle is presented in the National Strategic Plan for Protected Areas (Brazil 2006), there is no precise connection between it and the marine protected areas in Brazil. Based on some criteria such as the characterization of uncertain risks, an explicit definition of the uncertainties that motivated the adoption of measures and the proportionality according to the potentiality of the risks, researchers have pointed out that the management plans of marine protected areas did not provide for risk-control (Silva et al. 2016, p.11).

Furthermore, regarding the interpretation of environmental infraconstitutional principles, two other important principles must be considered: the access to information and participation. They are both present under Article 204 of the Federal Constitution (Brazil 1988b). They are also provided respectively in a Law from 2011 (Brazil 2011) and in a Decree from 2012 (Brazil 2012), as well as recognized under many other laws, such as:

1. the freshwater regulation (Law n. 9.433/97, Article 5, VI, and Article 26; Brazil 1997);
2. the oil pollution regulation;
3. the dangerous waste regulation (Brazil 2004b);
4. the law on oil spill in the ocean (Article. 2, Brazil 2000a);
5. the National Environment Policy (Brazil 1981).
6. the National Environment Policy (Law n. 6.938/81, Article 4, V, Article 9).

Access to information and participation are fundamental for the sustainable management of marine resources and they have been applied in an active perspective, based on the need to post environmental information on the internet, and through a passive perspective, based on the answers given by governmental bodies when required by civil society.

However, the lack of objectiveness and accurateness for the use of both principles limits their contribution to the sustainable management of marine resources. For example, on what concerns the access to information principle, Article 26 of the Decree from 2012 (Brazil 2012) has some provisions on confidentiality that restrict public access to information when there is need to protect national security.

However, there are no precise criteria to determine when the information is essential for national security. For instance, regarding oil exploitation, the concession contracts signed between private enterprises and public agencies are published, but during the phase of research and of studies to support the decision-making for the future exploration and exploitation, the secrecy of information is considered applicable for national security reasons. In relation to mining activities, the information regarding the Plan of Action that the public company on Mining Research (*Companhia de Pesquisa de Recursos Minerais- CPRM*) signed with the International Seabed Authority was also considered confidential.

The participatory principle aims to integrate the society in the social control of public policies. The National Policy on Social Participation (Brazil 2004c), Decree n. 8243/2014, brought more objectiveness to this principle. However, when environmental issues are considered it can be noticed that the norms that provide for participation do not have enough objective and precise criteria and procedural elements to guarantee the effective implementation of this right. Some norms connected to the use of marine resources have provisions related to the participatory principle, such as the National Policy for Maritime Resources (Brazil 2005) and the National Plan for Coastal Management (Brazil 1988a). Broadly speaking, they include provisions for public hearings during the licensing process and prior to the constitution of a protected area, but generally the participation during these hearings do not receive proper answers or are rarely considered.

The example of Marine Protected Areas (MPAs) can be pointed out. The National System on Protected Areas, which regulates MPAs, has provisions on public participation (Article 5, III, IV, Brazil 2000b.) as well as does the National Plan for Protected Areas (Article 2, Brazil 2006). A study that analyzed the access to information and participation in some MPAs in the state of São Paulo (Silva et al. 2016) found that an effective participation exists when the available information is objective, comprehensible and up-to-date. Furthermore, the information should be included on the internet with transparency and consultations mechanisms, as well capacity-building mechanisms, particularly for local populations, to ensure that the decision-making process adopted to manage the MPAs is inclusive and considers all comments received. The same study also concluded that there are “(...) procedures that assure the effectiveness of the participation principle in the creation of protected areas and in the establishment and operation of management boards” (Silva et al. 2016, p. 10). However, for the drafting and approval of the management plan, the participatory principle does not have the same impact. Regarding access to information, the study pointed out that this principle was not effective on the analyzed MPAs because only a few management plans were made available on internet. However, they can be accessed through the Information Access Portal, in a passive perspective. Moreover, the study showed that there is no access to information or participation during the decision-making process (Silva et al. 2016, p.19).

From the above, it can be noticed therefore that limits remain for the contribution of some environmental principles to the sustainable management of marine resources. Now, it is worth analyzing why these limits also exist in environmental rules.

3.2 *Limits Related to the Interpretation of Some Environmental Rules*

As an asset of common use (*bem comum de uso de todos* – Article 225 of the Federal Constitution, Brazil, 1988), the management of the environment in Brazil (including the marine environment) is an obligation of both public and private entities. This rule must be implemented through specific norms that provide for specific obligations. However, concerning the protection of the marine environment, limits exist because there are no general rules and the rules that apply are connected to the resources used and not to the effects of the activities on the marine environment. A fragmented legal framework therefore exists in relation to the Brazilian marine environment.

Definitions of important terms, such as prospection, exploration and exploitation of resources are not the same and often vary depending on the sector (Oliveira et al. 2015, pp. 111–138). The same occurs with the definitions of conservation, preservation, sustainable use, which have different meanings and different related obligations depending on the sector (Oliveira et al. 2014, pp. 250–266). Moreover, some issues are not well covered, because of the lack of focus on marine resources. For example, under the issue of marine biotechnology, the notion of marine bioprospection is not well regulated under the Biodiversity Law (Brazil 2015) (Moraes and Barros 2018, pp. 119–175). This law does not mention marine genetic resources and does not provide for specific concerns regarding the marine environment (Girão 2017, p.98).

At present, most part of the rules currently applied to the Brazilian marine environment are based on the resources and not on the activities' possible environmental effects and impacts. One of the reasons that explain this scenario is that the decisions made on environmental impacts and on the allocation of resources are not integrated. Ministries and Regulatory Agencies responsible for decisions on the allocation of the resources and many times for the decision-making process do not consider marine environmental impacts. The problem in Brazil is that some agencies in charge of allocating the use of marine resources do not have a win-win dialogue with the Environment Ministry and its related agencies. Consequently, many times, the resource license is given based on the applicant's demonstration that the exploitation of the resource will be – often only in the short term – profitable to local, regional and national economy. In this sense, the specific norms that regulate the marine environment usually have a sectoral perspective and provide for resource-based management.

Marine pollution can be pointed out as an example. The impact of the pollution, from an environmental perspective, is not well considered in a sectoral approach. The isolation of pollution in a specific sector, such as shipping, will guide the analysis of the environmental damage to causes strictly connected to that sector. In addition to this, the actions adopted to manage the pollution will also be isolated in a specific sector. The sectoral perspective, therefore, does not permit the integration of different types of pollution related to different sectors. A unique regulation related to ocean pollution would be more effective, from both a preventive and reparation

perspective. If the impact on the environment was at the center of regulation, it would be simpler to achieve the goal of maintaining the marine ecosystem's integrity and resilience. Moreover, if there was only one administrative body responsible for the management of the marine environment, it would be easier to control activities with potential direct and indirect adverse effects.

A Draft Law (DL) specifically related to the ocean (DL, 2013) was developed in 2013 and is currently waiting to be analyzed by the Plenary of the Brazilian Chamber of Deputies. It aims to modify and solve this fragmented legal scenario by proposing a general rule for the regulation of the marine environment. It proposes the creation of the Marine Biome. This Project of Law may actually provide better integration between different sectors and activities, as well as contribute to the harmonization of procedural and substantial rules applicable to the marine environment. In addition, according to this law proposal, the competences of the federal bodies as well as the substantial instruments applicable to the marine environment would be assembled so that a central body would manage the entire marine environment. However, many amendments and critics have been made, especially by representatives from sectors that have been included in the project, such as fisheries.

Therefore, it can be noticed that nowadays the sectoral approach is dominant in the management of marine resources. However, there are some possible interpretations of Brazilian environmental law towards an integrated approach.

4 Conclusion

The lack of an integrated approach has, in substance, deficiencies concerning the implementation of the sustainable development principle. Brazilian environmental law is not yet able to implement the integrated approach for the sustainable management of marine resources. The sectoral approach remains the common practice for the management of marine resources. By integrated approach this article means the possibility to integrate different sectors, different activities including environmental, social and economic concerns. Two possibilities would contribute to the implementation of the integrated approach under Brazilian marine jurisdiction: a general norm on marine resources which would regulate all the activities and resources together; or an interpretation of environmental law towards an integrated approach. Considering that the first option depends on a political will, the paper concentrated its analysis on the second possibility. Three main conclusions can be pointed out: first, environmental law does not contribute to the sustainable management of marine resources through its principles and rules since they were not designed to the marine environment; second, environmental law does not provide for an institutional framework where environmental agencies are at the center of the management of marine resources; third, regulations within and beyond environmental law are able, through their instruments, to contribute to an integrated approach for the management of marine resources and to implement international obligations, but still in a limited way.

If general environmental norms had been designed to address the marine environment, all policies would have considered the particularities of this environment. Principles, rules and instruments would have adopted specific provisions on the marine environment. Only few norms are specifically designated to the marine environment and these are generally based on the activity that is regulated, in a sectoral approach perspective. In this sense, the norms are not based on the impacts of the activities, but on the resource that is regulated. Therefore, the sustainable management of marine resources is done by sectoral policies related to oil exploitation, mining, navigation, fishing and environmental norms.

Alongside, the administrative bodies which represent the management of marine resources, such as SECIRM, adopts a sectoral approach in its projects and activities. Since the Navy is SECIRM's coordinator, activities such as navigation and defense prevail over environment protection. The Environment Ministry has a marginal activity within the Commission, and this clearly demonstrates the limited contribution of the environmental framework to the management of marine resources.

Nevertheless, some regulations within and beyond environmental law can contribute to an integrated approach. An environmental obligation may be directly imposed by a specific economic activity sector and by environmental law instruments when they demand economic activities to adopt procedures towards environment protection. The integrated approach can be identified when biological and ecological effects are considered in the definition of rules established in environmental impact assessments as a condition for obtaining and renovating permits or in regulations related to the management and planning of environmental protected areas. The sectoral perspective may leave space to a more integrated perspective based on the impacts of the activities.

Concerning the international obligations that Brazil must comply with, indicated in the introduction of this paper, most part of the instruments pointed out are integrated in Brazilian environmental law, such as: the adoption of the precautionary approach; best environmental practice and environmental impact assessments; the adoption of laws that ensure the payment of reparations for any damage caused by non-compliance. However, their interpretation must also be focused and directed to the marine environment rather than predominantly to land resources.

The objective of this paper was to identify the sectoral approach limits regarding the lack of an integrated approach among existing substantial and procedural requirements for the sustainable management of marine resources. Accordingly, other gaps, challenges and opportunities may be identified in future studies so as to organize, in a systematic way, the requirements for a sustainable management of marine resources.

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International Environmental Law and Law of the Sea: Analysis of Legal and Political Aspects of Institution Interaction



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1 Introduction

The active development of modern law of the sea in the second half of the twentieth century has reflected the need for rational use of marine resources and the prevention of marine pollution. However, since then environmental problems of the ocean and their causes have remained largely unchanged and “on a global scale marine environmental degradation has continued and, in many places, even intensified” (GESAMP 2001, p. 1). According to Goal 14 of the Sustainable Development Goals – SDGs, the international ocean governance needs to effectively cope with marine pollution of all kinds, sustainably manage and protect marine and coastal ecosystem, minimize and address the impacts of ocean acidification, as well as effectively regulate harvesting and end overfishing (SDGs 2015). While Goal 14 does not mention the law integration as means for implementation and only calls to “implementing international law as reflected in the United Nations Convention on the Law of the Sea”, many of the tasks entail need for better coordination among various legal instruments, institutions and actors.

Based on scientific evidence (UNESCO 2018) is the problem of Ocean pollution cannot be solved without addressing land-based activities (e.g. in water and sanitation, agriculture, waste treatment sectors). However, in legal terms these sectors relate to different branches of law – international environmental law and international law of the sea. Moreover, international environmental law has sub-branches as international law on chemicals, on movement of hazardous wastes, on watercourses. Ocean pollution is a subject of the United Nations Convention on the Law of the

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Sea – UNCLOS (UN 1982), the International Convention for the Prevention of Pollution from Ships – the MARPOL 73/78 (UN 1978), the London Convention for prevention of Pollution of the Sea by Oil and more broadly is the responsibility of International Maritime Organization (IMO 1972). All of these agreements form UNCLOS-based international regimes. UNCLOS (UN 1982) establishes a framework for the regulation of land-based sources (defined as “rivers, estuaries, pipelines and outfall structure” (based on article 207 UNCLOS) of marine pollution. Article 207 in itself does not require states to take strong measures and “inadequate for the purpose of giving effect to the objectives of sustainable development” (Birnie et al. 2009, p. 454). Land-based pollution is the subject of regional conventions on enclosed or semi-enclosed seas in Europe and UNEP’s regional-seas treaties. Protection and use the international rivers (watercourses) provided under the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes – Water Convention (UNECE 1992). The amendment entered into force on 6 February 2013 allows all United Nations Member States to adopt the Convention. The Water Convention is part of international watercourses regime (Rieu-Clarke 2010). Another issue linked to ocean pollution is the transboundary movement of wastes which is regulated under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal – the Basel Convention (UN 1989). The Basel Convention is a constituent element of the international regime for waste management and hazardous chemicals (Selin 2010).

There is no legal or political mechanism/process that would establish international cooperation in the field of ocean pollution from all kind of sources. Research dedicated to international ocean governance concludes that there are “sectoral approaches predominate” (Grip 2017 p. 413), law of the sea-formation process is “highly decentralized and interactive and it does not occur in a straight line” (Miles 1999, p. 4). Research on how effectively different by-domain conventions co-govern ocean pollution has come to the fore of the law and policy studies early in recent years. The roles of the Basel Convention and the Stockholm Convention in reducing the impact of plastics on marine environment throughout their lifecycle have been discussed (Raubenheimer and McIlgorm 2018). The tendency of “treaty congestion” in global marine conservation has been considered a significant threat for effective implementation (Al-Abdulrazzak et al. 2017 p. 247). Large numbers of existing agreements that aim to protect the marine environment impede the process of developing new agreements even in situations of clearly identified gaps in legal regulation. Scholars also highlighted the conflict between the Basel convention and the MARPOL linked to wastes generated on board vessels (Moncayo 2017; Moen 2008).

This article deals with selected global treaties addressing ocean pollution: the United Nations Convention on the Law of the Sea – UNCLOS (UN 1982), the International Convention for the prevention of Pollution from ships – the MARPOL (UN 1978), the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal – Basel Convention (UN 1989), The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes – Water Convention (UNECE 1992). The

main purpose of our paper is to find a legal base for institutional interactions in this sphere of land-based sea pollution between these conventions. We focus on analyzing the sources of sea pollution and on global legal methods of setting restrictions upon them for finding the justification of the necessity of cooperation between the conventions. Based on the concept of “interplay management” we strive to answer the questions: whether there is interplay management between the UNCLOS, the MARPOL, the Basel convention and the Water convention, what forces interplay management to drive and what are the achievements?

For applying the concept of interplay management to the suggested marine pollution-watercourses-wastes nexus, we conducted a comparative analysis of the provisions of the MARPOL 73/78, the Basel Convention, and the Water Convention and then identified the kind of interplay management cooperation between the conventions mentioned.

2 Modern State of the Marine Environment and Sources of Marine Pollution

Despite comprehensive legal regulation of marine pollution, marine human activity is still responsible for 12% of marine pollution (IMO 2016). Challenges remain in particular with the oil pollution of the ocean. The high complexity of an accurate assessment of the extent of pollution is widely caused by a large number of sources of oil in the waters of the oceans. One of the types of human activity responsible for oil pollution of the marine environment is shipping. According to various estimations, operational discharges from ships and tanker accidents during oil transportation and shipping account for between 24% and 37% of the total oil pollution (National Research Council 2003; UNEP 2005; GESAMP 1993).

It is worth noting that oil is not the only substance that can damage the marine environment. It all depends on the extent of substances transported; any cargo in large quantities can affect at least the local environment. In general, about 33% of pollution cases were due to bad weather or damage to the ship’s structure, 30% accounted for collisions and grounding, 11% were fires and explosions, and only 6% were dumped during loading or unloading. The most common discharged substances are iron ore, sulfuric acid and sodium hydroxide (UN 2016).

More extensive use of containers causes that a significant amount of hazardous or harmful substances are transported in them. That means there is a new group of threats associated with this type of traffic. A voluntary container incident notification system was established only in 2010. According to preliminary estimates, almost 50% of cases were associated with containers for which the contents were incorrectly indicated; 75% of incidents involved hazardous or harmful goods (CINS 2016).

In addition, another source of potential contamination by hazardous or harmful substances is a fall of containers overboard. According to some estimates, about a thousand such cases occur in a year (UN 2016). However, the World Shipping Council provides other information: for 2011, about 350 containers were overboard

each year, as well as another 50 containers as a result of major disasters on ships. However, this should be kept in mind that even a single container that is overboard can have a long and extensive impact on the marine environment (Ebbesmeyer and Scigliano 2010).

According to the UNESCO Intergovernmental Oceanographic Commission (IOC), land-based sources account for 80% of marine pollution (UNESCO 2018). This opinion is shared by the experts of the International Maritime Organization (IMO 2018).

Industrial agriculture is one of the main causes of water pollution in both developed and developing countries (Mateo-Sagasta et al. 2018). The impact of agriculture on aquatic and marine ecosystems is associated mainly with eutrophication, in other words, with the accumulation of nutrients (most often nitrogen and phosphorus) in lakes and coastal waters. The development of the eutrophication process, in turn, leads to the destruction of aquatic ecosystems and the loss of biodiversity (Rabalais et al. 2009).

However, agriculture is not the only source of nitrogen and phosphorus. In addition, these substances enter the sea from untreated sewage and from precipitation as a result of the burning of fossil fuels (Lehmköster 2015).

Along with chemicals, garbage can be deadly for marine life. According to the National Academy of Sciences of the United States, about 6.4 million tons of garbage have entered the oceans every year since 1997 (UNEP 2018). The situation is also aggravated by the absence of a single global agreement that would regulate the release of pollutants from land-based sources, including from rivers into the seas and further into the ocean. Currently, measures are being taken only at the regional level.

3 Methodology

3.1 *Regime Interplay Management*

Sebastian Oberthür and Thomas Gering define regime “interplay management” as “conscious efforts by any relevant actor or group of actors, in whatever form of forum, to address and improve institutional interaction and its effects” (Oberthür and Stokke 2011, p. 6). This concept suggests focusing on institutional interaction as a basic unit for analysis. It takes form in interaction across institutional boundaries, mandates of organization, scopes and subjects of regulation. “Interplay management is about policy integration at the international level” (Oberthür 2009, p. 374). For a better understanding of the cause-and-effect relationship between international institution, scholars identify four mechanisms of interactions (Oberthür and Stokke 2011, p. 37): cognitive interaction, interaction through commitment, behavioral interaction, and impact-level interaction. *Cognitive interaction* between institutions occurs when one institution “learns” from another one that generates new information or effective arrangements in solving a particular problem. A central requirement for

interaction through normative commitment is the overlapping membership of institutions and issue areas in which they are operating. *Behavioral interaction* arises in situations when behavior changes initiated by the one institution become relevant for the implementation of the goals of another institution. In the international arenas nowadays functions a myriad of organizations, conventions, forums, etc. creating the “interdependence of their ultimate governance targets” (Oberthür and Stokke 2011, p. 41). *Impact-level interaction* does not rely on dedicated actions but occurs due to functional relationships between institutions.

There are four levels of political interplay management depending on actors involved (Oberthür and Stokke 2011, p. 9): “overarching institutional frameworks”; “joint interplay management”; “unilateral management by individual institutions”; “autonomous management efforts” at national and regional levels. Coordination and cooperation between international regimes can develop in several ways (van Asselt 2011) from ad-hoc political effort to current affairs to more structural – in the creation of joint liaison groups; legal provisions on cooperation in the treaty text; coordination and cooperation between treaty bodies.

For discovering the legal base for interplay management in the sphere of land-based sea pollution between the UNCLOS, the MARPOL, the Basel convention and the Water convention, comparative legal analyses of provisions of these treaties were conducted. For a clear understanding of treaty commitments to tackle sea pollution from land-based sources and connection on this issue among treaties, comparative research was divided into two parts. In the first part, the provision of the UNCLOS concerning protection and preservation of the marine environment were analyzed. In the second part the MARPOL, the Basel Convention and the Water convention were compared regarding the following categories: objective and subjects, obligations, implementation measures, definition of terms and connections between treaties to pollution from land-based activities.

In order to define the forces and achievements of existing institutional interactions, a case study was carried on how and with what effects international institutions cope with gaps in regulation of land-based sea pollution. The effects in this scheme mean influence on institutional decisions that can become a precedent and that prejudice future ways of integration. Based on the results of the legal analysis and case studies, the perspectives for the global regime on land-based sea pollution will be outlined (Table 1).

Table 1 Methodology of the research

Research questions	Method
Is there a legal base for interplay management in the sphere of land-based sea pollution between UNCLOS, MARPOL, Basel convention and Water convention?	Comparative legal analysis
How and with what effects international institutions cope with gaps in regulation of land-based sea pollution?	Case study
What the perspectives for the global regime on land-based sea pollution?	Analysis of case study and gaps in regulation

3.2 *Research Materials*

In our research we are considering only global conventions (or opened to global participation) and organizations linked with ocean pollution because we are focusing on horizontal interaction among international institutions.

Currently, the 1982 UN Convention on the Law of the Sea (UN 1982) is the key document governing the protection and preservation of the marine environment at the international level. This Convention was intended as a comprehensive review of virtually all aspects of the law of the sea. Its main goal is to establish such a legal regulation for the seas and oceans, which would contribute to the strengthening of international relations, as well as the peaceful use of the seas and oceans, the fair and efficient use of their resources, the preservation of biodiversity, the study, protection and preservation of the marine environment. Thus, the Convention is the first of its kind to provide a global basis for the rational use and conservation of marine resources, protection of the environment and at the same time recognizing the importance of freedom of navigation.

The UNCLOS is the result of international law-making process that has contributed to a number of fundamental changes in international law of the sea. In this case, the determining factor is the recognition of environmental pollution as a problem that is the subject of a comprehensive legal obligation that affects the complete marine environment, not just individual national interests.

This Convention can be called global. By March 2019 168 countries excluding Andorra, Eritrea, Israel, Kazakhstan, Kyrgyzstan, Peru, San Marino, South Sudan, Syria, Tajikistan, Turkey, Turkmenistan, Uzbekistan, Holy See, Venezuela and the United States of America, are parties to the UNCLOS (UNTC 2019a).

However, the framework nature of the Convention creates conditions for the emergence of international agreements which aim to further develop its provisions. One of them is the International Convention for the Prevention of Pollution from Ships – the MARPOL 73/78 (UN 1978). This Convention includes provisions aimed at preventing and minimizing pollution from ships from both accidental pollution and operational discharges. The provisions of the MARPOL Convention are aimed at preventing pollution of the marine environment by such substances as oil, harmful liquid substances in bulk, substances transported by sea in containers, wastewater from ships, garbage (UN 1978, article 2). The MARPOL Convention was signed in 1973. As of March 2019, 156 states are parties to the Convention, being flag states of 99.42% of the world's shipping tonnage (IMO 2019).

The third convention chosen as material for this research is the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, adopted in 1989, which has 170 member countries by March 2019 (BC 2019). Although the goal of the Basel Convention is to prevent the risk of damage to human health and the environment by hazardous and other wastes and their transboundary movement (UN 1989), such transboundary transportation can be carried out by sea, which means there is a risk of pollution of the marine environment. Therefore, this convention is also part of our study.

Table 2 Parties and signatories to the water convention

UNECE's member states and parties			Non UNECE's member states
Albania	Greece	Romania	<i>Chad</i>
Austria	Hungary	Russian Federation	<i>Senegal</i>
Azerbaijan	Italy	Serbia	
Belarus	Kazakhstan	Slovakia	
Belgium	Latvia	Slovenia	
Bosnia and Herzegovina	Liechtenstein	Spain	
Bulgaria	Lithuania	Sweden	
Croatia	Luxembourg	Switzerland	
Czech Republic	Montenegro	Macedonia	
Denmark	Netherlands	Turkmenistan	
Estonia	Norway	Ukraine	
European Union	Poland	United Kingdom of Great Britain and Northern Ireland	
Finland	Portugal	Uzbekistan	
France	Republic of Moldova		
Germany			

International watercourses are a major contributor to sea pollution. The only agreement that can be called global in this area of regulation is the Convention on the Protection and Use of Transboundary Watercourses and International Lakes – Water Convention (UNECE 1992). Approved by the member states of the Economic Commission for Europe (ECE) the Water Convention became open to global signing in 2003 when amendments to articles 25 and 26 of the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) were adopted (UNECE 2013). In 2013, these amendments entered into force.

Nowadays 43 countries and the European Union are parties and signatories to the Water Convention, 41 of the state parties are member states of the United Nations Economic Commission for Europe (Table 2). It followed that despite the acquisition of global status by the Convention, it still does not fully cover the region under the UNECE's mandate. Fifteen of 56-member states of the UN Economic Commission for Europe have not jointed this Convention yet.

However, projects under the Convention's regulation are implemented not only in the country Parties. Projects are being successfully implemented in the UNECE's countries that are not parties to the Water Convention. Such projects have been implemented in the Chu and Talas river basins area in Kazakhstan and Kyrgyzstan since 2006, as well as on the Kura River in Azerbaijan and Georgia since 2007 (Libert 2014). In addition, the global status allowed African countries to join the Convention. Chad and Senegal became members of the Water Convention in 2018 (UNTC 2019b).

Talking about the geographical coverage of the Water Convention, at present its provisions govern a large part of the surface waters of Europe, Central Asia, and the Caucasus (UNECE 2011). These transboundary watercourses carry their waters to the seas of two oceans: the Atlantic and the Arctic. The quality of the environment of such seas as the Mediterranean, Black, Northern, Baltic, Barents and White depend on the fulfillment by the parties of the provisions of this convention.

4 Results and Discussion

4.1 *Comparative Analysis of the Provisions of the Chosen Conventions*

Before turning specifically to the regime interplay management, the provisions of the UNCLOS are considered. Since the Convention has a framework character, it seems appropriate to consider the conventions that specify the provisions of the Convention. Based on the study “Implications of The United Nations Convention on the Law of the Sea for the International Marine Organization” by the Secretariat of the International Maritime Organization (IMO 2014) the following table was compiled (Table 3).

It can be seen from Table 3 that the UNCLOS regulation (UN 1982) addresses issues related to pollution of the marine environment from different sources: from land-based sources (article 207), from seabed activities (article 208), from vessels (article 211), from or through the atmosphere (article 212).

However, despite the fact that the convention covers a fairly wide range of issues related to pollution of the world’s oceans, most of its provisions have a framework nature and do not contain specific obligations for the participating countries and measures to protect the marine environment. Based on the information from the Table 3 it can be concluded that currently conventions have been adopted that complement all the provisions of the convention excluding the prevention of marine pollution from land-based sources.

The comparative analysis of the MARPOL 73/78, the Basel Convention and the Water Convention is the second point of our research. This analysis is based on criteria such as objectives and subjects; obligations; implementation measures; key terms. The annexes to the conventions were also analyzed. The results of this comparative analysis are summarized in Annex I.

This analysis allows us to solve two challenges. First, the scope of a convention was determined. Secondly, issues were highlighted on which future cooperation between the secretariats of the conventions under consideration is possible.

Based on the results of the analysis, we can identify the following: the MARPOL Convention has rather broad competence in the field of prevention of marine pollution. However, all of its provisions are related only to pollution from ships. In the period from 2013 to 2015 provisions were added to regulate the following

Table 3 Provisions of UNCLOS relevant to the instruments and work of IMO. Protection and preservation of the marine environment

Article of UNCLOS	Subject-matter	Relevant IMO instruments
207	Pollution from land-based sources including rivers, estuaries, pipelines and outfall structures	None
208	Pollution arising from or in connection with seabed activities and from artificial islands, installations and structures under coastal States jurisdiction	International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) 1990 (IMO 1990)
210	Pollution by dumping	Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (LC) 1972 (IMO 1972) 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (LC PROT 1996) (IMO 1996)
211	Pollution from vessels	International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL) (IMO 1978) International Convention for the Safety of Life at Sea (SOLAS 1974) (IMO 1974) International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS 2001) (IMO 2001)
212	Pollution from or through the atmosphere	MARPOL Annex VI (1997) (UN 1997)

Adapted from IMO (2014)

issues: improving the energy efficiency of ships (MEPC 2013), prevention of air pollution from ships (MEPC 2014), prevention of pollution by garbage from ships and by wastewater from ships (MEPC 2015). Although pollution from ships plays a large role in general water pollution, it is not its only source. Therefore, consideration of other conventions governing other sources of pollution appears necessary.

The Basel Convention provisions, which are not directly connected with the protection of the oceans from pollution, need to be considered in this research because hazardous substances or wastes can pollute the marine environment while transporting by sea routes. Therefore, there is a basis for a joint work of the MARPOL and the Basel Convention.

The Water Convention is also not directly related to the problem of pollution of the oceans, but it regulates the quality of surface waters that carry their waters into the seas. Therefore, we can conclude that in this case the Water Convention specifies the provision of the UNCLOS regarding marine pollution from land-based sources (UN 1982, article 207).

Connections between conventions identified are considered in detail below.

However, this system, which aims to prevent pollution of the oceans, has a number of gaps. There are a number of examples showing that sometimes the competence of one agreement is not enough to solve the problem of pollution. In this case, the only way out is the cooperation of the country Parties to several conventions for the gradual elimination of gaps in regulation. At the initial stage, this cooperation is carried out in the form of interaction between conventions aimed at finding ways to further develop agreements with regard to new environmental challenges.

One of these examples is the case of the cargo ship *Probo Koala*, which in 2006 delivered several hundred cubic meters of toxic waste to Cote d'Ivoire for disposal at a landfill in Abidjan. These actions resulted in the death of 17 people and the poisoning of several thousand local residents (UN News 2009), as well as significant pollution of the marine environment off the coast of the country. This caused a sharp decline in the quality of the environment and the deterioration of the health of the local population.

This incident with the cargo ship *Probo Koala* led to negotiations and the beginning of joint legal work and capacity building for the International Maritime Organization, as the secretariat of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) and the Secretariat of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. This decision was made in 2006 at the Eighth Meeting of the Conference of the Parties to the Basel Convention (BC COP 2006).

The initial stage was a legal analysis of the provisions of both conventions to establish the possibility of their joint application to the management of hazardous waste and other waste generated on ships. As part of the Seventh Session of the Open-ended Working Group work in 2010, parties to the Basel Convention made decisions to begin work on such an analysis, focusing on the following aspects:

- “The respective competencies of the Basel Convention and the 1978 Protocol to the 1973 International Convention for the Prevention of Pollution from Ships in respect of hazardous wastes and other wastes and harmful substances;
- Any gaps between those instruments;
- Any options for addressing those gaps, if any, such as may exist under other legal instruments of the International Maritime Organization.” (BC OEWG 2010).

The Secretariat of the International Maritime Organization was also invited to provide additional comments on these issues.

This work was completed with the report “Legal analysis of the application of the Basel Convention to hazardous wastes and other wastes generated on board ships” adopted at the Conference of the Parties to the Basel Convention (2013) comments to it.

The key issue in this report is the interpretation of Part 1 of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal concerning the waste excluded from the scope of the convention’s regulation, namely, waste resulting from the normal operation of ships (UN 1989, article 1).

As a result, the following conclusions were obtained. First, based on the purposes of the Basel Convention, the provisions of Article 1, paragraph 4, concerning exclusion from the scope of the Convention, should be understood as follows: the norms of the Basel Convention are applied to the extent that the provisions of the MARPOL Convention are not applicable. Secondly, the 1973 International Convention for the Prevention of Pollution from Ships has provisions on environmentally sound management at sea that support the purpose of the Basel Convention, but does not have similar requirements for discharged waste. Consequently, the Basel Convention's requirements for environmentally sound management can be applied to port reception facilities after waste has been unloaded (BC COP 2013).

The Secretariat of the Basel Convention finished the work on improving cooperation at the sea-land interface, which was initiated by the decision of the Conference of the Parties, adopted at the tenth meeting in 2011 (BC COP 2011). As a result, the Assessment of how far the Basel Convention technical guidelines cover wastes covered by the MARPOL 73/78 (took note by COP-12, May 2015) and the Guidance Manual on how to improve the sea-land interface to ensure that wastes falling within the scope of MARPOL – once offloaded from a ship – are managed in an environmentally sound manner (adopted by COP-13, May 2017), were developed.

Despite the framework nature of the Water Convention, its provisions provide detailed legal guidance. The document itself is quite effective mainly due to three factors (UNECE 2013). First, due to the structure of the Convention itself. Its first part contains general obligations for countries that have signed this agreement. In particular, countries committed themselves to comply with measures for the reasonable and equitable use of transboundary waters, as well as to prevent, limit and reduce their pollution (UNECE 1992, Article 2.2). The second part is a more detailed set of commitments for parties that are riparian countries and have common transboundary waters (Bosnjakovic 2009). According to the Article 2 (6) the riparian parties shall conclude bilateral and multilateral agreements (UNECE 1992, article 9).

The Water Convention was supplemented by two protocols: the 1999 Protocol on Water and Health (UNECE 1999) and the 2003 Protocol on Civil Liability (UNECE 2003), clarifying some of its provisions (Moynihan and Magsig 2014). It is necessary to note the value of “soft law” for the successful implementation of the provisions of this Convention. Since 1993, 18 different guidelines and recommendations have been adopted regarding the establishment of water quality indicators (UNECE 1993), monitoring of rivers and lakes (UNECE 1996c, 2000b, 2002), as well as groundwater (UNECE 2000a), adaptation to climate change (UNECE 2009). A number of guidelines and recommendations were also implemented to reduce and prevent the pollution of the aquatic environment by hazardous substances (UNECE 1994), fertilizers and pesticides in agriculture (UNECE 1995), wastewater discharge (UNECE 1996a), as well as pollution of groundwater as a result of chemical storage and waste disposal (UNECE 1996b).

In the preamble, the Water Convention calls for the “strengthened national and international measures to prevent, control and reduce the release of hazardous substances into the aquatic environment and to abate eutrophication and acidification, as well as pollution of the marine environment, in particular, coastal areas, from land-based sources”. Article 2(7) implies that riparian states shall cooperate in order to develop harmonized policies with aim of “prevention, control and reduction of transboundary impact and the protection of the environment of transboundary waters or the environment influenced by such waters, including the marine environment”. Article 9 suggests the possibility of cooperation between Joint Bodies established under the Water Convention and Joint Bodies, established by coastal States for the protection of the marine environment.

However, there is a limitation in the application of this Convention. The Convention regulates the reduction of pollutant emissions only in transboundary watercourses. But there are also internal waters, which can also flow into the seas, and hence introduce pollution into the World Ocean.

4.2 Interplay Management in the Marine Pollution, Watercourses and Wastes Nexus

On the base of the results of comparative legal analysis, becomes possible to understand whether there are or not connections between global treaties concerning land-based activities as the main source of sea pollution. The next step is in exploring how treaties (institutions in terms of the chosen theoretical framework) influence and interact with each other.

The application of the concept of regime interplay management to the problem of cooperation in the field of ocean pollution from all kind of sources revealed several overlaps (Table 4).

Table 4 Interplay management in the marine pollution-watercourses-wastes nexus

Nexus	Drivers of institutional interactions	Type of coordination and cooperation	Level of interplay management
the Basel convention (waste) – the MARPOL (marine pollution from ships)	Interaction through commitment	Coordination and cooperation between representatives to IMO and the Basel convention	Unilateral management by individual institution
the Water convention (watercourses) – the UNCLOS (marine pollution)	Interaction through commitment	Legal provisions on cooperation in the treaty text	Autonomous management efforts at regional level

In nexus of waste – marine pollution from ships was identified the institution interaction through commitment. The gap is revealed in regulating offloaded ship-generated wastes and ensuring the environmentally sound management of wastes generated on board ships, and in particular the processing of hazardous wastes from ships (UNEP 2017). Neither the MARPOL nor the Basel convention does contain rules for environmentally sound management of offloads from ship wastes. The initiative to close this gap started from the Conference of the Parties to the Basel Convention. Within the IMO this issue was raised by the Netherlands which provided that toxic waste “were generated as a consequence of an industrial production process whilst the ship is at sea” (IMO-MEPC 2007 p. 1) and should be covered within the Safety Management System under International Safety Management Code. Member-states agreed in the result of negotiations within Maritime Safety Committee to amend the International Convention for the Safety of Life at Sea (SOLAS) to prohibit the blending of bulk liquids cargoes and industrial production processes during sea voyages (MSC 2014). In turn, a Draft guidance manual was developed within Basel convention about how to improve the sea-land interface to ensure that wastes falling within the scope of MARPOL, once offloaded from a ship, are managed in an environmentally sound manner.

Institutional interaction between the Basel and IMO formally was based only on “internal coordination between the International Maritime Organization and Basel Convention representatives” (BC COP 2008). All decisions on identifying and addressing the gaps between conventions were made unilaterally by the institutions involved.

In watercourses – marine pollution nexus interaction through commitment was identified as a main driver of institutional interactions. The possibility of interaction directly prescribed Water convention itself, but in regional scope – between riparian and coastal states. Since the Convention became open to global signing, one can only expect that following expanded membership, practices of such interactions will spread worldwide.

The situation today is that there is no institutional interaction between the Water convention and UNCLOS based regimes of protection of the marine environment. The primary cause is a slow pace of ratification, which precludes the convention to be a “global” convention in the near future. This implies that it is not possible to use overlapping memberships as a means for normative interaction. The main problem in integration transboundary watercourses regulation and marine pollution law is a principle of “equitable use”. It is the core principle of the watercourses law and it cannot lead to “common regional standards” which would be needed for the prevention of marine pollution (Birnie et al. 2009, p. 463).

Institutional interaction between the MARPOL and the Basel convention concerned only a technical gap in regulation without addressing the need for further cooperation on marine pollution. The Basel convention could be an effective

instrument for the reduction of marine litter, for example, because it is based on the obligation that Parties reduce the generation of hazardous wastes and other wastes to the minimum. However, lack of political will, as well as the insufficient capacity of states to ensure environmentally sound management of waste, also reduce the relevance of the Basel Convention in the prevention of marine pollution.

5 Conclusions

To conclude, the multiplicity and dispersed nature of the pollution sources remains the main challenge of ocean pollution. This problem is generating intricate architecture international legal regulation as pollution from different sources is governed by numerous jurisdictions and branches of law. One aspect of the above is that most governments choose to enhance existing institutions instead of creating the new one, therefore there is an increased need for interplay management. We considered the possibilities for synergy within existing global conventions and concluded that in the absence of a central decision-making body in ocean governance, interplay management between the UNCLOS, the MARPOL, the Basel Convention and the Water Convention is limited mainly to the normative commitment and implemented unilaterally by the global conventions or autonomously at the regional level. The recent amendments to the Basel Convention (BC COP 2019) on including plastic waste in a legally binding framework reaffirm our conclusions.

There are no signs today that interactions between these conventions will contribute to the development of a global regime for land-based sources. Countries still prefer to rely on national actions, regional cooperation and a relatively new way of cooperation such as partnerships. Establishing strong regional regimes, reflecting the marine pollution, watercourses and wastes nexus could form part of the solution. Another possible option would be to ensure “coordination and cooperation among the regional sea’s frameworks and relevant global multilateral environmental agreements” (GAP Report 2018). The urgency of the situation with marine litter, which threatens not only biodiversity and fishing but also tourism in coastal areas and even shipping highly likely, will motivate in any way states to improve institutional interaction.

Applying the concept of interplay management helps to attribute the result of legal analysis with the actual political process in international institutions. Thus, the overlapping membership and complimentary underlying principles of the regimes are crucial factors to the success in the interaction between the UNCLOS-based regime and two conventions related to land-based activities.

Annex I: Comparative Analysis of the Provisions of the MARPOL 73/78, the Basel Convention, the Water Convention

Title of a convention	MARPOL 1973/1978	Basel Convention 1989	Water Convention 1992
Objective and subjects	<p>Prevention of pollution from ships the need to protect the environment in general and the marine environment in particular complete elimination of deliberate pollution of the marine environment with oil and other harmful substances and minimizing accidental discharges of such substances</p> <p>The convention deals with the prevention of pollution of marine waters by: oil, harmful liquid substances in bulk, substances transported by sea in containers, wastewater from ships, garbage</p>	<p>Control of the transboundary movement of hazardous wastes and their disposal prevention of the risk of damage to human health and the environment by hazardous and other wastes and their transboundary movement</p> <p>In the annexes of the convention are presented: categories of substances subject to regulation and categories of waste that require special consideration waste disposal or recovery, recycling, recycling, direct reuse or alternative use list of hazardous properties information to be contained in the notification and movement document arbitration</p>	<p>Protection and use of transboundary watercourses and international lakes strengthening national and international measures to prevent, control and reduce the release of hazardous substances into the aquatic environment and to reduce eutrophication and acidification, as well as pollution of the marine environment, especially in coastal marine areas from land-based sources concerns about the existence and threat of negative effects in the short or long term of changes in the status of transboundary watercourses and international lakes to the environment, economy and well-being of the member countries of the Economic Commission for Europe (ECE)</p>
Obligations	<p>The member states of the convention assumed the following obligations: The Parties to the Convention undertake to give effect to the provisions of the present Convention and those Annexes thereto by which they are bound, in order to prevent the pollution of the marine environment by the</p>	<p>The member states of the convention assumed the following obligations: Prohibition or restriction of the export and import of hazardous or other wastes Ensure that the generation of hazardous wastes and other wastes within it is reduced to a minimum Ensure the</p>	<p>The member states of the convention assumed the following obligations: Prevent, control and reduce water pollution Use of transboundary waters for the environmentally sound and rational management of water resources, their conservation and environmental protection</p>

(continued)

Title of a convention	MARPOL 1973/1978	Basel Convention 1989	Water Convention 1992
	discharge of harmful substances or effluents containing such substances in contravention of the Convention.	<p>availability of adequate disposal facilities, for the environmentally sound management of hazardous wastes and other wastes, that shall be located within it, whatever the place of their disposal</p> <p>Minimizing the production, transboundary movement of hazardous and other wastes</p> <p>Recognition of illicit trafficking as a criminal act</p> <p>Introduce mandatory requirements for mandatory packaging, labeling of hazardous and other wastes before transboundary transportation</p> <p>Articles 5 (partial) 6 and 7 deal with the regulation of the transboundary movement of hazardous substances.</p>	<p>Use of transboundary waters in a reasonable and equitable manner, with particular reference to their transboundary nature</p> <p>Preservation and restoration of ecosystems</p>
Implementation measures	The document also specifies measures for the implementation of the Convention (certificates and inspections of vessels), for monitoring; measures applied in case a member country violates the terms of this Convention; the procedure for reporting incidents involving the discharge of harmful substances.	<p>Standard of “environmentally sound management” (ESM) of hazardous wastes or other wastes</p> <p>Transmission of information</p>	<p>Prevention, control and reduction (including, the application of, low- and non-waste technology; the prior licensing of waste-water discharges by the competent national authorities; at least biological treatment or equivalent processes applied to municipal waste water; appropriate measures and best environmental practices for the reduction of inputs of nutrients and hazardous substances from diffuse sources, especially where the main sources are from agriculture)</p> <p>Monitoring</p>

(continued)

Title of a convention	MARPOL 1973/1978	Basel Convention 1989	Water Convention 1992
			Research and development (including implementation of best available technologies)
Definition of terms	<p><i>“Harmful substance”</i> means any substance which, if introduced into the sea, is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea, and includes any substance subject to control by the present Convention;</p>	<p><i>“Wastes”</i> are substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law;</p> <p><i>“Transboundary movement”</i> means any movement of hazardous wastes or other wastes from an area under the national jurisdiction of one State to or through an area under the national jurisdiction of another State or to or through an area not under the national jurisdiction of any State, provided at least two States are involved in the movement.</p>	<p><i>“Transboundary waters”</i> means any surface or ground waters which mark, cross or are located on boundaries between two or more States; wherever transboundary waters flow directly into the sea, these transboundary waters end at a straight line across their respective mouths between points on the low-water line of their banks;</p> <p><i>“Transboundary impact”</i> means any significant adverse effect on the environment resulting from a change in the conditions of transboundary waters caused by a human activity, the physical origin of which is situated wholly or in part within an area under the jurisdiction of a Party, within an area under the jurisdiction of another Party;</p>
	<p><i>“Discharge”</i>, in relation to harmful substances or effluents containing such substances, means any release howsoever caused from a ship and includes any escape, disposal, spilling, leaking, pumping, emitting or emptying.</p>		<p><i>“Hazardous substances”</i> means substances which are toxic, carcinogenic, mutagenic, teratogenic or bio-accumulative, especially when they are persistent.</p>

Source: based on MARPOL 1973/1978, Basel Convention 1989, Water Convention 1992

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Part VIII
Specific Aspects: Climate & Energy – Local
Politics, Sustainable Construction &
Builtscapes and Carbon Capture & Storage

From Global to Local: A Multilevel Approach to the Local Implementation of Climate Policies in Japan



Hitomi Roppongi

1 Introduction

Climate change has officially been on the world agenda since the 1992 Rio Summit, when the United Nations Framework Convention on Climate Change (UNFCCC, UN 1992¹) was adopted. Various multilateral discussions have taken place to tackle climate change, leading to the landmark agreements of the Kyoto Protocol to the UNFCCC (UN 1997²) and the Paris Agreement (UN 2015³). In spite of the international policy responses during the past decades, the recent UN Emission Gap Report finds that the world's emission gap has exacerbated and implementation needs to be strengthened around the world (UNEP 2019). What exactly we should do and how we can respond to that gap have been at the heart of climate discussions, and in recent years who takes the action has also become an important discussion.

Traditionally, climate governance has been conceived as an international collective action problem and scholars have critically discussed outcomes and ways to improve it (see for e.g. Victor 2006). The process and the outcome of the 2015 Paris Conference (COP21) has been discussed as a milestone departing from the Kyoto-style, state-led target setting to a more facilitative pledge-and-review system (Brun 2016; Dimitrov 2016; Falkner 2016; Geden 2016), or an “innovation” in the face of “gridlocked” global climate governance (Hale 2016). What is known as the “hybrid

¹UN (1992) UNFCCC, https://treaties.un.org/doc/Treaties/1994/03/19940321%2004-56%20AM/Ch_XXVII_07p.pdf

²UN (1997) Kyoto Protocol to the UNFCCC, https://treaties.un.org/doc/Treaties/1998/09/19980921%2004-41%20PM/Ch_XXVII_07_ap.pdf

³UN (2015) Paris Agreement, https://treaties.un.org/doc/Treaties/2016/02/20160215%2006-03%20PM/Ch_XXVII-7-d.pdf

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policy architecture” institutionalized by the Paris Agreement is a development widely studied in the academic world (see for e.g. Bodansky and Diring 2014; Savaresi 2016).

According to Betsill and Rabe (2009), there has been a dramatic shift from the period of climate debate at the international and national levels (“epoch one”) to a more decentralized approach that focuses on the subnational levels or “epoch two”. They further theorize that the “epoch three thinking” (Betsill and Rabe 2009, p212) is possibly underway, as climate change has been integrated into sustainability agenda at the municipal level. Some scholars conceptualized the Copenhagen Conference (COP15) as the turning point of global climate governance, as non-state actors began to take their own climate actions alongside with a rise of transnational movements (Hoffman 2011). International organizations explicitly galvanized non-state actions in the negotiation processes after the COP15 and so-called “hybrid multilateralism” was institutionalized by the Paris Agreement, capturing the complex interplay of various actors (Bäckstrand et al. 2017).

The rise of non-state actions in climate governance reflects the growing consensus that state-led, multilateral actions alone are not going to solve the problem. Transnational initiatives have gained momentum and global climate governance has become increasingly polycentric (Jordan et al. 2015; Oberthür 2016). Local governments are increasingly seen as “laboratories for experimentation” and thus subnational “experiments” have gained scholarly attention (Hoffmann 2011; Broto and Bulkeley 2013; Bulkeley et al. 2014; Jørgensen et al. 2015; Bernstein and Hoffmann 2018). Scholars have also observed local climate policies being driven or “orchestrated” by international framework (Betsill and Bulkeley 2006; Bulkeley and Betsill 2013; Hale and Roger 2014), or on the other hand implemented as a standalone policy (Reckien et al. 2018). Existing literature has also identified drivers and challenges of local climate actions (Bulkeley and Betsill 2003; Gupta et al. 2007; Kousky and Schneider 2003; Puppim de Oliveira 2009; Rosenzweig et al. 2011; Cortekar et al. 2016; Roppongi et al. 2017) and explored potentials to diffuse and upscale progressive local actions (van Doren et al. 2018; Fuhr et al. 2018). Attempts have also been made to measure the contributions of non-state climate actions (Graichen et al. 2016; Hiscock et al. 2017; Michaelowa and Michaelowa 2017; van der Ven et al. 2017; Roelfsema et al. 2018).

It is thus a common knowledge that policy responses are needed beyond the international level to tackle climate change (Gupta et al. 2007), with greater interaction or cooperation amongst the players (Di Gregorio et al. 2019). While much researches have been conducted on supranational or national-international relationship (Jänicke and Quitzow 2017; Schreurs and Tiberghien 2007), how the global framework has been locally implemented within national systems is less explored (Di Gregorio et al. 2019; Gupta 2007). The research gap identified by Marks (1993) on the importance of subnational decision makings and their connection to other levels is still a relevant field that needs further research.

The objective of this paper is to fill in the research gap by answering the following research questions: 1) how the global climate framework has been incorporated at the national level in Japan, and 2) to what extent the national climate laws have been implemented at the subnational level. Chap. 2 describes the methodology used in

this research, and Chap. 3 outlines the national laws that incorporate the Kyoto Protocol and the Paris Agreement (3.1) and analyzes the legal environment and foundations in support of local implementations (3.2). Chap. 4 presents the findings on the state of implementation, by analyzing the compliance to implement local action plans in mitigation⁴ (4.1) and adaptation (4.2). Chap. 5 discusses the potential areas of improvement, and Chap. 6 concludes with suggestions for future research.

2 Methodology

Multilevel governance is a useful framework to look at different levels of climate governance and interactions with others (Jänicke 2017). It is a relevant approach to take for the purpose of this research, as it allows to look at the relationships between international, national and subnational levels of climate governance. A case study is conducted on Japan, which is one of the top emitters with the third largest economy in the world (World Bank 2017), with limited scholarly studies available on its multilevel policy implementation (but see Sugiyama and Takeuchi 2008). Despite the magnitude of impact the country has on the global climate policies, Japan's climate target is rated as highly insufficient and "in stark contrast" to its claim that nationally determined contributions (NDC) is in line with the Paris Agreement (Climate Action Tracker 2018). Identifying areas of potential improvements through an in-depth case study would demonstrate a specific pathway to accelerate climate actions domestically, which is an approach much needed globally.

This research looks at legislation to identify components of vertical implementation under the multilevel climate governance. It first looks at Japan's legal environment and foundations of environmental governance that have enabled the incorporation of the globally agreed climate policies. Key national laws that translate international climate laws are identified. Second, it analyzes to what extent subnational governments have implemented the nationally-defined local responsibilities in climate policy. Subnational governments are classified into "ordinary local public bodies" and "special local public bodies" under the definition of the Local Autonomy Law (Diet 1947⁵), which are both subjects for regulations under the climate laws. For the purpose of this study, the highest two levels of local governments that have the right to enact laws, namely prefectures and municipalities, are subject for analysis. The special local public bodies, which include Tokyo's 23 special wards and unions of local public bodies, are excluded.

Data is gathered from government official websites to identify legislation and observe policy development. Further literature review on existing scholarly works

⁴Action plans for global warming countermeasures and mitigation are used interchangeably in this research.

⁵Diet (1947) Local Autonomy Law, Law No.67 of 1947, https://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=322AC0000000067

and reports are used to complement the legislative review and analyze the state of implementation at subnational levels. In particular, the national government-commissioned report (MOEJ 2018a) and disclosed data on local implementation (MOEJ 2018b; NIES 2019) are used to collect data on compliance. The degree of compliance is measured by the existence of local action plans (for adaptation, establishment of local centers as well) as stipulated in the national laws (see Chap. 3).

For the purpose of this study, legislation (such as laws, acts and ordinances) is defined as regulations that are adopted through parliamentary bodies. In Japan, international agreements need to be translated into domestic laws, and laws (or acts) are passed at the national level and ordinances at the subnational levels. Legislation that has newly been adopted for the purpose of incorporating international climate agreements are subjects for this analysis. Climate laws are thus narrowly defined for this study, which are the Act on Promotion of Global Warming Countermeasures (hereafter “Global Warming Law”; Diet 1998⁶) and the Climate Change Adaptation Act (Diet 2018⁷). These two laws and the national mitigation and adaptation plans are the foundations of Japan’s climate measures, and hence the state of local implementation is evaluated in terms of local action plans. In other words, energy-related or other laws that were implemented prior to the UNFCCC, which may be relevant to a broader definition of climate change, are not subject for analysis in this study.

3 Legal Foundation to Incorporate International Climate Laws in Japan

3.1 *Japan’s Environmental Governance at the National Level*

The history of Japanese environmental governance has its roots in pollution control. Rapid industrialization and urbanization caused severe environmental, health and social problems that led to a series of environmental disputes from the late nineteenth century, which exacerbated after the Second World War. Responding to growing pollution damages, the first comprehensive pollution control was introduced in 1967 by the Basic Law for Environmental Pollution (Diet 1967⁸). However, economic interests were prioritized over environmental concerns at the time of post-war

⁶Diet (1998) Act on Promotion of Global Warming Countermeasures, Act No.117 of 1998, https://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=410AC0000000117 (in Japanese)

⁷Diet (2018) Climate Change Adaptation Act, Act No.50 of 2018, https://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=430AC0000000050_99991231_00000000000000&openerCode=1 (in Japanese)

⁸Diet (1967) Basic Law for Environmental Pollution, Act No.132 of 1967, http://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=405AC0000000091

economic development, where the pro-industry “harmonization clause”⁹ provided leeway to industry. Environmental issues were not adequately addressed under the pro-industry regulations, and the cases of severe pollution disputes, especially the “big four” cases,¹⁰ posed tremendous influences over judicial, administrative and socio-political attitudes towards environmental protection. These trials urged the national government to be more serious and accelerated the reform of the Basic Law for Environmental Pollution, resulting in the removal of the “harmonization clause” in 1970. Nevertheless, regulative weaknesses remained such that the effectiveness depended on the implementing legislation and regulations, dedicated independent agency in charge of the tasks was not set up, environmental impact assessment was excluded and it lacked in the provisions for actions by citizens (Kawashima 1995).

In 1971, the much-awaited Environment Agency was established as a response to the growing demands for the national government to take a responsible approach. The Agency was reformed into the Ministry of the Environment in Japan (MOEJ) during the major ministerial reform in 2001, expanding its influence over waste management control that was previously handled by the Ministry of Health and Welfare, now called the Ministry of Health, Labour and Welfare (MOEJ n.d.). In a separate line of policy development, energy conservation was added to the national agenda (Act on the Rational Use of Energy (Diet 1979¹¹), hereafter “Energy Conservation Law”) as a response to oil shocks. The Ministry of International Trade and Industry (MITI), which was reorganized to the Ministry of Economy, Trade and Industry (METI) in 2001, is in charge of the energy policies in Japan.

International cooperation for global environmental sustainability (Article 5) is defined as one of the fundamental principles of the Basic Environment Law (Act No.91 of 1993, MOEJ 1993). This is the overarching environmental law in Japan, which was enacted following the three prominent international environmental agreements at the 1992 Rio Summit. This law defines the foundation of modern environmental policy in Japan. Since the UNFCCC entered into force in 1994, two major agreements were made within the international climate framework, whose state of domestic implementations are studied in this paper.

The Kyoto Protocol sets out top-down, internationally binding emission reduction targets based on “common but differentiated responsibilities”. After the Protocol was adopted in 1997, the Global Warming Law was enacted in Japan. The law mandates the national (Article 20) and subnational (Article 21) governments to create action plans to implement the nationally-adopted overarching climate plan (Article 8), in order to reduce GHG emissions.¹² After the 2005 revision, specified

⁹Article 1 provided that efforts to prevent environmental pollution should not harm industrial development, and this is known as the “harmonization clause”

¹⁰The “big four” cases are the Niigata Minamata Disease case (1971), the Toyama Itai-Itai Disease case (1971), the Yokkaichi Asthma case (1972) and the Kumamoto Minamata Disease case (1973).

¹¹Diet (1979) Act on the Rational Use of Energy, Act No.49 of 1979, http://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=354AC0000000049

¹²Plan for Global Warming Countermeasures (formally named the Kyoto Protocol Target Achievement Plan before the end of the first commitment period). The law requires the national plans to

emitters are obligated to calculate, report and disclose their own GHG emissions annually (Article 26). Specified emitters are energy consumers whose energy use exceeds 1500kL equivalent of oil.¹³ Under this domestic framework, Japan achieved the national target of 6% in the first commitment period (UNFCCC 2016).

Soon after the Paris Agreement was concluded in 2015 (UN 2015), the Japanese national government adopted the most recent Plan for Global Warming Countermeasures, which set out the NDCs of 26% GHG reduction by 2030 and 80% by 2050 from the 2013 baseline (MOEJ 2016). The Climate Change Adaptation Act is the latest climate law introduced in Japan, which not only provides legal foundation to enhance adaptation efforts (such as the establishment of adaptation action plan and information disclosure), but it also reinforces mitigation efforts and utilization of scientific researches to accelerate climate actions. Climate change impact assessment will be conducted every 5 years, which would be used to strengthen adaptation measures. This law explicitly incorporates the adaptation provisions of the Paris Agreement (Article 7) into Japan's national legislation, which clarified the nation's legal position on climate change adaptation. The Climate Change Adaptation Plan was adopted by the Cabinet in 2018 (MOEJ 2018c).

3.2 *Local Implementation*

Multilevel governance of environmental problems has not followed a straight forward top-down process in Japan. The first environmental regulations in Japan are known to be introduced by Tokyo through the Tokyo Factory Pollution Prevention Ordinance (Tokyo Metropolitan Assembly 1949¹⁴), the country's capital and the most densely populated prefecture. Other prefectures with leading industrializing cities like Osaka, Kanagawa and Fukuoka followed Tokyo's lead, prior to national legislation to control pollution. Japan has a history of center-local rivalry in the field

include duration of the plan, basic direction of climate change countermeasures, responsibilities of stakeholders (state, subnational governments, business and citizens) to reduce GHG emissions, numerical targets to reduce GHGs, measures (for both national and subnational governments) to achieve the set targets, and other measures necessary for climate change mitigation (Article 8). The national government implements action plans to reduce GHG from own administrative operations (Article 20), and subnational governments implement local actions in similar manner (Article 21). Progress needs to be disclosed annually for both national and subnational governments. The law provides that action plans at both levels include duration of the plan, targets (goals), details of planned actions and other items relevant to the action plan.

¹³“Specified emitter” is defined under the Article 5 of the Order for Enforcement of the Act on Promotion of Global Warming Countermeasures (Order No.143 of 1999). Note that this definition is in line with the “specified business” in the preceding Act on the Rational Use of Energy as defined under the Article 2 of the Order for Enforcement of the Energy Conservation Law (Order No.267 of 1980).

¹⁴Tokyo Metropolitan Assembly (1949) Tokyo Factory Pollution Prevention Ordinance

of environmental governance, and autonomy is given to local governments, the most notably prefectural government, in tackling environmental problems.

The legal foundations that have enabled regulative actions by local governments¹⁵ are defined by the Constitution (Diet 1947,¹⁶ Article 94) and the Local Autonomy Law (Article 14), which stipulate that the local governments have the authority to introduce regulations in regards to environmental matters within the confinement of the law. Local governments may enact ordinances and other regulatory tools to regulate areas not covered by national laws (“yokodashi”), or expand the scope or introduce more stringent rules beyond the national laws (“uwanose”). The legal environment is therefore in favor of local autonomy to implement policies.

In regards to the environmental field, the role of local government is reiterated under the Basic Environment Law (MOEJ 1993). It provides that local governments implement national policies comprehensively and systematically (Article 7), in which case the prefectural governments “shall mainly implement the policies for a large area and comprehensively coordinate the policies administered by the municipalities” (Article 36). This signifies the central role prefectural governments play in translating and implementing national policies at subnational levels. Under the Global Warming Law, local governments are obliged to create and implement action plans to reduce GHG emissions, either individually or jointly with other local governments. Each subnational body is required to prepare a local mitigation action plan that applies to the entire local jurisdiction and another that only applies to own governmental operations and services. In addition, as per the Climate Change Adaptation Act, local climate change adaptation plans need to be formed (Article 12) and local climate change adaptation centers may be established to collect and analyze information (Article 13), again with a choice of actions taken independently or in collaboration with others.

To sum, the establishment of action plans that sets out the required efforts for mitigation and adaptation is a useful indicator to observe commitment that is stipulated in the domestic climate laws. The following section analyzes to what extent subnational governments have established local action plans and highlight areas for potential improvements.

¹⁵Local government is classified into ordinary local public bodies (prefectures and municipalities) and special local public bodies (23 special wards in Tokyo, partial unions and wide-area unions), as defined in the Local Autonomy Law. Prefecture is the highest level of local administration, followed by municipalities (cities, towns and villages). Designated cities have population of 500,000 or more, core and special cities 200,000 or more, and cities 50,000 or more (Ministry of Internal Affairs and Communications 2015). Unions of local public bodies (partial and wide-area) can be established to jointly manage local affairs, under the permission of the Minister of Internal Affairs and Communications or the Mayor. Unions of local public bodies perform public services such as waste management, funerary, medical facilities, elderly care facilities and schools.

¹⁶Diet (1947) The Constitution of Japan, https://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=321CONSTITUTION

4 Understanding Local Implementation within Japan

4.1 *State of Implementation: Mitigation Plans*

Numbers of local governments that have: (1) implemented action plans under the Global Warming Law; and (2) designated a dedicated department for global warming countermeasures are summarized below (Table 1).

The report commissioned by the MOEJ (2018b) revealed that the majority (83.2%) of the local governments have implemented local action plans to reduce GHG emissions from their own public services, but only 27.2% of them have implemented jurisdiction-wide action plans. This reflects the “lead by example” attitude of local governments, however, the creation of jurisdiction-wide plans is still weak and needs to be improved. At the prefectural level, the compliance rate is 100% in both types of mitigation plans. The prefectural leadership in the local implementation is thus observant.

Looking more closely into the target setting within the action plans, 100% of government service and 93.6% of jurisdiction-wide action plans include reduction targets at the prefectural level. Amongst the three prefectures without a numerical target for total reduction, two of them (Ibaraki and Chiba) have numerical targets by sectors (Ibaraki Prefecture 2017; Chiba Prefecture 2019). Although setting a numerical reduction target is not required for subnational governments under national laws, national actions have influenced the local goal settings. For example, Saga prefecture renewed its old local mitigation action plan (2003) in 2018 and introduced a numerical target, after the ratification of the Paris Agreement and the adoption of the Plan for Global Warming Countermeasures (Saga Prefecture 2018).

In general, there is a positive correlation seen between the size of the local government and the level of compliance in Table 1. The same applies to the establishment of dedicated division or bureaus within the administration. Full compliance at the prefectural level is not surprising given the prefectural leadership stipulated in the law, and a target to reduce total emission for jurisdiction-wide version is likely to be implemented in the remaining three prefectures.

As ranked as the top concern in the development of action plans by smaller municipalities with a population of less than 10,000 (MOEJ 2018a), lack of human resources may be an important factor that explains the weakness in implementation by smaller municipalities. Lack of knowledge on climate policy and difficulties of estimating and evaluating policy impacts follow the ranking of concerns shared by smaller municipalities, while larger local governments consider efforts and time consumed to collect primary data and evaluation of policy impacts as top concerns (MOEJ 2018a).

4.2 State of Implementation: Adaptation Plans

As of May 2019, only 1% of the subnational governments have officially implemented a local adaptation action plan, which have been established under the Climate Change Adaptation Act (Table 2).

Implementation is evidently weaker for adaptation than mitigation, which can be explained by the time that has passed since the introduction of the law. The Climate Change Adaptation Act was enacted in June 2018 (entered into force in December 2018), which means less than a year has passed between the time of writing and the date of enactment. The short period of time after the enactment explains the small number of local adaptation plans being announced (1%). Note that 100% of prefectures already have plans or strategies that have incorporated adaptation measures, yet only 25.5% of them have proclaimed that existing plans satisfy the criteria for a local adaptation plan. The same applies to the only core city (Yokosuka city) and the special city (Saga city) that have an adaptation action plan announced.

The prefectural leadership and the positive correlation between population size and the degree of compliance seen in mitigation is also observant here. Nevertheless, only 3.7% of the entire local governments have adaptation included in their policy, it is clear there is much room for improvements in this field. The purpose of local climate change adaptation centers is to collect and provide information on climate change impacts and adaptations in the area, and only 10 out of 47 prefectures (21.3%) have established one. Note that the center can be jointly established by a number of local governments, so it is unclear how many of such facilities would be implemented or is actually necessary.

Table 2 Establishment status of adaptation action plans and local climate change adaptation centers

Classification of local government	Total number of local bodies	Adaptation action plan announced (Article 12)		Adaptation mentioned in local plans, strategies or policies		Local climate change adaptation centers (Article 13)	
Prefecture	47	12	25.5%	47	100.0%	10	21.3%
Designated cities	20	3	15.0%	18	90.0%	0	0.0%
Core cities	48	1	2.1%	1	2.1%	0	0.0%
Special cities	36	1	2.8%	1	2.8%	0	0.0%
Other municipalities	1637	0	0.0%	0	0.0%	0	0.0%
Total	1788	17	1.0%	67	3.7%	10	0.6%

5 Discussions

This study revealed areas of potential improvements to strengthen climate actions in Japan. In the field of mitigation, jurisdiction-wide mitigation action plans need to be further implemented and smaller municipalities, in particular, have more to catch up. The majority of municipalities do not have a numerical GHG reduction target in their plans, and three prefectures do not have a quantitative target for a total reduction in their plans. Having a quantitative target and conducting reviews for achievement is necessary to keep local actions in check and accelerate efforts, thus strengthening this field is deemed essential. For instance, Tokyo utilized the state-led reporting scheme to collect data and facilitated stakeholder learning, which laid foundations to introduce the mandatory cap-and-trade (Roppongi et al. 2017). Owing to the historical center-local rivalry and the so-called “Tokyo’s DNA” (Ohno 2013), Tokyo implemented schemes and reduction targets that are more stringent than that of the national government. The legal environment in Japan is in favor of such bottom-up actions from subnational governments, and progressive local measures are much needed. The history of environmental governance in Japan has shown local actions do have impacts on national policies, and it is one of the promising strategies to accelerate climate mitigation actions in the country.

In regards to adaptation, it has been on the government agenda but less prioritized than mitigation. The concept and approaches to adaptation need to be first mainstreamed within the country, in order to collect data and gain supports to strengthen adaptation actions. The Basic Environment Law sets out the prefectural governments are tasked with coordination and dissemination of environmental management to lower levels of government. For this reason, the establishment of local adaptation plans and local climate change adaptation centers at the prefectural level would need to be first strengthened to accelerate further local implementation. Thirty five prefectures who have not created or announced an adaptation plan are urged to do so to get the ball rolling.

Interestingly, inter-jurisdictional establishment of action plans (both mitigation and adaptation) and adaptation centers is possible under climate laws. However, the official report (MOEJ 2018a) reveals that the majority of local government bodies have not considered it or do not have an interest in collaborating with others to create a joint mitigation action plan. This leads to a question of collaborative culture amongst subnational governments in Japan. Inter-jurisdictional relationships of local governments exist,¹⁷ yet the platforms for local governments to exchange information and collaborate is still limited in Japan. MOEJ has set up an online platform dedicated to supporting the creation and delivery of local climate policies, which allows consultations and access to information coordinated by the

¹⁷For example, the climate change local partnership (Tokyo Metropolitan Government Bureau of Environment 2018) is a platform organised and led by the Tokyo Metropolitan Government and ICLEI (ICLEI 2019). Tokyo and Saitama prefectures have exchanged information and collaborated to establish credit exchange scheme.

MOEJ (MOEJ 2018b). However, the exchange of information is coordinated by the MOEJ there and inter-jurisdictional relationship is outside of the scope. The MOEJ's survey results (MOEJ 2018a) illustrate that local governments are facing challenges of regulatory burdens and many shared concerns over the lack of resources to meet obligations. This implies resources to build relationship amongst subnational governments to improve the contents or quality of local climate policy is likely to be limited or non-existent. A good majority (92.2%) of local governments have a division dedicated to climate policy (Table 2), which raises hopes for resource allocation and consequently improves the situation for delivering local climate actions.

6 Conclusions

This research approached the multilevel implementation of climate laws through the national-subnational perspective. It demonstrated that local climate actions under the umbrella of nationally adopted policies need to be understood in the context of historical environmental governance and foundation developed along the path. It illustrated that laws provide basic principles and foundations for local actions, and even so full compliance to obligations is challenging. The multilevel approach has its limitation in driving practical actions, as they are defined in accordance with local situations that are decided by each governing local authority. Studying the contents of action plans would benefit both practitioners and scholars to understand the current implementation and also to develop methods to assess the impacts of the actions. Focusing on numerical targets is also valuable, in order to understand how the NDC has been or should be, translated into subnational goals. As subnational governments set their own numerical goals that suit their situation in Japan, not all local governments have ambitious mitigation goals. Researching the potential for enhancing cross-jurisdictional relationship amongst local governments in Japan could also contribute to understanding ways to strengthen climate actions.

This study has taken the position that energy-related laws that are relevant to climate measures are not subject to analysis. It is arguable, however, that the Energy Conservation Law is often conceptualized as a prominent climate law in Japan for its relevance in the definition of emitters (called energy users in energy laws) and contributions to reducing energy consumptions. This research intended to maintain the conceptual approach of climate governance, which originates in the mindset to manage environmental problems. Energy policies in Japan are driven by industrial interests, as seen by the ministry in charge being the METI instead of MOEJ in climate policies. The industry-environment rivalry since the time of pollution control still exists, though the changing dynamism needs to be studied further. Analyzing the variation of how subnational government bodies approach and conceptualize climate and energy policies under the same legal framework would be an interesting topic of future investigation. Examining what constitutes climate policy in subnational governments would be a useful exercise that could lead to a more

comprehensive analysis of climate policies in Japan, which also has potential conceptual applications to analyze climate policies in a different context.

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Integrating Sustainability in Governance and Legal Framework for a Sustainable Builtscape in Kenya: Towards a Global Approach



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1 Introduction

The twenty-first Century has seen developed nations and emerging economies adopt extensive legal frameworks to nurture and enhance environmental conservation at domestic and global levels due to snowballing pressures of environmental degradation and climate change. The earth's carrying capacity is reported to have been exceeded in the 1980s. According to World Wildlife Fund for Nature, "humanity's ecological footprint exceeded the Earth's biocapacity by more than 50% in 2008" (WWF 2012, pp. 138). The Global Footprint Network states this to be over 70% in 2010 whereby the Earth's Overshoot Day has crept up the calendar to August 2 in 2017 from December 9 in 1987 (Brandlin 2017).

Data from Global Footprint Network shows that in the 1990's the day has been leaping backward in weeks, compared to months in the 2000's and days in the 1980s (Brandlin 2017).

A Malthusian catastrophe is seemingly in the pipeline. Nevertheless, environmental degradation as an ever-growing challenge is a heavy threat to economies of natural capital dependent developing nations (Alvarado and Toledo 2017).

Kenya is heavily reliant on critical natural capital as forty-two percent (42%) of Kenya's GDP is derived directly from natural resources and 70% of employment is drawn from natural resources affiliated sectors (UNEP 2014).

The exploitation of these resources greatly contributed to Kenya's recent achievement of a low middle-income country status (World Bank 2015). The Government, therefore, has a heavy unspoken obligation on environmental conservation to keep economic growth and progress in its path.

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The need to harmonize environmental conservation with development and decouple environmental degradation from economic growth is further challenged by the increasing complexity in the poverty and environmental degradation nexus. Poverty remains to be both a consequence of environmental declension and a causality of the same. Underdevelopment and the pursuit for development through unsustainable resource consumption and production reinforces and feeds into the vicious cycle of poverty and environmental degradation (Bowonder 1987; Willett 2015). Nevertheless, sustainability is not a panacea to all the challenges facing current economies, but it holds many lasting plausible solutions to these challenges.

1.1 Justification of the Paper and Its Relation to Law

Whether this proliferation of ecological degradation is wholly or partially attributed to poverty, weaknesses on the legal instruments, enforcement challenges, level of accountability on implementation, leadership, governance, ethics or all of these is a question this paper attempts to answer. Transitioning to a green economy and integrating sustainability in construction activities requires not just more dedicated expenditures for sustainability actions, but also a qualitative shift across government to a consolidated enabling legal framework, so that sustainability interventions are aligned and supported with national policies, plans and priorities.

The purpose of this paper is to establish the level of fusion of sustainability in the legal framework governing the construction industry in Kenya. It gives a comparison to laws governing the same industry in established economies like the United Kingdom (UK), whose Governance system has informed Kenya's as its former colony.

The paper champions the use of regulations to enforce and promote provisions of sustainability in the construction industry in Kenya towards meeting the National Green Economy Strategy Implementation Plan (GESIP), (2016) targets by 2030 and its global commitment to the Paris Agreement 2015 (UN 2015) as well as United Nations' Sustainable Development Goals. It explores how practices that are feeding the inertia on sustainable construction might be changed to develop and mainstream sustainability through an enabling legal framework in a sector that is evidently a prodigious polluter.

2 Methodology

2.1 Theoretical Framework

The paper employs the Legal Theory of Sustainable Development (Decleris 2000) as well as Green Legal Theory – GLT (M'Gonigle 2008; M'Gonigle and Ramsay 2004) and their applications in practice. The two theories have focus on

sustainability and law thus guiding the designing of the three research questions and evaluating the interaction between the construction industry players under regulation and the existing State Policies and Laws about sustainable construction. They also guide the interpretation of findings as well as explanations on the influence of existing law and governance on the uptake of sustainable construction in Kenya.

The State and the law are the main players in the Legal Theory of Sustainable Development, all the other parts of the social-mega system notwithstanding. This theory postulates that; “conventional legal culture and conventional political theory are not sufficient for the emergent Sustainable State and Law” (Decleris 2000, p. 38). Further, the law is laden with traditions of penal and civil regulations and does not broaden the concept of ethics. In addition, while the law remains the same in good and bad times, it is marginal and fails to deal with the evaluation of results as it focuses on regulating the behavior not the results of that behavior (Decleris 2000).

The study also applies the green legal theory (GLT) which in harmony with the aforementioned theory is action-oriented (M’Gonigle 2008; M’Gonigle and Ramsay 2004). GLT backcasts on what is necessary and seeks to deliver desired outcomes by exploring alternatives without referring to existing unsustainable laws as the basis for new legislative framework thus operating outside the forces it is challenging (M’Gonigle 2008; M’Gonigle and Ramsay 2004).

3 International Findings from the Literature Review

3.1 Impact of the Fragmented Nature of the Construction Industry on Sustainable Development

This section explores why the construction industry needs to be looped in for sustainable development. Many extractive industries (the construction industry included) in developing nations have not mainstreamed environmental sustainability. There is a need to build adequate conditions for economic, environmental and social sustainability components sectoral laws to drive sustainable development in developing countries (Cities 2017). There are perceptions of environmental sustainability as a soft issue, a foreign subject, while others view environmental sustainability as an impediment to huge profit margins in their businesses (Onkangi et al. 2018). This is overwhelming short-sightedness as natural resources are the base of development and their depletion threatens future growth and stability of economies.

The environment underpins the veracity of every sector. Yet there is a fragmented approach in conserving and managing the environment; a classic example of the tragedy of commons (Techera 2011). Each sector’s roles and responsibilities for the delivery of sustainable development are not adequately defined in laws governing each of them in many developing countries including Kenya. In addition, inter-linkages and overlapping mandates are not aptly defined and managed among

Government agencies leading to poor coordination and implementation of key responsibilities (Onkangi et al. 2018).

A reactive approach in addressing needs instead of proactive approaches further exacerbates the problem. Reactive adaptation to climate change as well as a reactive response to food and water insecurity, to forest conservation, to job creation and population growth are damaging and costly in the long run. They do not favor sustainability but enhance vulnerability in every aspect. Supporting short-term fixes over long term solutions is accruing of more losses in resources as a result. Nonetheless, outside political governance and legal stipulations, there are pockets of leadership in some sector players attributed to voluntary uptake of environmental stewardship or demand from international clients and business funders (Onkangi et al. 2018). The laws have not been entirely ineffective however, “singular successes are vastly outdone by system failures” (Bosselmann 2010, pp. 2425).

The sustainability concept fosters integrated decision making by incorporating, economic, social and environmental interventions (Dernbach and Mintz 2011). Embracing sustainability does not just mean integrated decision making but being forward-looking as well. Sustainability means that growth is ushered, and growth is planned (Adler 2010). Therefore, environmental stewardship needs to run like a thread across every sector’s policy framework.

3.2 The Role of Law in Sustainable Development in Developing Countries

This section explores the place of law in sustainable development and by extension what role law can play mainstreaming sustainable construction. According to Ross (2010), the central organizing principle of government should be sustainable development; legal instruments whether weak or not very ambitious enhance understanding of the sustainability concept, the big picture, guide decision-making and give clarity needed for implementation and preserving what is at stake. Therefore, a pro-sustainability legal framework is both, a means to sustainable development and a goal. Many developing countries have made these important steps in having laws on environmental conservation though not sector-specific.

Even so, in the presence of policy, environmental conservation (as the ultimate goal) has been marginal while degradation continues to persist and increase in intensity. The gap between reality and environmental protection is ever-widening. Some construction sector governing laws in Kenya are implicit while other laws are very explicit on the environmental stewardship subject. However, none of the laws are explicitly anti-environmental or sustainability (Dernbach and Mintz 2011).

4 Findings from the Literature Review Related to Kenya's Rule of Law

This section evaluates the existing laws in Kenya and how they feature sustainable development in the construction industry. There have been new laws addressing sustainability and climate change but sectoral laws for land use, manufacturing, agriculture, building and construction, property law are yet to be updated to contribute to the goals of these national climate change and sustainable development policies. Certain pre-existing laws are conflicting and exacerbate the problem on key environmental conservation concepts.

Implementers read from different scripts. Consequently, interpretation varies and pressures that negatively affect the state of the environment are forwardly favored. Harmonization can help reverse the damage.

4.1 Fragmentation Example

For example, in Kenya, development in riparian land is addressed by the:

- Survey Act of (Kenya Parliament 1969),
- Water Act 2016 (Kenya Parliament 2016b),
- Environmental Management Co-ordination Act 1999 (Kenya Parliament 1999)
- Water Quality Regulations, 2006 (Kenya Parliament 2006),
- Agriculture Act 1947 (Kenya Parliament 1947) and the
- Physical Planning Act 1996. (Kenya Parliament 1996)

Section 15 (C) of The Physical Planning Act (Kenya Government 1996) provides that reserves along any river, stream or watercourse shall not be less than 10 meters wide on each bank, while Part XII – of Survey Regulations 1994 (Kenya Government 1994) provides that public land surveys should have “a reservation of not less than 30 meters above the high-water mark.” Section 6 of the Agriculture Act 1947 (Kenya Parliament 1947), provides that “no cultivation should be done on land lying within two meters of a watercourse unless permitted by an authorized officer. Where the watercourse is wider than 2 meters, the land to be left uncultivated should be equal to the width of the watercourse but up to a maximum of 30 meters.” While these laws are addressing a common feature, this being the riparian land; the measures laid down are varying and conflicting (Mwathane 2018). This also implies that decision-making on environmental stewardship is not guided by a shared vision. Casting a question whether the central organizing principle of governments in developing countries is really sustainable development?

Further, Part II Section 6 of the Water Quality regulations 2006 provide that “no person shall cultivate or undertake any development activity within a minimum of six and a maximum of 30 meters from the highest ever recorded flood level, on either side of a river or stream, and as may be determined by the National Environment

Management Authority (NEMA) from time to time. Section 116 (4) of The Water Act (Kenya Parliament 2016b p. 143) defines riparian land as “a minimum of six meters or equal to the full width of the watercourse up to a maximum of thirty meters on either side of the bank.” These un-updated and conflicting laws do not foster a coordinated effort for delivery of desired environmental stewardship. A consequence of silo working in government ministries, departments and agencies.

Outside the legal framework, status of ethics and governance styles greatly influence decision-making and adoption of self-regulatory systems that are not pro sustainability. This in return influences noncompliance behavior (Moore et al. 2011). For sustainability to be accorded, the attention and priority it deserves, understanding and managing the nexus between ethics and law is important (Bosselmann 2010). Sector-specific legislation attached with realistic targets as well as elaborated monitoring and evaluation will immensely support jumpstarting over and above accelerating its wide adoption of sustainable development. But sustainability is greatly driven by ethics as well. Unfortunately, ethics do not enjoy popularity in price-based economies like developing countries. Ethically speaking, sustainable development has a long way to go in developing countries.

4.2 Existing Laws on Sustainable Development in the Construction Sector

On paper, Kenya has the architecture in place for the delivery of a robust green economy. The Green Economy Strategy Implementation Paper 2016–2030 pp. 1–GESIP (Ministry of Environment 2017) outlines a framework for the delivery of “a low carbon, resource-efficient, equitable and inclusive socio-economic transformation.” Individual strategies defined in the GESIP for agriculture, manufacturing, and infrastructure sectors are apt, diverse and forward-looking. This indicates that mainstreaming of sustainability in various Government levels albeit slow is dawning. Still, the implementation plan/strategies lack adequate legislative backing in the respective sectors to make them substantive duties. Furthermore, the appropriation of sustainability targets for the sectors is deficient. Yet, it’s upon this that the document shall be reviewed. This makes stated strategies to remain rhetoric with little or no translation to reality. Hence, uptake of these strategies by Government agencies is seemingly voluntary as sector-specific legal backing is absent to compel many of them to action. Proactively, concrete sectoral targets should be included now instead of reserving that for the future policy documents when our carbon footprint will have proven highly oversized and consequences of resource depletion are more closely catching up with us.

The National Climate Change Action Plan 2018–2022 – NCCAP (Kenya Government 2018 p. 1) states Kenya’s nationally determined contributions (NDC) target for abating “GHG emissions by 30% relative to the business as usual scenario of 143 million tons of carbon dioxide equivalent (MtCO₂e), or an actual reduction in

GHG emissions of 42.9 MtCO₂e.” In both GESIP and NCCAP, the built environment lacks specific targets to contribute to this overall national achievement of emission reduction. There are overall strategies laid out in both documents including development of a green building rating tool, green building codes, climate proofing of roads, having 75% of new and renovated public buildings as well as private large scale buildings green but there is no emission target set to commit these sectors and guide implementation of the strategies as well as their performance reporting. The same applies to the transport sector where strategies to reduce emissions are laid down and the potential the sector holds in reducing greenhouse gas emissions, but targets are not stated that can contribute to the NDC whole of 42.9 MtCO₂e. While Kenya is not obligated to reduce emissions, the country needs to keep the emissions low as it continues to develop. Otherwise, high carbon stranded assets are inevitable in the future of developing countries even in the presence of ideal policy documents.

The Constitution (Kenya Parliament 2010) being the supreme law of the land states in Article 42 that “every person has the right to a clean and healthy environment, and that this right includes the right to have the environment protected by the state, for the benefit of present and future generations.” Article 69 of the Constitution obligates the state to ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources. It also enjoins the state to eliminate processes and activities that are likely to endanger the environment. All laws should then seek to point in the same direction as the constitution. At the moment, built environment laws are not explicit on sustainability hence no intentional effort to uphold and propagate it.

Laws and regulations that have established built environment agencies though recent in Kenya lack mention of promoting sustainable development in their respective jurisdictions. The functions of the Kenya National Highways Authority, Kenya Rural Roads Authority/Kenya Secondary Roads and Kenya Urban Roads Authority are guided by Kenya Roads Act (Kenya Parliament 2007) and Kenya Roads Bill (Kenya Parliament 2015). The functions of the National Construction Authority are spelt out in the National Construction Authority Act (Kenya Parliament 2011). These agencies oversee projects in the built environment without emphasizing sustainability and yet justifiably or legally they are operating within their mandates. The element of environmental stewardship, climate change adaptation and mitigation is solely left and mentioned in government laws for agencies in the Ministry of Environment such as the National Environment Management Authority and Climate Change Directorate.

Without the follow up of the environment watchdog (whose capacity is lean), then sustainability remains foreign in local projects, yet it should be basic. While sectoral laws are to meet the broad subjects pertaining to them, they are also to work towards meeting the shared objective of environmental conservation as envisioned by the constitution.

For the state to realize the development vision and avert retrogression as well as dependency in the future, there is a need for deliberate and mandatory sustainability obligations as commitments in sector-specific policy documents. These commitments need to echo the GESIP and NCCAP documents with binding obligations and consequences attached. This will increase the resource allocation of sustainable development in the state agenda and give it high consideration needed. It would help usher perception change from what is now widely deemed as “foreign” in the built environment. Without this, even the existing entry-level obligations will continue to have low compliance and implementation levels.

4.3 The Sustainability Policy Framework in the Kenya Construction Industry

As recognized by the United Nations Environment Group ‘there is a need for connecting various disciplines of law, promoting integrated approaches to the development of legislation, and strengthening the capacities of governmental and non-governmental actors, including the private sector, to understand and act on these implications.’ (UN Environment Group 2018, pp. 1). The notion here is that legislation, both substantive and subsidiary, is strategic to the realization of Goal 11 of the Sustainable Development Goals (SDGs) with regard to sustainable cities and communities including all the SDGs. Further, ‘there needs to be appropriate, comprehensive and effect policy, guidance, regulations, standards and capacity has been identified as a major factor in the development of more sustainable built environments.’ (Gibberd 2015, pp. 321). This author provides a framework against which sustainable built environments and capacity can be evaluated within a country for effective change. He identified the policy and legal instruments which can provide an overview of an integrated sustainable framework at large; Sustainable Environment Review; Sustainable Built Environment Policy; Sustainable Built Environment Strategy; Sustainable Built Environment Guidance; Sustainable Built Environment Capacity; Sustainable Built Environment Planning; Sustainable Built Environment Standards and Codes of Practice; Sustainable Built Environment Legislation; Sustainable Built Environment Financial (Gibberd 2015, pp. 323).

Against the referenced legal and policy instruments cited by Gibberd (2015), the Kenya legal landscape is yet to put in place effective policies, standards and codes of practice and legislation that address carbon emissions and a sustainability strategy in the construction industry. In Kenya policy, sustainability in the construction sector is fragmented as it lacks an interconnected and inclusive policy that addresses the multifaceted disciplines in the construction industry i.e. energy, water, civil, road and mechanical works. In line with its pledge towards sustainable development,

Kenya historically published the National Climate Change Action Plan – NCCAP (2013–2017) (Kenya Government 2012) which specified agencies in the infrastructure sector to contribute towards this advancement, though it further recognized that the Kenya’s Vision 2030 plan ‘does not include climate change considerations under the physical infrastructure section, thus highlighting the need for specific adaptation actions.’ (pp. 115). The GESIP Plan was developed towards a low carbon, resource-efficient, equitable and inclusive socio-economic transformation in Kenya. It also indicates the championing of standard sustainability principles evidenced in other jurisdictions regarding the ‘Polluter-Pays-Principle,’ ‘Sustainable Consumption and Production’ and the ‘Precautionary Principle.’

Notably, sustainable infrastructure development in the energy, transport, agriculture, water sanitation waste management and transport sectors have been recognized to a certain extent. The GESIP further imparts responsibilities on various Government Ministries, departments and agencies in the construction sector through their various industries to put in place initiatives and schemes against sustainability objectives. These agencies include the Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works, National Construction Authority, Architectural Association of Kenya, Institute of Engineers of Kenya, universities and the private sector. The GESIP provides an implementation matrix for the referenced agencies to ensure the achievement of sustainable design, construction and maintenance of buildings. It stipulates that the strategies towards this implementation include the development and certification of green standards, capacity building for professionals and lastly, to ensure 75% of new and renovated public and private large-scale buildings are green. This ambitious task cannot be achieved without corresponding effective legislation for purposes of standardization and enforcement in an industry abounding with varied stakeholders.

Although the GESIP acknowledges that the economy suffers from inadequate compliance and weak enforcement of laws and regulations across sectors that restrain Kenya’s transition to a sustainable economy, it does not highlight tangible and practical legal solutions to address the mammoth carbon footprint in the construction sector through existing legal mechanisms. This is in stark contrast to the United Kingdom Strategy for Sustainable Construction 2008 which links key legislation to the achievement of its consecutive five-year plan objectives in the procurement, design, innovation, biodiversity, materials, waste and water sectors. It is imperative for Kenya to develop a holistic sustainable strategy for the construction industry to produce real sustainable change.

4.4 Findings from a Legal Comparison of the Construction Industry Between Kenya and United Kingdom

The United Kingdom has enacted far-reaching legislation on climate change and energy efficiency in the construction sector of which encompass measurable targets

including the Climate Change Act (UK Parliament 2010), European Union Directives and subsidiary legislation that has implemented the directives. Furthermore, the United Kingdom has established the Strategy for Sustainable Construction (UK Government 2008). In comparison, Kenya still lacks interconnected policies to drive the implementation of sustainability. Its enactment took place in the Climate Change Act (Kenya Parliament 2016a) and the Energy Act (Kenya Parliament 2019). Those are the main legislative instruments that carry the intent of lowering carbon emissions.

4.5 General Aspects

An effective and inclusive policy sets the template for well-drafted substantive legislation. Thereafter, substantive legislation is key to enforceable legal and administrative action by delegated authorities vide subsidiary legislation.

Decleris (2000 pp. 48) also reiterates that an enabling legally enforceable framework is the key to development;

the obligation to interrelate public policies is a legal one, and its infringement renders the law or regulatory provision unconstitutional and the relevant public policy prone to abrogation, of course provided that the other conditions for control by abrogation apply. This means that the striving for sustainable development, as a legal obligation, has now been removed from the sphere of political will and the latter is bound by the above fundamental rule, whose custodians are the judiciary.

This is the much-needed qualitative shift from the State's pledges in GESIP 2016–2030 to an action oriented approach vide the tabling of subsidiary legislation that is enforceable in the judicial arena. Thus, this paper finds that the existing legislation in Kenya is sufficient to create this shift vide enabling subsidiary legislation as the key to practical solutions to support the State's efforts to meet its local and global obligations to the sustainability agenda.

As the supremacy of the Constitution is the fountain of the drafting of all corresponding legislation, any legislation passed by the legislative organ that is not in conformity with the Constitution runs the risk of challenge in courts of law. This was the court's finding in the case *Doctors for Life International vs. Speaker of the National Assembly and Others* (South Africa Constitutional Court 2006) which has been applied in the case *Katiba Institute & 3 others v Attorney General & 2 others [eKLR]* (Kenya Court of Law 2017).

When legislation is challenged on the grounds that Parliament did not adopt it in accordance with the provisions of the Constitution, courts have to consider whether in enacting the law in question Parliament has given effect to its constitutional obligations. If it should hold in any given case that Parliament has failed to do so, it is obliged by the Constitution to say so.

And in so far as this constitutes an intrusion into the domain of the legislative branch of government, that is an intrusion mandated by the Constitution itself. What

should be made clear is that when it is appropriate to do so, courts may – and if need be must – use their powers to make orders that affect the legislative process. This confers an obligation on the three arms of State to ensure that the conservation of the environment as envisaged in the Constitution is upheld in courts of law through the enforcement, amendment and promulgation of all laws.

4.6 Legislation on Climate Change

The Constitution (Kenya Parliament 2010) provides the enabling legal foundation for Kenya's adherence to the wider global framework for the 2030 Agenda for Sustainable Development (Colglazier 2015) and the ratification of the United Framework Convention on Climate Change (UNFCCC) in 1994 through the commencement of the Climate Change Act (Kenya Government 2016a). It is an 'Act of Parliament to provide for a regulatory framework for enhanced response to climate change; to provide for measures to achieve low carbon climate development, and for connected purposes.' The Climate Change Act may be the overarching legislation in Kenya on addressing climate change, however, the focus should be on retrofitting the existing legislation in the construction industry that has the potential to contribute towards the advancement and integration of sustainability in the builtscape. This will ensure that sustainability is addressed in the procurement, design, operation and maintenance of built structures by the various players in the industry through the operationalization of subsidiary legislation for effective enforcement by the State through its' regulatory agencies for maximum impact.

On the other hand, the United Kingdom's (UK) legislative framework is vast and ripe with substantive and subsidiary legislation towards minimizing its carbon footprint, spearheading climate action and political goodwill. Section 1 of the UK Climate Change Act (UK Parliament 2008b) provides a bold target; 'it is the duty of the Secretary of State to ensure that the net UK carbon account for 2015 is at least 80% lower than the 1990 baseline coupled with statutory five year carbon budgets to ensure that the carbon account does not exceed the carbon budget in the UK economy.' This is essentially a statutory ceiling on greenhouse gas emissions for the five (5) year period across the economy. The effect of the Act has also sparked the transformation of the power industry which can be attributed to the UK being '...successful in decoupling greenhouse gas emissions from gross domestic product. Since 1990, UK GDP has grown by more than 65% while total annual greenhouse gas emissions fell by 41% to the end of 2016.' (Fankhauser et al. 2018, p. 24). Further, there are also various rules under the Schedules of the Act with regard to the Committee on Climate Change, carrier bags, civil sanctions and renewable transport obligations that support the Act. Although, as reiterated by Lockwood (2013) who critic the UK Climate Change Act for failure to produce investor confidence and political certainty, it is indisputably an action-oriented legal instrument as opposed to the Kenya Climate Change Act which stipulates vague provisions on the climate change reductions and carbon targets. It is worth noting that Kenya vocalized its

commitment to reduce greenhouse gas emissions by 30% by 2030 ahead of the 2015 United National Climate Change Conference. This is provided vaguely under the Climate Change Act (Kenya Parliament 2016a) which gives powers to a Climate Change Council to set targets for greenhouse gas emissions. In benchmarking with the United Kingdom, an expressed target in law to measure and monitor the pledge is the way forward to cement climate change mitigation and adaptation. Nevertheless, the potential of the Kenya legislation to counter carbon emissions exists through the passing of effective regulations.

Effective subsidiary legislation must correlate the role of the regulatory entity with adequate administrative action drawn from the substantive provision in the Act. The Climate Change Act (Kenya Parliament 2016a) provides for the establishment of a Council to oversee the climate change coordination within Kenya. The provisions on the duties of the public sector, Article 16 of the Act provides that;

The Council may, in consultation with the Cabinet Secretary and relevant State Departments, impose climate change obligations on private entities, including entities constituted under the Public Benefits Organizations Act.

The subsection further stipulates that the Council may obligate the private entity to prepare reports on the status of its performance related to climate change. This provision can only be actualized through the mandatory obligation of the Council to prescribe adequate regulations to set out the nature, scope and procedure of the performance report. This interplay of substantive legislation and subsidiary legislation is also evidenced under Section 15(1) with regard to the Council's discretion to impose duties relating to climate change as read together with Section 15(3) whereby the Council may evoke regulations on the same. It is through the promulgation of sound regulations that performance reports in both the private and public sectors may impact the business culture in the construction sector towards the integration of sustainability.

4.7 Legislation in the Energy Sector

Notwithstanding, Kenya has been a global leader in its efforts towards cultivating renewable energy. According to the Renewables 2018 Global Status Report (pp. 79),

(t)he countries with the largest amounts of geothermal power generating capacity at the end of 2017 were the United States, the Philippines, Indonesia, Turkey, New Zealand, Mexico, Italy, Iceland, Kenya and Japan.

Furthermore, according to information from the website of the African Development Bank Group (2018);

Kenya has taken less than a decade to make giant strides in its energy sector. Key to this are two iconic renewable energy projects that have benefited from the decisive support of the African Development Bank: Turkana Wind Farm and Menengai Geothermal Power Station. The nationwide electrification rate in Kenya has leapt from 28% in 2013 to more than 60% in 2017, according to data provided by President Uhuru Kenyatta at an energy round table held

in January 2018. The government's next goal is to increase the electrification rate to 80% by 2020.

The growth in the renewable energy sector in Kenya has been supported by primary and subsidiary legislation that has effected a tangible feat in terms of mitigating carbon emissions, spurring renewable industry economy and spearheading a cultural shift among stakeholders.

4.8 Energy Act 2019

The commitment of the State regarding renewable energy is evidenced under the enactment of the Energy Act (Kenya Parliament 2019). It is cited as an Act of Parliament to consolidate the laws relating to energy, to provide for National and County Government functions in relation to energy, to provide for the establishment, powers and functions of the energy sector entities; promotion of renewable energy; exploration, recovery and commercial utilization of geothermal energy; regulation of midstream and downstream petroleum and coal activities; regulation, production, supply and use of electricity and other energy forms; and for connected purposes.

As a result, Article 43 of the Act has established a crucial body with functions to realize the promotion of renewable energy namely the Rural Electrification and Renewable Energy Corporation. Article 44(j)(k)(l)(m)(o)(p)(q) of the Act further provides the functions of the Corporation about renewable energy initiatives as follows;

- (j) develop, promote and manage in collaboration with other agencies, the use of renewable energy and technologies, including but not limited to biomass (bio-diesel, bioethanol, charcoal, fuelwood, biogas) municipal waste, solar, wind, tidal waves, small hydropower and co-generation but excluding geothermal;
- (k) formulate, in conjunction with the Agency, a national strategy for coordinating research in renewable energy;
- (l) undertake, in conjunction with the Agency, research, development and dissemination of appropriate renewable energy technologies;
- (m) provide an enabling framework for the efficient and sustainable production, conversion, distribution, marketing and utilization of biomass, solar, wind, small hydros, municipal waste;
- (o) promote, in collaboration with other agencies, the development of appropriate local capacity for the manufacture, installation, maintenance and operation of renewable technologies such as biodigesters, solar systems, turbines and other renewable energy technologies;
- (p) promote international co-operation programs focusing on renewable energy sources;
- (q) harness opportunities offered under clean development mechanism and other mechanisms including, but not limited to, carbon credit trading to promote the development and exploitation of renewable energy sources.

The enactment of the Energy Act (Kenya Parliament 2019) provides the Rural Electrification and Renewable Energy Corporation with appropriate powers to harness renewable energy across the built environment within Kenya. The establishment of a separate department to deal with renewable energy under the Energy Act will provide an upward trajectory in implementing appropriate policy frameworks and enforcement of renewable technologies in Kenya which all culminated into climate mitigation. This is a promising step as the former Rural Electrification Authority's mandate with regard to renewable energy under Article 67(d) of the former Energy Act (Kenya Parliament 2006) (Repealed) was limited to the promotion of renewable energy sources including but not limited to small hydros, wind, solar, biomass, geothermal, hybrid systems and oil-fired components taking into account specific needs of certain areas including the potential for using electricity for irrigation and in support of off-farm income-generating activities.

4.9 Energy Legislation in the United Kingdom

Additionally, the UK implemented the Energy Performance of Buildings Directive (European Union 2002) which was implemented in the UK vide the Energy Performance of Buildings (England and Wales) Regulations (UK Parliament 2012) which promotes the improvement of energy performance in buildings by encouraging owners and tenants to choose energy-efficient buildings. Article 6 of the Regulations provides that Energy Performance Certificates (EPCs) shall be made available to any prospective buyer or tenant. The 'EPCs show the energy demand of a building on a scale between A-G and provide recommendations to occupants on how to improve the rating. Since 4 January 2009, every commercial building over 50 m² has required an EPC for sale or letting.' (The Chartered Institute of Building UK). Various other sources of legislation in place include the obligation of site waste management plans on construction projects valued over £300,000 obligated by the Site Waste Management Plan Regulations (UK Parliament 2008a), environmental impact assessments by the Town and Country Planning (*Environmental Impact Assessment Regulations*) (UK Parliament 2011) and flood risk assessments by the Flood Risk Regulations (UK Parliament 2009) for the conservation of aquatic ecosystems through the protection of inland surfaces, coastal waters, transitional waters and groundwater. These regulations have been instrumental in the energy sector in the UK towards the advancement of sustainable practices, techniques and materials.

4.10 Legislation in the Construction Sector in Kenya vis a vis the Construction Sector in the United Kingdom

Section 3 of the National Construction Authority Act (Kenya Parliament 2011) establishes the National Construction Authority. It is a state corporation mandated to oversee the construction industry and coordinate its development. The Authority's mandate is all-encompassing construction of the various classes of works; building, civil, electrical, electronic and mechanical engineering works. It also prescribes that the Authority promotes and ensures quality assurance in the construction industry and confers investigatory powers upon officers of the Authority when conducting quality assurance checks on construction projects of the various classes of works.

Article 5(2) of this Act (Kenya Parliament 2011) further stipulates that the Authority shall;

promote and stimulate the development, improvement and expansion of the construction industry' as read together with Section 42(2)(g) of the Act which gives the Minister the power to make regulations to provide for 'any other matter to give effect to the Act.

Though the powers of the Minister may be discretionary, the effect will be instrumental towards the adoption and promotion of sustainable practices in the construction industry. The advancement of sustainability by the Authority will be in line with the Constitution of Kenya (Kenyan Parliament 2010a) with regard to the conservation of the environment. The legislative impact through this Act can be stimulated by regulations that spur sustainability in the industry coupled with the investigative powers of an investigation officer to enforce the rules during quality assurance checks. The wide mandate conferred on the Authority as a regulator in the construction industry is equal to its potential to shift the classic construction narrative towards an economically conscious builtscapes.

4.11 Building Codes

The Kenya Building Code (Kenya Parliament 1968) was anchored as subsidiary legislation under the Local Government Act (now repealed). The Code was developed in line with the British Standards and Codes of Practices from the 1960s and has not been adequately amended or updated to reflect current best practices throughout this period to date. However, from 2016, the State has initiated the process of reviewing the Code with a view towards developing the same against Kenya's construction trends, global best practices, materials and techniques. The conservation of the environment is a constitutional obligation that should be expressly defined and reflected under the standards of the revised Code. The opportunity to provide for minimum performance standards under the Code regarding elements of water, renewable energy and materials efficiency in commercial, public and residential properties in Kenya cannot be overstated.

Drawing from other jurisdictions, ‘the State of Oregon has created a green building and construction team to be a unified contact for homeowners and construction companies who wish to use sustainable development in their building practices.’ (Rosencrans, 2015, pp. 7) The capacity building of professionals in municipal and local authorities is essential to the enforcement of a greened Code to maximize impact and governance.

The United Kingdom has gone a step further and recognized certification tools for sustainability, Building Research Establishment Environmental Assessment Method (BREEAM 2018), and supported a voluntary Code for Sustainable Homes (CSH) rating tool for use by stakeholders in their construction industry. The rating tools is utilized for new and existing commercial and residential buildings and is hailed as the world’s sustainability assessment method for buildings with over 255,000 buildings certified in over 55 countries.

4.12 Incentives in the Construction Industry

Moreover, an incentive scheme to influence the growth of a green economy must be incorporated in a sustainability policy to ensure the uptake goes hand in hand with new or amended legislation. Through the Climate Change Act (Kenya Parliament 2016a), Kenya has set express provisions with regard to granting incentives for the promotion of climate change initiatives through section 26. This section provides the Cabinet Secretary, in charge of climate change affairs, with the powers to provide regulations to determine the nature, conditions and withdrawal of the grants. Moreover, the energy sector in Kenya has long been a champion of incentives in the form of feed in tariffs although the effects of the same have also been disputed (Boampong and Phillips 2016). In the United Kingdom jurisdiction, environmental incentives include tax relief for renewables, energy efficiency financing options and enhanced capital allowances for businesses that utilize qualifying energy-saving plant and machinery. (The Chartered Institute of Building UK 1980).

5 Role of Leadership in Mainstreaming Sustainable Development in the Construction Sector

This section of the paper discusses two other factors that can drive sustainability an enabling legal framework notwithstanding.

Besides being the regulator, the Government is the major developer in the country. This is a unique opportunity to set precedence on sustainable development

in public projects. By raising the floor in such manner, behavior and perception change from within sustainable development will be stirred and have a knock-on effect on the masses. While law and policy will help define sustainability, leadership will give it a strong interpretation. Andrea Ross (2010, pp. 1104) in her article "It's Time to Get Serious—Why Legislation Is Needed to Make Sustainable Development a Reality in the UK" states that "strong leadership is a key factor for actually achieving sustainable development" she further argues that leadership, however, is a double-edged sword. When it is present, policies flourish, when it disappears, policies like sustainable development flounder." By Governments making sustainability a core subject in their operations, the subject of sustainable development will become a living element in national and county governments to survive changes in leadership. Many regulations and guidelines remain in draft due to change of guards in government offices. New leaders come with new projects and shelf predecessors' work. Unfinished business is common and slows down the sustainability movement.

The back does not stop at the law, neither does it stop at leadership, people's ethics is key. Sustainable development is initiated by leadership, guided by laws and immensely supported by ethics. The absence of or weakness in one of these three issues means limited progress in the match to a green economy. Laws and policies alone are not enough to drive the sustainability agenda in the built environment and other sectors as well. Ethics and leadership are equally crucial. The three pillars of sustainability (economic, environment and social) can be optimally delivered and anchored in a tripartite system of sector specific laws featuring sustainable development, leadership and ethics. Poverty is a confounding factor. Strong leadership and commitment in developing countries is hindered by vote sensitivity which then dictates with an unseen hand policies and regulations that are made. Political interference on sustainability agenda is apparent. The ease of doing business (cost-wise) is of a far greater priority than promotion of responsible resource consumption and production. Lowering the cost of doing business while not emphasizing on responsible resource utilization only favors the pocket of developer/investor in the short-term but greatly expenses that of present and future progeny. A brown building can be put up cheaply/affordably now as a great investment but building users will spend highly on utilities and scarcities in natural resources will mean future users will continue to pay more.

Developing countries, Kenya included have a large percentage of infrastructure left to be built, this presents a great opportunity to develop sustainably, the muscle of law needs to be strengthened, ethics entrenched and leadership on the subject of sustainable development supported not in the near future or far beyond but in the here and now. Efforts should not lean on one side, be it law or leadership or ethics but concertedly and uniformly applied to all. Only then will sustainable development become a chorus in the built environment and other extractive industries in developing countries.

Comparative legal and policy instruments in the construction industry between the United Kingdom and Republic of Kenya

United Kingdom Jurisdiction	Kenya Jurisdiction
United Kingdom Strategy for Sustainable Construction (UK Government 2008)	Constitution of Kenya (Kenya Parliament 2010a)
The strategy lays out specific targets and initiatives to be achieved by the government and sector through consecutive five-year plan objectives in the procurement, design, innovation, biodiversity, materials, waste and water sectors.	Article 42 of the constitution which stipulates that it is a 'fundamental right and freedom for every person to a clean and healthy environment which includes the right – To have the environment protected for the benefit of present and future generations. Article 2(6) of the Constitution which sets out that any treaty or convention ratified by Kenya shall form part of its laws under the Constitution thereby cementing the State's domestic and international obligations to the protection and conservation of the environment. This paved the way for the ratification of the United Framework Convention on Climate Change (UNFCCC 1994) through the commencement of the Climate Change Act (Kenya Government 2016a).
Climate Change Act (UK Parliament 2008b)	The National Climate Change Action Plan – NCCAP (2013–2017) (Kenya Government 2012)
Section 1 of the UK Climate Change Act (UK Parliament 2008b) provides a bold target; 'it is the duty of the Secretary of State to ensure that the net UK carbon account for 2015 is at least 80% lower than the 1990 baseline coupled with statutory 5 year carbon budgets to ensure that the carbon account does not exceed the carbon budget in the UK economy.' There are also various rules under the schedules of the act regarding the committee on climate change, carrier bags, civil sanctions and renewable transport obligations that support the act.	This plan specified agencies in the infrastructure sector to contribute towards climate mitigation and adaptation. However, the plan has highlighted that it does not include "climate change considerations under the physical infrastructure section, thus highlighting the need for specific adaptation actions."
European Union Directive on Energy Performance of Buildings 2010/31/EU adopted by the United Kingdom vide Energy Performance of Buildings (England and Wales) Regulations (UK Parliament 2012)	Green Economic Strategy and Implementation Plan 2016–2030 (Kenya Government 2017)
The United Kingdom domesticated the EU directive which was formulated to promote policies that can be implemented by governments for highly efficient and decarbonized building stock by 2050. Regulations 2012 promotes the improvement of energy performance in buildings by encouraging owners and tenants to choose energy-	The GESIP provides an implementation matrix for the government agencies in the construction sector to ensure the achievement of sustainable design, construction and maintenance of buildings. The realization of the plan can only be implemented through the passing of legislation for purposes of standardization and

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United Kingdom Jurisdiction	Kenya Jurisdiction
efficient buildings. It also stipulates that Energy Performance Certificates (EPCs) shall be made available to any prospective buyer or tenant for the property.	enforcement in an industry abounding with varied stakeholders.
Voluntary Code for Sustainable Homes (UK Government 2007)	Climate Change Act (Kenya Parliament 2016a)
This is a voluntary code that provides a rating tool for sustainability in design and construction against categories that include energy, water, materials, waste, ecology and management. The implementation of the code is overseen by the Department of Communities and Local Government under the United Kingdom government.	This is an act of parliament to 'provide for a regulatory framework for enhanced response to climate change; to provide for measures to achieve low carbon climate development, and for connected purposes.' The act also gives powers to a climate change council to set targets for greenhouse gas emissions which is not set in legislation. In benchmarking with the United Kingdom, an expressed target in law to measure and monitor the pledge is the way forward to cement climate change mitigation and adaptation.
The United Kingdom has also provided subsidiary legislation on environmental impact assessments, Management of Flood Risks and Site Waste Management as follows; (1) Town and Country Planning (Environmental Impact Assessment) Regulations (UK Parliament 2011) (2) Flood Risk Regulations (UK Parliament 2009) (3) Site Waste Management Plan Regulations (UK Parliament 2008a) It is an obligation for site waste management plans on construction projects valued over £300,000 to be implemented as provided under the Site Waste Management Plan Regulations (UK Parliament 2008a), environmental impact assessments as provided under the Town and Country Planning (Environmental Impact Assessment) Regulations (UK Parliament 2011) and flood risk assessments by the Flood Risk Regulations (UK Parliament 2009) for the conservation of aquatic ecosystems through the protection of inland surfaces, coastal waters, transitional waters and groundwater.	Energy Act (Kenya Parliament 2019) This is an act of parliament to consolidate the laws relating to energy, promotion of renewable energy; exploration, recovery and commercial utilization of geothermal energy including other functions. Section 6 of the act establishes the rural electrification and renewable energy corporation to promote renewable energy technologies, harness opportunities in carbon trading, coordination of research, collaborate with other agencies to manage, develop and promote the use of renewable energy and technologies including but not limited to biomass municipal waste, solar, wind, tidal waves, small hydropower and co-generation. The operationalization of the state agencies is still in preliminary stages.
	Environmental Management and Co-ordination Act (Kenya Parliament 1999 – Revised 2012) This is an act of parliament that establishes the establishment of the National Management Environment Authority, National Environment Tribunal and provides an institutional and legal framework for the management of the environment. The act provides for the environmental impact assessments, environmental audits and environmental quality assessments through emission licenses, waste licenses, noise pollution, air quality standards.

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United Kingdom Jurisdiction	Kenya Jurisdiction
	National Construction Authority Act (Kenya Parliament 2011)
	Section 3 of the National Construction Authority Act (Kenya Parliament 2011) establishes the National Construction Authority. It is a state corporation mandated to oversee the construction industry and coordinate its development. The Authority’s mandate is all encompassing construction of the various classes of works; building, civil, electrical, electronic and mechanical engineering works. Article 5(2) of this act further stipulates that the authority shall promote and stimulate the development, improvement and expansion of the construction industry as read together with Section 42(2)(g) of the act which gives the minister the power to make regulations to provide for any other matter to give effect to the act. The potential to promote sustainable construction can be carried out through subsidiary legislation under this act.

6 Recommendations and Final Conclusions

This section of the paper makes recommendations on how the three pillars of sustainability (economic, environment and social) can be optimally delivered and anchored in a tripartite system of sector-specific laws featuring sustainable development, leadership and ethics.

6.1 Recommendations for Mainstreaming Sustainability in the Built Environment Laws in Developing Countries

As per the fundamental systemic principle; an effective control system must be as complex as the object it controls. The legal framework in Kenya largely neglects this principle. Ever-increasing environmental degradation is a serious indication of this failure. This can be addressed by incorporating sustainability gradually into *lege lata* or *lege ferenda* across the sector. No law can ever replace or alter the moralities and perceptions that it is guided by. A standalone environmental management law is not enough. The legal framework governing sectoral operations must be as complex as the objective of its control. This is an important step the State can take in committing to values, broadening the concept of ethics, raising the floor, reshaping the future and

changing the narrative of gradually and indiscernibly leaving future generations with high stranded carbon assets.

With Government devolution in Kenya to County Governments (which is akin to a federal system), more projects are being undertaken at county level, sustainability should be made a devolved function as well and avoid or lower future retrofitting costs. A bottom-up approach instead of top-down in mainstreaming sustainability in the built environment can be adopted. County Governments can incorporate sustainability in their legislation as a core principle in their operations before the National government does the same. This approach at grass root level can be strengthened overtime and gradually extend to the national level. Public projects need to report on the sustainability interventions adopted and the target footprint reduction. Further, a dedicated chapter in the Environmental and Social Impact Assessment should be included on how a project ensures sustainable development is achieved. The EIA reporting needs to go a mile further in showing how a project implements the GESIP strategies, NCCAP goals percentage contribution to the NDCs.

The Kenya Government can develop a voluntary code for sustainable construction but make it mandatory for buildings exceeding a given number of floors must be made green. Infrastructure projects exceeding a given amount of money must be sustainably constructed.

Pre-existing Laws can foster sustainability through deliberate complimenting measures. The NCCAP and GESIP have outlined sectoral responsibilities and that is one great step in the right direction. The strategies outlined in the aforementioned documents need to be included in performance contracts of Government agencies so they can report on the same together with what is stipulated as their core mandates in respective establishing Acts of Parliament.

In addition, the NDCs should be a sum of sector commitments and not an abstract. The agencies can then report on the achieved or missed targets for monitoring, evaluation and re-strategizing.

Deliberate commitments in national action plans and green economy strategy documents need to include incremental updating of outdated existing legislation and building codes to include sustainability. Sustainability needs to be translated into specific legal principles for the built environment guided by an overall strategy for sustainable construction. Government ministries, departments and agencies need to have long-term and binding legal responsibility for sustainable construction in the projects that they undertake in harmony with vision 2030.

Beginning January first, 2017, the Government of Kenya set aside legal levies exacted from construction projects to lower the cost of doing business. National Construction Authority (NCA) charges 0.5% of construction costs for projects costing above USD50,000 and the National Environment Management Authority (NEMA) set at 0.1% for all projects costing more than USD 200. Instead of Government setting aside construction levy and environmental impact fees on projects, Government should consider returning the levy but exempt green projects. The fees can be applicable to brown projects that have not integrated sustainable construction measures in harmony with the 'polluter pays' principle. This will support

adoption of sustainable construction approaches even in the presence of existing laws that may not imply it in their mandates.

Environmental stewardship under the topic of sustainable development should be included in the curriculum of all subjects at all learning levels. Incentives including green financing of construction projects, quicker approvals of green projects in government registration processes and compliance checks, tax exemption on green materials and technologies should be adopted. Sustainable construction information should be widely disseminated to the public, to usher attitude change, encourage green building actions and create demand for a sustainable built environment.

6.2 Conclusion

The built environment laws and policies are not reflective of a sustainability approach instead they are very reflective of the fragmented nature of the industry as they are not sector-specific nor deliberate on the sustainability subject. Sustainability is not a living element in the construction sector laws in Kenya. The existing environmental laws are more mitigation inclined if not maintaining the status quo and reactive than proactive. Sustainability is the proactive management of resources and not reactive. Ethics, perceptions of sustainability and level of awareness have influenced policy development. There is a need to address the sustainability perception barrier and ethics among professionals in the built environment in order to mainstream sustainability in the sector with legal backing.

However, it is notable that the fragmented Kenyan legal framework has varied legislation in place to support a potential shift towards sustainability. This paper champions the drafting of subsidiary legislation in the form of regulations, rules and by-laws to transform the construction industry as the necessary step forward towards the integration of sustainability.

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Towards a Low/Zero Carbon Society for the Asia-Pacific Region: Policy and Legal Development for Carbon Capture and Storage (CCS) in Japan



K. Yanagi and A. Nakamura

1 Introduction

The Paris Agreement came into force on 4 November 2016 (UNFCCC 2016). This agreement, for the first time, brought all participating nations together to share the responsibility of combatting climate change and adapting to its effects. Achieving the target of keeping a global temperature rise this century of well below 2 degrees Celsius above pre-industrial levels, it is essential to realise a low/zero carbon society. Most recently, the Intergovernmental Panel on Climate Change (IPCC) announced that 1.5 degrees will most likely be reached between 2030 and 2052. This suggests that the agreed Paris targets will not be enough, although all the participating nations meet their current domestic targets. The report also mentioned that the agreed Paris targets on reducing emissions would not be enough without setting larger and more ambitious targets after 2030 (IPCC 2018). It is inevitable that we will need to achieve a low/zero carbon society. In order to accomplish a low/zero carbon society, two significant approaches should be urgently considered, which are technological solutions and regional actions. As for technological solutions, it is important to maximise a best mix approach to mitigating a large amount of C from the global atmosphere including renewable energy, nuclear power and Carbon Capture and Storage (CCS) (IPCC 2014). Secondly, there is a need for regional climate action. One of the major failures of the past and current global agreements, including the

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Kyoto Protocol, Post-Kyoto Protocol and Paris Agreement, is an absence of regional approaches. There are significant gaps of capabilities and activities between developed and developing nations. For example, the form of particular regional activities at the EU such as “EU Bubble” has not been allowed in other regions (OECD 2012; UN 2013; Crowley and Nakamura 2018).

The Asia-Pacific region is known as one of the regions extremely vulnerable to climate change due to overpopulation, extreme poverty, the emissions burden of rapid economic development, and high baseline levels of flooding, drought and extreme temperatures (World Bank 2014). The Asia-Pacific region includes developed, developing and emerging nations and it models, at the sub-national level including East Asia, South Asia, Southeast Asia and Oceania, the broader problem of developed/developing country engagement in climate change. There is a need to build strong governance for facilitating more cooperative climate action between developed and developing countries at the regional level beyond the efforts already achieved by the European Union (EU) (Crowley and Nakamura 2018).

Japan is not only one of the developed countries in the Asia-Pacific region, but also one of the ten countries with the highest CO₂ emissions from fossil-fuel use in the world (ESCAP 2016). Thus, it is crucial for Japan to play a role in taking leadership for the significant reduction of GHG emissions in the region. However, Japan is now facing a challenge for meeting its domestic goals for reducing GHG emissions, due to the limited energy source from nuclear power after the Great Tohoku Earthquake in 2011, a trend of relying on fossil fuel energy sources (coal and gas), and limited renewable energy sources (METI 2018). In response to the global climate action including the Paris Agreement, the Japanese government has set the mid-term target of 26% below 2013 level by 2030. The government also targets an 80% reduction of GHG emissions by 2050 and has acknowledged CCS can potentially contribute to reducing the large amount of CO₂ by 2050, resulting in achieving their mid and long-term goals (Oshiro and Masui 2014; MoFAoJ 2016; METI 2018). Most recently, the 5th Basic Energy Plan was approved by the Cabinet on 3rd July 2018, which acknowledges that there is an urgent need for implementing CCS at the commercial scale and technology will play a significant role in contributing to the policy goals (METI 2018).

There has been wide discussion about CCS considered as one of the significant approaches to mitigating a large amount of CO₂ from the global atmosphere (GCCSI 2016a). It is especially urgent for the countries in the Asia-Pacific region highly relying on fossil fuel energy sources to implement available low/zero carbon emission technologies (IPCC 2014; Enerdata 2018). However, there has yet to be a comprehensive policy and legal framework for commercialising CCS both in Japan and the Asia-Pacific region (Yanagi et al. 2016). Thus, creating an opportunity for deploying CCS technology at the commercial scale is one of the urgent actions needed for the state and region.

This study aims at identifying a number of key approaches to developing the existing CCS policy and legal framework in Japan to realise a commercial scale of CCS deployment, based on ongoing research. It further emphasises a need for a comprehensive framework at the regional level and attempts to address its key

development areas to be considered, in order to realise a low/zero carbon society in the Asia-Pacific region. Firstly, this study will use the relevant literature to describe the role of the Asia-Pacific region, Japan's leadership and CCS for a global climate action. It will then address the Japanese climate policy and existing CCS policies and legal frameworks. This study will further identify the key development aspects for the current framework and a list of key issues for a regional action towards a low/zero carbon society in the Asia-Pacific region. The study will then end with conclusions.

2 Significance of Climate Action

2.1 *Global Climate Action and the Asia-Pacific Region*

The Asia-Pacific region encounters the significant impact of climate change due to overpopulation, the emissions burden of rapid economic development, high demand of energy consumption as well as high baseline levels of natural disasters such as flooding, drought and extreme temperatures (World Bank 2014). The IPCC acknowledged that the countries in the region will play a significant role both in the climate change mitigation and adaptation activities (IPCC 2014).

In contrast with the EU region, the Asia-Pacific region is populated by predominantly developing rather than developed nations, including major emitters like China (WRI 2017). The Asia-Pacific has no regional governance with capabilities comparable to the EU to facilitate a regional approach to climate action with differentiated responsibilities between developed and developing nations. Due to the absence of regional governance, there has yet to be established a clear mechanism for identifying and potentially transferring the mitigation and adaptation lessons learned by countries within the Asia-Pacific region. While the EU could offer historical lessons on regional climate governance and action, not only could these not be easily transferred to the Asia Pacific context, they are also now dated as the EU's influence has waned (Bals et al. 2013). One of the most recent analyses shows the global and Asian energy system projections, and strong economic growth leads to a doubling of Asian energy consumption, which drives the global demand. Global demand is driven by Asia with an energy mix still dominated by fossil fuels, especially coal. 74% of the demand growth over 2015–2040 will come from Asia, and 15% from Africa. In the power sector, the share of fossil fuels input will decrease from 84% to 66% between 2015 and 2040. Energy-related emissions from Asian countries are projected to increase twice as fast as global emissions. Asian energy-related emissions will account for more than half of the global emissions (Enerdata 2018). It is thus clear that the demand and influence of climate action have been shifted from European to Asian dominance as the latter region seeks the competitive advantages, in terms of jobs and growth, of investing in the low-carbon sector (Climate Institute 2013). However, the Asia-Pacific region cannot simply manage

the shift of the trend, by following the regional development and coordination process in the EU as no EU-style Asia Pacific Community exists (Lee 2010).

Seeking the relevant literature in this context, it is essential to address ‘Climate leadership theory’, which has been widely developed in the context of the EU and has conceptualised a successful regional platform towards climate change action (Andresen and Agrawala 2002; Grojean et al. 2004; Karlsson et al. 2011; Keohane and Victor 2011; Eckersley 2012). Most recently, Crowley and Nakamura (2018) emphasised that the importance of ‘Regional Climate Leadership’ specifically in the Asia-Pacific region is important in terms of achieving the global climate change action. The effectiveness of regional forms can be differentiated in different contexts, backgrounds and geological circumstances. It is important to look at the regional approach in the Asia-Pacific region as one of the emerging regions for climate change actions. It is also necessary to see how the developed countries within the region take leadership for a future development of regional approaches (Crowley and Nakamura 2018). Thus, exploring the current and future climate action in the Asia-Pacific region will be crucial not only to contribute to leading the global climate action, but also to establish its own regional frameworks and approaches to regional and global responsibilities and initiatives.

2.2 Role of Japan’s Leadership

Japan is a major economy with highly efficient energy technology, and yet it performs poorly on domestic climate action. This is because it is predominantly powered by a mix of imported oil, gas and coal, with negligible hydro-power, nuclear power or renewable energy. It has yet to execute any shift to a low-carbon economy. In terms of its capacity to act on climate change, Japan is one of the leading affluent nations in the world, with the third-largest economy, and is a member of the G7 and the Trilateral Commission (the United States, European Union and Japan) (Crowley and Nakamura 2018). It ratified the Kyoto Protocol, but its total emissions have increased by 10.6% (134 Megatonnes [Mt] CO₂ equivalent) on 1990 levels, reaching 1395 Mt CO₂ equivalent in 2013, its then highest increase to date (MoE 2014). Since the 2011 earthquake that struck East Japan and the damage to the Fukushima Daiichi nuclear power plant, the country is relying more on fossil fuels for energy, which is a problem given that 90% of GHG emissions are energy related (Government of Japan 2013). It is also problematic for energy security that Japan currently relies on imports for 80% of its energy consumption. The climate challenges facing Japan, such as the need to reduce emissions and transition to alternative energy, have become much more complicated following the earthquake (Vivoda 2014). In fact, Japan declared that they will not join the Post-Kyoto agreement (2013–2020) due to the limited participation especially from large emitters such as the United States, China and Canada (Ghezloun et al. 2013). As previously stated, Japan is not only one of the developed countries in the Asia-Pacific region, but also one of the ten countries with the highest CO₂

emissions from fossil-fuel use in the world. Thus, it is crucial for Japan, as a former host country of the Kyoto Protocol, a strongly industrialised country, a high-technological nation and a country highly dominated by fossil fuel energy consumption, to play a role in taking leadership for the significant reduction GHG emissions in the region (Crowley and Nakamura 2018).

3 Role of CCS

Since the Paris Agreement of 4 November 2016, there has been wide discussion about CCS considered as one of the significant approaches to greatly reduce CO₂ from the global atmosphere. CCS prevent large amounts of CO₂ from being released into the atmosphere. CCS is an integrated suite of technologies that has a proven 90% capture rate of the CO₂ produced from the use of fossil fuels in electricity generation and industrial processes, preventing the CO₂ from entering the atmosphere. The future CCS projects are expected to have much improved capture rates, including zero-emissions from coal (WCA 2018). IPCC's fifth assessment report (IPCC 2014) identified CCS as a solution for reducing lifecycle GHG emissions of fossil fuel power plants. CCS has been recognised as the only proven technology, enabling us to capture at least 90% of CO₂ emissions from the largest emitters. Consequently, this will make it possible for a significant reduction of CO₂ from large-scale fossil fuel for power generation and from energy-intensive industry.

With Bio-energy with CCS (BECCS) known as Carbon Capture Utilisation and Storage (CCUS), we can even achieve net negative emissions as it is the only large-scale technology that can actually remove CO₂ from the atmosphere. However, large-scale deployment has yet to be implemented. There are also other CCUS technologies considered globally (e.g. Enhanced Oil Recovery: EOR). The IEA (2017), in its publication, *Energy Perspectives 2017*, says meeting the 2-degree target requires an inclusive approach combining energy efficiency (40%), renewables (35%), CCS (14%), nuclear (6%), and fuel switching (5%). Furthermore, in the Beyond 2 °C Scenario (B2DS), the IEA maintains that CCS would be required to provide 32% of global emission reductions. Thus, it is clearly identified that CCUS technologies have been considered as significant tools to achieve the global targets.

There are a number of potential benefits from CCS technologies. CCU has the potential to strengthen business models for industrial emission reduction while contributing to emissions reduction. While some CCU processes permanently avoid CO₂ reaching the atmosphere, other forms may only constitute a postponement of emission (IPCC 2005; Olfe-Kräutlein et al. 2016). A CCS project with additional economic value of CCU via a CO₂-based product generation could facilitate further investments in CCS (EC 2018). Furthermore, CO₂ can be transferred to various products throughout the process of chemical, biochemical, photochemical or electrochemical reactions (Psarras et al. 2017). These products could also create feedstock for value added bio-chemicals (e.g. organic and inorganic carbonates, polymers and urea), or as a medium for intermediate energy storage

(e.g. methane and syngas). These processes may contribute to reducing the GHG emissions, although their individual projects are neither abating CO₂ nor economically feasible as stand-alone projects (ZEP 2013). CCS and CCU technologies may involve minor differences (e.g. purpose, storage duration, injection depth and rate, fluid and reservoir types, scheme of drilling, completion and monitoring) (Liu et al. 2017). However, the IEA notes that the two integrated technologies should be considered and developing and implementing their projects in parallel will contribute to achieving a significant part of the global action (IEA 2017). The key development areas should be the relevant selection of project applications considering economic, social and environmental aspects at all levels of operation, while demonstrating regional, domestic and local levels (Liu et al. 2017). The recent database from the Global CCS Institute shows there were 38 large-scale CCS projects in operation or under the stage of construction and planning (GCCSI 2018). However, the fact shows that the current status of the world has yet to be widely demonstrated at a commercial scale, and CCS implementation has still been low. Given this, CCS has a significant role in contributing to climate mitigation action towards the Paris agreement.

4 Key Aspects of CCS at a Commercial Scale

In terms of comprising policy and legal framework for commercialising CCS, it is essential to address the uniqueness of the CCS deployment. There are a number of unique elements within the policy and legal design, which are: the target of climate change mitigation, operational procedure, life-cycle system, long-term management, public acceptability. Firstly, it is important to note that CCS technology is one of the tools to reduce the large amount of carbon emissions. This has been largely recognised by the IPCC (IPCC 2005, 2007, 2014). Secondly, an installation of CCS technology mainly involves three operational procedures, which are: capture, transport and storage processes (IEA 2012). It is also important to note that CCS can include two types of disposability: 'CO₂ product' and 'sequestration'. Both processes are expected to reduce CO₂ emissions. CO₂ product creates opportunities for renewable sources, and sequestration means to be permanently stored in the appropriate reservoir (Koornneef et al. 2008). Thirdly, CCS has a number of life cycle phases, such as development phase, operational phase, closure phase and post-closure phase. Fourthly, it is important to understand that implementing CCS technology has significant risks (i.e. carbon leakage and unforeseen events). Therefore, policy and legal frameworks for CCS require 'long-term management' for a 'long-term liability' (IEA 2012; IEA 2012). Lastly, CCS is a new technology, thus there is a need for the public to understand and accept the technological development and implementation at the domestic and local levels (IEA 2012; ZEP 2013; IEA-GHG 2007). Without public understanding, it may not be possible to install and implement the technology. Given this, the number of addressed unique factors

for CCS implementation should not be neglected in order to consider a comprehensive policy and legal framework for the technology.

Long-term management has been widely discussed as the most critical issue of legal framework for CCS. The IPCC (2007) clearly indicated that installations of CCS technology require ‘long-term management’ by: ensuring careful site selection; monitoring systems; regulations; and remediation and liability measures. Long-term liability is one of the most crucial elements of long-term management for CCS. Without understanding and considering it, any assessment framework for CCS becomes irrelevant (Alberta CCS Statutes Agreements Act 2010). Liability is “the legal responsibility arising from the CCS project to compensate for or remedy any significant damages, including damage to the environment, such as ecosystem damage, other material damages or personal injury” (UNFCCC 2011). Long-term liability needs: to spur innovation in desirable technologies; to address the lack of sufficient information to forecast losses; to address risks with extremely long-term life-cycles; and to address concerns about catastrophic risks (IPCC 2007). Short, medium, and long-term liabilities during a CCS project life cycle can be identified, namely monitoring operation by ensuring the expected behaviour as the short-term liability; closing operation and sites as the medium liability; and controlling the stored CO₂ after the closure as the long-term liability. Each phase must ensure a liable entity is allocated. Typically, the storage operator is responsible for the liable entity to remedial action during the operation and closure phases.

While CCS has been largely considered as a significant technology to contribute to the global climate change mitigation activities, there is yet to be defined the best approach to designing long-term liability due to the lack of experience. Policy-makers and scientists have thus continued to discuss the relevant designs. Various jurisdictions encompass the rules of the transfer of liability from the operators to the host country. For example, many developed countries such as Australia, Canada and the U.S. have experience in addressing most of the CCS regulatory issues that developing countries are currently facing to establish their own regulations (Warren 2011). As a lack of definition on long-term liabilities and associated implications may increase risks and costs for a CCS project, this topic assesses the main CCS legal and regulatory frameworks worldwide with a special focus on the rules regarding the transfer of long-term liability within each jurisdiction.

In terms of managing long-term liability issues, IPCC (2007) recommended that each jurisdiction needs to ensure long-term management, which requires: careful site selection, including performance and risk assessment and socio-economic and environmental factors; monitoring to provide assurance that the storage project is performing as expected and to provide early warning in the event that it begins to leak; effective regulatory oversight; and implementation of remediation measures to eliminate or limit the causes and impact of leakage. The establishment of such a framework requires distinguishing the project life cycle for CCS activities, such as site selection, permit application, commissioning, operation and decommissioning, from the post-closure period. This life cycle thus means the whole process of the project plan from the beginning to the end including policy development, planning and project implementation (The Alberta Energy 2013).

It is important to note that there are other financial aspects in relation to long-term management, especially to the issues of long-term liability, involving a series of costs for all key parties. While there may be government and other sources of funding, project proponents may need to be considered to cover some of the costs. The key potential cost areas must be related to the post-closure liabilities, and potential approach for payment (Alberta Energy 2013; Anderson 2017). Given this, comprising a comprehensive policy and legal framework for CCS involves a number of complex issues, especially for long-term management and liability issues. However, it is clear that a commercial scale of CCS technology cannot be successful without a comprehensive policy and legal framework and each jurisdiction needs to take its own initiatives.

5 The Existing CCS Policy and Legal Framework in Japan

The Japanese government submitted Intended Nationally Determined Contributions (INDCs) to the United Nations Framework Convention on Climate Change (UNFCCC) in 2015. The government has set the mid-term target of 26% below 2013 level by 2030 as its contribution to the Paris Agreement (MoFAoJ 2016). The government also targets an 80% reduction of GHG emissions by 2050 and has acknowledged CCS can potentially contribute to reducing the large amount of CO₂ by 2050 (Oshiro and Masui 2014), resulting in achieving their mid and long-term goals (Yanagi et al. 2017a). Most recently, the 5th Basic Energy Plan was approved by the Cabinet on 3rd July 2018, which acknowledges that there is an urgent need for implementing CCS at the commercial scale and the technology will play a significant role in contributing to the policy goals (METI 2018). However, there has yet to be a comprehensive framework for the current CCS policy and legal framework in Japan for commercialising CCS.

In Japan, due to the amendment of the Act on Prevention of Marine Pollution and Maritime Disaster (Japanese Parliament 2007), the government has enacted a legislative framework for the disposal of CO₂ under the sea-bed, in response to the amendment of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters 1972 (hereinafter referred to as ‘the London Convention’). The London Convention was enacted in 1972. In 1996, the ‘1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972’ was adopted (hereinafter referred to as “the London Protocol”). The London Protocol, which comprehensively and substantially amends the parent convention, entered into force in March 2006 and eventually it will replace the London Convention (MoE 2008; Yanagi et al. 2017a). The London Convention and Protocol are the global agreements regulating dumping of wastes at sea. The Protocol prohibits dumping of wastes or other matter at sea and in the sub-seabed except those specified in its Annex 1, and these require permission with extensive impact assessments, conditions and monitoring. Examples of wastes or other matter which may be dumped include dredged material, fish waste, inert, inorganic

geological material, and, because of the 2006 amendment, CO₂ streams for disposal in sub-seabed geological formations. The amendment entered into force in February 2007 (Dixon et al. 2009). To provide the assessments and conditions required in issuing a permit, CO₂ Specific Guidelines were developed and agreed in 2007. The main issue for CCS at the London Protocol since the 2006 amendment is the topic of trans-boundary export of CO₂ for sub-seabed geological storage. The London Protocol Article 6 prohibits exports of wastes for dumping in the marine environment (Dixon et al. 2014).

With regard to the amendment of the London Protocol, the Minister of Environment (MoE) of Japan requested advice from the ‘Central Environmental Council’ of Japan to consider a potential introduction of CCS under the seabed as one of the actions against global warming, and the way to prevent the marine impacts. The ‘Technical Committee for CCS’ under the ‘Earth Environment Subcommittee’ provided a consultation (Nakamura 2007). In response to the advice from the Technical Committee, a report ‘Concerning the practice of CCS and the prevention of its impacts on marine environment as a global warming counter measure’ was submitted in Feb 2007. In turn, the amendment of the ‘Act on Prevention of Marine Pollution and Maritime Disasters proposed on a basis of the report’ was discussed in the “Diet” (the Japanese Parliament). On May 30th 2007, the amendment of the ‘Act on Prevention of Marine Pollution and Maritime Disaster (Law No. 60)’ was enforced (hereinafter referred to as the ‘Marine Pollution Prevention Act’) (MoE 2008; Yanagi et al. 2017a).

Since February 2012, in accordance with the amendment of the Act on Prevention of Marine Pollution and Maritime Disaster (2007), the Tomakomai CCS Demonstration Project has been endorsed by Japan’s Ministry of Economy, Trade and Industry (METI). The project aims to demonstrate an overall CCS system from capture to storage as a basis for commercialising CCS from 2020. It intends to inject 100,000 tonnes or more of CO₂ per annum in the first two reservoirs located at the depths of approximately 1000–3000 m, under the seabed of the offshore area of Tomakomai Port over the period 2016–2018 (Japan CCS Co., Ltd. 2018). During the site selection process for the Tomakomai project, METI has individually organised the reports on ‘A Comprehensive Evaluation Report on the Storage Reservoirs in Tomakomai’ and a ‘Plan for the Demonstration Project in the area of Tomakomai’ (proposal). METI also organised an open consultation called ‘the technical committee meeting towards CCS demonstration project’, inviting experts to discuss the results of assessment especially in the technical aspects between Oct and Dec 2011. As a result, in Feb 2012, the implementation of Tomakomai CCS Demonstration Project was decided. With regard to the permit for the CO₂ injection process, METI submitted an ‘Application for a Permit of sub-seabed disposal of specified CO₂ to MoE on Feb 22nd 2016. On March 31st, the MoE granted a licence for injecting CO₂ for the project in compliance with the Act (MoE 2016).

Currently, Japan’s CCS deployment has only been at the demonstration level. The Tomakomai CCS Demonstration Project has only been implemented so far. The amendment of the ‘Act on Prevention of Marine Pollution and Maritime Disaster’ (2007) thus provides the basis of legal framework enabling the demonstration

projects for the purpose of CO₂ disposal under the seabed. According to IEA (2012), there is a need for an appropriate policy and legal framework in order to commercialise the technology. In this regard, it is important to set a specific target indicating much reduction of CO₂ emission and to establish a comprehensive legal framework (i.e. long-term management and liability). However, the Act only requires security for 'injection and storage' and 'closure and post-closure'. Furthermore, the Act only accepts an operator for a licence of 'storage' and/or 'waste' up to maximum 5 years. This means CCS operators must renew their licences every 5 years and their ownership and liabilities have never been secured in the whole life cycle system. As a result, it has not yet considered the long-term management post-closure including transfer of site closing and security, and long-term liability (Nakamura 2007; GCCSI 2016b). There are also other issues discussed to date. For example, currently, the Marine Pollution Prevention Act only allows sub-seabed disposal. There is a need for the Act to consider onshore storage, potential utilisation of the Enhanced Oil Recovery (EOR) and various other CCUS usages by learning from other experienced regions and countries such as the EU, Canada and the U.S. The primary focus of the Act is to regulate the environmental and safety aspects regarding CCS deployment. Thus, it is important to consider the CCS technology as a significant tool of climate change mitigation activities and to make a clear role for it to play in meeting the policy direction and goals, so that policy allows us to encourage the further technological development and implementation. In order to achieve safe operations as well as to secure interest and potential benefits of operators, it is necessary to consider the mining law, however, there is an absence of the requirement to obtain a permit for site selection for CCS under the current Act. Furthermore, the Act was made in response to the London Protocol; it thus considers CO₂ for the sub-seabed disposal, defined as 'the specified CO₂ gas'. There is a need to clarify the characteristics of CO₂ substance (Horiguchi 2017; Havercroft 2016; Gibbs 2016).

With regard to the issue of environmental impact assessment, CCS projects are outside the scope of the current Environmental Impact Law in Japan. Under the Act, a potential operator is required to prepare the relevant data in compliance with the Marine Impact Assessment, in response to the London Protocol. Thus, there is a lack of opportunity for public involvement for stakeholders such as locals and fishermen living in close proximity to project sites (Yanagi et al. 2017b; GCCSI 2016b; Gibbs 2016). Given this, there has yet to be a comprehensive legal framework for commercialising CCS technology.

6 Key Development Aspects of the Policy and Legal Framework

Our study in the following addresses three key approaches to developing the current policy and legal framework for CCS in Japan, namely (1) strategic policy direction, (2) options for a legal framework and (3) tools for policy and legal development.

6.1 Strategic Policy Direction

The first proposed approach is strategic policy direction. As the Japanese government has set the mid-term target of 26% GHG-emissions below 2013 level by 2030, and the long-term target of an 80% reduction of GHG emissions by 2050, it is important for the government to address a clear direction of national climate policy, including future CCS deployment in this state. In this regard, firstly, the roles and target settings specifically for CCS technology should be clearly addressed in the climate/energy policy (Yanagi et al. 2017c). Secondly, it is important to set up a technological road map. There are three stages to be considered including Research & Development stage (short-term), Demonstration stage (medium-term) and Commercialising stage (long-term). Each stage has different issues, such as during research and development stage, a need for preparing a strategic plan for CCS, addressing the role of CCS for social acceptance, and reviewing technical feasibility; during the demonstration stage, a need for establishing evaluation method for leakage risk and environmental assessment, safety guidelines for full chain projects, cost efficiency and financial support; during the commercialising stage, establishing legal framework (e.g., permit system, long-term monitoring process, liability, closure and post-closure) (Yanagi et al. 2017d). Thirdly, it is necessary to consider the balance between reducing GHG emissions as promotion, and managing and controlling CCS activities as restriction. The main purpose of commercialising CCS is to reduce the GHG emissions. However, it is also essential to identify and manage practical issues of the activities including capturing, transfer pipelines and storage system. The activities potentially create environmental damage (e.g., carbon leakage, cumulative impacts from the infrastructures, and unforeseen events). Thus, it is necessary for us to balance the value of implementing the technology as well as ensuring environmental protection in order to accomplish a comprehensive legal and regulatory framework (Nakamura et al. 2017). Lastly, financial and/or incentivising mechanisms are also crucial elements for CCS deployment. The technology needs a huge cost and financial support, otherwise operators, investors and governments will not be motivated to deal with the innovation.

6.2 Options for a Legal Framework

The second proposed approach is options for a legal framework. In terms of restructuring the existing legal framework to make a more comprehensive approach, we have identified a number of key issues under the current Act, which are: options for site selection and financial incentives for operators; the level of information disclosure and public understanding; a process of site closure and post-closure; conditions of transfer of liabilities between operators and state. In this regard, we have selected two legal frameworks, which are: ‘a regulatory model’; and ‘a public-work model’. A regulatory model focuses on ‘command-and-control’ for CCS activities, thus the purpose of the model will consider how the Act restricts the operators and their CCS activities (Yanagi et al. 2017c, d). The main features of the model are: permitting a project, operator is responsible for the implementation; transferring the responsibility to the state after the closure period. However, a number of experiences in other countries such as the U.S. and Canada, are closely linked with existing EOR (Enhanced Oil Recovery) and its incentive mechanism. In Japan, industrial opportunities for EOR do not exist, thus an extra incentive mechanism from the EOR activities will not be realistic. This shows that a potential operator will have a financial risk during their operation. Thus, private entities will not be motivated to CCS activities. Moreover, in terms of ‘transfer of liability’, there is no existing regulation and experience relevant to ‘the transfer of liability’ (Yanagi et al. 2016). Thus, it may be difficult to set a specific legal requirement for it in this country. On the other hand, a public-work model focuses on a joint approach to operating CCS projects between operators and state. This model mainly offers: sharing expense between operators and state, operators hold ownerships and management duties and fiscal support is provided by public levy (e.g., polluter pays). This model may also create an efficient administrative process such as site selection database managed by the State. Furthermore, both state and operators will implement CCS projects actively and aim at domestic mid and long-term goals, due to sharing the responsibility and accountability. Furthermore, the implementation of the project should be entrusted to operators and the state should only supervise the project. In this way, a public-work model can potentially motivate public entities rather than a regulatory model (Yanagi et al. 2017c, d). Moreover, if the state is involved in the activities, it may result in enhancing a global commitment, which will enable the government to create political commitment, leadership and public understanding. However, both models will need to be further discussed and optimised during the political decision. Three ownership scenarios for CCS operation in theory and a basis for regulatory (private ownership) and public work models (public ownership and private & public ownership) with thirteen key elements of CCS operations, applicable in the Japanese context can be differentiated (Tables 29.1 and 29.2).

Table 29.1 Three ownership scenarios for CCS operation in theory

Scenarios	Ownership	R&D stage (short-term)	Demonstration stage (medium-term)	Commercial stage (long-term)
1st Scenario	Private Ownership for CCS Operation	Government/ Public + + +	Government/ Public ++	Government/ Public None
		Operators +	Operators + +	Operators + + + +
2nd Scenario	Government/Public Ownership for CCS Operation	Government/ Public + + + +	Government/ Public + + + +	Government/ Public + + + +
		Operators None	Operators None	Operators None
3rd Scenario	Private associated with Government/Public Ownership for CCS Operation	Government/ Public + +	Government/ Public + +	Government/ Public + +
		Operators + +	Operators + +	Operators + +

Adapted from Nakamura et al. (2017)

“+” indicates the degrees of responsibility for cost, risk and benefit

The scenarios cover a full chain process (i.e. capture, transport and storage)

CCS Infrastructures such as pipelines and storage facilities are based on the government/public ownership and management

Table 29.2 A basis for regulatory and public work models

Key elements of CCS operation	Regulatory model (Regulating CCS Operation)	Public-work model (Promoting CCS Operation)	
Ownership	Private ownership	Public ownership	Private & public ownership
Plan/Licence application	Private	Public	Public
Funding	Private	Public	Private/Public
Site selection & drilling	Private/Public	Public	Public
Carbon separation and capture	CO ₂ Emitters	CO ₂ Emitters	CO ₂ Emitters
Transport	Private	Private/ Public	Private/Public
Injection and storage	Private	Public	Private/Public
Monitoring	Private	Public	Private/Public
Closure period	Private	Public	Private/Public
Maintenance for post-closure period	Private	Public	Private/Public
Long-term liability (transfer responsibility)	Private ⇒ Public	Public	Public
Corrective measures for CO ₂ leakage and unforeseen events	Private/Public	Public	Private/ Public
Authority	National Government	National Government	National Government

Adapted from Yanagi et al. (2017d)

6.3 *Tools for Policy and Legal Development: The Role of SEA and EIA*

The third approach is tools for policy and legal development. As mentioned previously, it is essential to optimise various options for policy and legal development. However, CCS projects involve complex mechanisms such as long-term liability issues, which need to be overcome before commercialising CCS. In terms of optimising potential policy and legal frameworks, we have identified the importance of Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA). IEA-GHG (2007) acknowledges that SEA assists in the policy and planning stages of the whole CCS project life, EIA ensures the baseline of project performance especially for the permit stage, and considering a monitoring process takes the place of EIA and ensures the sustainable management for the life cycle.

SEA potentially helps to address the role of CCS in policy, plan and programme. SEA creates an opportunity to share the views with public, stakeholders and public entities for the knowledge and benefits from the economic, social and environmental aspects (Yanagi et al. 2017a). CCS is still a relatively new concept, and as such, available data are sometimes incomplete or uncertain, so absolute conclusions need to rely on qualitative sources. An adequate plan for CCS work will ensure no major environmental effects. This also emphasises the fundamental requirements of careful site exploration and selection, and relevant operational and monitoring procedures as discussed above (Koorneef et al. 2008). Furthermore, SEA also creates the right level of understanding and context for CCS before EIA proceeds and is of paramount importance (IEA GHG 2007 p. 42). SEA would thus play an important role in the early development and site exportation/selection phases within the life cycle.

EIA plays a role in not only addressing the environmental impact of projects for the license permit, but also in creating a basis for monitoring criteria for a whole project life cycle. A project plan associated with EIA must be prepared by an operator, including the most relevant data (e.g. project description, project duration and site-characteristics) both for commissioning and decommissioning phases, while ensuring long-term risks and corrective and remedial actions (IEA-GHG 2007). In theory, EIA should be strictly required to address potential environmental impact (i.e. cumulative impact, adverse impact, potential leakage risk, corrective and remedial measures, and Monitoring, Measurement and Verification: MMV program) (EC 2008). Furthermore, without the clear details in an environmental plan and/or environmental statement (ES) and without a shared vision with the community through a public consultation, any commercialised CCS deployment ideally should not be permitted (IEA-GHG 2007; APEC 2012). Thus, EIA involves more practical ways in terms of accepting and managing the CCS projects towards the operation phase, which will be a basis for the whole project management especially for the baseline of an MMV plan for operation, decommissioning and post-closure phases (IEA-GHG 2007; Alberta Energy 2013). Given this, SEA and EIA could potentially assist in optimising a policy and legal framework by addressing not only policy

direction but also specific legal and regulatory requirements in order to commercialise CCS technology in Japan.

6.4 A Need for Beyond Domestic Efforts

With regard to finding ways to improve the existing CCS policy and legal framework in Japan, we addressed three key development aspects namely: policy strategy, options for a legal framework and roles of SEA and EIA. The details of the approaches will need to be further discussed and their outcomes will not be achieved without political decision, leadership and willingness. Beside these considerations as potential CCS policy and legal approaches in Japan, it is also necessary for us to review a fundamental issue in the Asia-Pacific region towards a low/zero carbon society. In this regard, Japanese initiatives on commercialising CCS will not provide the answer, which is incomplete and incomprehensive for the whole region. As mentioned previously, there is a lack of regional approach to achieving global GHG mitigation activities in the current global status. The Asia-Pacific region has also become a critical area of being the largest contributor to growing the emissions by rapid economic, population and consumption growth with high dominance of fossil fuel energy demand and supply. Climate leadership taken by the developed countries in the region such as Japan is necessary. However, it is expected that efforts from them alone will not achieve the meaning of regional action. There is a need for building a polycentric approach in the Asia-Pacific region by facilitating bilateral and regional forums and/or agreements, while promoting, transferring and accelerating climate policy learning of mutual benefit to neighbouring countries as well as considering the unique geographic context (Crowley and Nakamura 2018). Thus, it is essential for us to find ways to realise a low/zero carbon society in the region. The following section will attempt to draw a list of potential approaches to a low/zero carbon society and its CCS development in the Asia-Pacific region.

7 Towards Realising a Low/Zero Carbon Society in the Asia-Pacific Region

7.1 Towards a Low/Zero Carbon Society

In terms of creating a low/zero carbon society in the Asia-Pacific region in broad terms, firstly, there is a need for a regional action for climate mitigation activities. One of the major failures of past and current global climate action including the Kyoto Protocol, Post-Kyoto and Paris Agreement is filling the gap between global and domestic actions. This is why our current and future global commitments will urgently need to address a regional action. In this case, it is very important to have a

regional action in the Asia-Pacific region. Secondly, it is important to set target settings not only for individual countries but also regions and to require obligatory meeting targets, so that a strong solidarity will be encouraged and promoted, which may bring political willingness of each country. Thirdly, once a regional target is set, it is necessary to maximise opportunities for GHG reduction tools (i.e. CCS/CCUS and renewable energy sources) in the region by setting their own regional goals, so that the role of each technology will be clarified towards meeting the regional target. Fourthly, it is also important for the countries within the region to build a regional governance, including bilateral and/or multilateral ones. This may create opportunities for establishing an ‘Asian Union’ and ‘Asian Commission’ (e.g. the European Union: EU and European Commission: EC). An ‘Asian System of Financial Supervisors’ might be officially set up by learning from the experience in the EU (e.g. the European System of Financial Supervision: ESFS). However, it is important to note that it is not easy to transfer the EU’s system to the Asia-Pacific region due to no existing regional institutional framework there and its different geological backgrounds and circumstances (Crowley and Nakamura 2018). Lastly, it is necessary to create a regional financial mechanism for funding and incentivising opportunities for low/zero carbon society such as a novel carbon pricing mechanism associated with Emission Trading Scheme (ETS), Carbon Tax and Reducing Emissions from Deforestation and Forest Degradation+ (REDD+). It is crucial to set up a mechanism specifically relevant to the regional context, but it is also important to consider compatibility of harmonising other existing mechanisms such as the EU-ETS.

7.2 CCS Development

With regard to creating a regional framework for expanding an opportunity for commercialising CCS technology within the Asia-Pacific region, firstly, it is important to establish a regional framework and guidelines such as an ‘Asian style-CCS Directive’ by learning from the EU experience (e.g. the 2009 EU Directive on the geological storage of carbon dioxide: the ‘CCS Directive’). Secondly, there is an absence of comprehensive intentional marine treaties in the Asia-Pacific region specifically relevant to CCS (e.g. London Convention/Protocol). This is because many of the countries within the region are not members of the London Convention/Protocol. For example, one out of ten ASEAN countries (namely Philippines) is currently a member of the London Protocol (International Maritime Organisation, IMO 2018). It is thus not easy for all of the countries to become part of it due to the different degrees of political willingness. There may be another law specifically applied in the regional area. Thirdly, the region will need to actively promote and encourage its new market opportunities for the region, such as establishing a novel market platform (e.g. a potential eco/green stock market), funding support (i.e. R&D and the cost of long-term liability), a creation of industrial hub for trading energy sources, CO₂ based commodities, and technological resources. Fourthly, it is also important to establish regional rules for such market opportunities, for example, a

benchmarking of technological resources (such as a Certification of International Organisation for Standardization: ISO) for CCS technologies may be introduced in the region (ISO 2018). Fifthly, it will be necessary to establish physical grids/pipelines enabling transfer and trade of energy and resource commodities (i.e. renewable energy and CO₂). Finally, it is important that each country will then consider how it could take responsibility from the regional framework for CCS. This is because commercialised CCS deployments are never realised without domestic policy, law and regulation.

8 Conclusion

The primary purpose of this study is to illustrate a number of key approaches to developing the existing CCS policy and legal framework in Japan to realise a commercial scale of CCS deployment, based on ongoing research. It has addressed three key approaches for the development, namely: strategic policy direction; two options for a legal framework; and tools for policy and legal development. Firstly, it is necessary for the government to prepare a clear policy role for maximising a best mix technological solution to mitigating the GHG emissions in Japan including the role of CCS (i.e. CCUS), setting specific targets for CCS and technological roadmap. Otherwise, a commercial scale of CCS will not happen. Secondly, we have also proposed two major options for a legal framework, which are 'regulatory-based model' and 'public-work model'. CCS management includes a number of complex issues, especially liability issues. It is thus important to consider the right balance of risk and responsibility for a future commercialised CCS in the nation. This should be further discussed. Thirdly, we have addressed the role of SEA and EIA which could be applied as the useful tools to conceptualise, review and improve the existing policy and legal framework. Policy and legal development for CCS are complicated and bring a new experience to this country. It is thus necessary for government, stakeholders, investors and public to clearly understand the solution. In this regard, the development must be comprehensively considered.

In terms of realising a low/zero carbon society in the Asia-Pacific region, Japanese initiatives on commercialising CCS will not provide the answer, which is incomplete and incomprehensive for the whole region. Our study has emphasised that there is a need for a regional action to maximise the opportunities for utilising low/zero carbon technologies such as CCS. We have addressed a number of key development issues for the future regional action, namely a need for regional governance, institutional arrangement, financial mechanism, and infrastructure and market development. Beginning with addressing climate action of Japan specifically for CCS policy and legal approach and the circumstances of Japan and the Asia-Pacific region throughout our study, this study will continue to contribute to introducing a novel exploration for the future CCS studies in the region, but also to maximise opportunities for the technological options and solutions (i.e. renewable

energy and CCS technologies) towards the future low and/or zero carbon society in the Asia-Pacific region.

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Part IX
Specific Aspects: Framing Ecosystem
Services – Framing, Mainstreaming and
Applying

Framing Ecosystem Services for Sustainability?



Alexandra Langlais

1 Introduction

On the political and legal scene, sustainable development has emerged as a concept of our development that combines a long-term perspective and an integrated approach to economic, social and environmental objectives. It is within the framework of the Brundtland Report entitled ‘Our Common Future’, a report of the United Nations World Commission on Environment and Development, that a definition of sustainable development has been widely disseminated. According to this definition, ‘Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future to meet their own needs’ (World Commission on Environment and Development 1987, pt 27). In the same report, “in its broadest sense” sustainable development is also defined as “harmony among human beings and between humanity and nature” (World Commission on Environment and Development 1987, pt 81, chap. II).

More recently, it is the notion of ecosystem service (ES) that has gained political and legal recognition, especially after the high visibility of the Millennium Ecosystem Assessment (MEA 2005). In 2000, Kofi Annan, Secretary-General of the United Nations, published his report “We the Peoples: A UN for the Twenty-First Century” (Annan 2014). Among its recommendations is the “ecosystem assessment”. At its request, a working group was set up in 2001 with more than 1360 experts from all over the world, whose main objectives were to assess the consequences of ecosystem change on human well-being and to establish the scientific basis for implementing the actions needed to improve the conservation and sustainable use of these systems, as well as their contribution to human well-being. The results of this evaluation were disseminated in a report, in particular in the form of a synthesis (MEA 2005). This

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report is at the origin of the popularisation of the concept of ecosystem service, where it was defined as “benefits people obtain from ecosystem”. A typology of ES has been proposed by the MEA distinguishing between provisioning services (food, building materials, etc.), regulating services (water cycle, air renewal, etc.), cultural services (amenities, recreation, etc.) and support services (genetic diversity, habitats for species, etc.). In 2010, ES will again be in the spotlight after the presentation of the synthesis report of the TEEB study (The Economics of Ecosystems and Biodiversity) (TEEB 2010a) at the COP 10 of the Convention on Biological Diversity (CBD) in Nagoya (TEEB 2010a). This global study launched by the G8 and five other countries provides guidelines for the economic value of natural capital and the “dividend that society receives from natural capital” (TEEB 2010a, p. 9), with dividends being ES. In order to make the economic value of nature visible (TEEB 2010a), now referred to as natural capital, the work carried out in the TEEB study aims to put into perspective “the global economic benefit of biological diversity, the costs of biodiversity loss and the failure to take protective measures in relation to the costs of effective conservation” (TEEB 2010b, back cover).

Although revealed at different times, sustainable development and ES are two concepts that have a similar philosophy. However, some differences can be highlighted. The logic of sustainable development is to start from the human to evolve towards nature, while that of ES is the opposite: it starts from ecosystems and moves towards human well-being. However, these differences of opinion may be complementary. Indeed, focused on human beings and their future, the definition of ES highlights their needs. Several theories attempt to explain these needs. Substantialist theory establishes a hierarchy between needs. At the base of a pyramidal hierarchy, according to Abraham Maslow (Maslow 1954), are the basic needs. The latter corresponds to objective and universal needs that do not depend on individual preferences or social context. By contrast, socio-cultural theories consider that these needs, including those identified as fundamental, are socially determined and therefore satisfied in a variety of ways depending on the time and type of society (Malinowski 2001). But, in reality, the satisfaction of these needs, whatever their conception, depends largely on the contributions provided by ecosystems for food, shelter, clothing and heating. This is precisely what the MEA has sought to highlight. Indeed, the main conclusions of the MEA very clearly identify the environmental pillar of sustainable development as THE condition for meeting these needs. Moreover, by focusing on environmental assessment on ecosystem functions and their relationship to human well-being, the MEA underlines the special place of the environmental pillar of sustainable development. One of the findings of this assessment is that the continued degradation of ecosystem functions is ‘a barrier to achieving the Millennium Development Goals. The post-2015 development program entitled “Transforming our world: the 2030 Agenda for Sustainable Development” (UN 2015) took note of this conclusion. Indeed, particular attention is paid to the protection and restoration of ecosystems. For example, objective 15 is entirely dedicated to terrestrial ecosystems.

However, highlighting the environmental pillar of sustainable development is not necessarily new in itself. Moreover, the MEA can be seen as a reminder to consider

the environmental dimension of sustainable development. Indeed, “ensuring environmental sustainability” had been included in the Millennium Assessment as the seventh of the eight Millennium Development Goals (MDGs) to be achieved by 2015 (UN 2015). This is reiterated in the key messages of the new IPBES report of 6 May 2019, which is to serve as a reference framework for the development of the future global framework for biodiversity post-2020 (IPBES 2019). At the same time, the 2030 Agenda is still based on a requirement for interrelationships between the three pillars of sustainable development, as set out in the 17 goals and 169 targets, which are considered as “integrated and indivisible” (pt 5). In other words, no hierarchy or priority is envisaged between these three pillars. However, this requirement of interrelationships between these three pillars, which is at the heart of sustainable development, has been widely criticized because it remains very vague and not very operational when it comes to making concrete choices and trade-off (Mauerhofer 2016; Bodiguel 2018). In view of the MEA’s ambition to propose a new key of understanding for decision-makers that will facilitate their decision-making choices and, above all, the entry of the concept of ES into the legal corpus, it seems appropriate to open up reflection on the capacity of ES to help resolve conflicts by promoting a hierarchy of interests that are sometimes or often not reconcilable and thus to reach arbitration. Some authors’ comments could support this. In particular, J.B Ruhl underlines, that the legal consideration of ES introduces the importance of nature for human well-being at the heart of environmental law. According to the same author, this evidence would therefore now form part of the law (Ruhl et al. 2007; Ruhl 2015). In addition, the author also points out that this consideration of ES makes it possible to propose concrete political and legal solutions (Ruhl 2015).

However, while the literature on ES, including the legal literature (Mauerhofer 2018a, b), is exploding, it remains largely focused on analyzing the representation of the human-nature relationship conveyed by the notion (i.e. an anthropocentric and utilitarian vision). The literature is less oriented towards the legal added value of this concept and the legal consequences of an introduction into the law. However, such a review would be useful in identifying how ES might or might not evolve the current legal framework towards more sustainable development. This chapter, therefore, proposes to work on the synergy between sustainable development and ES and to analyze the potential of ES in decision-making for sustainable development. The reflection will be conducted from a legal point of view, taking into account the legal scope of ES. It will focus on the legal effects arising from the different ways in which ES is taken into account by law.

A first part of this chapter will focus on the legal strength of the concept of ES based on the concept of legal category. More specifically, it will analyze whether ES can be considered as legal categories in itself. Legal categories are classes or set of facts, acts, objects to which the legal norm attaches legal consequences or effects. In this sense, they constitute the very basis of the functioning of the law by making it possible to order and make the legal system coherent. Thus, phenomena and things of the same nature are classified in the same categories to which are attached specific legal rules. The interest of identifying whether or not ES is eligible for this classification, even if this operation remains delicate, allows us to focus on the presence of

direct and specific legal effects resulting from the introduction of ES into the legal corpus. In other words, do they have a legal regime to prescribe, prohibit or authorize behavior related to ES and thus be directly mobilized by judges or administrative authorities? Have they binding effects?

On the basis of criteria identified as likely to establish the existence of such a category (the clarity and coherence of the concept on the one hand and its stability on the other), this section will conclude that, as it stands, ES can hardly imply direct legal consequences favorable to sustainable development. The second part of this chapter will focus on the fact that an approach based on the legal qualification of ES is not the only possible legal approach. While the entry of ES does not necessarily materialize through direct and binding legal effects, the concept is not without legal effectiveness. Through its message of a dynamic interaction between humans and the ecosystem, the notion of ES could influence the way in which environmental management and protection are designed and promoted by inviting reflection on this interaction at the ecosystem level. Through the ecosystem approach, it conveys, is the notion of ES likely to initiate or reinforce the necessary legal changes towards more sustainable development? The question arises, in reality, in other words, since there is already a recognized ecosystem approach that promotes sustainable development. This approach, which is now considered to be the framework for action under the CBD, was first adopted at the first United Nations World Conference on the Human Environment in Stockholm in 1972. On that occasion, in the name of sustainable development, it was considered necessary to strike a better balance between socio-economic development and environmental conservation, in particular by creating integrated approaches that could include conservation and environmental issues. Therefore, it is more appropriate to question the articulation between these ecosystem approaches. This section will highlight the strengthening of the ecosystem approach through legal consideration of ES but also the associated risks.

2 Ecosystem Services: A New Legal Category with Direct Legal Effects for Sustainable Development?

The challenge of law does not lie in a description of all ES but in the relevance of the legal effects on maintaining or improving ES. Insofar as the notion is invited in positive law, it is natural to question the legal effects attached to this notion. The legal rules that would be attached to ES derive from a legal qualification exercise, itself closely linked to legal categories. However, not all categories of things, persons, events or even legal concepts “necessarily constitute legal categories, even if they are defined or used by law” (Cumyn 2011, p. 369, translated by the author). However, if it is a legal category, it must be able to act as an interface between a set of factual situations and a set of legal rules forming a legal regime. Such a legal regime should lead to prescribing, prohibiting or authorizing specific

behavior with regard to ES. To this end, the notion of ES could be directly mobilized by judges or administrative authorities.

The law must systematically balance the requirements of its own legal system with an adaptation to data or knowledge external to it (Commaille 2015), which may come from natural sciences but also economic and social sciences. This can result in the introduction of new concepts, such as those of ES. However, “it is not enough to include a term in a legal text to make it a legal term”, particularly in the case where this term is too vague “to be effective in positive law” (Rémond-Gouilloud 1997, p. 76, translated by the author) and thus produce direct legal effects. In this case, ES could be expected to refer to content that is both clear and coherent (Sect. 2.1) and stable (Sect. 2.2). However, these conditions do not seem to be in place to establish ES as a legal category and thus to attach to this notion direct legal consequences favorable to sustainable development.

2.1 A Notion that Lacks Clarity and Coherence

The lack of clarity and coherence of the concept of ES is mainly due to two factors: the existence of several different legal definitions on the one hand and a concept that embraces different legal realities, realities that obey different legal qualifications on the other.

First of all, with regard to the lack of clarity of the concept of ES, this can be associated with the fact that these services are legally defined in a different way. In reality, this phenomenon is common in law. It is not uncommon for a general definition to be specified and therefore differentiated to address all the legal issues that may arise. Rather, the difficulty lies in the fact that these differences in definitions seem to be more characterized by temporalities associated with before and after MEA and before and after TEEB and less by a desire to make a definition of services coincide with a specific legal question. At a first step, the definition effort made in 2004 in particular by the so-called Environmental Liability Directive – ELD (EU 2004) could easily dismiss the criticism of the lack of a legal definition of services. Indeed, article 2.13 ELD defines the notion of service as being “the functions provided by a natural resource for the benefit of another natural resource or the public”. However, far from providing clarification, this definition complicates the judicial horizon. In fact, on the one hand (Doussan 2009; Hervé-Fournereau and Langlais 2013) the service is defined more broadly than by the MEA, which is currently emerging in the scientific and political arenas. In particular, this has resulted in the fact that it not only concerns the services provided for mankind (reference made to the public) but also those provided to the natural resources among themselves (reference made to another natural resource). One of the explanations is based on the subject of the text containing this definition. Indeed, it is a matter of “pure” environmental damage, in other words, a series of damages existing independently of any violation of human interests. However, it does not potentially address all the ES listed by the MEA since natural resources are defined as:

“protected species and natural habitats, water and land” (art 2.12). This choice can be explained by the European Union’s desire to limit the extent of the environmental damage concerned. On this point, the ELD definition also differs from the definition specified in the so-called Invasive Alien Species Regulation (short IAS-Regulation) (EU 2014). Indeed, this definition coincides with that adopted within the framework of the MEA and is defined as follows: “the direct and indirect contributions of ecosystems to human well-being” (art. 3–6).

On the other hand, the ELD-definition tends to confuse the notions of service and of function. Is function here understood in an ecological sense or according to a common understanding? If the ecological meaning is correct, several authors distinguish the function from the service. Indeed, a function represents the potential of an ecosystem to provide a service that depends on ecological processes and structures (De Groot et al. 2012). This is an obvious source of confusion when other authors see the services as being the functions of ecosystems that are useful to humans (Kremen 2005; Jax 2005; Luck et al. 2009). This last definition would tend to come close to the function generally seen as a role, the ecological role of the ecosystems. In this case, the ecological role is just one role among others alongside the economic or social role. In this hypothesis, the notion of function would ultimately highlight the different facets of the service provided. In this case, the service effectively would tend to get confused with the idea of the function that it has eclipsed. Consequently, if the legal definition opts for the second approach and characterizes the service from the functions provided by the natural resources, there is reason to question the legal pertinence of the notion of service. Taking account of the functions alone could prove to be insufficient in itself. The legal definitions adopted seem to fuel scientific controversies on the one hand. On the other hand, the emergence and evolution of legal definitions of ES coincide strongly and naturally with the emergence and subsequent recognition of authoritative work, namely the MEA and the TEEB report. Therefore, the existence of differences in definition would be less a question of serving different environmental objectives than to respond to, for example, political developments in the concept of ES.

Secondly, with regard to the legal consistency of the concept of ES, this terminology may not have the desired legal consistency insofar as it may refer to several different legal realities, for example, with regard to the property right. Indeed, the ES may respond to different legal qualifications depending on whether one focuses on the result of an ecosystemic process or on the process itself. In the first case, the provisioning services (the production of wood or food) may easily relate to the legal qualification of “products” or “fruits” in French private law. These provisioning services differ from the support and regulating services, which themselves relate to ongoing processes. These “services-processes” that we have been able to qualify as “pure ecosystem services” (Langlais 2015, p. 31) cannot take on the same legal qualification as they can not be owned by anyone. In addition, provisioning services are largely the result of a human activity (such as agriculture) that also relies heavily on the functioning of the ecosystem and therefore on the process itself (e.g. pollination) to ensure its production of provisioning services. This reveals the difficulties of taking into account the concomitant production of services and the use

of services to designate two different approaches. To illustrate this, apple production can be used as an example. Apples are a provisioning service. They can be sold. As for the sun or natural light that allowed the apple tree to produce its fruits, these support services cannot be appropriated and sold. The question of whether or not ES are autonomous from the ecosystem from which they originate also raises many questions. The challenge is to determine who will enjoy the benefits from these ecosystems (the owner of the property? All? And to what extent?). For example, the shade produced by a tree can be analysed as an ES in the sense that the branches of this tree shelter humans from the sun's rays and provide freshness. Without utilities for humans and therefore without humans near this tree, there is no service rendered. At the same time, without this tree, there would be no service either. The service is therefore consubstantial with the tree. So, it is not an autonomous entity. The determination of the beneficiary or beneficiaries of this service will depend largely on the conditions of access to this service. If the tree is located on private property, the owner will be the privileged or even exclusive beneficiary of the service provided by the tree. But, if the same tree is located on the edge of a private plot and shades a bench located on the public road, the service will be accessible to anyone wishing to use it. The owner of the parcel of land may not restrict the use of this service except by cutting off part of the branches of this tree. The legal categories relating to property rights can therefore accommodate the issue of ES and therefore attach direct legal effects to this concept (Ruhl et al. 2007).

However, pursuing this logic, i.e. a logic intended to determine the rules of ownership against them, does not make it possible to explore all the legal aspects of ES. Determining who will be able to enjoy and dispose of them leads us to focus solely on regulating their use. In other words, the legal framework for ES would be considered mainly in terms of their use and less in terms of their production. The legal developments relating to services seem to confirm this. In this sense, ES is essentially considered in the context of ecosystem damage. In this case, it is a matter of identifying the losses of well-being. It is generally in this case that the services are appreciated, namely at the time of their loss and therefore of the deterioration of the ecosystems (WRI IIED 1986). For example, this logic can be found in the framework of EU's Environmental Liability Directive (EU 2004). It's also the case in the framework directive on the strategy for the marine environment of 17 June 2008 (EU 2008) where ES is identified as a component of marine pollution (art. 3.8). Following this logic, by a decision from 2018, the International Court of Justice (ICJ 2018) decided for the first time to award compensation for the degradation of goods and services rendered by nature, in addition to the costs of restoring damaged nature. In this case, Nicaragua was ordered to compensate Costa Rica for environmental damage resulting from the excavation of two canals in an area that proved to be under Costa Rican sovereignty. However, the Court refused to opt for the so-called ecosystem services method as a method of assessing the environmental damage of the case. On the one hand, it was because "international law does not prescribe any particular valuation method" and on the other hand, it was because it's necessary to "take into account the specific circumstances and characteristics of each case" (ICJ 2018, para. 52). The judges did not go all the way. However, they did emphasize a

more open approach to a service-based approach without enshrining it. This reflects a certain caution on the part of the judges and the non-universal nature of the service-based approach. This same observation has been made in several legal systems (Sharon et al. 2018).

More than the understandable difficulty of the law in defining ES, the fact of not having stabilized, at least in legal terms, this uncertain notion before incorporating it within the law, risks increasing a probable legal insecurity. Indeed, the extent of the legal protection of ES could in reality largely depend on other disciplines than the law.

2.2 An Unstable Notion, Dependent on Advances and Doubts in Ecology and Economics

When considering the latitude afforded to the disciplinary fields at the origin of the notion of ES (Braat and De Groot 2012), it is not a question of partitioning the law or extracting the influence of the sciences of ecology and economics. Rather, it is a matter of putting into perspective the risks of introducing a controversial and scientifically unstable notion into the law. From an ecological perspective as well as from an economic perspective, the weak grip of the law with respect to ES has implications for the content of the law, its nature, and also its robustness.

First of all, the differences dividing ecological sciences around the notion of ES do not provide a stable support for environmental law. Environmental law has a close relationship with the ecological sciences. This relationship is especially reflected by the insertion into the law of notions or concepts from ecology and by the use of technical and scientific knowledge to guarantee the implementation of legal instruments. And yet, in either case, the reference to ES is a source of difficulties.

With regard the first link between ecological science and law, it concerns the insertion of terminologies and concepts that are outside the law, borrowed from ecology. The law is brimming over with notions that are external to it and borrowed from science. That is the case with biotopes or ecosystems. These terms are not often defined and, when they are, these definitions are often not directly usable for law. When they exist, these definitions effectively set out a scientific reality. However, these notions, whether defined or not, relate to a known scientific framework of reference which does not initially belong to legal language. In this case, the terms of ecological science make up for the inadequacies of the words of the law (Labrot 2007). As concerns ES, a difficulty may arise from the fact that this notion does not only come from the contributions of ecology. The production of ES is only one aspect of this concept. The one relating to use was rather addressed by the economy. Nevertheless, for the ecological part, there are many controversies that divide ecologists on the notion of services. The scientific controversies of ES are necessary without being a brake for political action. Indeed, a political choice,

visible in the law, can be made to choose the scientific approach that will best fulfill the objectives of a policy for the protection and management of biodiversity. In the case of ES, this choice does not appear to have been made, in particular, because it is not clearly apparent in the existing legal definitions. And yet, this definition stage would make it possible, in particular, to determine the associated scientific foundations that would be associated with it and thus to clarify the use of the notion in law.

As regards a second link between law and ecological science, this was created from the need to use scientific and technical knowledge to ensure the implementation of legal instruments. Here again, this relationship between ecology and law may be out of step since the purpose of ecology here is to study the functioning of the ecosystems and not the utility for human with regard to this functioning. So, is the legal treatment of scientific data as scientific uncertainty still be considered part of an ordinary relationship between ecological science and law? For example, how will knowledge discovery methods for ES be identified and characterized? How is the lack of scientific knowledge concerning ES going to be considered? In this case, is the method of dealing with scientific uncertainties, which does not normally constitute an insurmountable obstacle for the law in itself, in particular by means the precautionary principle, still valid? This line of questioning takes on crucial importance since “the law, by its very nature, leans towards the reduction of uncertainty, the security of the foreseeable” (Le Goff 2008, p. 106, translated by the author).

Secondly, with regard to economic sciences, the second discipline at the origin of ES, economics sciences, with in particular the work of Costanza (Costanza et al. 1997), are rapidly finding their place in the decision-making process dedicated to the services. Indeed, the total monetary value of the services announced, even if it is an approximation and therefore open to question, could have an impact on decision-making (Fisher et al. 2009). If it is a matter of estimating the “free” dimension of nature, the decisions that concern it can be ranked according to this monetary framework of reference and thus make the task of decision-makers easier. This order of monetary value can therefore easily supplant any legal rationality with a “harmony based on calculation” or the quest for “a new normative ideal that aims for the efficient achievement of measurable objectives rather than obedience to just laws” (Supiot 2015, back cover, translated by the author).

The economy quickly took on the notion of ES to highlight our dependence on nature by using a monetary valuation of the different services. The purpose of the monetary valuation is to make visible to the market system what previously fell within the “free of charge” category. However, the instructive property of the monetary valuation quickly evolved into concern in the face of the hypnotic and facilitating power of the monetary reference likely to rule out all other forms of value (Redford and Adams 2009; Teillac-Deschamps and Clavel 2012). Furthermore, this approach was required, even though the methods for calculating these monetary reference points were subject to discussion. In addition, criticisms were made against the “commodification of nature” (Mc Afee 1999; Dempsey and Robertson 2013). These criticisms were further enhanced by the emergence of economic tools, such as payments for environmental services (PES). PES was originally defined as a voluntary transaction for a well-defined ecological service, with at least one buyer, at least

one provider, and based on the condition that the buyer(s) only pay(s) if the provider(s) continue(s) to deliver the defined ecosystem service over time (Wunder 2005). PES were initially reserved for the conservation of forest of countries hosting a significant biodiversity. Then, they were qualified as payments for ecosystem services after the MEA. The link between the notion of ES and PES was created in this way, especially after the TEEB report (Langlais 2017). In all cases, these developments above confirm all a marked preference by the policies to use economic instruments rather than the traditional regulatory instruments, those of command and control. This trend is nevertheless not specific to the ES as it actually concerns all of environmental law. For example, in European Union law, this development was illustrated in particular in a Commission Green Paper of 28 March 2007 on market-based instruments for environment and related policy purposes (EU 2007). Green Papers of the European Commission aim to initiate a debate on a theme not yet addressed by European policies. This evolution marks a greater opening to a law of another kind, than that of command and control, a more flexible law but also an instrumentalised law to respond to an economic vision of the preservation of biodiversity. In this context, the place that the PES occupies or would occupy would tend to dissipate the fog associated with the legal effects of ES into the law. It depends on the legal nature of this tool which should also, in turn, contribute to the judicial implementation of ES (Langlais 2019).

The difficulty for law to receive ES as a new legal category with a set of specific legal rules may indeed lay in the absence of a definition that would allow it to assert and complete its legal framework for the protection of biodiversity and to participate fully in the objectives of sustainability. To this sense, the main difficulty may be due to the fact that ES is partly derived from figurative language: nature provides services. And yet, “the images are like distorting processes and play like real epistemological obstacles to the development of the concept” (Doat 2007, p. 184, translated by the author). This means that the use of images and metaphors is likely to increase the ambiguity of the law (Doat 2007). However, such a legal definition is not necessarily desirable. Indeed, an overly strict legal definition and/or regime may freeze the choice of decisions to be taken and thus the management of a given ecosystem. Likewise, being enshrined in law but defined in an unconvincing way may limit, at least initially, whether the legal identification of ES serves as a “support for proprietary appetites” (Rémond-Guilloud 1997, p. 81, translated by the author). This analysis was done by that author on biodiversity. Finally, a legal categorization of ES is likely to once again compartmentalize an environmental law (Voigt 2013) that the ecosystem approach is supposed to combat (Hervé-Fournereau and Langlais 2013). However, the legal consideration of ES in support of decisions for sustainable development can, therefore, be expressed in ways other than the creation of a new legal category or, more broadly, the desire to qualify them legally. Indeed, the lawyer may also need “new metaphors because classical doctrine favors static metaphors such as the pyramid of orders, pillars, bases, foundations, while law becomes both interactive and evolving” (Delmas-Marty 2009, translated by the author). Therefore, it is necessary to focus on this pictorial form to extract its interest (essentially factual) and to think of it in terms of the ecological system (the ecosystem) but also the legal

system. This implies focusing not only on ES and their legal qualification but also on what they promote and convey: an ecosystem approach. In turn, this requires an analysis of how the legal system treats or can treat this approach. Such an approach has already been enshrined in the CBD. Does the legal consideration of ES contribute to renewing this approach and strengthening decision-making for sustainable development?

3 A Renewal of the Ecosystem Approach by Taking into Account the Legal Aspects of Ecosystem Services?

Thinking in terms of ES means focusing on some of the concrete or expected contributions of the ecosystem approach. Indeed, ES comes from ecosystems, which are themselves defined as a “functional unit” by the CBD (art. 2). From a legal perspective, focusing on ecosystem functioning should not be associated with the compartmentalization of ES in legal categories. It would therefore not be a question of creating a new legal classification of nature-based on ES. On the contrary, it is about understanding the ecosystem in its integrity. In addition, the purpose of ES is to put the interactions in the ecosystems on which humans depend into perspective. This interdependence between human and nature refers to a need for protection and integrated management.

Legal consideration of ES can be read not as an invitation to qualify them legally but as an invitation to a holistic and not fragmented approach to the law and to a more integrated model of legal intervention. Through these characteristics, ES, or what they convey, are largely based on the ecosystem approach, which is considered to be “a central principle in the implementation of the Convention on Biological Diversity” (UN 2004, p. 3). Long before the media coverage of ES by the MEA, the ecosystem approach was defined by the CBD as a “strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way” (CBD COP 2000). Therefore, the introduction of ES into the legal corpus could reinforce the use of the ecosystem approach developed under the CBD by providing it with an additional legal basis (Sect. 3.1). In addition, despite the definitional hesitations against them, ES seems to offer a greater “grip on the reality to be governed” (Rémond-Guilloud 1997, p. 79, translated by the author) than biodiversity or environment. To this end, they could help to facilitate the ecosystem approach, which “has proven difficult to define in a simple manner” according to the Executive Secretary of the CBD (UN 2004, p. 3) (Sect. 3.2).

3.1 *Strengthen the Use of the Ecosystem Approach*

Concerning the ecosystem approach, Elisa Morgera was surprised by the paradox concerning it: “The ecosystem approach can be considered the landmark regulatory strategy of the Convention on Biological Diversity (CBD) and other biodiversity-related conventions. While it has had a growing influence in the further development of international biodiversity law, as well as in other areas of international law, legal scholarship is surprisingly thin with regard to the status and implications of the ecosystem approach” (Morgera 2017, p. 70). This may be partly explained by the existence of a weak legal basis. As the same author mentions, “As the ecosystem approach as such does not find a treaty basis in the text of the CBD, it has been the consensus-based normative activity of the CBD Conference of the Parties (COP) that has gradually developed this multifaceted concept into a fully fledged system of soft-law principles and guidelines, that capitalise on previous legal developments in international environmental law but also push its boundaries forward significantly” (Morgera 2017, p. 71). Indeed, the ecosystem approach is specified by a set of twelve principles known as the Malawi Principles and five operational guidelines (CBD COP 2000). The legal consideration of ES is itself based on entry through the ecosystem. It would, therefore, provide an additional legal basis for an ecosystem approach and thus reinforce it. More broadly, it would lead to the consolidation of a way of legally addressing environmental issues through the prism of ecosystem characteristics. This implies new scales of action, taking into account the dynamic nature of the ecosystem (its changes, its relationships inside and outside the ecosystem, its interactions with humans and all other components of the ecosystem) but also its ecological limits (UN 2004). In other words, the entry of ES into the legal sphere provides new legal bases for introducing the consideration of complexity and resilience and, at the same time, greater flexibility (Gunderson 2000; Arnold and Gunderson 2013) into the core of international, European and national environmental law in a more systematic way. Several legal instruments, such as EU’s Marine Strategy Framework (EU 2008), already claim to be based on an ecosystem approach: “Marine strategies shall apply an ecosystem-based approach to the management of human activities, ensuring that the collective pressure of such activities is kept within levels compatible with the achievement of good environmental status and that the capacity of marine ecosystems to respond to human-induced changes is not compromised, while enabling the sustainable use of marine goods and services by present and future generations” (art. 3.1). The EU’s so-called Water Framework Directive (EU 2000) is also based on an ecosystem approach, but does not mention the concept of ES. This is a watershed-based management.

In any case, a greater recognition of the ecosystem approach would imply a wider transformation of environmental law. In that sense, the ecosystem approach has been specifically characterized as a paradigm shift in environmental law and governance (De Lucia 2014; Platjouw 2016). In reality, the issue goes beyond the scope of the environment and invites us to think more widely of contemporary forms of complexity through law (Ruhl 1996a, b, 1997, 1999, 2005; Ruhl and Ruhl 1997; Kades

1997; Delmas-Marty 2008; Alhadeff-Jones 2008). In this case, this greater recognition of the ecosystem approach provides the opportunity not to observe the evolution of a simple structure to a complicated structure but to support it, to consider it in more global terms, and thus to reflect on a legal model that reconciles order and movement (Delmas-Marty 2008). This reflection also calls for a transformation of the legal system to really take into account the issue of preserving biodiversity among the other issues. This naturally echoes one of the key messages mentioned by the 7th IPBES Plenary (IPBES 2019, p. 5): “Goals for conserving and sustainably using nature and achieving sustainability cannot be met by current trajectories, and goals for 2030 and beyond may only be achieved through transformative changes across economic, social, political and technological factors”. Transformative changes have been defined as “A fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values”. However, such a change will undoubtedly generate some resistance from the current legal system. Will states be willing to give up a little more of their sovereignty to the benefit of ecosystem boundaries (Morgera 2017)? Similarly, will States agree to integrate a systemic approach that will profoundly modify their national law?

Beyond the contribution of legal recognition of ES to the valorization of the ecosystem approach, there is also the question of their contribution to the effectiveness of this ecosystem approach.

3.2 Facilitate the Use of an Ecosystem Approach

On the ecosystem approach, the Executive Secretariat of the CBD had written that “Perhaps the most important lesson is the realization that the priority at this time is not in developing further definitions or revisions of the principles. Instead, the priority should be in facilitating the implementation of the ecosystem approach as the primary framework for addressing the three objectives of the Convention in a balanced way” (UN 2004, p. 4). Would the conceptual framework provided by ES (now legally supported) be able to meet this expectation? At least three reasons exist to explore this hypothesis. The first of the reasons is quite simply that the CBD Conference of the Parties itself noted the relevance of the conceptual framework proposed by the MEA for the implementation of the ecosystem approach (CBD COP 2004, para 6 and annex I). The second reason is that the biodiversity action plan, known as the Aichi targets, gives an essential place to ES. However, these Aichi targets serve as a general framework on biodiversity not only for biodiversity-related conventions but for the entire United Nations system (CBD COP 2010, pt 16 and annex). The third reason is that the ecosystem approach not only already incorporates services into its approach but also takes them into account in one of their controversial versions, that of their economic valuation. The purpose of principle 4 of the ecosystem approach, which includes a reference to ES, is to “understand the ecosystem in an economic context” (UN 2004). As such, this principle states that “many ecosystems provide economically valuable goods and services and it is,

therefore, necessary to understand and manage ecosystems in an economic context. Frequently economic systems do not make provision for the many, often, intangible values derived from ecological systems” (UN 2004, p. 14). This link between assessing ecosystem benefits and more effective biodiversity conservation has been revived by the MEA through “increased attention to the contribution of biodiversity to human well-being and development” (Morgera 2017, p. 78; Morgera and Tsoumani 2011). ES could, therefore, be used as a basis for identifying synergies and negotiating trade-offs between human and environmental needs for decisions that support sustainable development. Relying on ES could facilitate decision-making choices within an ecosystem approach.

However, giving such importance to ES is not without risk and also tends to neglect the specificity of the ecosystem approach. Indeed, while both ES and the ecosystem approach are ecosystem-based, they have been built independently (De Lucia 2018). This does not allow us to take their articulation for granted. In fact, several points of vigilance and even divergence need to be highlighted.

The first point of vigilance concerns a reminder of the purpose of the ecosystem approach. This approach was designed to balance the three objectives of the Convention on Biological Diversity, namely conservation, sustainable use and access and benefit-sharing. However, “while balancing the different objectives of the CBD, the ecosystem approach prioritizes conservation with a view to ensuring ecosystem functioning and resilience” (Morgera 2017, p. 72). This is clearly reflected in principles 5 and 10 of the ecosystem approach. An entry through ES will more or less maintain this balance between the three objectives of the Convention. This will depend on the focal point chosen for the concept of ES. Is it based on what determines the delivery of ES or on the benefit it provides and therefore the use made of it? For example, the European Marine Strategy Directive (EU 2008) emphasizes the preservation of ecosystem resilience but links the notion of goods and services to their sustainable use (art. 1.3). While in the guidelines for an ecosystem approach, the CBD Executive Secretariat states that “management for conservation and sustainable use are not inherently incompatible, and can be integrated” (Principle 10, UN 2004, p. 26), this should be understood as a clear invitation not to neglect the ecosystem for itself. This implies thinking about human well-being but also about the well-being of ecosystems because there is a risk of neglecting the ecosystem’s own needs (De Marsily 2013). Moreover, this requires a separate but concurrent consideration of the production and use of ES. Indeed “focusing on the importance of ecosystem processes and functions to the sustained output of ecosystem services does not fully capture what is necessary for a complete description and understanding of ecosystem services—i.e., the use of ecosystem services” (Ruhl et al. 2007, p. 19). The consideration of ES revives here thinking on the orientation of the ecosystem approach: an anthropocentric or ecocentric vision (De Lucia 2014).

A second point of tension concerns another key dimension of the ecosystem approach: that of recognizing that human beings and their cultural diversity are an integral part of many ecosystems. In this regard, the term services applied to nature is precisely not shared by all to express the diversity of the links between man and

nature. It may be incompatible with a sacred relationship with nature, as is the case in many communities in southern countries, particularly animist ones (Sullivan 2009). Associated with payments, the rejection of the notion of services can be exacerbated to the extent that it reflects a commodification of nature for some local populations and indigenous peoples (ALBA nations declare 2010). Moreover, as a result of these concerns and misunderstandings, the conceptual framework of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) has also evolved to promote a pluralistic approach that recognizes the diversity of values (Pascual et al. 2017). In particular, the conceptual framework provided by ES has been considered clumsy by locking this diversity of values into a producer-consumer relationship (UN IPBES 2014; UN IPBES 2017). The term nature's contributions to people is now recognized in the IPBES conceptual framework; its "goes further by explicitly embracing concepts associated with other worldviews on human-nature relations and knowledge systems (e.g. "nature's gifts" in many indigenous cultures)" (Pascual et al. 2017, p. 9).

Finally, a third point of divergence could be related to the inability of ES to actually serve as a basis for discussion to balance human and environmental needs. First, there is a lot of studies that show how difficult it is to really evaluate these services (Small et al. 2017). Second, ES provides a truncated mechanism for equitable negotiation between environmental and human needs. As has been pointed out several times, ES presents an idealistic vision of human's relationship with nature, a vision in which nature is not a source of negative consequences. To overcome this shortcoming, the notion of disservices has been developed without it being fully taken into account in ecosystem valuation, because it's an understudied subject in ecological science (Villa et al. 2014; Döhren and Haase 2015; Campagne et al. 2018). In any case, taking into account only the positive contributions of ecosystems may bias the search for synergies and trade-offs between human and environmental needs that would be at the root of decisions in favor of sustainable development.

4 Conclusion

This paper aims to examine the impact of the legal introduction of the concept of ES on decision-making for sustainable development. Because the MEA places the environmental pillar of sustainable development as a prerequisite for achieving the SDGs, the entry of ES into the national, European and international legal corpus can indeed be analyzed as a means of strengthening but also of facilitating the implementation of the sustainable development objective. The analysis of this impact was carried out taking into account the legal scope of ES.

A reflex of lawyers is to legally qualify any new object or thing by linking it to an existing legal category or by creating a new category. This exercise determines which legal rules apply to this object or thing. The immediate interest of such a qualification is that it makes it possible to determine the behaviors to be prescribed,

authorized or prohibited. Applied to ES, such a direct legal effect could guide behavior towards greater sustainability. However, the attempt to qualify ES did not seem convincing because it would lead to “chosifying” services to compartmentalize them. However, this logic appears not only contrary to the spirit of the MEA, wishing to put into perspective the interactions between human and the ecosystem, but also does not respond to current legal efforts to better understand the complexity of ecological systems. Moreover, because of its still unstable nature, the notion of ES can hardly claim to meet the requirements of a specific legal category as it stands. Moreover, trying to qualify them in terms of existing categories is not without risk insofar as it does not express all the specificities of ES and above all can play into the hands of proprietary appetites. The contribution of the legal integration of ES would, therefore, seem to lie outside the legal qualification of these services. Indeed, the legal added value of ES would have to be found in the ecosystem approach conveyed by ES. However, the terrain is not untouched as an ecosystem approach is now recognized as the framework for action under the CBD. However, far from competing with each other, these two approaches are likely to reinforce each other by legally reinforcing a way of proceeding. The ES approach should also facilitate the existing ecosystem approach. While this synergy of approaches is likely to promote decisions towards more sustainable development, these two approaches nevertheless present disparities that nuance the ability of ES to contribute to decisions in favor of sustainable development.

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Mainstreaming Ecosystem Services as Public Policy in South East Asia, from Theory to Practice



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1 Introduction

Costanza et al.'s (1997) landmark study stunned the world by concluding that ecosystem services (ES) for the entire biosphere provided economic benefits in the range of 16 to 54 trillion USD per year, with an average of 33 trillion USD per year (1994 dollars) (about double the global GNP in 1994). Their analysis synthesized many previous studies done on valuing ecosystem services and the majority of these studies had employed a Contingent Valuation (or Willingness to Pay) method for monetization. In the following two decades, there has been extensive examination of methodologies to monetize ES (Loomis et al. 2000; Turner et al. 2011; Gómez-Baggethun and Ruiz-Pérez 2011; Braat and de Groot 2012; Christie et al. 2012; Costanza et al. 2017), but studies also have evolved beyond monetization to examine other methods (including indicator approaches and participatory mapping) in assessing ES (Christie et al. 2012; Martín-López et al. 2012; Crossman et al. 2013; Kelemen et al. 2014; Scholte et al. 2015; Wong et al. 2015; Loc et al. 2018a). Turner et al. (2011) defined ecosystem services as *aspects of ecosystems consumed and/or utilized to produce human well-being* and more specifically, the Millennium

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Ecosystem Assessment (MA 2005) identified four categories of ecosystem services: (i) supporting (e.g. nutrient cycling, soil formation, primary production); (ii) provisioning (e.g. food, water, fiber); (iii) regulating (e.g. climate regulation, disease regulation, water purification); and (iv) cultural (e.g. spiritual, religious, aesthetic). In this paper, we will keep the MA (2005) categories as our overarching framework.

The concept of ES arguably has emerged, at least in the academic world, as one of the most powerful underpinnings of sustainable development, for instance, as a practical means to reconnect human societies and nature (MA 2005; Bremer et al. 2015); a policy information tool (Beery et al. 2016); or an integrated approach to support decision-making processes (Hansen et al. 2015). Despite its flexibility as an assessment and decision-making tool through its ability to provide quantitative comparisons of the benefits that an ecosystem can provide, ES has not been widely incorporated by practitioners in policy and planning practice (Beery et al. 2016). Although some progress had been made previously in U.S. policy-making, there appears to be a number of barriers to incorporating ES evaluations in development decision-making, including concerns that the concepts are too vague or theoretical to be of practical value (Sitas et al. 2013; Beery et al. 2016) and data gaps that link ecosystem characteristics to final ecosystem services (Wong et al. 2015). These criticisms were commonly applied to the concept of sustainable development more than 25 years ago. Other concerns are that ES is both western-centric and applicable through the lens of a developed country (Christie et al. 2012). By examining the ES practices in Vietnam, Cambodia, Thailand, and Singapore (Fig. 1), we seek to identify current regional conditions as well as barriers to routine application of ES in Southeast Asia and recommend some pathways forward.

A case study approach, which is commonly used in social science research, was employed in this chapter. A case study approach entails both strengths (including the ability to conduct detailed observations that are contextualized and provide a holistic view of complex interactions) and weaknesses (the most common being selection bias and therefore an inability to generalize findings) that have been well-discussed within a number of disciplines (Meyer 2001; George et al. 2005; Hyett et al. 2014). A case study approach was appropriate for this chapter for a number of reasons. First, legal and institutional structures are highly diverse in Southeast Asia (Fig. 1) and this makes for a rich opportunity to examine comparative approaches to ES. The case studies were purposively selected to reflect this diversity and thereby, to the extent possible, allow us to identify some common bridges and barriers in an effort to make recommendations towards mainstreaming ES within the region. Furthermore, as noted above, concern has been expressed that ES is both a western-centric and developed country issue. Our focus on Southeast Asia will help to address the western-centric concern and the countries selected for the case studies represent a range of development levels. Vietnam and Cambodia are considered lower-middle income countries based on the World Bank's 2019 per capita gross national income (GNI) classification, while Thailand falls within the upper-middle income category, and Singapore is a high income country. As the case studies will reveal, however, both within and between countries, the implementation of ES is more complex than

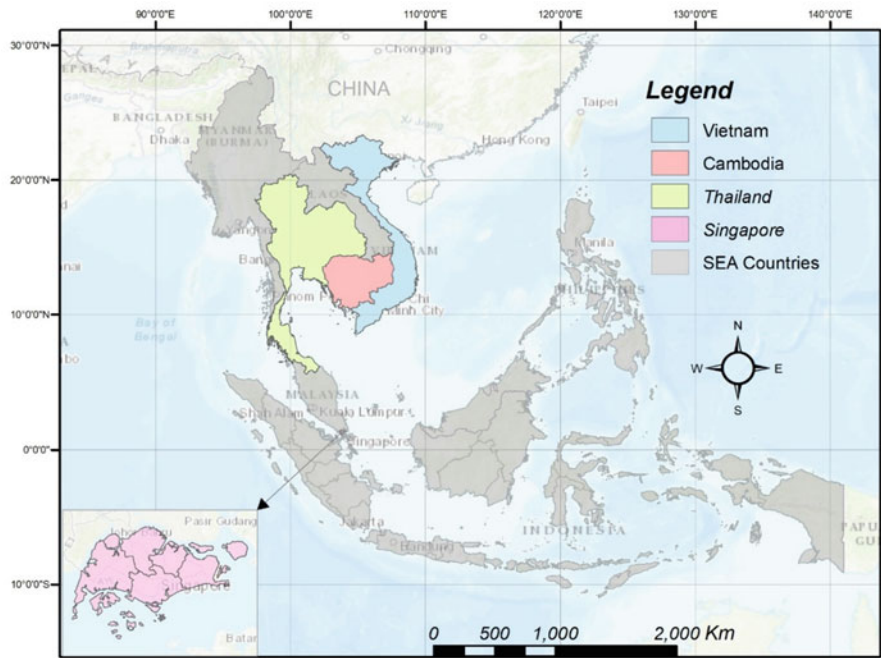


Fig. 1 Study areas within South East Asia, including Singapore (inset). (Map created by the authors)

simple economics and must consider the differing political and planning systems. Anecdotally, however, based on the authors experiences in rural Cambodia and Vietnam, it seems that some ES approaches such as Contingent Valuation would not be understood or meaningful within a community and as such would constitute some type of barrier to implement ES that must be addressed. Each case study reflects the work of individual co-authors, but there also are common links in that the various co-authors have collaborated on different environmental investigations within the region and have a general familiarity with each other, which facilitated the collaborative writing of this chapter. Each case study was able to reflect the complex political, social, and technical interactions related to ES in each country because the specific authors had detailed experience in those countries. To help link the focus of each case study, all authors were asked to address the following four themes:

- (i) Key ES practices applied and how successful they were;
- (ii) Revealed barriers to the mainstreaming of ES considerations in public policies;
- (iii) Shaping bridges to bring scientists and policymakers closer via ES dialogues;
- (iv) Potential pathways forward to help ES considerations become more mainstreamed.

2 The Case Studies

2.1 *Case Study 1: Mainstreaming Opportunities via Land Pricing Legislations in Vietnam's Mekong Delta*

2.1.1 Background

The concept of ES was first introduced to Vietnam in the final years of the previous century with a series of valuation studies focusing on mangrove ecosystems (e.g., UNESCO 2000). In the early 2000s, the Departments of Science, Technology, and Environment (DOSTE) began to explore the values of ES for several cities and provinces in Vietnam. For instance, in Hai Phong Province, DOSTE estimated the value of rare fruit and medicinal resources of mangroves, while the counterpart in Khanh Hoa Province studied the recreational ES associated with a coral reef. By 2016, over one hundred studies looking into the valuation of ES had been published in a variety of sources, including peer-reviewed journal articles, books, reports, and doctoral dissertations. However, despite this level of academic interest in ES in Vietnam, we were concerned that such research was not being incorporated into government policy. In order to address this concern, this case study reviews two recent articles pertaining to ES studies done on agricultural practices and the agricultural land pricing system in Vietnam's Mekong Delta (VMD) (Loc et al. 2017, 2018b), with a specific focus on the prawn-rice-rotational crop (PRRC) system.

PRRC is a particular cultivation system in Kien Giang District on the west coast of the VMD. PRRC is among several initiatives of the Kien Giang provincial government to cope with climate change impacts, more specifically, salinity intrusion. The introduction of prawn farming into the rice fields during the dry months when saline water intrudes further in-land has proved to be effective in the area as it can make better utilization of the land capital throughout the year. Plus, the residue of the rice fields after harvesting provides habitat and sufficient food for the prawns. In essence, PRRC is an ecologically sustainable model that is being promoted throughout the region.

2.1.2 Ecosystem Services Provided by PRRC and Relation to Land Pricing Practices in Vietnam

Loc et al. (2017) considered provisioning (water and nutrients), regulating (nutrient circulation and climate regulation) and the market values and costs in conducting their ES assessment of the PRRC system in Kien Giang District, following the European Commission's Resource Rent Equation (EC 2013):

$$ESV = TR - (FC + VC + OC) \quad (1)$$

Where $ESV = ES$ Values, $TR =$ Total Revenue from the two crops, $FC =$ Fixed Costs, $VC =$ Variable Costs, and $OC =$ Opportunity Costs. While other terms were retrievable via the market, OC was defined as the *forfeited benefits* and was estimated by the average land rental costs. OC was introduced to account for the capacity of the ecosystems in supporting a substantial livelihood compared to the passive income from land leasing. Also, as a shadow value, OC could elucidate people's intrinsic evaluation of the favorable conditions, or ES offered, by their lands.

Results of this analysis showed a disconnect between the ES values calculated by Eq. 1 and the value of the land as determined by the Vietnamese government (see also Figure 7 in Loc et al. (2017)), which suggests that higher ES provided by the PRRC practice are not being captured in the Vietnamese land pricing scheme. The Vietnamese pricing scheme, due to the country's political structure, is different than most countries in the region. The Vietnamese government sets policy and value level of agricultural land that does not account for the actual profitability, and this limitation relates to how the state government classifies land resources according to their "uses." Within the existing Vietnamese land valuation system, PRRC areas are commonly pooled into the type of agricultural land areas that serve *annual crops*, together with rice, vegetables, nuts, and the likes. This results in a homogeneous pricing scheme, and while this approach might save the burden of having to account for local variations, it is a relatively limited method as these agricultural products and commodities are different in many aspects, especially in economic returns. In particular, prawn is a more valuable crop than rice. Registering a dedicated classification for exclusive use of land like PRRC can be time-consuming and costly due to the complexity of the relevant legal framework. Likewise, it might not be entirely justified because PRRC, though increasingly popular in the Mekong Delta is not applicable across the country.

The findings from Loc et al. (2017) then naturally led to an investigation of the rather unique land pricing scheme established in Vietnam and whether the land pricing scheme in fact accounts for ES . This subsequent effort was reported by Loc et al. (2018) who critically reviewed all relevant legislation documents related to land pricing practices of the government at different levels, from national to local. The document analyses focused on the articles' objectives, as well as the responsibilities of the Central and Provincial Municipalities in developing land prices and regulating valuation methods for individual land parcels. Articles mentioning ES related terminologies both directly and indirectly were identified in order to reveal how the government perceived natural land resource values. The initial search for ES related terminologies in the documents had zero hits and accordingly, the search was expanded to reach paragraphs that can refer to ES in some way, such as, *profitability*, *productivity*, etc. which produced a total 11 hits on articles that consider the land resources in some aspects. This result still was a relatively modest showing policy-making.

2.1.3 Barriers, Bridges, and Ways Forward

Although several positive signals had been observed, we are skeptical about the ability to fully integrate ES into decision-making at this time, mainly because within more than 300 pages of legal documents reviewed, references to ES or related concepts were minimal and therefore we can conclude theme (i), ES Practices, really have not been successfully applied in terms of land laws and valuation. Although we believe that policymakers in Vietnam did consider natural capital and the associated values of the land resources, even without having identified them with specific terminologies like ES, we conclude ES considerations have not yet been mainstreamed into policy and planning agendas.

The contradiction between ES values, as represented by PRRC activities and government land pricing creates an opportunity to use ES as a way of mediating between the need to account for the local conditions and saving the herculean effort of comprehensive political reforms. We propose using an ES-valuation-referred correction factor to account for the differences between PRRC and other cultivation systems. Our recommendation could resonate deeply with several important legislations, including the Ministry of Environment and Natural Resources Decree, which allows for the application of correction factors according to local conditions. This suggestion provides both a bridge (theme iii) and a way forward (theme iv).

In line with our effort, a UNEP funded project called ProEcoServ had contributed several valuable insights via success stories in mainstreaming ES into macroeconomic and land use planning policies in Vietnam and four other nations, including Chile, Trinidad, Tobago, and South Africa (UNEP 2015). With specific respect to Vietnam, the project had been successful in applying decision support tools in evaluating and mapping of ES, organizing policy dialogues to raise awareness of policymakers, and introducing ES concepts into land-use planning of the National Park of Ca Mau located in VMD (themes iii and iv). A literature review within the ProEcoServ report also highlighted the inclusion of essential keywords, i.e. ES, Payment for ES (PES), Natural Capital and the likes in three important national legislative documents (themes iii and iv), *The Party Resolution (Doc No. 24 – NQ/TW)*, *National Green Growth Strategy in the period of 2011–2020*, and *National Strategy for Environment Protection to 2020, vision to 2030*.

2.2 Case Study 2: Wetlands and Ecosystem Services in Peri-urban of Phnom Penh, Cambodia

2.2.1 Background

After Cambodia emerged from the tragic Khmer Rouge period of 1975–79 and subsequent occupation by Vietnam from 1979–89, the country's infrastructure had fallen into an extreme state of disrepair. The trauma and destruction of the Khmer Rouge period has been well-documented (e.g. Vickery 1984; Becker 1998; Kiernan

2002; Chandler 2009) while Phyrun (1996, p. 1) noted that one of the outcomes of the Khmer Rouge period was the "...complete destruction of institutions responsible for management of the country's resources, these include trained personnel, appropriate laws and regulations, enforcement capability, and government structures for development of environmental policies and co-ordination necessary for their implementation." From the mid-1990s the city of Phnom Penh has worked to restore its drainage and wastewater collection system, with a series of projects through grants and loans (e.g. JICA 2001, 2011; ADB 2005).

Wastewater treatment historically has been done through a system of natural wetlands that ringed the city (Irvine et al. 2006) but the growth in population and development pressure has led to the well-publicized and contested, in-filling of some of the wetlands (Sina and Chen 2012; Doyle 2013; Englund and Rytting 2008; Schneider 2011). In fact, JICA (2016) reported that between 2003 and 2015, lake and wetland areas in Phnom Penh had decreased by nearly half. In addition to a reduction in wastewater treatment capacity, the in-filling would negatively impact natural flood mitigation, as well as food security, climate regulation, and cultural services. A number of these ES benefits were qualitatively identified in the *Phnom Penh Green City Strategic Plan 2016–2025* (National Council for Sustainable Development (NCSD), Royal Government of Cambodia (RGC), the Phnom Penh Capital Hall (PPCH), the Global Green Growth Institute (GGGI) and the International Centre for Environmental Management (ICEM), 2016), although the value of such services were not quantified. There have been several Payment for Ecosystem Services (PES) studies conducted in Cambodia, but these have focused on forest conservation (e.g. Sasaki and Yoshimoto 2010; Clements et al. 2010, 2014; Clements and Milner-Gulland 2015). To our knowledge, the only effort to quantify wetlands ES in Cambodia was reported by Ro et al. (in press) for the Boeng Cheung Ek wetland of peri-urban Phnom Penh. As such, the intent of this section is to review and expand on the findings of Ro et al. (in press) and identify both the barriers and bridges to mainstreaming ES in the Cambodian context.

2.2.2 Boeng Cheung Ek and the Ecosystem Services It Provides

Phnom Penh is serviced by a combined sewer system and Boeng Cheung Ek treats sanitary flow and combined sewage from the southern part of the city. Boeng Cheung Ek is quite large, with the surface area varying between 13 km² in the dry season and 20 km² in the rainy season and mean water depth varying between 0.85 to 1.22 m in the dry season and 2.92 to 3.7 m in the rainy season (Sovann et al. 2015). Studies have shown that Boeng Cheung Ek effectively treats the wastewater it receives, prior to discharge to the Bassac River that is a distributary of the Mekong River (Visoth et al. 2010; Sovann et al. 2015).

The wetland could be considered part of peri-urban Phnom Penh, although the city is encroaching and the wetland is starting to be filled in for housing developments (e.g. Fig. 2). Although Irvine et al. (2015a, b) optimistically modelled treatment efficiency for a smaller wetland and showed that a 22% reduction in



Fig. 2 While the kids play (left), Boeng Cheung Ek is disappearing, being actively filled in to make room for large, modern housing development (right). (Photos taken by the authors)

wetland area would still enable treatment to occur, we now expect that Boeng Cheung Ek will be nearly entirely filled in and experience the same fate as Boeng Kak in the north part of the city. Because of the impending in-filling, we initiated a study to determine the benefits of the ES provided by Boeng Cheung Ek. A wetland system can provide effective wastewater treatment as well as environmental and economic benefits that include reduced energy use, reduced use of chemicals, no fixed (or sunk) costs, and essentially no maintenance costs (Brix et al. 2007; Koottatep and Panuvatvanich 2010; Koottatep et al. 2005). However, Boeng Cheung Ek provides additional ecosystem service benefits, including:

- Runoff management and flood protection through storage
- Mitigation of urban heat island effect
- Carbon sequestration
- Food security (wild-catch fisheries and aquaculture; crop harvesting e.g. Fig. 3)
- Water source
- Sense of place for peri-urban villages
- Cultural services

Ro et al. (in press) used a combination of remote sensing and GIS technology, on-ground field measurements, individual interviews with 178 households, and consultation with secondary source data, to obtain a preliminary estimate of the economic value for ES provided by Boeng Cheung Ek. Subsequently, a direct market price approach was used to estimate the value of food and water provisioning and an indirect avoidance expenditure approach to estimate the value of wastewater treatment.

The cost to construct an activated sludge treatment plant to service all sanitary waste entering Boeng Cheung Ek was estimated by Ro et al. (in press) at \$49.1 million USD with an annual operation and maintenance cost of \$0.82–3.7 million USD. Based on a project life span of 25 years, the avoidance expenditure value of Boeng Cheung Ek for wastewater treatment was \$2.96–5.66 million USD per year. In comparison, JICA (2016) estimated the cost of constructing 3 advanced biological



Fig. 3 (Left) harvesting water spinach and (Right) wild catch fishery on Boeng Cheung Ek Wetland circa 2005–2007. (Photos taken by the authors)

nutrient removal treatment plants in Phnom Penh (Tuol Kok to the north and 2 plants going to Boeng Cheung Ek, one at Steung Meanchey and one at Trabek Channel) would be \$220 million USD and concluded such construction currently was too expensive to implement. The JICA (2016) estimate is higher than that determined by Ro et al. (in press), but also provided a higher level of treatment, addressing both total nitrogen and total phosphorus removal. JICA (2016) also noted that the treatment lagoon system installed in Siem Reap cost \$44 million USD. The JICA (2016) information suggests the estimates made by Ro et al. (in press) are reasonable, or perhaps slightly underestimated.

The most likely market value for crop production, fishing and duck raising, and water provisioning was estimated by Ro et al. (in press) to be \$28.92 million USD per year. In total, then, Ro et al. (in press) concluded the most likely combined value for food and water provisioning and wastewater treatment (which does not include consideration of benefits to downstream communities) would be \$32.2 million USD per year, but given uncertainty in the estimates, identified a range of \$15.7–\$53.4 million USD per year.

The ES provided by runoff management and flood protection through storage are beginning to be evaluated; however, this effort would involve a large modelling study and scenario development if the entire Boeng Cheung Ek wetland were to be considered. As a start, field surveys and interviews were conducted with a sample of 48 residents in the Tumpon Pond and upstream Meanchey Canal to understand their experience with flooding during the large rain events of January, 2016 and December, 2017. Tumpon Pond is immediately upstream of Boeng Cheung Ek and is used as a stormwater storage basin (JICA 2016). Flood experience, based on interviews, varied, with flooding in the backyards and open areas near the

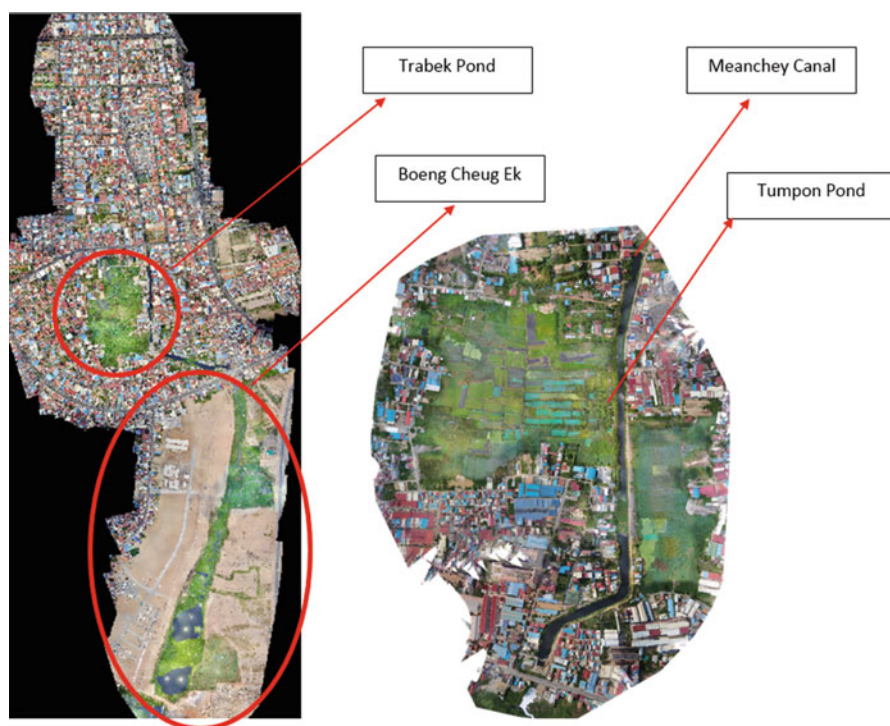


Fig. 4 High spatial resolution (4.5 cm) view of Trabek pond and connection to Boeng Cheung Ek (left). Note the in-filling that already has occurred in Boeng Cheung Ek as denoted by the brown colored sand and new road build; this is the same general area as Fig. 3 (top). Close up of a segment of Tumpon pond (right). (Both images captured from RUPP UAV in May 2018)

southeast part of the pond being approximately 1.2 m deep for a week; flooding around the southwest part of the pond being 1 m deep for approximately 10 hours; flooding in the eastern area of the pond being 1.5 m for about 3 days; and flooding along the Meanchey Canal (for a distance 2500 m upstream of Tumpon pond) being 0.3–0.5 m for approximately 3 hours. It also was noted by the surveyed residents that flooding occurs around the pond and along the canal approximately 2–4 times per year.

Bathymetric surveys were conducted in Tumpon Pond along 3 transects (187 points) using an EMLID REACH RS RTK GNSS RECIEVER between 28 March 2018 and 09 May 2018 and the results are shown in Fig. 4. The number of sample points was limited by dense vegetation growth, mud deposits and hazardous snakes. Based on the bathymetric surveys, supported by drone flights (Fig. 5) it was determined that Tumpon Pond has a storage capacity of 3.05 million cubic meters. The benefits of this storage in reducing flooding are being determined through a modelling approach.

To date we have not been able to assess the services provided by mitigation of urban heat island effect, carbon sequestering, sense of place for peri-urban village

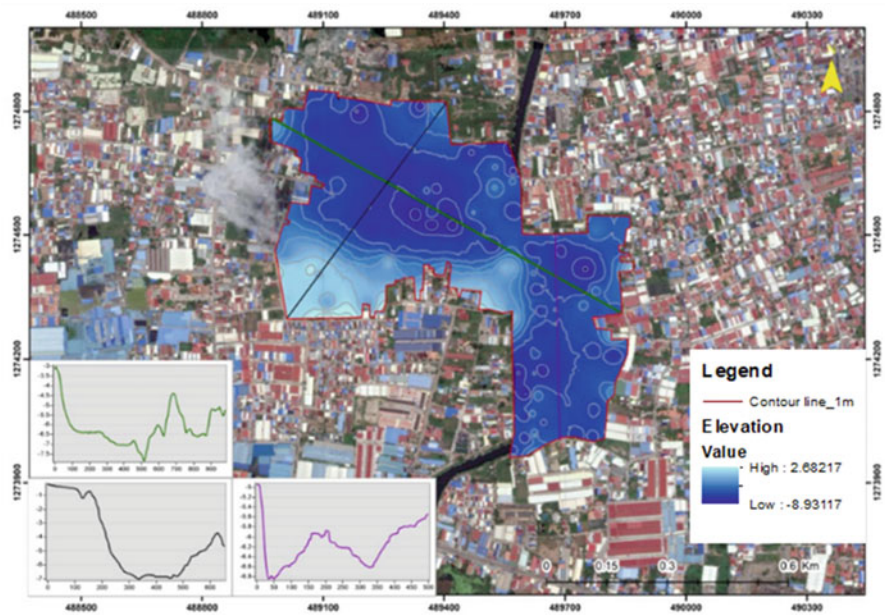


Fig. 5 Elevation contours of Tumpon Pond



Fig. 6 A peri-urban village on Boeng Cheung Ek – sense of place for a marginalized community. (Photos taken by the authors)

(Fig. 6) or cultural services. The peri-urban village populations have limited economic and political power and are most vulnerable to land titling conflicts and re-location due to in-filling. These issues are an outgrowth of mass population displacement and land title document destruction during the Khmer Rouge period and subsequent issues with “private planning and concessions” in part resulting from failed attempts to develop a city master plan (NCSD et al. 2016). Boeng Cheung Ek wetland also served as a background for one of Cambodia’s notorious killing fields and as such provides a cultural (and associated tourism) service that as yet has not been evaluated.

2.2.3 Barriers, Bridges, and Ways Forward

A literature review indicated that apart from the Ro et al. (in press) effort, formal application of ES has not been done in relation to water management for urban and peri-urban Phnom Penh and therefore it can be concluded that for theme (i), in this aspect of urban development ES practices have not been applied. However, several reports have identified socio-economic issues associated with the physical urban environment. For example, ADB (2005) concluded that the drainage improvement project under their sponsorship had reduced local flooding frequency and duration which served to stimulate economic activities in the improved areas. Furthermore, ADB (2005) found that land value along the improved canal increased from \$46/m² (2004 USD) before the canal project to \$117/m² (2004 USD) after the canal project. The JICA (2016) report that summarized much of the progress made with respect to drainage and wastewater treatment over the past 20 years qualitatively reviewed environmental and social considerations, but not in terms of ES. The *Phnom Penh Green City Strategic Plan 2016–2025* was developed through a cooperative effort of government agencies and NGOs under which it was specifically noted:

The purpose of the present Green City Strategic Plan for Phnom Penh is to provide a roadmap for Cambodian policymakers, local administrators and their national and international development partners in order to pursue the implementation of urban green growth in the context of Cambodia’s capital city’s future... (NCSD et al. 2016, p. 3)

While the NSCD et al. (2016) does not explicitly discuss ES evaluation, it does explore the importance of water management and green space planning in reducing urban vulnerability. The report also introduced 10 criteria for assessment prioritization and screening of proposed investment projects:

1. Perceived high need or demand or priority
2. Likely financial support from external sources
3. Cost savings benefits
4. Supportive policy and institutional environment for project implementation
5. Tested technology and/or business model and/or project approach
6. Availability of local operators or suppliers for project implementation
7. High green-growth demonstration effect
8. Poverty reduction or social inclusion benefits

9. Green job creation benefits

10. Environmental benefits

The 10 criteria were assigned a score between 0 and 3 (based on a specific, qualitative rubric) for each investment project and the assessments were completed in workshops attended by key stakeholders representing government, private sector, and civil society. Specific considerations under the Environmental benefits category included reduction of GHG emissions, reduction in local air pollution emissions, reduction in water pollution, reduction in solid waste, and reduction in vulnerability and improvement in biodiversity.

A total of 48 “green” projects initially were identified through stakeholder workshops and consultation that included representatives from city government, national authorities, other urban stakeholders (e.g. NGOs), and development partners. The potential projects focused on a range of issues, including energy, transportation, manufacturing, solid waste management, green building construction, and public spaces and urban planning. The evaluation results from the workshops ranked two water-related projects in the top 10 of the 48 total projects: (i) a desire to undertake a demonstration re-design of an existing park for improved water retention to reduce flooding and mitigation of warmer temperatures; and (ii) demonstration of a pilot green/blue corridor for multifunctional use. One project that addressed *Regulations, zoning, safeguards to protect blue/green areas* in which regulations would be established and enforced whereby commercial development encroachment on the city’s natural lakes, streams and wetlands would be banned; and natural hydrological systems would be restored with the intent of multiple uses (fisheries, aquaculture, recreation, and biodiversity enhancement) was not considered a priority by key stakeholders.

The NSCD (2016) document and recommendation to establish advisory and technical boards to implement the green plan provides a gateway or possible bridge (theme iii) for potential mainstreaming of ecosystem service evaluations, although it falls short of using ecosystem service assessment per se. Furthermore, JICA (2016) notes that Prakas (a regulation issued by a Minister in Cambodia) No. 376 BRIC. BST 2009, General Guideline for Conducting EIA requires a cost-benefit analysis to be conducted for development projects. While the Prakas does not mandate that ES considerations be included in the cost-benefit analysis, the mechanism to address ES exists through the Prakas (theme iv).

Despite some interesting possibilities for Phnom Penh to move towards mainstreaming ES in planning practice and decision-making with respect to water resources, a number of barriers exist (theme ii). First, there appears to be overlap and associated confusion with respect to line agency mandates, a situation that was noted by Irvine et al. (2010) and which has not changed. Second is the capacity of line agencies to implement ES evaluations. Capacity here includes both economic capacity and human resource capacity. For example, JICA (2016) noted that no law exists for sewerage and drainage management and therefore there is no legal framework that addresses the establishment of sewerage and drainage systems. The Department of Public Works and Transport/Phnom Penh Capital City has 826 staff

members, of which 64 are engineers, and 6 are assigned to drainage. However, since there are no operational manuals for drainage, it appears that there is limited capacity to address even basic design and management issues. Interestingly, JICA (2016) notes that the Department of Environment in Phnom Penh has 68 staff members and the waste management office that deals with sewage and drainage have 7 employees, while the environmental education office has 6 employees. Perhaps a mandate of the environmental education office could include mainstreaming ES evaluations and this may provide a bridge to a barrier as well as a way forward (themes ii, iii, and iv). Finally, we must consider the political will. While the *Green City Strategic Plan* is a good start, the document notes that a barrier to implementing many of the ideas occurs because of a lack of buy-in from developers (theme ii). This is an important consideration that will need to be addressed by the Phnom Penh municipality, perhaps through a combination of mandates/by-laws for construction and education, drawing on examples from the region (theme iii).

2.3 Case Study 3: Streamlining ES into the “20-Year Development Plan of Bangkok Metropolis”

2.3.1 Background

Bangkok, Thailand, is similar to many Asian cities in its physical characteristics which includes a flat landscape and low-lying plain near the ocean. These spatial conditions have formed a vast water reception and dispersion area (Suwanarit 2018). The implication of these physical and socio-economic features is that there have been several failed attempts of western-centric adaptation, most prominently being the Bangkok water management project of 2011. Although policymakers were well-aware of the challenges to managing water in Bangkok to the same standard as western cities, the desire to track a western approach still exists. This has been most recently seen in the latest draft development strategy of the Bangkok Metropolitan Administration (BMA), which subscribed to “Sustainable Development Goals” by focusing on six sub-strategies: safe city, green and convenient city, city for all, compact city, democratic city and economic/learning centre city (SEDBMA et al. 2016). These seem to be key planning buzzwords that have emerged from the west, but if they are to be adapted and adopted in Southeast Asia, how best to accomplish this? We believe ES may be the pivotal instrument that bridges urbanization and ecological factors and can underpin the success of Bangkok as a sustainable city – depicted in the BMA strategic plan. The implementation of environmental-related policies in Thailand is still in its early stage – policies and regulations are weakly supported by the government – even though advocacy for the environment is increasing. The root cause of this situation may be related to the fact that mission agencies have relatively less understanding of the socio-political and ecological linkages in urban development, but historically have chosen to focus on technical aspects. If the ES approach is implemented in the policy-making process, it could be

an important first step toward achieving sustainable adaptation and development of communities (Szabo et al. 2015). In this case study, we seek to explore the notion that there is a deficiency at the executive level in Bangkok regarding the understanding of how to truly follow the sustainability path and identify bridges to overcome these barriers.

2.3.2 Assessment of Associated Policies

To get an overview of Thailand public policy and what extent ES practices have been implemented we carried out a literature review of fourteen policies that deal with Bangkok natural and historical resources and land (Table 1). We subsequently adopted a 4-level scoring system developed by Bouwma et al. (2018) to score the level of ES integration of the policies. More specifically, None depicts “absolutely no mentions of ES”, Low refers to a situation where “The elements of ES concept were mentioned but neither play a prominent role nor relevant in policy measure design or monitoring”. Moderate indicates “The elements of ES concept were mentioned and/or relevant in policy measure design and monitoring”, while High represents “The elements of ES concept was framed and/or referred throughout the policy, including policy design and monitoring”.

Our review of policy documents reveals very limited implementation of ES, but that it is steadily increasing with every revised iteration of the published policies (Table 2). A higher level of coherence between ES concept and Thai policy seems to be correlated with the year of publication for each selected policy, except the urban planning act No.1–4 which remains relatively unchanged. The results also show that the ES concept is only fragmentarily embedded in all 14 policies (Table 2), with the exception of Heritage Policies in which no ES reference was discovered. Furthermore, the newer policies, particularly “The 20-year Development Plan for Bangkok Metropolis” are seemingly steering toward more integration of the ES concept at the strategic level – it contains a higher coherency level compared to other policy fields, and was assessed to have a *Moderate* level of ES integration (Table 2). This might reflect that the novelty of the ES concept is starting to gain momentum among policymakers; however, the approach still has yet to be fully framed together with the fragmented inclusion of different ES categories. Nonetheless, it provides objectives, strategies and targets for ecological management which is pivotal for mainstreaming ES.

2.3.3 Identifying the Barriers

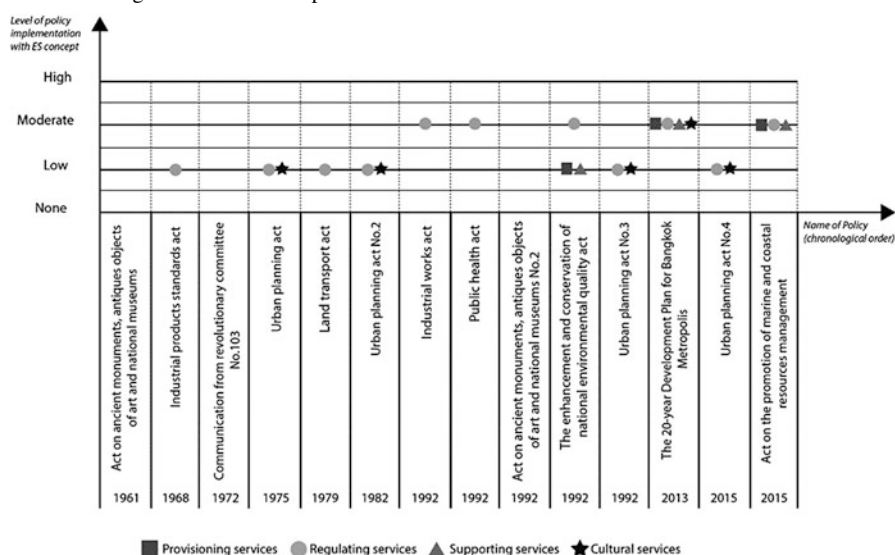
Focusing specifically on the 20-year Development Plan for the Bangkok Metropolis, our review of the existing policies revealed three structural flaws of ES adaptation within the policy-making process: (i) socio-political landscape; (ii) policy-making approach; and (iii) fragmentation in local government agencies.

Table 1 Detailed information on reviewed policies

Policy field	Name of policy
The 20-year Development Plan for Bangkok Metropolis	BMA strategic plan (2013): Special Bylaw from the BMA's Strategy and Evaluation Department to branches of department and district offices under BMA
	Strategy 1: Bangkok as a safe city
	Strategy 2: Bangkok as a green and convenient city
	Strategy 6: Bangkok as an economic and learning centre
Air quality policies	Industrial products standards act (1968): Primary Legislation from the Thailand Parliament on the standard control of industrial production and manufacturing
	Land transport act (1979): Primary Legislation from the Thailand Parliament on all types of land based transportation
	Industrial works act (1992): Primary Legislation from the Thailand Parliament on various types of industrial factory activities
	Public health act (1992): Primary Legislation from the Thailand Parliament on public health related activities
Water quality policies	The enhancement and conservation of national environmental quality act (1992): Primary Legislation from the Thailand Parliament that focus on pollution control and remediation
	Chapter 3: Environmental protection
	Chapter 4: Pollution control area
Urban management policies	Urban planning act (1975): Primary Legislation from the Thailand Parliament on supporting the orderly development of land in urban areas, and other related matters
	Urban planning act 1982/No.2
	Urban planning act 1992/No.3
	Urban planning act 2015/No.4
Heritage policy	Act on ancient monuments, antiques objects of art and national museums (1961): Primary Legislation from the Thailand Parliament on historical heritage
	Communication from revolutionary committee No.103/1972
	Act on ancient monuments, antiques objects of art and national museums No.2/1992
Coastal forest management policy	Act on the promotion of marine and coastal resources management (2015): Primary Legislation from the Thailand Parliament on marine and coastal resources management

Socio-political Landscape

After the 1973 riots, Thailand experienced a radical shift of powers from a strong dominant party to competitive-clientelism (Sen and Tyce 2017). This created a favorable environment for unobstructed competition, such that no party could

Table 2 Integration of ES concepts

monopolize the socio-political landscape. Eventually, this fostered a new climate where business opportunities were not solely based on the “established connections”. The expansion of industrial capacity credited to competitive-clientelism also facilitated environmental awareness at an institutional level, leading to the adaptation of various environmental friendly ideologies and policies. Many anticipated that Thailand could have joined high-income nations by the early 1990s, but the failed transition was believed to be the backlash from a power vacuum created by General Prem Tinsulanonda’s retirement in 1988 which opened an extended and prolonged period of unstable elected governments from 1992 to 1997. Rasiah (2012) concluded that the power disorder was the main source of Thailand’s decline of economy and policies. This resulted in the stagnation of environmental policies that lasted over two decades (refer to Table 2: 1992–2013).

Policy-Making Process

The policy-making process in Thailand generally takes a top-down approach and is mainly driven by high-level bureaucrats (Phananiramai and Hewison 2002). Figure 8). Public and stakeholder participation in policy planning still is minimal and generally limited to those connected to the key policy-makers (Kitthananan 2007). Despite the effort of the 20-year National Strategy that was formed through public and non-government stakeholders consultation, the sectoral policies and action plans

were still developed by only a selected few societal actors, in a way that these advocates could gain influence over policy decisions and its implementation.

Local Government Fragmentation

Many international communities have long viewed a decentralized sectoral approach as crucial for an effective administration of public services. Therefore, it is unsurprising that this type of subnational administrative approach is presented throughout Thailand, especially within BMA. However, some have argued that the process of decentralization is sometimes focused too much on the number of subnational agencies rather than how effective the agencies actually function (Resnick 2017). For Bangkok, decentralization appears in some ways to have led to fragmentation and a general lack of common cross-connected objectives between relevant agencies. Consequently, the integration of new ideologies and concepts are slowly adapted and implemented.

2.3.4 Barriers, Bridges, and Ways Forward

We believe that the recently approved 20-year National Strategy – drafted by The National Legislative Assembly (NLA) and public stakeholders – could become the stepping stone towards improving mainstreaming of organization cooperation and development of sectoral policies (theme iii).

The formation of the 20-year National Strategy prompted a change in Bangkok bylaws, where the procedural and guideline indicators have been revisited. The review was fore fronted by the Bangkok Strategy and Evaluation Department (SED) to create a special type of bylaw (The 20-year Development Plan for Bangkok Metropolis). This local bylaw ranked highest in every ES category (Table 2; theme i). In its initial form, the bylaw focused on broad and diverse socio-environmental factors ranging from natural resources, maintenance of green space, remediation of wastewater, eco-tourism, and education. However, there was still no explicit mention of ES and their interconnectedness to policy.

This situation would change after the finalization of The Revision of Urban Development Indicators in Bangkok Metropolis 20 Years (2013–2032) Development Plan which was jointly formulated by SED and Thammasat University. The project functioned uniquely by encompassing inputs from both practitioners and academia. Throughout this process, specialists from educational institutes were given a chance to provide inputs and feedback, which could result in legislative change (theme ii). Furthermore, from the contention made by BMA Environmental Department representatives during a group focus meeting, it was implied that the proposed ES indicators might likely be integrated within the department's future performance monitoring plans, which addresses theme iv. This ES integration is expected to further the aims of the 20-year Development Plan for Bangkok Metropolis in creating a sustainable city through an integrated-holistic concept.

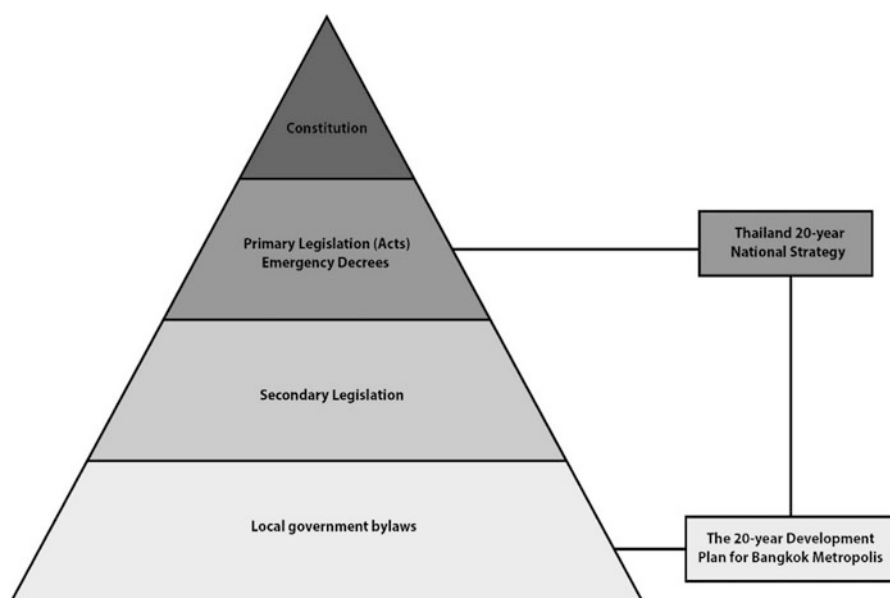


Fig. 7 A framework for understanding Thailand policy hierarchy

From this fact, we believe that the ES concept will be gradually incorporated into new policies under the overarching 20-year National Strategy. Also, we recognize this would serve as an essential window of opportunity for educational institutions to link theory and practice as well as guide the mainstreaming of ES concepts in Thailand public policy and decision-making (theme iv).

If the ES concept is going to be further integrated into Thailand's policy hierarchies and policy-making processes (e.g. Fig. 7), we suggest a number of ways forward (theme iv). First, ES concepts need to be incorporated during the drafting of new legislation at the highest level of hierarchy (Fig. 7). Second, we suggest that the 20-year National Strategy should be focused even more on ES considerations. In order to ensure the continuation of the implementation pathway, it is essential that new legislative decisions should be made using a holistic participatory, approach, with consultations from local stakeholders, public, and government. Furthermore, to maintain the integrity of the process, more focus must be given to the development policy framework that can be better monitored during the implementation phase. Finally, a certain degree of freedom and cross-connected objective guidelines must be given to local governments, while implementing a policy. Thus, each unit of the local agency needs to be at least able to add additional requirements to the locally-adopted policies (theme iii).

Thailand has come a long way, but there is still considerable scope to improve before the ES concept is fully integrated into the policy hierarchy. We conclude that Thailand has largely ignored the structural flaws of its policy-making approach and implementation, whilst the adaptation of new ideologies is often isolated by the

fragmentation of local government and bureaucratic systems. These among others are the formidable barriers (theme ii) that must be addressed in order to promote the ES approach in the national-adopted policies development.

2.4 Case Study 4: “Fragmentation” and Its Impacts on Integrating ES in Decision-Making in Bangkok’s Peri-urban Area, Thailand

The second case study from Thailand presents an interesting juxtaposition to the first case study because although physically the two regions are adjacent, the ES experience has been very different, resulting from the differences in the physical and political environments.

2.4.1 Background

Bangkok has been transformed from water-based communities along the Chao Phraya River towards a mega-city region that has spread into the surrounding provinces within past decades. The exponential growth of socio-economic development forced the new forms of built environment to develop on a relatively flat and wet landscape. Peri-urban Bangkok used to have seasonal water retention areas, productive landscapes, and habitat for wildlife, but land transformation processes have had a large negative impact on these services (Hara et al. 2008). The historical networks of extensive canal systems that used to provide both transportation and irrigation, now tend to serve the new built up area under a new function – runoff catchment and drainage systems (Fig. 8).

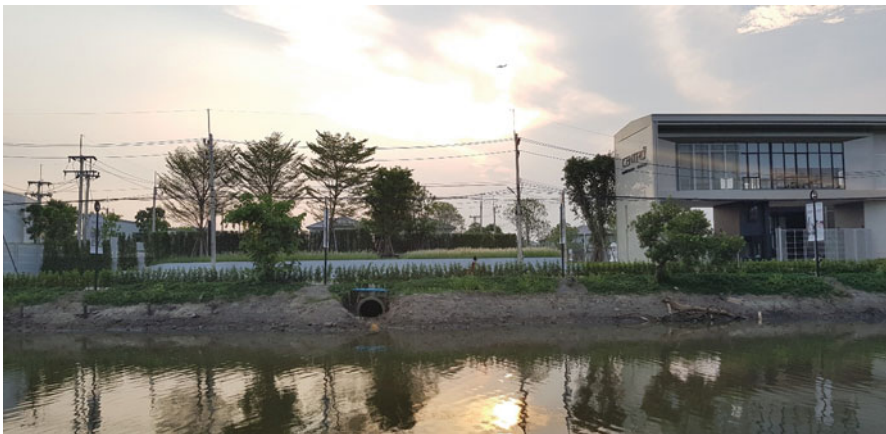


Fig. 8 Klong 4 – a gated community and drainage to public canal. (Photo taken by the authors)

It becomes challenging to manage and control the rapid and dynamic urbanization patterns of Bangkok especially on the peri-urban edge of the city. The Bangkok Metropolitan Administration (BMA) does not have power to manage the Bangkok Metropolitan Region (BMR) which fragments decision-making and planning. The five bordering provinces seem to provide an opportunity for development with less environmental concern resulting from weak land use planning on provincial levels. Mega projects, both public and private, have been located and constructed in the surrounding provinces. These megastructures, facilities, factories, and housing estate projects replaced fertile lands which were essential for agriculture, flood plain, and seasonal water retention of the whole region (Nasongkhla and Sintushigha 2010). In this section, we explore the implications of fragmented decision-making, the limitations of traditional land use planning and zoning, and the way forward to mainstream ES considerations.

2.4.2 Ineffective Land Use Planning, Lack of ES Evidence in BMR

On the national level, the concept of ES has been used as a principle approach for developing the Master Plan for Integrated Biodiversity Management 2015–2021, following the international policies and development directions of United Nations Conference Rio+20 in 2012. The Master Plan on Biodiversity Management adopted the green economy policies that highlighted the importance of biodiversity and ES as an essential core for maintaining human well-being and quality of life. The master plans, which were launched by the Office of Natural Resources and Environmental Policy and Planning under Ministry of Natural Resources and Environment, were developed based on four principles: (1) Ecosystem Approach Management and ES, (2) Sustainable Development on the Basis of Green Economy, (3) Conservation and Sustainable Use of Biodiversity, and the Fair and Equitable Sharing of Benefits Arising from Genetic Resources Utilization, and (4) Good Governance. Although development of a mega-urban region is challenged when policies focus on the importance of the ecosystem (Curtis 2004), we argue that the concept of “reimagining the peri-urban” can be used to maintain and preserve the local ecosystems and ES (Mc Gee and Shaharudin 2016). It is common to use comprehensive planning along with the city planning code as a land management tool to limit urban development. Urbanization of Bangkok has expanded beyond the political boundary of Bangkok into the five surrounding provinces. The BMR is composed of the BMA, which is governed by the city of Bangkok, and the other five provinces, which are autonomous urban authorities that manage their own planning and legislation. Special status as a single municipality has been granted to BMA, while the surrounding five provinces consist of 94 local municipalities, each one being led by an elected mayor and council members. Fragmented governance between the BMA and the five provinces results in poor planning coordination.

Unlike BMA which adopted the bulk control on building regulation, such as floor area ratio (FAR) and open space ratio (OSR), the other five provinces focus only on activity controls for land use zoning plans. Planning, regulation, and fiscal

Table 3 Fragmented structural systems of organizations and agencies in Thailand

Resources	Organizations/agencies
Water management	Royal Irrigation Department, Agricultural Land Reform Office, Department of Water Resources, Department of Ground Water Resources, and Hydro and Agro Informatics Institute
Land management	Department City Planning (BMA), Department of Public Works and Town & Country Planning, Land Development Department
Habitat and biodiversity management	Office of Natural Resources and Environmental Policy and Planning (ONEP)

mechanisms are essential components for land management within a comprehensive plan. However, the tool may not be effective in managing an area with rapidly changing environmental and socioeconomic factors (Marome 2017). Research on landscape classification and transformation, specifically for a 25 km² agricultural landscape patch on the urban fringe of Bangkok illustrates the highly dynamic shift from rural agriculture to urbanized landscape. Landscape change patterns were determined for the period 1952 to 2018 in 8 study locations and over 90% of these patches around Bangkok were an agricultural landscape in 1952. With the pressure of urban development, the three Pathumthani sites have been the most rapidly transformed landscape, with the Bang Kradi and Rangsit sites exhibiting extensive development patterns that may be classified as the “new form of urban settlement”, i.e. individual factories, warehouse, factory estate, housing estates, golf courses, and educational institutes, which is in contrast with the local and agricultural based activities, i.e. local villages, fisheries, peri-urban farms, rice paddies (Likitswat and Sahavacharin 2018). Other environmental and development conflicts for the Rangsit area include the use of water, the quality of water, and the use of energy (Sajor and Ongsakul 2007).

A conflict between land use planning by the BMA and the five provinces can be observed. Even though BMA controls and limits the west and east part as the conservation agricultural areas using a floodway to keep the city center of Bangkok and its international airport dry, the other five provincial land use plans have not responded to preserving the existing agricultural landscape. It seems too late to use land use planning as a land management tool to save the floodway for the whole region. Without ecological concerns related to the function of existing infrastructures and the ecological services of agricultural landscape around Bangkok, land use planning might not be the right mechanism to control this complexity of the peri-urban edge of the city.

Table 3 illustrates the local organization and administrative system in the BMR and the potential concerns about fragmentation of resource planning and management. Furthermore, the example of managing the urban-rural infrastructures such as canals and water gates becomes a classic case study on the ineffective collaborations between BMA and the surrounding provinces. The five surrounding provinces could not coordinate with BMA which has a new initiative for promoting more green open space or climate change initiatives (OECD 2015, Bangkok Comprehensive Plan; see

also, previous section). The urban governance practices in institutional design for the provinces also needs to be reformed towards ecological sustainability (Marks 2015).

2.4.3 Barriers, Bridges, and Ways Forward

A lack of sharp and consistent public policies and implementation within the BMR level, using ineffective mechanisms to coordinate BMR plans and policies, and poor coordination and collaboration within fragmented official organizations and agencies seem to be the barriers to developing guidelines and implementation plans with an embedded ecological approach that highlights ES (theme ii). Furthermore, a gap exists between the lack of policies and practices for promoting the ES and the preservation of the peri-urban agriculture landscape of Bangkok (theme ii). Urbanization tends to impact rice fields at a proportionally higher rate due to return profit on farming activities. In peri-urban Bangkok, shrimp farming is the most rewarding activity, followed by fish farming, vegetable growing, fruit trees and rice cultivation. Rice paddy would either be progressively displaced by horticulture, fish and shrimp cultivation, or transformed to be built up areas (Vagneron et al. 2003).

Fragmented urban fabrics and patches were the reflection of weak control and lack of power to coordinate between government agencies and stakeholders to create and share resilience plans and policies toward sustainability development. Land use planning regulation which is not flexible and related to the existing structures of the landscape simply may not be appropriate (theme i).

Within the weaknesses in policy that are identified above, there is room to promote the benefit of maintaining the agriculture landscape, especially within peri-urban Bangkok. We argue that urban or peri-urban agriculture could be one of the bridges to promote the concept of ES (themes i and iii). Several studies on urban and peri-urban agriculture confirm the positive impact and multifunctionality of these green productive zones (see, for example, the section on Phnom Penh, this chapter).

The urban and peri-urban agriculture landscape could provide ES to the city scape and bring resilience to the new urbanized areas. Within this irrigated delta of the Chao Phraya River, existing blue and green infrastructures and open space systems should be preserved and appreciated from various perspectives. These exiting blue and green infrastructures include canal or klong, paddy field or nah, and orchard or suan (Fig. 9). The concept of ES which seem poorly recognised on the policy level, should be reconsidered as part of the multifunctional values and services of these agricultural practices for the peri-urban landscape.

To absorb the pressure of new developments, the local farmers need to adapt with the changing urbanized landscape. In the case of keeping the land and still farming, new solutions and techniques on farming with high value or high technology equipment, seem to be alternative ways to adapt with the development trends (theme iv). The goal also should be to maximize benefits from the peri-urban agriculture landscape which provides opportunities such as, food sources, stormwater retention, green open space, and urban wildlife habitat (theme iv). The



Fig. 9 Traditional waterscape of mixed use along a canal in peri-urban Bangkok. (Photo taken by the authors)

ES concept should be embraced as the sustainability plan applying to the local level. The plan and policy should be able to connect and provide incentive for these local farmers to help preserve the multifunctional landscape and ES of the place.

Agropolis, the concept which combines agriculture and metropolis together, could be used as a bridge for mainstreaming the ES approach in peri-urban Bangkok (themes iii and iv). To create the discussion for sustainable landscape management, the agricultural landscape mosaic around the city should be recognized as providing multifunctional ecological and socio-economic benefits. In this case study of peri-urban Bangkok, we found that the concept of ES is still invisible in public policy and decision-making for urban planning in the BMR (theme i). Despite the weak policy, we believe the existing agriculture landscape of peri-urban Bangkok has the possibility of providing a bridge, particularly in the Thailand context where peri-urban agriculture might be familiar with local Thai culture which is rooted as an agropolis based society.

In understanding the dynamic growth of the BMA sprawl and at the same time the loss of ecosystem functions and services, it is crucial to point out the water issues and multifunctional and ecological function of agricultural landscapes. Land use zoning and regulations might not be the right tools for understanding and planning for such dynamic, complex, and sensitive scenarios and situations for future challenges. Unlocking the barriers between government agencies would be a way to cut across the traditional way of planning and development (Likitswat and Sahavacharin 2018).

Within the remaining seasonal wet landscape and waterscape characteristics of peri-urban Bangkok, which are temporarily used as agricultural fields and water storage areas, these landscape structures combine both cultural and natural activities

and processes, providing ecosystem functions and services. ES framework should be linked to the peri-urban agriculture functions and the physical structure of the landscape to help with preservation of this landscape, in addition to natural habitats such as mangrove and tropical forest (theme iv).

2.5 Case Study 5: Active – Beautiful – Clean (ABC) Water Programme of Singapore

2.5.1 Background

Singapore was ranked the most water-stressed country in the world by the Water Resources Institute in 2015. Water, in short, is a national security issue for this island country and as such, the government has been striving to collect every single drop of water by transforming the island into a water catchment. Under the Four National Taps policy, runoff currently is captured from two-thirds of the island's surface and stored in 17 drinking water reservoirs (Irvine et al. 2014). The proportion of land contributing to the reservoirs is expected to increase by 2060. The challenge is in the urban character of the catchment where the stormwater quality is not easily protected. Plus, the land scarcity leaves the government no choice but to create more multi-functional spaces, incorporating stormwater treatment functions into the existing urban infrastructures. In 2006, ABC Waters was introduced as a holistic programme that seamlessly integrates the stormwater management strategy with landscape spaces to create new community amenities and bring people closer to waters.

Essentially, Singapore's ABC (Active, Beautiful, Clean) water programme (PUB – Active, Beautiful, Clean Waters Design Guidelines 4th edition 2018) shares many similarities with Australian Water-Sensitive Urban Designs (WSUD), the North American Low Impact Developments (LIDS), Europe's Sustainable Urban Drainage Systems (SUDS) or most recently, the sponge city concept from China. With this initiative, the Public Utilities Board (PUB), the agency in charge of the ABC programme won the prize of Utility Performance Initiative of the Year, a commitment to improving the long-term performance of water services to the public at the Global Water Awards 2013.

2.5.2 Major Achievements

Over the last 12 years, ABC Waters program has been applied not only along waterways but also as part of the drainage system in upstream catchments of various characteristics, including both public housing and private estates, parks, hospitals, schools, business parks, industrial areas, and commercial areas. The ABC Waters Concept has been adopted by more than 300 partners, and by 2018, there were 75 ABC Waters Certified projects (PUB – Certified Projects). Also, beginning in

2018, Housing and Development Board (HDB), Singapore, will incorporate ABC features to treat stormwater runoff from at least 25% of the site area in all new public housing developments (MEWR 2018). With more than 80% of Singapore residents living in public housing, this commitment is a bold move to mainstream ABC Waters. The success of ABC Waters was not an overnight achievement but a gradually ramped up effort through government and PUB's clear vision and strong determination and successful buy-in from stakeholders.

2.5.3 The Integration of ES and Its Benefits to the Community

The appreciation of ES associated with urban water systems appears throughout ABC program guidelines, i.e., flood protection, water quality improvement, climate regulation, biodiversity, aesthetics, social amenities, and recreation. In essence, via the ABC Waters Programme, nature is integrated into urban life to support urban sustainability, resiliency, and liveability. Numerous education and outreach campaigns have been promoted to bring people closer to the water so they can appreciate its values, take appropriate ownership, and enhance sustainability and liveability of the communities (e.g. Irvine et al. 2015a, b). ABC Waters Learning Trails, for instance, have teamed up with schools to encourage the adoption of various water sites. Private companies, grassroots organizations and community groups also help to facilitate the trails and carry out various activities at ABC Waters sites to encourage more people to enjoy the sites and related facilities in a responsible manner. Another point worth noting is that Singapore's community engagement starts with the young generation as water issues are fully integrated into the lower secondary through Junior College curriculum and through university (Irvine et al. 2015a, b). An exceptional example of educational implementation is the PUB leadership in constructing rain gardens at 13 schools to serve as teaching aids to demonstrate how natural materials, such as plants and soil media, can be used to cleanse stormwater runoff (MEWR 2018). The rain garden program also has been extended to universities (Chang et al. 2018).

2.5.4 Effective Interactions and Collaborations, Both Internally and Externally

The ABC Waters Programme might not have been mainstreamed in Singapore without the cooperation of the private sector. The *ABC Waters Design Guidelines* were launched in 2009 to trigger the interest from the private and public sectors to explore ways to implement ABC Waters design features and integrate waterways within their developments to enhance the environment. Over the years, PUB continues to update the Guidelines with more examples of projects and innovative designs, reflecting the successful adoption of the program. The *ABC Waters Certification Scheme* was launched to recognize developers that adopt ABC Waters design features in their developments. Beyond giving recognition, the certification

scheme aims to encourage the uptake of ABC Waters design features in private and public-sector developments (PUB – ABC Water Programme: Certification 2018).

Other institutional bodies also joined forces to enhance industry expertise. For example, in 2011 PUB rolled out the ABC Waters Professional Programme, in which, they collaborated with the Institution of Engineers Singapore (IES), with additional support from the Singapore Institute of Landscape Architects (SILA), Singapore Institute of Architects (SIA), HDB, Land Transport Authority (LTA) and National Parks Board (Nparks) to enhance industry expertise (PUB – ABC Water Programme: Professionals 2018). Technical design courses for planners, engineering and landscape professionals and maintenance courses for technical officers and Town Councils are provided. This ensures the survival of ABC Waters features from planning stage until maintenance stage. Finally, the Inter- Agency Working Committee (IAWC) was set up to coordinate the planning of projects amongst various agencies such as PUB, HDB and NParks so that ABC Waters design features are well planned in future developments. PUB in association with the Building and Construction Authority (BCA), established the Green Mark Scheme, a green building rating system that evaluates a building for its environmental impact and performance. Most recently, *ABC Waters Certification* (Gold) was introduced in 2017 as the highest accolade for ABC projects (PUB – ABC Water Programme: Certification 2018). These, together with many other initiatives have been implemented to encourage the private sector to creatively adopt ABC Waters in their own development plans. PUB also looks beyond the national borders through research partnerships and towards cities that have implemented similar programs successfully, such as a learning exchange with Melbourne Water to investigate the Australian case studies of successfully executed Water Sensitive Urban Design. This type of information exchange is invaluable to continuous improvement of quality design.

2.5.5 The Effective Institutional Framework

Code of Practice for Surface Water Drainage which stipulates the requirement for drainage design in Singapore, notes ABC Waters Programme in chapter 8 – *Integration Of Adjacent Watercourses With ABC Developments and ABC Waters Design Features Within Developments*. (PUB – ABC Water Programme: Code of Practice 2018). Likewise, HDB developed a Biophilic Town Framework to provide strategies needed to plan and design urban landscapes, thereby achieving the larger urban development goals of sustainability, liveability and resilience (HDB 2018). HDB envisioned Biophilic Town “...encapsulates a comprehensive set of considerations in five key elements of the environment landscape – *soil, flora and fauna, outdoor comfort, water, and people*, together with their corresponding urban ecosystem services...”, which include mitigation of flooding, improving runoff quality, heat mitigation, and maintenance of soil quality.

2.5.6 Government's Determination and Other Stakeholders' Buy-Ins

The concepts of green (Landscape/Biodiversity) and Blue (Water) have long been recognized as vital ingredients for liveable cities and economic development. This is reflected in the country's vision to be a *City of Garden and Water* (Khoo 2015), built upon a long history of embracing Green and Blue. For instance, the value of keeping waterways clean was recognized from the early days, with the successful implementation of clean-up projects for the Singapore and Kallang Rivers in 1970s to 1980s. Almost a decade later, *Beautifying waterways* was introduced when a Waterbodies design panel was set up to assess the aesthetic treatment of developments along with major water bodies.

The ABC Water Programme has also inherited solid support from various agencies and political leaders, sufficient for approval at Cabinet level and financial infusion from the Ministry of Finance. Members of Parliament played a crucial role in getting grassroots leaders involved in adopting completed ABC Waters sites. Before the implementation of the ABC Waters Programme, Singapore concentrated on introducing and educating the public on the concept. ABC Waters Public Exhibition was launched in February 2007 over six days, followed up by a three-month island-wide roadshow to invite the public to explore the program. PUB then organized the Inter Agency Working Committee responsible for monthly meetings with various stakeholders to resolve issues. All of these initiatives had served to smooth the implementation of ABC water program in the later years.

2.5.7 Barriers, Bridges, and Ways Forward

ABC Waters Programme is not yet a legal mandate and neither are ES quantified systematically in Singapore. Regardless, multiple institutional approaches have placed important grounds for the adoption of the ES oriented concepts within the various public policies and planning agendas of Singapore (cf. HDB's Biophilic Town concept (theme i). In general, the government has a clear vision that benefits society at large and despite a top-down approach it has been successful in incorporating ES concepts through policies that have emphasized the roles of (i) identification of stakeholders; (ii) pedagogical campaigns; and (iii) sustainable collaborative partnerships (theme iii). Given the shift more than a decade ago towards innovation to drive economic growth in Singapore (Tan and Phang 2005) and the authors experience of strong research and development investment by agencies such as PUB, HDB, and NParks, we expect continued inclusion of ES concepts in policy as the way forward (theme iv).

3 Concluding Remarks

This chapter reports on efforts being taken to mainstream ES for the betterment of environmental public policies and planning in four Southeast Asian countries. To summarize the ES efforts within the region, as reflected by these case studies, we return to our four themes noted in the Introduction; specifically we aimed to: (i) identify key ES practices within each case study and assess how successful the ES implementation had been within the scope of public policy; (ii) identify barriers to the mainstreaming of ES considerations in public policy; (iii) identify bridges to overcome the barriers in mainstreaming ES in public policy; and (iv) discuss potential pathways forward to support mainstreaming of ES in public policy.

3.1 *Theme (i) ES Practices*

The inclusion, or even consideration, of ES in public policy has been uneven throughout the region, ranging from essentially none in the peri-urban Bangkok Metropolitan Region to quite sophisticated underpinnings in Singapore. Even within a single country, there can be a considerable difference in ES uptake as evidenced by the differences in practice between the adjacent Bangkok Metropolitan Region and the Bangkok Metropolitan Administration, where the latter appears more progressive. In general, however, we conclude the concern that ES concepts are too western-centric have been overcome, although some evaluation practices, such as Contingent Valuation, may still have limited utility in some countries.

3.2 *Theme (ii) Barriers*

Although all of the case studies, in some way, focused on water management issues, we were encouraged by the diversity of application of ES concepts and as noted in the Introduction it seems that ES truly can be a powerful underpinning for sustainable development. All case studies exhibited some level of ES consideration, with Singapore representing the most sophisticated ES applications. Vietnam, Cambodia, and Thailand appear to experience at least two important barriers, fragmentation of mandates between policy-makers, and capacity. Fragmentation results in poorly-coordinated framing and implementation of policy which can lead to uneven development that has a greater impact on marginalized communities. Capacity refers to both human capacity and financial capacity. Just as it took nearly two decades to mainstream the concept of sustainable development, infusing concepts of ES, particularly at the line agency or local level will take time. We could argue that leadership in human capacity development for ES should come from academia and federal levels of government, which also bridges into the theme of the way forward.

Financial capacity clearly can be a barrier when the short term goals of poverty alleviation subsume a longer-term, sustainable development vision.

3.3 Theme (iii) Bridges

We see academia as playing a key role in human capacity development and this then becomes the challenge to those at universities, but as demonstrated in some of the case studies, this is a challenge starting to be met. We also could argue that leadership in human capacity development for ES should come from international foreign aid agencies, ADB, and WB. After all, WB, for example, employs country specialists in economics and environmental management, and community development. Yet, a 2010 WB report (Lange et al. 2010) found that the number of WB projects employing cost-benefit analysis declined between 2000 and 2010 and frequently economic valuation of environmental impacts was not done. ADB recently completed their project Capturing Economic Benefits from Ecosystem Services that included a number of Southeast Asian nations and concluded that while awareness of ES increased through the outreach and workshops “The challenges of multi-sector and intra-agency coordination needed to implement activities within rapidly changing circumstances were also underestimated” (ADB 2014, p. 2). Better and more effective leadership from these institutions, in partnership with universities, should be expected.

Based on the examples from Cambodia, Bangkok, and Singapore it would seem that an important bridge is to have key champions who drive inclusion of ES considerations within important planning documents. While this type of broad generalization can be drawn, we also recognize some bridges may be very site and policy specific, for example, the call to follow an agropolis planning approach in the Bangkok Metropolitan Region. We see one of the benefits of the ES approach is that it accommodates these unique solutions, as well as broader policies.

3.4 Theme (iv) The Way Forward

This brings us to the particular case of Singapore. Singapore has been successful in implementing ES considerations in its planning process for a variety of reasons: visionary leadership that emphasizes benefits for all civil society (i.e. political will); a less fragmented policy-making approach (e.g. the lead of one water agency, the PUB), public-private partnerships and buy-in, and financial capacity. We do note that in Singapore, policy tends to be top-down, although this has started to change with the recognition that a ‘well-planned city’ also must consider a good quality of life where citizens could take a more participatory role in urban development (Soh and Yuen 2006). Interestingly, however, we do not see evidence that ES is monetized as part of the decision-making process; Singapore simply has decided strong

environmental stewardship is necessary for a liveable community. Is this the way forward then, and we can dispense with ES monetization exercises and associated academic debate?

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Payment for Ecosystem Services in the Congo Basin: Filling the Gap Between Law and Sustainability for an Optimal Preservation of Ecosystem Services



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1 Introduction

Since 2008, the DRC is implementing PES projects under the Clean Development Mechanism (CDM) of the 1992 United Framework Climate Change Convention (UNFCCC 1992). The project, called the “Ibi project”, is a PES-reforestation project and focuses on carbon sequestration (Froger et al. 2016). Other CDM projects in the DRC include the Kinshasa landfill gas recovery and flaring project. REDD+ is another international PES implemented in the DRC. The REDD+ mechanism was launched in the DRC in January 2009, with the first joint mission carried out by the United Nations for REDD+ (UN-REDD) and the Forest Carbon Partnership Funds (FCPF) of the World Bank.

According to the Cancun Agreements of the UNFCCC, REDD+ is implemented in three phases: preparation, investment and payments (UNFCCC 2014). The DRC spent 3 years in the preparation phase for REDD+ after producing a very ambitious Readiness Preparation Plan (R-PP), which was adopted in March 2010 by the UN-REDD board and the FCPF (Kipalu and Mukungu 2014). Since November 2016, the DRC has launched the implementation phase of REDD+ through the project ERA Mai-Ndombe. The DRC Government views the Mai-Ndombe Emission Reductions (ER) Program as a first step in implementing the country’s national strategy at jurisdictional level, as a model for green development in the Congo Basin, an important test of climate action on the African continent and for REDD+ results-based payments. The ER Program is a unique opportunity to secure in long-term

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public and private finance for delivering on the goal set forward by the Paris Agreement (2015) and sustainable development. The ER Program aims at providing alternatives to deforestation and poverty reduction, natural resource management and protection of biodiversity. The program has a long-term perspective of 20 years, with a first period for 2017–2022 with USD 80 million of up-front investment finance and a potential of results-based payments for 29 million tCO₂ over 5 years (FCPF 2016).

The DRC is the first Congo Basin and African State to have a proper regulatory framework on the homologation of REDD+ projects. After Indonesia, the DRC is the second country to have a regulation on REDD+ projects.

The international community has adopted the international agenda for sustainable development, Agenda 2030, which promotes 17 new objectives, the so-called “Sustainable Development Goals” (SDGs) (UNGA 2015). This new development framework will guide the activities of the United Nations from 2016 to 2030. This policy framework could facilitate the economic growth of the DRC as it is a fragile State where the legitimacy of the State is endangered by the destruction of the social capital, the cohesion and severe economic challenges increased by the national political context and the international conjuncture characterized by the fall of the value of raw materials (PNUD 2016).

The DRC has identified 169 targets and 241 indicators to achieve the implementation of the SDGs. From 2017 to 2021, the DRC has planned to implement 38 targets and 58 indicators which represents 22, 5% of the SDG targets (PNUD 2016). The implementation of PES projects fits within 3 targets of SDGs 13 and 15, integrated in the national package of priority targets and indicators for the implementation of the SDGs (Ministry of Plan 2016). PES projects embrace climate action and life on land, respectively SDG 13 and 15.

This chapter analyses the legal framework on PES in the DRC with a view to maximize PES implementation and, simultaneously, promote SDG 13 and 15.

2 PES: Laws and Indicators for Optimization

There is no specific law on PES in the DRC. However, there are several laws and regulations that can contribute to the realization of PES. First, an overview is given of which laws are relevant for PES (2.1). Secondly, indicators are described to analyse the PES related laws (2.2).

2.1 PES Related Laws

We have identified four main groups of laws as the most relevant for PES. These laws relate to land-tenure laws, laws on natural resources that generate four main environmental services (carbon sequestration, biodiversity conservation, scenic

beauty and watersheds), laws that regulate activities that potentially cause the degradation of these four environmental services and laws on contracts on the valorisation of environmental services under PES or REDD+.

2.1.1 Land-Tenure

Land-tenure laws are one of the most important laws to achieve a successful implementation of PES and REDD+. There is a large consensus on the clarity of legal instruments on land-tenure as an important condition for the implementation and the success of REDD+ (Dokken et al. 2014).

The clarity of legal instruments on land-tenure is one of the priorities in the creation and the implementation of an effective PES (Engel 2013). PES schemes require certain fundamental preconditions, one of which is the exclusiveness of rights to the land providing the service in question. That is, land holders – those receiving payments – have the right to exclude other people who could use forest and land resources in ways that are incompatible with providing the contracted service (Sunderlin 2009). Similarly, Karsenty et al. (2009) state that the provision of ecosystem services can be possible if the provider of ecosystem services could have the right to exclude others in the exploitation of a parcel of land and could possess a land without being necessarily landlord.

Policy papers on forests and climate change commonly assume that resolving problems of ill-defined or weak tenure is a key to REDD+ success. According to the Stern Review (2006, p. xxvi), “At a national level, defining property rights to forestland ... and determining the rights and responsibilities of landowners, communities and loggers, is key to effective forest management. This should involve local communities, respect informal rights and social structures work with development goals and reinforce the process of protecting the forests”.

Multilateral, bilateral and national policy documents on REDD+ readiness also stress on the need to clarify tenure before implementing REDD+. The lack of clarity about local entitlements to benefit from REDD+ schemes in countries with poor governance has led community and indigenous advocacy organizations to express their concern about REDD+ (Tacconi et al. 2010). The Forest Carbon Partnership Facility (FCPF) of the World Bank and UN REDD, as key partners that help more than 40 developing countries in the implementation of REDD+, also stress the importance of laws on land-tenure as crucial to achieve REDD+ goals.

2.1.2 Natural Resources That Generate the Big Four Environmental Services

Carbon sequestration, biodiversity conservation, watershed services and scenic beauty are regulated by different laws and common laws. Five laws are directly connected to these four environmental services: environmental, nature conservation, forest, water and tourism laws (Ntirumenyerwa Mihigo 2016).

Forest ecosystems, peat bogs and grasslands are, next to oceanic plankton, the main sink of global natural carbon, essential to the carbon cycle. It accumulates huge amounts of carbon in the wood, roots, soil and ecosystem via photosynthesis (Boulier and Laurent 2010). One of the richest stores of carbon on Earth has recently been discovered in the Congo Basin: a 145,000 square kilometers' area of peatland swamp forest (Radford 2017). In addition to the laws on environment and nature conservation, the forest law regulates carbon sequestration in the DRC.

Carbon storage is not the sole ecosystem service provided by these forests. Congo Basin tropical forests are extraordinary reservoirs of biodiversity. The DRC exhibits high levels of biodiversity at both the ecosystem and species level. At the ecosystem level, the DRC has 19 major ecosystem types that can be grouped into three classes: forest ecosystems (11), mixed and savannah ecosystems (4) and aquatic ecosystems (4). Biodiversity conservation is regulated by laws on nature conservation, forest and the environment.

One of the most important resources of the DRC is water. 55% of the water resources of Africa are held by the DRC. The Congo River is one of the longest and largest rivers of the world. It provides great potential for fishery, electricity and communication industries (ICP 2013). Watershed protection is depending on the water ecosystem. Consequently, the water law provides the legal basis for the regulation of watershed protection. Also, the law on the environment can furnish essential elements to the regulation of the watershed protection.

The rich biodiversity in the country is an important asset for tourism. However, there is no system in the DRC for collecting data on ecotourism. Nevertheless, a 2007 National Institute for the Conservation of Nature of the DRC (ICCN) report stated that the ICCN had collected earnings of 65,222,711 FC (about \$ 118,600) (Eba'a Atyi and Bayol 2008). Scenic beauty as an ecosystem service is closely linked to tourism. Tourism law is one of the main legal frameworks that regulate tourism activities as well as scenic beauty. Protected areas are the most important touristic sites. This implies that nature conservation, environmental and forest laws which regulate protected areas fall in the scope of the laws related to scenic beauty.

2.1.3 Activities That Potentially Cause the Degradation of the Big Four Environmental Services

Several laws that regulate activities that impede the provision of forest ecosystem services are also relevant. Two qualitative surveys on the causes of deforestation and the degradation of the DRC forests were initiated by the Ministry of Environment, Conservation of Nature and Tourism (MECNT) and conducted by Civil Society from nine provinces in the DRC and UNEP. These surveys identified the following activities as the major causes of deforestation and forest degradation: slash-and-burn agriculture, artisanal and industrial logging, wood-energy and charcoal production and mining extraction (MECNT 2012).

Consequently, agriculture, artisanal and industrial logging, wood-energy and charcoal production and mining extraction laws deserve to be investigated in order to secure the delivery of the ecosystem services examined in this chapter.

2.1.4 Contracts on the Valorisation of Ecosystem Services

PES is a voluntary transaction where a well-defined ES (or a land-use likely to secure that service) is being “bought” by a minimum one ES buyer from a minimum one ES provider if and only if the ES provider secures ES provision (Wunder 2005; Engel et al. 2008). PES generally has two common features. First, they are voluntary. Second, participation involves a contract between the conservation agent and the landowner (Ferraro 2008). This implies that the creation and the implementation of PES contracts should respect a legal framework.

Since the inception of the Clean Development Mechanism (CDM) and REDD+, the DRC has adopted several regulatory frameworks to ensure the implementation of the contracts on CDM and REDD+. The DRC is firmly engaged in the REDD+ process and has taken a first regulatory framework on REDD+ in 2009. In 2012, the DRC has adopted a more important regulation for PES contracts on the homologation of REDD+ projects (Kipalu and Mukungu 2014).

2.2 Indicators for an Optimal PES Implementation

This part presents assessment indicators of PES laws to ensure an optimal PES implementation. The table below shows how each indicator corresponds to each group of PES laws (Table 1).

Table 1 Indicators for PES laws

PES laws	Indicators
Land-tenure	Land-tenure security (property rights titles, clear borders)
Natural resources that generate ecosystem services	3 E+ REDD+ criteria
Activities that potentially degrade ecosystem services	Maintenance and restoration measures
Contracts	Classical conditions of contracts 3 E+ REDD+ criteria

2.2.1 Indicators on Land-Tenure Security

Property rights titles and clear borders have been selected as the two main indicators to secure the implementation of PES. A secured PES implementation should be done on a land which is properly and legally owned. The proof of this ownership is a property right title. Without a property title, the recognition of the ownership on a land is impossible or very difficult. Exemptions could be made for land with no property rights titles. In that case, it should be advised to get a formal property rights title before starting the implementation of a PES project. It should also be considered that many rural lands are not registered and have no property rights titles, mostly in developing countries, including Congo Basin States.

Another important factor is a clear delineation of borders. Borders should be clearly defined to avoid overlaps and conflicts. Otherwise, there is a risk that a project is implemented on a land which is not supposed to home the project. Even if an actor holds a formal title to the land, the precise size and borders of the land may not be determined. Ambiguity over exact borderlines can arise from a lack of mapping, division or transfer of land, competition with communal property rights, or joint possession of land by more than one private person (Greiber 2009).

2.2.2 The 3E+ REDD+ Criteria

Effectiveness, efficiency, equity and co-benefits are chosen indicators in this chapter to assess the implementation of PES. They are called “3E” criteria. They have been used by Nicolas Stern (2006) in the climate debate to assess proposed options and their expected outcome. Here, these criteria have been applied in the context of the economics of climate change. Angelsen (2008) elaborated these criteria and called them “3E+”.

These criteria consider sub-criteria or indicators. Engel et al. (2008) proposed relevant indicators on effectiveness, such as additionality of ecosystem services, the reducing of leakages, the length of a project on the preservation of ecosystem services and the mechanism of monitoring, reporting, and verifying (MRV). In addition, the maintenance or restoration of ecosystem services, the geographical identification of suitable areas for the implementation of PES and the technical assistance of the provider of ecosystem services could also be considered as indicators of the effectiveness of PES (Ntirumenyerwa Mihigo 2016).

Efficiency criteria would consider start-up costs (including capacity building), running costs of financial and information systems, compensation for lost income (opportunity cost) and rent (rent equals transfers minus costs) along with their implementation costs of forest owners, managers and users. All these, except compensation and rent, are transaction costs (Angelsen 2008). The recognition of these costs by the laws related to PES and financial advantages promoted by the laws would facilitate the implementation of PES.

Equal access and sharing benefits are key indicators on equity. The guarantees of an equitable access of groups of stakeholders, based on income and assets such as land, gender, and ethnicity and so on, in the PES project and of the distribution of the benefits generated by the PES project would be considered as key elements to investigate in the PES laws. In addition, the management of conflicts issued by the sharing of benefits or the access to the project is an important indicator to ensure the equity of a PES project (Ntirumenyerwa Mihigo 2016).

There are at least four types of co-benefits to consider (Angelsen 2008): forest conservation, political change (governance), adaptation to climate change and socio-economic benefits.

2.2.3 Indicators on Measures on Maintenance or Restoration of Ecosystem Services

This relates to laws on activities that degrade forest ecosystem services in the Congo Basin, namely agriculture, mining, industrial and artisanal logging, wood-energy and charcoal production. We will examine whether the laws on these activities promote maintenance or restoration of ecosystem services after the exploitation of natural resources that generate ecosystem services.

2.2.4 Indicators on Classical Conditions of Contracts

The capacity of parties, the consent of parties, the existence of an object and the legal purpose are the classical conditions for the validity of a contract. The legal system of the DRC is classified in the Romano-German family of laws and promotes these four classical conditions in the elaboration of a contract. In fact, the legal system of the DRC, inherited from the Belgian colonial legal system, entails the four classical conditions for the validity of a contract.

As the implementation of PES and the preservation of the big four ecosystem services (Wunder 2009) depend on the agreements between the provider and user of ecosystem services, it will be essential to assess the laws on PES contracts in line with these indicators on classical conditions of contracts.

3 Confronting PES Laws and Indicators on an Optimal PES

This part analyses the DRC laws relevant for PES, based on the indicators for an optimal PES that were selected in Sect. 2. The analysis will be done in four parts related to the four group of laws related to PES. Each group corresponds to one or two types of indicators (see Table 1 above).

3.1 *Land-Tenure Laws*

The Law of 1973 on the general regime of goods, land and buildings, and security (Official Journal of the DRC 1973), modified and completed by the Law of 1980, is the main legal instrument on land-tenure in the DRC. This legal instrument on land-tenure of the DRC does not refer to PES. However, article 157 of the 1973 Law considers reforestation as one of the activities to valorise a land when it is acquired. Article 157 entails that anyone who wants to own a concession should reforest 100 trees on a forested land to enrich the forest or 1000 trees on an empty land.

To secure the implementation of PES, the existing land-tenure laws should promote clear borders and property rights titles. This can be considered as a condition to avoid conflicts due to the overlapping of land area when not well-delimited and confusions for the holder of property rights.

3.1.1 Ownership Rights

According to articles 59, 219, 220, 227 and 390 of the 1973 Law, the “certificate of registration” is the official document which proves the ownership right. However, not all the land of the DRC is covered by these property rights titles. There is a significant part of the population – mostly those are living in the rural areas where customs are applied to regulate ownership rights issues – who do not hold property rights titles.

The 1973 Law includes provisions which can deal with the issues on lands that are not covered by property rights titles. Article 388 of this law supports that the lands occupied by the local communities are those on which they live, cultivate and exploit individually or collectively according to the local customs. Under the 1973 Law, local customs can only certify the occupation of a land by the local communities and cannot certify the ownership rights of the local communities on that land as stipulated by the Constitution (Official Journal of the DRC 2011b).

Under the Constitution of the DRC the application of custom on land-tenure issues has been recognized. Article 34 of the Constitution stipulates that the State guarantees individual or collective ownership rights acquired through law or custom. The Constitution has extended the application of customs to the ownership rights, which was not possible with the 1973 Law.

The DRC adopted the Decree of 2014 on the attribution of forestry concessions to the local communities (Official Journal of the DRC 2014b). This decree aims at regulating the process of the attribution of the forestry concession located on the land occupied by the local community (article 2). This decree aims at organizing property rights issues of the land occupied by the local community according to the local customs and completes the Law of 1973 and the Constitution. This is clearly described by article 3 of this decree: “every local community could obtain a forest

concession on a part or an entire forest that they properly possess on the basis of the custom, in respect with conditions and procedures described by the decree”.

It is clear that this decree is a step ahead in the recognition and organization of the land regulated by customs. However, this decree does not cover all the rural areas which are regulated by customs. Rural lands which are not protected forests fall out the scope of this decree. Also, this decree does not provide details on the assistance of local communities and the compliance of those who should assist the local communities to properly subscribe on this identification. This assistance is necessary because there are several and complex practical steps that are required to be registered in the identification book. Mostly, the local communities are not well-equipped to easily make all these steps by themselves. There is a need of organizing the assistance of the local community and to improve the regulation of all rural areas, including those that are not forested.

3.1.2 Clear Borders

According to article 68 of the Law of 1973, land delineation is properly promoted in the DRC. The measurement and the delineation of all lands should be clearly mentioned in the ownership title. A representative of the Ministry of land-tenure affairs is mandated to make the delineation and the measurement of a land. Realizing proper land delineation is important for PES implementation as it secures the PES activities which should take place on a well delineated land. Proper land delineation avoids the superposition of ownership titles on the same land and the implementation of activities on a land owned by a different landlord.

In practice, the DRC still faces many challenges on land delineation. This is due to the disorganization and the high level of corruption of the administration in charge of land-tenure issues and a disharmonious implementation of the positive law and local custom (Ntampaka 2008). Reducing corruption and disorganization, a clearer implementation of the positive law and the customs on land-tenure can facilitate successful land delineation.

3.2 *Natural Resources Laws*

Laws on forests, the environment and conservation of nature regulate the preservation of ecosystem services, such as carbon sequestration and biodiversity conservation and the implementation of PES. PES is recognized in article 72 al. 2 of the Forest Code of 2002 (Official Journal of the DRC 2002), article 26 of the Environment Law of 2011 (Official Journal of the DRC 2011a) and in article 8 of the Law on the conservation of nature of 2014 (Official Journal of the DRC 2014a). These laws will be examined in line with indicators on 3E+ REDD+ criteria (Angelsen 2009).

3.2.1 Effectiveness of PES

The additionality of ecosystem services, the leakages, the permanence of environmental activities on the preservation of ecosystems (length of a project) and the mechanism of monitoring, reporting, and verifying (MRV) are indicators of the effectiveness of PES as described by Engel et al. (2008). In addition to this, the maintenance or restoration of ecosystem services, the geographical identification of suitable areas for the implementation of PES and the technical assistance of the provider of ecosystem services were identified as indicators of the effectiveness of PES (Ntirumenyerwa Mihigo 2016).

The maintenance and restoration of ecosystem services are promoted by the Environment Law of 2011 (Official Journal of the DRC 2011a), the Law on the conservation of nature of 2014 (Official Journal of the DRC 2014a), and the Forest Code of 2002 (Official Journal of the DRC 2002).

There are no provisions which clearly refer to the additionality of ecosystem services. However, the additionality of ecosystem services can be part of activities recognized by articles 4 and 8 of the Law on the conservation of nature of 2014, articles 5 and 48 of the Environment Law of 2011 and article 72 of the Forest Code of 2002. For instance, article 72 of the Forest Code of 2002 emphasizes that the provision of ecosystem services is one of the goals of forest management. The additionality of ecosystem services could be integrated as an objective of forest management in order to provide ecosystem services.

Leakage is referred to by articles 19, 21, 23 to 24 and 40 of the Environment Law of 2011, articles 21, 29, 35 and 46 of the Law on the conservation of nature of 2014 and article 5 of the Forest Code of 2002. The Decree on the rules of the functioning of procedural mechanisms for the protection of the environment of 2014 (Official Journal of the DRC 2014c) is a recent law which stresses the avoidance of leakage in the domains of forestry, nature conservation and environment.

Geographical identification of suitable areas for PES implementation is considered in articles 5 and 31 of the Law on the conservation of nature of 2014, and in articles 10 and 12 of the Forest Code of 2002. Articles 24 and 26 of the Law on the conservation of nature of 2014, and article 21 of the Forest Code of 2002 refer to the length of a project.

The technical assistance is mentioned by articles 2 and 5 of the Decree on the creation, organization and functioning of the group of environmental studies of the DRC of 2006 (Official Journal of the DRC 2006), and articles 111 and 113 of the Forest Code of 2002.

The following rules take into account the MRV mechanisms (for details see Ntirumenyerwa Mihigo 2016):

- Articles 1 and 75 of the Forest Code of 2002,
- articles 19, 21, 23 and 40 of the Environment Law of 2011,
- the Annex of the Decree on the rules of the functioning of procedural mechanisms for the protection of the environment of 2014,

- article 1 of the Decree on the creation, organization and functioning of the group of environmental studies of the DRC of 2006, and
- articles 27, 40 to 44 and 59 of the Law on the conservation of nature of 2014.

The above-mentioned laws are facing challenges to successfully enforce these indicators on the effectiveness of PES. The effective application of measures on the maintenance and the restoration of ecosystem services, a direct recognition of the additionality of ecosystem services, the reinforcing of the capacity of the personnel of the administration in charge of environmental issues to implement procedural mechanisms in order to minimize the leakage, a clearer geographical identification of suitable areas for the implementation of PES and a balanced length of projects which can ensure the permanence of PES activities, are key elements which are lacking in the existing laws on natural resources.

3.2.2 Cost Efficiency of PES

Financial advantages and recognition of the types of costs on the implementation of PES are the indicators for the cost efficiency of PES (Angelsen 2008). Article 81 of the Forest Code of 2002, articles 3, 34 and 35 of the Decree on the national forestry fund of 2009 (Official Journal of the DRC 2009a), articles 26 and 69 of the Law on the conservation of nature of 2014, and article 25 of the Environmental Law of 2011 take into account financial advantages needed for the implementation of PES. However, the Intervention Fund for the Environment is not functioning, as a decree should be adopted to make it operational.

The initial cost and the cost on capacity building are respectively recognized by articles 2 to 3 of the Decree on the rate of charges and taxes on sensitive sites initiated by the Ministry of Environment, Conservation of Nature, Water and Forests of 2005 (Official Journal of the DRC 2005), and article 60 of the Law on the conservation of nature of 2014. The amounts of these costs and the parameter on the calculation of these costs are not mentioned in these provisions. Article 32 of the Law on the conservation of nature of 2014, focuses on the compensation for the displaced population because of the implementation of a project on protected areas and can be used for the calculation of the opportunity cost.

The laws on forests, environment and conservation of nature have weaknesses to successfully implement a cost efficient PES, such as the lack of a decree on the functioning of the Intervention Fund for the Environment and the key elements to calculate the opportunity cost and the cost on capacity building.

3.2.3 Equity of PES

Equal access, benefit-sharing and conflict management are the main indicators for an equitable PES. Articles 3 and 9 of the Environment Law of 2011, articles 51, 54, 56 to 58 of the Law on the conservation of nature of 2014, articles 24, 25 and 82 of

the Forest Code of 2002 and article 3 of the Decree on the attribution of forestry concessions to the local communities of 2014 consider the access on the exploitation of the environment, forestry or nature conservation projects.

Articles 2 and 3 of the Decree on charges and taxes on sensitive sites of 2005, articles 52, 60 to 62 of the Law on the conservation of nature of 2014, articles 89 and 122 of the Forest Code of 2002 and article 3 of the Decree on the national forestry fund of 2009 consider sharing-benefit mechanisms.

Articles 103 to 104 of the Forest Code of 2002, articles 6 to 8 of the Decree on the organization and functioning of the commission on conflicts management on forests of 2009 (Official Journal of the DRC [2009b](#)), articles 70 and 84 of the Law on the conservation of nature of 2014, and articles 70 to 84 of the Environment Law of 2011 recognize conflict management.

However, the implementation of these laws is facing challenges. Local communities and women still face discrimination to successfully access a PES project. Technical assistance and benefit-sharing mechanisms are not clearly described in these natural resource laws. Carbon credits generated by REDD+ projects are not recognized. The benefit-sharing mechanisms of these carbon credits are also lacking.

Incentives to encourage the equal access of local communities and women, a clear description of benefit-sharing mechanisms, the recognition of carbon credits and technical assistance in the implementation of PES project are needed.

3.2.4 Co-benefits from PES

Four co-benefits are considered in our study: biodiversity conservation, good governance, adaptation to climate change and poverty reduction. These four co-benefits are regulated by articles 6, 46 to 52 of the Environmental Law of 2011, article 2 of the Decree on the group of environmental studies of 2006, article 89 of the Forest Code of 2002, articles 13, 24 of the Decree on the specific rules on the attribution of forestry conservation concessions of 2011 (Official Journal of the DRC [2011c](#)), and articles 38 and 55 of the Law on the conservation of nature of 2014.

However, good governance is not clearly referred in the laws on nature conservation and on forests. It will be worthwhile to incorporate the co-benefits in these laws. In addition, the compliance of these four co-benefits is not described. A decree should be adopted to regulate the functioning of the compliance of co-benefits in respect of articles 38 and 55 of the Law on the conservation of nature of 2014.

3.3 *Laws on Activities That Potentially Degrade Ecosystem Services*

The laws on activities that potentially degrade ecosystem services do not refer to PES. The laws on agriculture, mining, industrial and artisanal logging and charcoal production will be analysed in line with the maintenance and restoration of

ecosystem services, the minimization of leakages and the technical assistance to restore the ecosystem services (Ntirumenyerwa Mihigo 2016).

The laws on agriculture, wood-energy and charcoal production and on industrial and artisanal logging are missing these indicators. Only the mining law and law on logging have some of these indicators.

Recently in 2018, the DRC has adopted a new Mining Code, replacing the 2002 Mining Code (Official Journal of the DRC 2018). Several innovations have been introduced by this new Mining Code and some of them are linked to the protection of the environment. Relevant innovations are the introduction of an environmental certificate before getting the exploitation permit and the replacement of the environmental opinion by the environmental certificate. Mining companies should obtain the environmental certificate before obtaining the exploitation permit. An Environmental Impact Assessment should be done prior to delivering the environmental certificate to any mining company. As this Code is recently adopted, it is difficult to say if it is properly enforced. Mining pollution is still endangering ecosystems in the DRC, especially in the Katanga province in the South East of the DRC.

In addition, articles 238 and 239 of the Decree on the regulation of mining of 2003 (Official Journal of the DRC 2003) refers to the maintenance or restoration of ecosystem services. Articles 238, 239 of the Decree of 2003 indirectly recognize the avoiding of leakages. Articles 232 and 233 of the 2003 Decree encourage the technical assistance of artisanal mining operators through technical training. However, the enforcement of these measures on the maintenance and restoration of ecosystem services and on the technical assistance are missing in the mining operations in the DRC. In addition, mining laws are lacking clear provisions on reducing leakages.

Article 52 of the 2002 Forest Code states that: any deforestation should be compensated by its equivalent in quality and surface by the author of deforestation or by his fees. The 2002 Forest Code does not restrict deforestation, but organizes it by asking the restoration of forest cover through compensation (Mpoyi et al. 2013).

There is a need to update the laws on activities that potentially degrade ecosystem services in order to promote their preservation.

3.4 PES Contracts Laws

Two types of indicators will be used to assess the PES contracts laws in the DRC: the condition of the validity of a contract and 3 E+ REDD+ criteria.

3.4.1 Conditions for the Validity of a Contract

There are four traditional conditions for the validity of a contract: the consent of the parties, the capacity of parties, the existence of an object and the legal purpose. PES contracts laws, especially the Decree on the homologation of REDD+ projects of

2012, has partially recognized these four conditions on the validity of a contract. Articles 3 and 17 of the 2012 Decree and articles 20 and 22 of Annex IV of this decree refer to the consent of parties. The capacity of parties is addressed by article 3 of the 2012 Decree and the preamble of Annex IV of this decree. The object of REDD+ contracts is clearly stipulated by article 1 of Annex IV of the 2012 Decree. Annex IV of this decree contains a model of a contract on the partnership for the valorisation of environmental services.

However, the 2012 Decree is facing some problems concerning the consent of parties and the capacity of parties. This decree is lacking the following elements:

- The direct attribution of the quality of the promoter of a project to the local communities (REDD Climate Working Group 2012);
- The intermediaries who can assist the local communities in the negotiation on a REDD+ contract;
- The mentioning of “free” consent of parties;
- The technical and financial conditions to be qualified as a promoter of a REDD+ project (REDD Climate Working Group 2012).

In addition, the REDD Climate Working Group, which represents the civil society in the REDD+ process, has revealed that the content of the Decree on the homologation of REDD+ projects is incoherent with the legal system of the DRC and claimed the revision of this decree (REDD Climate Working Group 2012).

3.4.2 3E+ REDD+ Criteria

The objectives of an optimal PES (effectiveness, cost efficiency, equity and co-benefits) have different indicators. Additional ecosystem services, permanence of PES activities, leakage and MRV are criteria on the effectiveness of PES. Financial advantages and costs of PES are related to the cost efficiency of PES. Equal access, benefit-sharing and conflict management are closely linked to the equity of PES. The creation of co-benefits, such as biodiversity conservation, adaptation to climate change, reduction of poverty and good governance, and their control, are the indicators on the creation of co-benefits through PES.

The legal instruments on PES contracts have some incompatibilities to facilitate the implementation of an effective PES. The Decree on the homologation of REDD+ projects of 2012 refers to the additionality of ecosystem services (article 5 of Annex IV), the length of a project (article 9), the minimization of leakages (articles 9, 11 and Annex II on the engagement to respect REDD+ social and environmental safeguards promoted by the Cancun Agreements) and the mechanism of MRV (article 16 of Annex IV). But, the Decree of 2012 is lacking the description of the functioning of a MRV mechanism and of leakages.

Concerning the cost efficiency criteria, financial advantages are promoted in articles 6 and 15 of the Decree on the homologation of REDD+ projects of 2012 and Annex III on the administrative fees of the same decree. The Decree recognizes

the initial costs (articles 6, 16 and Annex III) and the cost of implementation (articles 13 to 15 of Annex IV). The Decree does not mention the opportunity costs.

Equal access, benefit-sharing and conflict management are considered by article 3, article 1 of Annex IV, articles 6, 15, 25 and 26 of the Annex II of the Decree on the homologation of REDD+ projects, and article 8 of the 2009 Decree on the national forestry fund. However, the Decree of 2012 poses some challenges concerning local communities. A clear recognition of the local communities as promoter of a project should be inserted in the 2012 Decree to reverse these challenges and thus, facilitate an equal access of all the stakeholders.

In addition, the representation of local communities in the court in case of conflicts issued by the implementation of a REDD+ project should be introduced in the Decree of 2012. The criteria of selection of the representatives of the local communities, the modalities of the compliance of their mission and the sanctions when they fail in their mission should be clearly integrated in the 2012 Decree.

The 2012 Decree refers to the achievements and compliance of co-benefits. These co-benefits are biodiversity conservation, adaptation to climate change, poverty reduction and governance. Articles 5 and 7 of Annex I and Annex II on the engagement on the respect of socio-environmental safeguards on REDD+ of the 2012 Decree clearly mention these co-benefits and their compliance. However, this decree is lacking the quality and the quantification of the co-benefits to be achieved by the promoter of the project and assessed by the regulator, the Ministry of Environment and Sustainable Development. The regulator receives support from the REDD+ National Coordination of the DRC to comply with the achievements of these co-benefits according to articles 18, 19 and 21 of Annex II and article 11 of Annex IV on the model for a contract of partnership for the valorisation of environmental services of the 2012 Decree.

4 Implications for Sustainable Development Goals 13 and 15

The legal framework on PES in the DRC absolutely interacts with the implementation of the SDGs 13 and 15. Especially, three targets of SDG 13 and 15 are strongly connected with the legal implementation of PES, namely targets 13.2, 15.1 and 15.2.

4.1 Target 13.2: Integrate Climate Change Measures into National Policies, Strategies and Planning

The protection and preservation of ecosystem services are closely linked to climate change problems. Climate change has adverse effects on the maintenance and enhancement of ecosystem services. This chapter has analysed the existing laws

on climate change in force in the DRC. Especially, in Sect. 2, the chapter has selected PES contract laws as one of the four types of the laws related to PES implementation. The 3E+ REDD+ criteria and the classical conditions of contracts have been identified as indicators for the analysis of PES contract laws. From the analysis, it is clear that there are numerous challenges to bring the PES contract laws in line with these indicators.

These challenges include the description of the functioning of the MRV, the leakages, the opportunity costs, details on the participation of the local communities as project promoter and their assistance and the quantity and quality of co-benefits. Integrating these elements in the national policies, strategies, planning and regulations on REDD+ could promote a successful implementation of SDG 13 on climate action.

4.2 Target 15.1: To Ensure the Conservation, Restoration and Sustainable Use of Terrestrial and Inland Freshwater Ecosystem and Their Services in Line with Obligations Under International Agreements

The conservation, restoration and sustainable use of terrestrial and water ecosystems and their services have been addressed by various laws in the DRC. Natural resources laws, laws on activities that potentially degrade the environment and the PES contract laws in the DRC have been analysed in line with the indicators on the 3E+ REDD+ criteria, the classical conditions of contracts and on measures of conservation and restoration. Section 3 of this chapter reveals the weaknesses and challenges of these laws to integrate the above indicators. This chapter supports the transformation of these laws (adoption of decrees, updating of laws and regulations) to reach target 15.1 and, thus, promote the implementation of SDG 15 on life on land.

4.3 Target 15.2: To Promote the Implementation of Sustainable Management of the Ecosystems by 2020

Achieving sustainable management of ecosystems and their services depends on the effective and efficient enforcement of adequate laws and policies that regulate these ecosystems and their services. This research analysed PES laws applied in the DRC in line with indicators that aim at promoting a sustainable management of ecosystem services.

5 Conclusions

This chapter aimed at filling the gap between law and sustainability in order to optimize the preservation of ecosystem services in the Congo Basin. The study focused on one of the Congo Basin States, the DRC. Selected indicators have been identified to assess the laws related to PES in the DRC. Four types of indicators have been considered: indicators on land-tenure security, the 3E+ REDD+ criteria, the classical conditions for the validity of a contract and indicators on the maintenance and restoration of ecosystem services.

These indicators have been used to analyse four categories of laws related to PES: land-tenure laws, natural resources laws that generate ecosystem services (biodiversity conservation, carbon sequestration), laws on activities that potentially degrade ecosystem services and PES contract laws.

From the analysis of these laws in line with the above selected indicators, several challenges and weaknesses were revealed. Integrating these indicators in these laws would maximize the preservation of carbon sequestration and biodiversity conservation, through a better implementation of PES.

Moreover, the transformation of these laws related to PES would have a significant positive impact on the implementation of the Sustainable Development Goals, especially SDG 13 and 15. This study more specifically supports the integration of climate change measures into national policies, strategies and planning (13.2), the conservation, restoration and sustainable use of terrestrial ecosystem services in line with obligations under international agreements (15.1) and the implementation of sustainable management of ecosystems (15.2).

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Part X
**Specific Aspects: Food – Localized Rights,
Transboundary Water/Energy Nexus with
Groundwater and Urban Gardens**

Municipalities, Social Innovations, and the Co-development of Localized Food Rights



Paula Fernandez-Wulff

1 Introduction

Rights-based approaches are a well-known policy tool, particularly in the field of international development and poverty reduction strategies (see e.g. Cornwall and Nyamu-Musembi 2004; Office of the United Nations High Commissioner for Human Rights 2006). Literature in the context of food systems' reform has also identified rights-based approaches to policy-making as key in the implementation of the right to food and in the development of more empowering notions of food insecurity (see, e.g., Mechlem 2004; Anderson 2008; Chilton and Rose 2009).

Sustainable Development Goal to “End hunger, achieve food security and improved nutrition and promote sustainable agriculture” (SDG2) calls for the elimination of the root causes of hunger and poverty through the progressive realization of the right to food, including through the increased participation and empowerment of local communities (U.N. General Assembly 2015). At the same time, municipal policy is an arena where local communities are becoming increasingly involved (cf. Zeitlin and Sabel 2012), collectively developing their own rights-based policies and redefining their content, particularly in the context of food (see, e.g., Pothukuchi and Kaufman 1999; Harper et al. 2009; Food Law & Policy Clinic (Harvard Law School) 2017). Decentralizing the search for policy solutions through the stimulation

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of local democracy has been found to contribute to social learning and reflexivity, leading to a kind of sustainable governance that contributes to the transition towards a post-growth society (De Schutter 2017). This transition, in fact, calls for a “plurality of solutions” (De Schutter 2017), where local experimentation, and not the limited range of instruments that the State can use, such as regulatory reforms or economic incentives, becomes paramount. If this is true, then there is a need to a shift away from State-led solutions for citizens, to a focus on the ability for citizen groups to collectively design their own solutions at the local level, without simultaneously relieving the State from its obligations. There is therefore a need for ascertaining the way this progressive realization of the right to food can be achieved through local-level policy co-developed between municipalities and local community organizations.

However, especially in the view of contemporary trends in food systems’ activism (see, e.g., Patel 2009; Alkon and Mares 2012; Alkon and Guthman 2017; André et al. 2017), there is very little evidence of how citizen groups of the food system use rights at the local level (see, for a recent exception, Desmarais et al. 2017). As a result of this oversight, on the one hand, local food policy processes have not been tied, both in theory and in practice, to the work of civil society and social movements on the right to food and other new rights at the international level. On the other hand, human rights work in the context of food has not been imbued by the exponential growth in comprehensive local food strategies and in territorialization processes (understood as areas of increased actor interactions defined by place-specific social relations and practices) with the food system at their core.

To address these limitations, this chapter presents, first, the achievements of the main actors and institutions working on the right to food at the international level, with an eye to what lessons may be drawn from those processes for the collective implementation of food rights at the local level. Secondly, through two case studies based on semi-directed interviews with actors involved in local collective action experiences with food policy-making in the European Union and the United States, this chapter shows how social initiatives navigate the legal system and the administrative State to craft their strategies, using and pushing for the use of rights language strategically. As part of SDG2, the progressive realization of the right to food must include the creation of spaces of participation and empowerment where communities have a say in what their food systems look like.

This chapter is structured as follows. Section 2 introduces, first, a brief overview of the right to food through the key actors and processes central to its legal development at the international level (2.1), and second, a description of the problematic of the definition and identification of local rights-based food policies (2.2). Section 3 develops the concept of local rights-based food policy in the context of the European Union and the United States, presenting the opportunities and challenges of the concept and its implications on both sides of the Atlantic, developing them through examples in the E.U. and the U.S.: local institutions designing local food policies in the E.U. (3.1, based on the case of *Gent en garde* in Belgium), and U.S. municipalities localizing food and agricultural systems from a rights

perspective (3.2). Section 4 concludes the chapter by presenting potential ways forward for the inclusion of human rights perspectives within local food policies.

2 Overview of the Right to Food and Its Key Actors

The purpose of this section is, first, to provide a background that accounts for recent developments on the right to food at the international level through the work of three key international actors and processes; second, because the concept of rights-based approaches in the context of local food policies remains underexplored in literature (legal or otherwise), this section provides an introduction to the key features and value of such approaches, described here as ‘localizing food rights.’

2.1 *Actors of the Right to Food in International Law*

While the idea that we have failed at solving hunger and malnutrition in the world seems to be today no longer disputed, diagnoses as to how this failure came about and what solutions may be proposed to reverse it do differ. Although experts including Amartya Sen and Francis Moore Lappé had warned that famines are a distributional problem (Sen 1981; Lappé and Lappé 2002), the sources of hunger were tied to the Malthusian diagnosis of overpopulation and underproductivity and, as a result, agricultural productivity was overprivileged, while human rights principles including people’s participation and empowerment and governments’ accountability remained largely neglected (De Schutter 2014).

However, in the last two decades, the work of four international actors and processes on food and agriculture has repositioned accountability, participation, and empowerment at the core of international policy debates, particularly through their work on the right to food, helping advance its definition, the content and extent of States’ obligations, and its justiciability mechanisms. As such, they become particularly relevant for our look into local-level policy. These four international actors and processes are the Committee on Economic, Social, and Cultural Rights (CESCR), the figure of the UN Special Rapporteurs on the right to food, the Committee on World Food Security (CFS), and civil society.

Although the definition of food insecurity adopted in the 1996 World Food Summit and that of the right to food bear considerable resemblance, the right to food offers a series of advantages in terms of policy formulation and advocacy – as FAO’s legal officer Kerstin Mechlem has put it: “[the right to food] is based on an a priori commitment to the value of human dignity and makes the individual an agent of change in a way that enables him or her to hold governments accountable and to seek redress for violations of his or her rights. A right-to-food approach is not based on vague and replaceable policy goals subject to periodic redefinition, but on

existing, comparatively specific and continuously becoming more precise obligations undertaken by governments” (Mechlem 2004).

Until 1999, the only legal basis for the right to food was contained in Art. 11 of the 1966 International Covenant on Economic, Social, and Cultural Rights (U.N. General Assembly 1966, emphasis added):

1. The States Parties to the present Covenant recognize *the right of everyone to an adequate standard of living for himself and his family, including adequate food*, clothing and housing, and to the continuous improvement of living conditions. The States Parties will take appropriate steps to ensure the realization of this right, recognizing to this effect the essential importance of international co-operation based on free consent.
2. The States Parties to the present Covenant, recognizing the fundamental *right of everyone to be free from hunger*, shall take, individually and through international co-operation, the measures, including specific programmes, which are needed:
 - (a) To improve methods of production, conservation and distribution of food by making full use of technical and scientific knowledge, by disseminating knowledge of the principles of nutrition and by developing or reforming agrarian systems in such a way as to achieve the most efficient development and utilization of natural resources;
 - (b) Taking into account the problems of both food-importing and food-exporting countries, to ensure an equitable distribution of world food supplies in relation to need.

In 1996, the World Food Summit reached a consensus that this article 11 should be clarified, particularly regarding the nature of States’ obligations. Considered one of the key breakthroughs in the evolution of the legal content of the right to food, the CESCR’s General Comment No. 12 (U.N. Committee on Economic Social and Cultural Rights (CESCR) 1999) made art. 11 more specific and applicable by countries. Specifically, and following a typology advanced by Asbjørn Eide (cf. Eide 1999), General Comment no. 12 interpreted States’ obligations as being of three kinds: the obligation to respect, to protect, and to fulfill the right to food (para. 15). It also outlined a number of procedural obligations, such as the obligations to ensure non-discrimination and participation in policy-making. Although not legally binding, the role of CESCR is to provide authoritative interpretations of the rights contained in the ICESCR, which in turn are used by both States and other international organizations to further advance economic, social, and cultural rights. For instance, building on these obligations regarding the right to food, the FAO developed the PANTHER principles to provide a framework to guide decision-making and policy processes relating to all levels of implementation of the right to food (acronym for Participation, Accountability, Non-Discrimination, Human Dignity, Empowerment, and the Rule of Law), and these principles are in turn used to produce assessments on the progressive realization of the right to food (cf. Food & Agric. Org. of the U.N. (FAO) 2009). The work of Special Rapporteurs Jean Ziegler (2000–2008) and Olivier De Schutter (2008–2014) has also critically advanced the content of the right to food through their annual reports, country missions, and interventions in international fora.

General Comment No. 12 also contributed to the negotiations that ultimately led to the FAO “Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security” in 2004, which provided

more practical guidance to States in their implementation of the right to food (FAO 2004). However, especially because the Covenant contains no mention to the creation of the CESCR, and no mention to the FAO as a forum where new rights and obligations could be developed, some countries do not formally recognize their authority or that of any of its outcome documents.

Such is the case of the United States, which does not recognize the obligation triad to respect/protect/fulfill the right to food or, in general, the justiciability of the right to food under international law. This is particularly due to alleged inconsistencies with intellectual property and WTO agreements (U.S. Dept. of State Office of the Legal Adviser 2004; U.S. Dept. of State Office of the Legal Adviser 2016). As a result of this tension, these institutions and fora must diplomatically navigate the funambulist's tightrope of expanding rights while simultaneously maintaining their own legitimacy. It is therefore unsurprising that the CESCR has solely focused on State national-level jurisdictions, the only subjects of international law strictly speaking, and not yet on local institutions.

Second, the Committee on World Food Security (known as the CFS) is arguably the most important international political fora on food and agriculture, particularly since its 2009 reform. It is composed of *members, participants, and observers*¹ – and while only States can be *members*, *participants* include representatives from five different groups deemed to represent the diversity of groups working on the topic: (1) representatives of relevant UN agencies and bodies (e.g. Special Rapporteur, FAO, WHO, UNICEF, etc.); (2) civil society and non-governmental organizations (including those representing smallholder farmers, fisherfolk, pastoralists, urban poor, consumers, women, and Indigenous Peoples, now organized as the Civil Society Mechanism); (3) international agricultural research institutions (e.g. the Consultative Group for International Agricultural Research, CGIAR); (4) international and regional financial institutions (World bank, IMF, WTO, regional and development banks); and (5) private sector associations (through the Private Sector Mechanism) and philanthropic foundations (the Bill and Melinda Gates Foundation, among others). Although local authorities are not participants of the CFS, they have gained much recent attention through the side events organized by the FAO's interdepartmental initiative Food for the Cities (further detailed below).

Lastly, civil society and NGOs have also contributed to the repositioning of participation and accountability in key international processes related to food and agricultural policies. After the CFS reform in 2009, civil society organizations formed what is now the “Civil Society Mechanism for relations to the UN Committee on World Food Security” (generally known as the CSM). The importance of this

¹The CFS also includes a High-Level Panel of Experts on Food Security and Nutrition (HLPE), formed by a steering committee with 15 internationally recognized experts and a number of project-based teams. HLPE issues regular calls for consultations and produces authoritative reports on these topics. Another expert group, the High-Level Political Forum on Sustainable Development meets annually under the Economic and Social Council, and every 4 years under the General Assembly. It gathers regular voluntary State reviews for its own outcome documents and is therefore key for SDG monitoring.

umbrella platform has grown with the years. Most notably, it has been instrumental in organizing disparate voices from organizations with very different priorities and geographical locations into a more cohesive actor capable of expressing itself in an already congested international forum. Moreover, the CSM has taken the lead in a number of landmark participatory processes that have influenced many international documents, including the “Voluntary Guidelines on the Responsible Governance of Tenure of land, fisheries and forests in the context of national food security” of 2012 (VGGT or Tenure Guidelines, see FAO 2012), the “Principles for Responsible Investment in Agriculture and Food Systems” of 2014 (see FAO 2014), and the Recommendations for “Connecting Smallholders to Markets” of 2015 (see Civil Society Mechanism of the U.N. Committee on World Food Security 2015; U.N. Committee on World Food Security 2015). Equally important are the yearly publications issued by the Human Right to Food and Nutrition Watch, a consortium of civil society organizations that reports on different food-related issues. Although the CSM is yet to officially focus on local-level food and agricultural policy, many of its reports retain a highly relevant local angle, particularly as some of its members increasingly push to include local and urban issues in the coalition’s common agenda.²

These actors have advanced the content of the right to food, from a somewhat unclear article (that of the 1966 ICESCR), to a fully formed human right with a definition, content, and outlined extent of States’ obligations. Despite its shortcomings and critiques (further explained below), the human right to adequate food and nutrition provides an all-encompassing framework through which local communities can empower themselves and demand accountability from their governments so that they comply with their international obligations to respect, protect, and fulfill the right to food. As the Voluntary Guidelines for the progressive realization of the right to food stated,³ participation in the development of food-related public policies is a key component of rights-based approaches to decision-making processes (FAO 2004, 2009). As citizens are becoming more aware of their status as rights-holders in the context of food and agriculture, different ways to interact with it are beginning to arise, and as a result, the role of the State in realizing the right to food is also evolving.

This is particularly so as a different view of rights, particularly economic, social, and cultural rights, is emerging—one that is not based on State services necessarily, but in demanding support for citizen solutions to local problems. In the form of negative State obligations, this means not hindering the capacity for local populations to successfully define what their food systems look like,

²This is particularly the case of Urgenci (the international network of community-supported agriculture groups), Consumers international, and Habitat International Coalition (HIC, working on the right to housing and land), but also, and more recently, FIAN International.

³Particularly guidelines 2.6 (regarding rural and poor populations), 3.8 (regarding national human-rights based strategies), 5.4 (regarding institutions), 8.6 (regarding women), 8.12 (regarding genetic resources for food and agriculture), 9.9 (regarding food safety regulations), 14.5 (regarding food assistance), 17.4 (regarding the development of indicators for progress evaluation).

re-territorializing them; in the form of positive obligations, even when national accountability mechanisms are lacking, particularly at the local level this means creating other spaces for accountability, not necessarily attached to courts in the case of countries without legal national recognition of the right to food for local communities to monitor definition, development, and implementation processes of food policies affecting directly or indirectly their territories.

Policy development is generally guided by legal frameworks at the national level, and a lack of legal protection can inhibit other avenues of enforcing the right to food; for example, courts may be unable to exercise their jurisdiction to address and remedy violations of the right to food (see, *e.g.*, Knuth and Vidar 2011). However, lacking national frameworks should not be an obstacle to the legal inventiveness of local authorities, as particularly in the context of food they are in close contact with local communities, and may have a better chance at developing public policies that are relevant to local contexts.

Yet for all the work that has been carried out at the international level, there is very little work on the role of local governments in developing local food policies from a rights perspective (see, as an exception, the U.N. reports on local governments and human rights, though no specific mention is made to food or agriculture, U.N. Human Rights Council 2015, 2017). If, as advanced in the introduction, there is a need to look beyond State regulations and into citizen-led solutions, then how do we ensure that going from uniformity to diversity doesn't preclude the ability to hold governments accountable?

2.2 *The Right to Food, Food Rights, and Rights-Based Local Policy*

The institutions and actors mentioned above use human rights approaches, and particularly the right to food, as an opportunity to change the failed Malthusian diagnosis of overpopulation and food shortages and replace it with one that positions at its core people's collective participation and empowerment and government accountability. The purpose of this sub-section is to introduce the conceptual differences between right to food, food rights, and rights-based approaches to or rights-based local policy.

Human rights-based approaches emphasize the recognition of the equal rights of all people and the redistribution of the resources required for material wellbeing and social inclusion (Mitlin and Patel 2005). In this sense, human rights-based approaches to policy-making are more than a technical process: "the move from a limited *conception of needs*, conceived in terms of meeting a minimum of requirements, to a *focus on rights* entails a shift towards embracing a more strategic vision of what citizens are entitled to and require for their further development." (Molyneux and Lazar 2003 (emphasis added)).

However, we also know that the right to food, by virtue of being a human right, is an imperfect tool: like other creatures of the State, it comes with the challenges of all State-led processes, particularly in that it would risk remaining a State-centric (Brown 1997; Ignatieff and Gutmann 2001; Kennedy 2006), disempowering (Mutua 2001) tool. In the case of the right to food, while it has been found to be an appropriate tool for policy framing (Beuchelt and Virchow 2012), social movements have not rallied behind the concept due to criticisms to its Western focus and liberal, social-democratic approach (Lambek et al. 2014; Claeys 2015).

But these imperfections have also had at least two interesting consequences (further developed in Section 3): on the one hand, although many municipalities have signed the Milan Urban Food Policy Pact, which includes the right to food, they are using a variety of strategies to localize food rights, not restricted to human rights *traditionally speaking*. On the other hand, civil society and grassroots organizations working locally have invented their own collective vocabularies directly referring to the term “right,” or not, strategically, depending on how useful it is to them. Because local policy can be easily depoliticized (reducing it to a technocratic, managerial process), a rights vocabulary, particularly when employed in collective terms, can be helpful in rallying disparate policy banners behind a single, common theme.

In addition, if food is a human right, then when municipalities design local food strategies, they are, whether explicitly or not, implementing aspects of human rights. If this is true, then investigating what other human rights principles are *not* being implemented can trigger obligations that lead to new forms of State accountability. In this chapter, I illustrate these concepts in the context of the food system, as a process that I term ‘localizing food rights.’

3 Elements of Rights-Based Local Policy: Opportunities and Challenges in the EU and the US

The European Union and the United States represent two regions of the world where the role of local authorities is increasingly recognized as key in the progressive realization of human rights (Davis 2007; Oomen et al. 2016). However, because economic, social, and cultural (ESC) rights have matured at a slower pace than civil and political rights,⁴ lesser attention has been given to their implementation at the local level. A closer look from a human rights perspective is therefore warranted in the case of food, which has gained recent attention on both sides of the Atlantic.

⁴As an illustration of this uneven development: while the first Optional Protocol to the International Covenant on Civil and Political Rights was adopted in 1966, giving competence to the Human Rights Committee to receive and consider communications from individuals who believed their rights have been violated, it was not until 2008 (that is, 60 years after the UDHR) that the Optional Protocol to the ICESCR was adopted to establish an equivalent system before the CESCR.

Food policy can be defined as the decisions, actions, regulations, or laws taken and passed by public authorities or other institutions that have an impact on one or more levels of the food system, including food production, processing, distribution, consumption, and waste (see, for early efforts to define food policy, Lang et al. 2009). Local policy, in turn, includes those decisions taken by public authorities or institutions operating at the municipal level, depending on the national distribution of powers as well as context-specific conceptions of scale. These policies can include, for example, regulations of food hygiene and safety, land use and zoning, meal and restaurant taxes, and a number of incentives or disincentives that have a great impact on the shape of local food systems. While such local policies are important, and they have received much attention in the last few years, they are ultimately individual tools and not comprehensive strategies to address local food systems' challenges. This section develops the case of *Gent en garde*, a city-wide strategy in Ghent (Belgium), as a local institution charged with designing local food plans (3.1); and the approach and challenges of some municipalities in the U.S. to localize food and agricultural systems from a rights perspective (3.2). These two subsections draw on (1) legal research on the use of human rights language in US foreign policy regarding food and agriculture, and (2) semi-directed interviews conducted by the author with actors involved in local collective action experiences with food policy-making.

3.1 Local Institutions Charged with Designing Local Food Plans: The Case of Gent en garde

Localities can adopt comprehensive plans at the neighborhood, city or regional scale, describing the different goals for their particular local food system, assessing conditions, and making recommendations for ways forward. One strategy that municipalities can use to develop local food policy in a comprehensive manner is through accountable institutions specifically charged with designing local food plans. This includes Food Policy Councils (FPCs), food and/or agricultural departments within local authorities that work together with civil society, or independent mechanisms for monitoring food policy at the local level.

FPCs can serve as strategic spaces for coordination and dialogue on specific food policy issues among actors of the food system (CSM of the CFS 2015). FPCs work across sectors to overcome institutional silos, generally consisting of government representatives and stakeholders from various sectors of the food system (Harper et al. 2009). They can also be truly democratizing spaces where power is shifted from the economic sector and where food is treated differently from other industrial products (Jonasse 2009), putting communities' interests at their core. If carefully designed to become truly participatory spaces where system cooptation is protected against, FPCs can result in enhanced community agency. But because the agency of marginalized and low-income communities may be hindered in the context of

policy-making processes, “participation of food-insecure groups in the policies that affect them should become a crucial element of all food security policies, from policy design to the assessment of results to the decision on research priorities” (U.N. Human Rights Council 2010). The case of *Gent en garde*,⁵ an initiative within the city of Ghent (Belgium), provides a fruitful lens for looking into issues of participation and political possibilities in developing rights-based local policy.

Gent en garde, launched in 2013, is the comprehensive food strategy developed by the city of Ghent, in Belgium. After the red-green coalition (SP.A-Groen) won the elections in 2013, the Department on Environment, Climate, Energy, and North-South relations of the city of Ghent (led by Tine Heyse) decided to set up a Food Council where local officials, academics, farmers, and civil society organizations would meet to address some of the most pressing issues facing the local food system in Ghent.

In order to begin the process, the City, with the support of E.U. funding (Food Smart Cities for Development Project), reached out to 25 specifically-chosen organizations, both local and national with local branches, and to experts and academics from nearby universities. In 2015, the City organized a series of closed stakeholder consultation meetings as well as an international seminar to bring together experiences from cities around the world.

City officials set five strategic goals around which discussions were held in the consultation meetings: a shorter, more visible food chain; more sustainable food production and consumption; the creation of more social added value for food initiatives; reduce food waste; and optimal reuse of food waste as raw materials. These strategic goals were translated into 20 operational goals through a series of closed meetings that were held every three months.

One of the differences between Ghent’s and other Food Policy Councils, such as those in the U.S., is that in Ghent the Food Council is organized around projects, and not around policies. While the Food Council does not decide on specific policies, it serves as a platform to discuss different projects that are proposed within the group. It has also helped different actors connect and share perspectives. Precisely because the Food Council is project-focused, it is also very action-oriented. However, it is also very dependent on political will and its proposals are subject to interpretation by local officials.

From the perspective of civil society, challenges have arisen within *Gent en garde* due to the different interests represented in it. While local officials have been open to discuss what can be done together with civil society organizations, a growing concern has been the lack of clarity regarding what the Food Council can do in practice. This has had an impact on the levels of participation of the organizations and individuals that are part of the Council, but also on how active those who attend the meetings can actually be. Furthermore, the opacity of the Council, particularly regarding collaboration between government cabinets and other organizations, has deterred some and hindered the involvement of other actors. Some stakeholders have

⁵This case study has appeared in a different form as part of (Fernandez-Wulff and Yap 2018)

also criticized poor communication by the Council, such as in the case of the operational goals developed by the Council, which were not well communicated to the general population. Similarly, communicating how perspectives from civil society would be integrated and translated into actions can be extremely important to ensure trust and sustained participation both within the Council and in the general population.

Gent en garde has become a space for communication among different actors in the city, and a safe space where they can raise issues to government officials. As such, it has become an important space where they can build relationships of trust among organizations and with the local government. The setting up of the Food Council, in itself, also led to a critical shift in political discourses, as it sent a clear message to potential candidates for future elections that there is a growing interest in food system-related issues. Changing the middle ground for the sustainable food and urban agriculture discourses can be considered a victory of the Food Council, given that it ensures continuity beyond the electoral cycle.

The *Gent en garde* strategy document explicitly recognizes both the right to food and food sovereignty (Gent en Garde 2016). However, the Food Council does not currently have the means or mandate to pass legislation or policy that supports their realization. While it is important to recognize the achievements of the Food Council and resulting strategy, the experience demonstrates the limits of a policy process that is entirely induced by the City and conducted in invited space. Moreover, the absence of an explicit or implicit rights approach diminishes and constrains the potential of civil society and social movements to demand lasting changes to policy or the policy process.

3.2 *U.S. Municipalities Localizing Food and Agricultural Systems from a Rights Perspective*

In the U.S., while the topic of local food policy is widely debated, human rights approaches to food are only discussed to a lesser extent. Although the U.S. has not ratified the ICESCR, its position towards rights language and the implications of this language for food and agriculture are ambivalent both at the international and domestic levels.

At the international level, the U.S. has acknowledged that there is a right to food before the Human Rights Council. When explaining its position regarding Resolution 16/27 on the right to food (U.N. Human Rights Council 2011), the U.S. (under the Obama administration, with Samantha Power as its ambassador to the UN) stated that: “[it] is *pleased to be able to join consensus* on this resolution on the right to food. *Food is essential to the rights of all people* to an adequate standard of living, as recognized in the Universal Declaration of Human Rights and the International Covenant on Economic, Social and Cultural Rights, and is also an *interdependent* [sic] with the protection of other human rights. [...] Public authorities throughout

the United States take significant measures to support access to food and food production in the United States, including prohibiting discrimination in such programs,⁶ and these are protected by law. [...] *Securing the right to food must be achieved progressively*, given the resources available to each government, through transparent and democratic processes.” (U.S. Mission to the United Nations 2011 (emphasis added))

With the change of administrations in 2016, the U.S. position towards the right to food became more negative. In its response to Resolution 71/191, also on the right to food (G.A. Res. 71/191 2016), the U.S. noted that: “[t]he United States [...] does not treat the right to food as an enforceable obligation. We also do not concur with any reading of this resolution or related documents that would suggest that States have particular extraterritorial obligations arising from a right to food.” (U.S. Dept. of State Office of the Legal Adviser 2016). And especially since ambassador Nikki Haley took office in January 2017 (and until the U.S. announced its withdrawal from the UN Human Rights Council in June 2018), the expression “right to food” has been carefully avoided and fiercely argued against in other explanations (see, e.g., U.S. Mission to the United Nations 2017).

However (or precisely because of the lack of opportunities at the federal level), and as Duger and Davis note, opportunities exist at the sub-national level, where “local actors may use a human rights action plan or framework to give coherence to food advocacy and programs and to establish mechanisms of government responsibility and accountability” (2012). And, in fact, policy-makers are beginning to understand the importance of developing rights-based policies in the realm of local food systems, and the role of local authorities in this context has been increasingly recognized.

The 2015 Milan Urban Food Policy Pact marked a key moment in this recognition. The Pact is an international agreement signed by over 160 cities from all over the world and open to all cities willing to develop sustainable food policies. Signed by over European 60 cities and 10 U.S. cities including Chicago, New York, and San Francisco,⁷ it established that signatory cities will “develop sustainable food systems that are inclusive, resilient, safe and diverse, that provide healthy and affordable food to all people *in a human rights-based framework*” (MUFPP 2015, emphasis added).

In the U.S., examples of this recognition also include the establishment of accountable institutions like the Food Policy Task Force of the U.S. Conference of Mayors and the creation of the position of “Director of Food Policy” in many U.S. cities, such as DC and Baltimore (Baltimore Office of Sustainability 2018; DC Office of Planning 2018). These institutions can contribute to government

⁶This is in reference to the famous class-action discrimination suits brought forth by African-American, Native Americans, and Hispanic farmers against the USDA for discrimination in the agricultural loan granting processes, known as *Pigford* and *Pigford II*. See original case in *Pigford v. Glickman*, 185 F.R.D. 82 (D.D.C. 1999).

⁷As of May 2018, the following U.S. cities have signed the Pact: Austin (TX), Baltimore (MD), Chicago (IL), Madison (WI), Miami (FL), Minneapolis (MN), New Haven (CT), New York (NY), Pittsburgh (PA), San Francisco (CA), and Washington, D.C.

accountability in that they involve policy coordination and become a “single window” point of contact for food systems’ reform, making it easier for citizens to target their demands for accountability at the right department. Yet they can also quickly become coopted spaces where a rights-based agenda ends up thwarted by unequal power relations, particularly as a result of uncared attention to such dynamics in decision-making (Horst 2017).

The right to food may not be the most common term used by these municipalities to frame policies relating to local food systems. However, when analyzing their rationale and goals more closely, these policies can be understood as part of the core content of the human right to food, as conceived by international instruments and doctrinal developments. For instance, cities including New York, Washington D.C., or Detroit, have worked with concepts such as justice, empowerment, or equity to design local policies consistent with some aspects of rights-based frameworks.

In New York City, the municipal government addressed food deserts and the (mal)distribution of fresh-food stores as part of a strategy to fight racism and discrimination in the food system. This was done through policies to make fresh food available in communities of color through addressing commercial redlining and its insidious impacts on corner food stores and small supermarkets. The New York City’s Food Retail Expansion to Support Health (FRESH) program provides zoning and financial incentives to promote the establishment and retention of neighborhood grocery stores in underserved communities throughout the city (Racial Justice Program New York Law School 2012).

Municipal policies can also help farmers’ markets accept EBT⁸ in order to facilitate the use of SNAP benefits at farmers’ markets with fresh, local food. Washington D.C.’s initiative “DC Hunger Solutions - Ending Hunger in the Nation’s Capital” had the goal of coupling increasing farmers’ revenues with preventing diet-related health risks and diseases, through issuing food stamps to be used at farmers’ markets. The initiative convened the D.C. Farmers Market Collaborative in 2006 to increase access to fresh produce for low-income residents.

In Detroit, the Detroit Food Policy Council organized a public session on the issue of public land sale processes with the goal of empowering social actors of the food system, including marginalized communities, by increasing their participation in community engagement fora and eventually policy-making spaces such as Food Policy Councils (Detroit Food Policy Council 2012).

While they may not use explicit rights language, policies such as these do include principles that are key features of the human right to food, such as non-discrimination, participation, and human dignity. As advanced in the previous section, if this is true, then investigating what other human rights principles are *not* being implemented, such as the transformation of power relations (cf. Haugen 2011), can trigger obligations that lead to new forms of State accountability.

⁸EBT stands for Electronic Benefits Transfer and it is the system used to deposit funds for beneficiaries of SNAP (Supplemental Nutrition Assistance Program) (formerly known as food stamps).

The opposite isn't necessarily true, however – using the words “human rights” in local policy does not automatically involve rights are effectively being implemented and secured. In other words, interpreting policies through a rights-based lens is not only a matter of language choice. For instance, the former UN Special Rapporteur on the right to food identified that “empowering communities at the local level, in order for them to identify the obstacles that they face and the solutions that suit them best, is a first step [towards the realization of the right to food]” (U.N. Human Rights Council 2014). The implication is that human rights approaches to food are not only defined by their explicit mention, but also by the effective implementation of principles during the policy-making process and in the aftermath too, including the abovementioned principles included in FAO's PANTHER assessment, such as participation, transparency, and accountability. Effective implementation can be measured by explicit provisions of the three State obligations explained above as well as a variety of accountability mechanisms to monitor and provide remedies in case of violation (Lambek and Claeys 2016), but also by guaranteeing funding so that changes in political power do not undermine efforts to implement the right to food (U.N. Human Rights Council 2013). Using a human rights approach to develop and understand local food policies can therefore be key to their long-term success and legitimacy.

Moreover, approaching issues related to the food system from a human rights perspective not only highlights key aspects municipal officials should consider when developing local food policies, but also points at missing elements in already existing strategies. For instance, not all Food Policy Councils or public procurement programs are rights-based *per se* – however, applying a human rights lens to their development and outcomes encourages accounting for aspects including not only participation on equal footing during the policy-making processes, and accountability mechanisms for once those policies have been drafted and implemented, but also power differentials among actors involved. This can be particularly useful in cases where municipal governments contribute through their policies to re-inscribe systemic inequities and bolster the corporate food regime, instead of supporting food justice (Horst 2017).

In such cases, human rights frameworks can not only help municipalities identify key (missing) aspects when developing local policies, leading to a clearer identification of the responsibilities of duty-bearers and to increased policy coherence. These frameworks can also help civil society identify when and how municipal authorities are *not* developing policies that contribute to ensuring justice in the food system – a key step in demanding accountability.

4 Conclusion

While the human right to food and nutrition is a set of normative frameworks that defines the relationship between the State and people and communities, it can also be understood as a collective claim that has emerged from the struggles of individuals, communities, and social movements around the world against processes of marginalization, domination, and oppression. Blurring the lines between social movement

and local governance, the experiments presented here are organized at the municipality or district level, demanding socially and ecologically just solutions to issues that concern the community as a whole.

The Milan Urban Food Policy Pact (MUFPP) opened the possibility of thinking about the local dimension for improving the right to food in cities. However, despite agreeing to integrate human rights-based policies for sustainable food systems, the Pact failed to establish a clear framework for inclusive and democratic governance. By focusing on enhancing “stakeholder participation at the city level” (MUFPP 2015, recommended action no. 2), it reproduced the trend of urban-centric policy and planning. Moreover, with the exception of a few very general references to accountability under the section devoted to “ensuring an enabling environment for effective action,” the Pact substantially lacks an effective mechanism to keep local authorities accountable to citizens.

The governance of food systems, in the city and beyond, is a complex and often fragmented process, leading to a high degree of variability across cities and their surrounding regions. Food systems are impacted by decisions made by both elected and unelected officials, by urban planning, public health, and education policies, among countless other processes. Although for many people and communities the local level (whether the city, municipality, or rural village) is the level of government that has the most impact on their daily life, uneven participation and power relations make accessing those policy spaces particularly difficult. For instance, despite the fact that the impact of policy decisions made in urban contexts extends well beyond the limits of the city, rural communities are rarely actively involved in decision-making. It is clear that depending on how local food policies are designed and translated into practice, they could either herald a radical opportunity to transform food systems or reinforce and worsen the current, dominant one.

Economic, social, and cultural rights are a difficult concept in the U.S. Not only are human rights considered as “negative rights,” that is, rights to be protected from government abuses, instead of positive obligations of federal and state governments, but the U.S. federal government has also distanced itself from ESC rights by not recognizing them internationally and considering them mere “aspirational goals.” As a result, the right to food has not had much traction in the U.S. However, it is also known that U.S. states and municipalities have been at the forefront of human rights’ protection, particularly after civil society and grassroots organizations used ESC rights as strategies for social justice.⁹

These civil society organizations use human rights as a narrative, both to empower and mobilize their members and to use a vocabulary that the government can understand. However, options may be limited for municipal governments wishing to localize food rights. For example, one of the main issues with Food Policy Councils and strategies such as *Gent en garde*, working at the municipal

⁹For instance, the campaign on the right to housing, by the Kensington Welfare Rights Union in Philadelphia (PA); on the right to health, housing, and work by the Heartland Alliance for Human Rights in Chicago (IL); or on the right to healthcare by the Vermont Workers’ Center (VT).

level, is that they tend to only, or primarily, tackle issues that fall within their jurisdiction, for instance urban agriculture. This reduces their ability to transform food systems in a holistic way, a key feature in the transition towards sustainable development (Moscatelli et al. 2016; Rosen and Duić 2017).

In regions where governments have not developed national strategies for the implementation of the right to food, which is the case both in the U.S. and in the E. U., the executive, legislative, or judiciary branches are still duty-bearers, but civil society has an implementation capacity that is perhaps far greater than the executive (since no laws exist for the protection of the right to food), the legislative (since there is no written obligation to respect, protect, and fulfil the right to food), or the judiciary (since no political will or national enforceable strategy exists). In this sense, civil society can and is triggering its political and civic imagination to innovate in ways that neither the State nor courts can.

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Water-Energy-Food Nexus and Groundwater: Can the Nexus Support the Sustainable Management of Transboundary Aquifers?



Imad Antoine Ibrahim

1 Introduction

Generally speaking, shared natural resources cannot be managed unilaterally as states are inclined to pursue their national interests largely driven by economic and societal concerns (Pereira 2015). States must cooperate, on the basis of international rules, to preserve and protect these resources. Yet, despite the great number of global environmental regulations, the international community has not been able to prevent environmental degradation and natural resources depletion (Voigt 2015). In fact, international rules have been – and are still – being promulgated without the slightest chance of being implemented (Scott et al. 1995) and failure to comply with the provisions of environmental conventions does not lead to sanctions being imposed. Moreover, environmental treaties do not possess effective dispute settlement systems and many environmental conventions lack such systems altogether (McArthur 2013). Given the failure to ensure compliance with the provisions of current international environmental agreements, they must be regarded as ineffective and inefficient (Weiss 1993). Despite this, the international community is constantly coming up with new terms and concepts intended to improve environmental governance (Armitage et al. 2012). The Water-Energy-Food (WEF) Nexus is one of these concepts and has emerged as a way of stressing the importance of adopting a broad approach that takes into account the intersections of the different sectors (Wichelns 2017).

The WEF Nexus still has to find its place in the legal sphere (Nespor 2008). In particular, the concept's importance to international water law is yet to be

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determined, although it is clearly relevant as water plays an essential role in the Nexus (Beck and Walker 2013; White et al. 2017). In the context of groundwater resources, the WEF Nexus is being perceived as a means of ensuring sustainable exploitation (Uddameri and Reible 2018). Generally speaking, problems ranging from overexploitation to inappropriate management and pollution of groundwater resources have been witnessed worldwide, with regulators struggling to prevent the depletion of aquifers (Goldberg 1989; Shrestha et al. 2015; Reddy et al. 2018). Groundwater resources must be protected whilst also taking into consideration the needs of other sectors, mainly agriculture and energy, as water is extracted for direct consumption (Hoekstra et al. 2011), for food production (Mann 2011), for energy production (Mann 2011), and so on.

For these reasons, one might ask whether the incorporation of the Nexus concept into international and transboundary conventions and instruments dealing with groundwater resources would provide new means of preventing the depletion of transboundary aquifers. Several legal contradictions and overlaps in existing conventions and instruments have been noted (Mechlem 2003; Eckstein 2011), so it is important to consider whether incorporating the Nexus concept into the framework of international water law applicable to shared aquifers could contribute to the sustainable management of transboundary groundwater resources. To this end, this chapter first examines briefly the existing literature on the WEF Nexus and then presents an analysis of whether the concept could be implemented within the framework of conventions and instruments applicable to transboundary aquifers or whether a new WEF regulatory mechanism would need to be established. The chapter goes on to next examine whether in fact the Nexus concept can be incorporated as a provision into water agreements between states sharing a transboundary aquifer. All of the above-mentioned issues require dedicated studies discussing every legal detail that might play a role in addressing the principal question of this chapter which seeks simply to provide a holistic overview of the topic. This is why these questions are examined together. Finally, it is important to note that several arguments made in the following sections are equally relevant to international surface water law.

2 Is There a Need to Recognise the Concept of a Water-Energy-Food Nexus?

Several authors have supported the adoption of the Nexus as a concept that will lead to the sustainable use of natural resources (Endo et al. 2015; Wichelns 2017; McGrane et al. 2018). Despite the huge number of articles that have been written on this issue, there is no agreed definition of the concept as organisations and scholars have chosen their own interpretations (Keskinen et al. 2016). Furthermore, it is unclear how the Nexus concept can be used to deliver water, energy and food security (Rasul and Sharma 2016). On this score, scholars and experts are facing

several research challenges, such as the shortage in data and knowledge, the need for cross-sectoral research methods etc. (Liu et al. 2017). Generally speaking, the Nexus can be defined as a process intended “to link ideas and actions of numerous stakeholders from different sectors for achieving sustainable development” (Endo et al. 2015, pp. 5821–5822).

The WEF Nexus concept has been contested and criticised by many scholars, who claim that those advocating the adoption of what they see as a nascent concept are neglecting several important factors, in particular, the role of social sciences in advancing the Nexus and the potential negative impact of implementing a Nexus approach in a given context (Foran 2015; Weitz et al. 2017). This criticism comes out of a larger movement of scholars, some of whom see the Nexus concept as something that further complicates the decision-making process, given that it deals with old problems in new ways. In contrast, other scholars argue that this new label is essential, to ensure that synergies across the different sectors are taken into account and that the lack of novelty should not be considered an important factor, so long as the concept contributes to the adoption of better policies for the management of natural resources (de Strasser 2017). In fact, there are calls for a complete elimination of the current systems and the adoption of new regulatory frameworks better suited to the implementation of the Nexus concept. For instance, Sharmina et al. (2016, p. 81) called for “a radical overhaul of the current system of policy- and decision-making”, which Larcom and van Gevelt (2017, p. 55) argued is needed “to avoid the current practice of compartmentalised government policy and regulation”. In contrast, other scholars reject this argument, claiming that regulators have to learn from the WEF Nexus analysis that is taking place (Larcom and van Gevelt 2017).

The Nexus idea is derived from other concepts, particularly that of Integrated Water Resources Management (IWRM). The holistic approach embodied by the Nexus concept is seen by some authors as a better way of ensuring synergies among the different sectors (Leck et al. 2015). The IWRM concept failed to gain traction on the ground for political and institutional reasons amongst others (Wichelns 2017). The existence of several competing interpretations of the IWRM notion has complicated implementation (Hirji et al. 2017) and it has been argued that the concept “has now become an end in itself, in some cases undermining functioning water management systems, in others setting back needed water reform agendas, and in yet others becoming a tool to mask other agendas” (Giordano and Shah 2014, p. 364). It is the failure of the IWRM concept to reach its stated objectives that led to the emergence of the Nexus concept (Muller 2015). This is not to say that IWRM is not a widely known and accepted notion, rather that the Nexus “goes a step further to IWRM to improve multi-sectoral coordination and integration” (de Strasser et al. 2016, p. 62). Nevertheless, at the moment it is unclear whether the introduction of the Nexus concept will – unlike other concepts – achieve the intended objectives, given that it has only gained prominence in the last decade (Bhaduri et al. 2015; Foran 2015; Weitz et al. 2017; Stephan et al. 2018). The brief overview of the Nexus concept in this section provides context for the rest of the chapter, in that it provides a guide to the debates currently addressing the notion. The following sections examine the

potential legal incorporation of the Nexus concept into international and transboundary conventions and instruments dealing with groundwater resources.

3 Can the Nexus Concept Be Included Within International and Transboundary Water Conventions and Instruments Dealing with Groundwater Resources?

Tracing the Water–Energy–Food Nexus: Description, Theory and Practice

The international rules currently applicable to groundwater resources are fragmented among several binding and non-binding agreements and instruments (Eckstein and Eckstein 2003; Mechlem 2003; Eckstein 2011). Currently, there are two international water conventions that are applicable to transboundary groundwater resources: the Convention on the Law of Non-Navigational Uses of International Watercourses (United Nations Watercourses Convention (UNWC)) and the United Nations Economic Commission for Europe (UNECE) Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention). The former was adopted in 1997 and came into force in 2014. It covers transboundary surface water resources and unconfined aquifers, but not confined aquifers and other forms of aquifer, hence its scope has been criticised (Salman 2007a, b, 2015; Stoa 2014). The latter convention covers transboundary surface water and groundwater in general. It was adopted in 1992 and came into force in 1996. It was amended in 2003 to allow all UN countries to become members and these amendments came into force in 2013. The provisions of this agreement do not take into consideration the particularities of groundwater resources (Stephan 2009; Tanzi 2013; Stephan and de los Cobos 2015). A non-binding instrument dealing only with transboundary aquifers – the Draft Articles on the Law of Transboundary aquifers (hereafter Draft Articles) – was adopted in 2008 (Dellapenna 2011). Despite its many shortcomings, the Draft Articles is the most progressive instrument that have been adopted to address all types of transboundary groundwater resources and it takes into consideration the particularities of shared aquifers. However, the international community has yet to reach a consensus on whether this instrument should become a convention or should acquire another status (Vick 2008; McCaffrey 2011).

It is unlikely that a consensus will be reached on whether to include a provision related to the Nexus concept in these agreements and the Draft Articles. Indeed, reaching a compromise that allowed the adoption of these binding and non-binding mechanisms required great effort over decades. Even now, few states have ratified the existing conventions or signed the Draft Articles (Traversi 2011; Stoa 2012; Gupta 2016). In fact, there are huge contradictions and overlaps among the existing Conventions and the Draft Articles (Stoa 2012). The UNWC applies to unconfined transboundary aquifers that are connected to surface water but its provisions do not take into consideration the particularities of groundwater resources (Leb 2013;

Salman 2015). The UNECE Water Convention applies to both groundwater and surface water, so there is some overlap with the UNWC, but unlike the UNWC, the UNECE Water Convention also applies to confined aquifers (Tanzi 2013; Stephan and de los Cobos 2015). What is more, there are overlaps and contradictions between the UNWC and the Draft Articles, as both deal with confined transboundary aquifers, and between the Draft Articles and the UNECE Water Convention, as both cover all types of transboundary groundwater resources (Stoa 2012; Tanzi 2013). It seems that the Draft Articles have the scope to include a WEF Nexus provision, given that the particularities of groundwater resources are addressed by this instrument (Johnson 2018), whereas neither the UNWC nor the UNECE Water Convention include such provisions (Johnson 2018). Nevertheless, the international community has to first amend the Draft Articles before adopting this instrument as a convention to include a new WEF Nexus provision. No such amendment is currently being discussed by the international community; the present discussion revolves around whether or not the Draft Articles should be adopted as a binding convention and whether amendments would facilitate its adoption as a new treaty (Vick 2008; Yamada 2011).

During discussions about the codification of international water law over recent decades, the links between the water, energy and food sectors were not the main issue discussed by the International Law Commission (ILC) and member states (Feitelson 2000; Dinar et al. 2007). Indeed, the main focus of international water agreements and instruments is on international principles that can be applied by member states in the context of regional agreements addressing shared surface or groundwater resources (Dellapenna and Gupta 2008). In fact, for establishing the Draft Articles, the ILC has expressly considered this task within the framework of shared natural resources in 2002 where other resources such as oil and gas were also on the list which reflects the ILC's sectoral approach to this matter (Yamada 2011). Moreover, it is hard to imagine the current binding and non-binding mechanisms being amended to address the interplay between the water sector and other fields such as energy or food, because of the need to reach a consensus among the nations to amend these mechanisms (Cano 1989; Dinar and McKinney 2010; De Bruyne and Fischhendler 2013). In fact, legal dilemmas have already occurred when the international community adopted mechanisms addressing matters like transboundary freshwaters which required a great amount of time, efforts and negotiations (Yamada 2011; McIntyre 2011). One can only imagine the amount of effort that would be required to get a new provision related to the WEF Nexus incorporated into the existing regulatory frameworks and the controversies, problems and criticisms that would emerge during the process. It is worth mentioning that international water law include provisions making reference to the importance of water as a vital human need (Leb 2012), but such references are not central to the various existing conventions and the Draft Articles (Correia and Da Silva 1999; Salman 2007a, b).

In conclusion, states must reach a consensus if the Draft Articles are to be amended, which as argued earlier in this section, would be the most appropriate

way of incorporating a WEF Nexus provision into the international regulatory framework, because it addresses the particularities of transboundary aquifers (Johnson 2018) despite its many shortcomings and the heavy criticism it has received (Vick 2008; McCaffrey 2011). However, since such amendment is not currently foreseeable for reasons noted above (Dellapenna 2011; Yamada 2011), the following section examines whether the substantive principles of international water law that are applicable to transboundary aquifers could be integrated into an independent, global WEF Nexus regulatory framework.

4 Can the Substantive Principles of International Water Law Applicable to Transboundary Aquifers Be Included Within a WEF Nexus Regulatory Framework?

It is still not clear, from a legal perspective, how the WEF Nexus will be implemented or indeed, whether it can be implemented at all, although, scholars from other disciplines have been suggesting methods for the assessment of the Nexus (de Strasser et al. 2016). The success of any given method would require a holistic approach and collaboration among the different actors and sectors (Albrecht et al. 2017). A legal analysis must be a vital part of any implementation process and so far few studies have provided such analysis in the context of transboundary surface water and particularly shared river basins (Belinskij 2015; Boute 2016). At present, the basis for a potential new framework is very vague, as regulators still do not know how a WEF Nexus could be established and whether the existing international rules in the water, energy and food sectors could somehow be incorporated (Larcom and van Gevelt 2017). Regardless of how it was achieved, the establishment of such legal framework would add to the fragmentation of international law, which is already fragmented, mainly due to the increasing technicality of the issues at stake (Shongwe 2016; Peters 2017a, b). Although a WEF Nexus would constitute an alternative governance model, such framework would not replace the existing instruments and conventions but would add a new layer of complexity. International water conventions make provision for such situation, for example, Article 3(1) of the UNWC expressly states that signing the agreement shall not affect the rights and obligations of the states arising from previous conventions (UNWC 1997). In fact, an international convention cannot claim primacy over another one. Article 30 of the Vienna Convention “precludes the Parties to the later treaty from depriving the other parties to the earlier treaty of their rights under that treaty without their consent” (Orakhelashvili 2011; p. 791). Moreover, states will ratify a convention that supports their interests but may reject or refuse to ratify a new regulatory framework (Lutmar et al. 2016). For instance, several nations did not sign the UNWC and even fewer states have ratified this convention since its adoption in 1997 (Salman 2007a, b; Salman 2015; Gupta 2016).

Even in the most optimistic case, in which a global regulatory framework is established, the substantive principles will be subject to the problems that are currently facing the substantive principles governing transboundary groundwater resources. In other words, the provisions of the instrument or convention would be interpreted differently by each state according to its own interests. That is exactly what happened in international water law: the principles that were adopted have been the subject of countless objections and interpretations by states and scholars alike (Mechlem 2003; Eckstein 2011; Stoa 2012). Interpretations based on the interests of particular states go against the objectives which a particular treaty was intended to address, which reflect common intentions of the parties at the time the provisions were drafted, hence they risk rendering the treaty ineffective (Berner 2016). In fact, the substantive principles of international water law will have to interact with the substantive principles that constitute the cornerstone of the energy sector, such as the principle of access to modern energy services; the principle of energy justice, and those of the food sector, such as the precautionary principle, the principles of organic agriculture etc. (Luttikholt 2007; Heffron et al. 2018). Likewise, the global regulatory framework will also have to include substantive principles that are applicable in other fields such as environmental law, for example, the polluter pays principle; the principle of prevention; the principle of common but differentiated responsibilities and so on (Sands et al. 2012; Heffron et al. 2018). In many cases, however, the legal principles of international law are in conflict with each other and certain principles are more important than others. This is why in cases in which two conflicting principles can apply, the one that is more important is given primacy (Raz 1972). In many instances, such as in the case of international water law, there are conflicts between principles that have the same weight, leaving scholars and states to interpret the law so as to support the principle they see as more important (Dellapenna 2001; Wegerich and Olsson 2010; McIntyre 2013; Zeitoun 2015).

Regarding the substantive principles of international water law, the principle of sovereignty has been interpreted differently by different states. It is the reason why countries such as China did not sign the UNWC, because it limits states territorial sovereignty, whereas Beijing argues that water is an extremely sensitive resource that should be covered under the principle of absolute sovereignty (Salman 2015; Zhang and Li 2018). The Draft Articles referred back to the principle of absolute sovereignty over shared aquifers, which was included within the provisions of this instrument, resulting in conflict with other water conventions. Several states lobbied for the adoption of the absolute sovereignty principle on the grounds that aquifers are just like any other natural resource (Vick 2008; McCaffrey 2011). The interpretation of this principle in the context of the WEF Nexus will be more complicated and a similar debate is likely (Tolentino 2014; Tyagi 2015); additional factors related to the application of this principle in the energy and food sectors will have to be taken into consideration. There are already international conflicts related to the development of hydropower projects across different river basins worldwide, arising from differences of interpretation of the principle of sovereignty (which themselves are related to national interests), in which other provisions of international water law have been used to support the position of particular states. It has been noted that in

the context of shared river basins, the interpretation of the sovereignty principle has become more complicated, because the synergies between the water, energy and food sectors need to be taken into consideration (Wegerich and Olsson 2010; Odom and Wolf 2011; Zeitoun 2015; Garane et al. 2017).

What is more, the huge controversies that surrounded the application of the principle of equitable and reasonable utilisation and the obligation not to cause significant harm would erupt again if these principles were adopted as part of the regulations applicable to the Nexus (Wegerich and Olsson 2010; McIntyre 2013). Generally speaking, the debate over whether the principle of equitable and reasonable utilisation enjoys primacy over the no significant harm rule or vice versa has been going for quite a while; some scholars have argued that one or the other should have primacy and others have claimed that they actually represent two sides of the same coin, especially as, in practice, there is balance in the way they are applied in any given instrument or convention (Dellapenna 2001; McIntyre 2007). States looking to exploit their transboundary groundwater resources within the Nexus framework will claim that their actions are lawful in accordance with the principle of equitable and reasonable utilisation whereas states that might be concerned with the effects of such exploitation would have on their own water, energy and food security will give greater weight to the obligation not to cause significant harm (Zeitoun 2015). These kinds of clashes of interest are currently taking place between upstream states that emphasise the principle of equitable and reasonable utilisation, which would grant them the right to benefit from the water, whilst downstream states emphasise the no significant harm principle as they see potential upstream activities as limiting the benefits they should receive from the shared water (Zeitoun 2015; Gupta 2016). For example downstream states claim that the upstream establishment of dams to produce hydropower will have a negative impact on the environment and lead to food insecurity because they would reduce fish numbers and the availability of water for irrigation (Li 2012; Rieu-Clarke 2015; Zeitoun 2015). Such conflicts are currently occurring in places such as the Mekong river basin, which is shared between China, Myanmar, Vietnam, Cambodia, Laos and Thailand, where there are concerns about the negative consequences of dam building activities that are taking place (Li 2012). International water law includes principles addressing activities where the synergies between the three sectors are being covered like in the case of hydropower projects. The legal dilemmas arise from the diverging interests of the states sharing freshwater resources, because each state supports the principle that suits its interests (Wegerich and Olsson 2010; Zeitoun 2015).

This section has provided a brief overview of the potential ways in which substantive groundwater law principles can support the Nexus concept, mainly through the establishment of an independent WEF Nexus legal framework. Although the substantive groundwater law principles can play an important role in supporting the Nexus, this section has highlighted the many issues that would need to be taken into account in the establishment of a WEF Nexus legal framework. The building of hydropower projects in shared river basins was used as an example to highlight how the different international water law principles examined above are already providing an answer to the issue of balancing the water, energy and food

security (Wegerich and Olsson 2010; Zeitoun 2015; Rieu-Clarke 2015). One might, therefore, question whether there is actually a need to incorporate a WEF Nexus provision into international water law instruments – the possibility discussed in the previous section – or to establish an independent WEF Nexus regulatory framework – the possibility analysed in this section – as the principles of international water law are already dealing with the interplay between the water, energy and food sectors. In any case, the following sections examine new proposals for including the Nexus as a provision within transboundary water agreements.

5 Can the Nexus Be Included Within Regional Water Agreements Established Between States Sharing an Aquifer?

The UNECE has been dealing with the WEF Nexus in recent years; a task force on the Water-Food-Energy-Ecosystems Nexus was established as part of the Programme of the Work under the Water Convention for the period from 2013 to 2015 (UNECE Task Force 2013–2015). Another organ that is playing an important role is the Working Group on IWRM. These groups prepared a joint “Methodology for assessing the water-food-energy-ecosystems-nexus in transboundary basins” (Meeting of the Parties to the UNECE 2015, p. 1). As well as the UNECE method, which is discussed in this section, several other methods for the assessment of the WEF Nexus have been proposed. These proposals include elements such as ecosystems, climate and soil, depending on the objective of the actors and stakeholders involved. For instance, the UNECE added Ecosystems to the Nexus assessment (de Strasser et al. 2016) to recognise that “the functioning of ecosystems should not be compromised by development objectives” (Kibaroglu and Gürsoy 2015, p. 825).

The UNECE seeks to adopt a pragmatic approach that takes into consideration the complexities and interconnections among the sectors involved. For instance, the method that was developed takes into consideration the national interests of the countries sharing the river basins yet also provides for the reasonable utilisation of shared water resources and the avoidance of transboundary harm. To this end, a Transboundary River Basin Nexus Approach (TRBNA) for the evaluation of specific river basins was developed (de Strasser et al. 2016). The objective of such evaluation is to foster cooperation across sectors and guarantee better management and utilisation of shared natural resources (Meeting of the Parties to the UNECE 2015). The reason the UNECE focused on development of such methodology is that the water element of the Nexus constitutes its basis (de Strasser et al. 2016). It has been said that the idea of the Nexus emerged mainly from the ideas that “Water security is the gossamer that links together the web of food, energy, climate, economic growth, and human security challenges that the world economy faces over the next two decades” (Leck et al. 2015, p. 448). As such, focusing on the Nexus helps to realise the objectives of the UNECE, in this case the good

management of transboundary river basins (Meeting of the Parties to the UNECE 2015). The UNECE recognises that the management of transboundary surface water basins and aquifers must be coordinated and takes into consideration the challenges facing particular shared freshwater resources, since adopting policies addressing only the water sector is not an effective method of resolving the issues (UNECE 2018).

In this context, several principles have been selected as core features to reach the objectives of the Nexus assessment. These principles include: “participatory process, knowledge mobilisation, sound scientific analysis, capacity building, collective effort and benefits and opportunities” (Meeting of the Parties to the UNECE 2015, pp. 7–8; UNECE 2015). The assessment protocol divided the Nexus assessment into three phases comprising 1) the development of a broad method, 2) the application of the method to a specified set of transboundary river basins and 3) production of a consolidated summary of the findings of the assessment. The Nexus assessment process involves analysts, authorities and various stakeholders with specific roles in the process (Meeting of the Parties to the UNECE 2015). The steps in the Nexus assessment of a given river basin are as follows (Meeting of the Parties to the UNECE 2015):

1. Identification of basin conditions and the socioeconomic context;
2. Identification of key sectors and stakeholders to be included in the assessment;
3. Analysis of the key sectors;
4. Identification of intersectoral issues;
5. Nexus dialogue and future developments;
6. Identification of opportunities for improvement (across the sectors and countries).

These steps are based on indicators used in the Nexus assessment, such as perspective indicators (e.g. national indicators such as demography, access to resources etc.) (Meeting of the Parties to the UNECE 2015). The UNECE has already used this method to conduct Nexus assessments of several river basins including, inter alia, the Alazani/Ganykh River Basin region shared between Georgia and Azerbaijan (UNECE 2016) and the Drina River Basin shared by Bosnia and Herzegovina, Montenegro and Serbia (UNECE 2017).

From the perspective of international water law, the core features of the Nexus assessment method are procedural provisions. The procedures are intended to ensure cooperation among the states sharing surface water or groundwater. International water conventions and instruments include procedural provisions to foster cooperation among states sharing freshwater resources (Belinskij 2015). Obligations arising from the principle of cooperation in international water law are considered procedural provisions that must be implemented to ensure the application of the substantive water norms (Leb 2013). Under international water law, states have a responsibility to cooperate through, for instance, the exchange of data and information (Rahaman 2009). These procedural obligations are extremely important because of the need for “advance notice, consultation, and decision procedures” as a result of the lack of precise rules and the general nature of the provisions (McIntyre 2007, pp. 320–324). Antti Belinskij has examined the core features of the Nexus

assessment methodology from a procedural perspective and stated that the provisions of international water law are a starting point for guaranteeing water, energy and food security (Belinskij 2015). Indeed, some of the provisions of the existing conventions and the Draft Articles that cover transboundary groundwater, in particular those relating to the principle of equitable and reasonable utilisation, stress the importance of taking into consideration economic and social needs as well as vital human needs (UNWC 1997; Draft Articles 2008). Economic and social needs “include those needs which are dependent on the use of the water resources... [without however] setting territorial limit for the consideration of those needs other than the territorial extent of respective states” (McIntyre 2007, pp. 158–159). Vital human needs include the provision of the minimum supply of water required to “sustain human life, including both drinking water and water required for the production of food in order to prevent starvation” (Bulto 2011, pp. 23–24). Yet, as Belinskij mentioned, international water law contains no concrete provisions for ensuring that vital human needs are met; instead the procedural and substantive provisions are of a general nature (Belinskij 2015). International water norms constitute a foundation on which states sharing freshwater resources can rely when preparing water agreements, which is why the provisions are of a general nature (Grzybowski et al. 2010), including those dealing with economic and social needs as well as vital human needs. Moreover, there are challenges when it comes to cooperation between states sharing freshwater; some nations might refuse to do so and international water law does not contain any strong enforcement provisions (Belinskij 2015).

For these reasons, Belinskij suggested including the Nexus assessment methodology established by the UNECE in the multilateral and bilateral agreements adopted by states sharing freshwater resources. This would be a way of taking account of the synergies between the water, energy and food sectors in regional water treaties (Belinskij 2015; Meeting of the Parties to the UNECE 2015) and stands in contrast to the present approach, under which each sector is managed independently despite the importance of creating synergies between the three sectors (Nhamo et al. 2018). After all, nations sharing transboundary surface water or groundwater are going to establish such agreements as the principles of international water law are of general nature and the global water norms and provisions are used as a basis for the preparation of such conventions (Jones 2000; Haddadin 2011; Upreti and Salman 2011). Following the logic of the suggestion, transboundary groundwater treaties such as the Guarani Aquifer Agreement would be amended for adding a procedural provision including the methodology of Nexus assessment. Would the countries that are party to this treaty (Argentina, Brazil, Paraguay and Uruguay) agree on the inclusion of such provision? Would they implement such a provision in practice? (Sindico 2011). The following section attempts to answer these questions by examining the feasibility of the proposal to include the Nexus assessment methodology established by the UNECE in regional water agreements and highlights the shortcomings of the methodology revealed by Nexus assessments of several river basins.

6 How Can the Nexus Concept Be Incorporated into Regional Water Agreements as a Procedural Provision?

The idea of including a WEF Nexus procedural provision based on the UNECE methodology in multilateral or bilateral water agreements between states sharing transboundary freshwaters (Belinskij 2015) is legally feasible, given that states sharing a water resource can decide the provisions to be included within the relevant water agreement (Haefner 2016). After the adoption of the Draft Articles in 2008, the ILC recommended that states should consider the principles of the Draft Articles when taking the necessary legal measures for the management of transboundary aquifers through bilateral or multilateral water agreements, despite the fact that the Draft Articles do not constitute a binding mechanism (Mechlem 2009). However, this suggestion assumes the existence of a consensus between states about the WEF Nexus concept. In fact, there are currently fewer agreements covering the management of shared freshwater resources than there are shared water resources requiring such treaties (UNESCO 2012). Moreover, the existing regional water agreements were only reached after lengthy negotiations among the different nations (Bošnjaković et al. 2003), so there is no guarantee that nations that have already established water conventions or are seeking to do so will be enthusiastic about including such provision. State consent is the most important element in international treaty-making, since without such consent it is extremely hard to establish an agreement among nations (Hollis 2005). A country offers its consent in order to obtain public goods, particularly when the negotiations are not costly and the lack of enforcement mechanism means that breaches of treaty provisions do not lead to punishment via the proper legal mechanisms (Miles and Posner 2008). The WEF Nexus is a relatively recent concept that was only launched in 2011, at the Bonn Nexus Conference in Germany. So far the Nexus concept has gained the support of some governments and plenty of international organisations, academic institutions and the private sector (Leck et al. 2015; Endo et al. 2015; Liu et al. 2017; White et al. 2017; Wichelns 2017), but it is not certain that the other governments will also support the Nexus, particularly as it has been contested and criticised by many scholars, as noted above (Foran 2015; Weitz et al. 2017; de Strasser 2017).

Countries that have taken part in a UNECE Nexus methodology assessment have found that the intersectoral dialogue is extremely important; such dialogue is rarely conducted at regional or national level (Meeting of the Parties to the UNECE 2015). Management of the interdependence of the three sectors, in particular in terms of “joint demand, price developments, technology, and resource constraints”, (Bhaduri et al. 2015, p. 724) requires intersectoral dialogue. Such assessment is important given that “the methodology leads to the identification of concrete actions to reduce tensions between sectors and countries” (Meeting of the Parties to the UNECE 2015, p. 6). These nations also perceived the UNECE’s work positively (De Strasser et al. 2016) as such intersectoral dialogue in a transboundary context takes place very rarely (Meeting of the Parties to the UNECE 2015; Kibaroglu and Gürsoy 2015). Moreover, the Meeting of the Parties to the Water Convention endorsed the

methodology and its outcomes and decided to continue using the Nexus assessment method in the framework of the work programme 2016–2018 (De Strasser et al. 2016). In practice, however, the identification of concrete actions does not mean that the states will take the measures necessary to the realisation of synergies. The outcomes of the Nexus assessments will be used as the basis for further discussions and dialogue among the parties about improving the management of river basins (De Strasser et al. 2016). The solutions that emerged from the various Nexus assessments include suggestions such as “improving institutional cooperation and governance culture; defining and implementing various instruments to address trade-offs and promote synergies in the management of natural resources and environmental protection” (UNECE 2018, p. 12), which are not new. The UNECE’s assessments are considered to offer an overview and “the methodology does not include the cost and benefit analysis of different policy actions nor does it provide for a risk analysis” (UNECE 2015, p. 13). Moreover, the parts related to the implementation of Nexus solutions in the assessments do not provide much guidance on the how and who would implement such solutions (de Strasser et al. 2016). The ability of Nexus assessments to create concrete and efficient actions is determined by several factors, namely “the context, the issues, the actors involved, the constructiveness of the dialogue, and the availability of information and political will” (UNECE 2015, p. 14). Furthermore, water sector issues are overrepresented in the assessment protocol and their relevance is reduced by “financial constraints related to the applicability of solutions, administrative cultures and power imbalances” (De Strasser et al. 2016, p. 15).

As such, despite the positive feedback provided by states that have taken part in the assessments (UNECE 2015, p. 13), there is at present no evidence that nations that share water resources will include a WEF Nexus procedural provision within their multilateral and bilateral agreements or that these nations will actually comply with these provisions. It is much easier for a nation to oppose the inclusion of provisions within agreements between a small number of countries than it is to oppose them in a global context, where nations must comply with the standards set by the international community on the basis of a consensus between nations, especially when the state that wishes to do so is not a global superpower and its opposition can be countered with retaliatory measures (Koh 1997; Shen 1999; Peters 2017a, b). In the context of bilateral water agreements and agreements between a small number of nations sharing a water resource, the implementation of such provisions is essentially voluntary as there is no mechanism to compel compliance (Guzman 2011; Stephens 2012). Indeed, international law has been criticised for its inefficiency, since in many cases laws have not produced a dramatic shift in nations behaviour (Verdier and Voeten 2014). Cooperation between states is crucial to the successful implementation of a particular treaty (Lupu 2016), given the general nature of international water law and as international water principles are used as a basis for the preparation of regional water agreements (Jones 2000; Haddadin 2011; Uprety and Salman 2011). Having to take into account the interests of the food or the energy sectors will further complicate the process of reaching a consensus over the application or the meaning of a WEF Nexus procedural provision.

7 Conclusion

This chapter has provided a holistic overview of the question of whether the incorporation of the Nexus concept, as a legal provision, into international and transboundary conventions and instruments dealing with groundwater resources would provide new means of preventing the depletion of transboundary aquifers. It has noted that ensuring state compliance with international law is very problematic, given the reluctance of nations to respect such laws and the lack of enforcement mechanisms (Cogan 2006). The analysis has shown that amending international water agreements such as the Draft Articles is not likely in the foreseeable future, as consensus between the different states would be needed in order to do so and the Nexus concept has only recently come to prominence (Vick 2008; Dellapenna 2011; Yamada 2011; McCaffrey 2011). A nation cannot be forced to comply with any international obligation as compliance is based on the state's consent to be bound by that obligation (Guzman 2002). The analysis has also highlighted that there are many issues that must be taken into account before considering the establishment of a WEF Nexus legal framework, and questioned the relevance of doing so, given that international water law principles already provide a way of dealing with the interplay between the water, energy and food sectors, as demonstrated by the hydropower project examples (Wegerich and Olsson 2010; Zeitoun 2015; Rieu-Clarke 2015). Finally, the chapter has pointed out that there is no evidence that nations sharing water resources are willing to include a WEF Nexus procedural provision in binding regional agreements or that these nations would actually comply with such provisions (Guzman 2011; Stephens 2012; Haddadin 2011; Upriety and Salman 2011).

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Establishing Urban Gardens on Vacant Land While Considering International Good Practices: A Legal Case Study from Portugal



Alexandra Ribeiro, Raquel Carvalho , and Livia Madureira

1 Introduction

Urban and territorial planning are useful instruments to achieve sustainable development in the three relevant dimensions: social development and inclusion, sustained economic growth and environmental protection and management (Campbell 2007; UN 2015; Goyburu and Montero 2018; Ultramari et al. 2018).

Urban population grew from 746 million in 1950 (29.6% of the world population) to 3.96 billion in 2015 (54%). It is expected to reach 5.06 billion by 2030 (60% of the world population) (UN 2015).

The exponential growth of the population in cities created the need for the development of instruments and mechanisms for sustainability – driven urban and territorial planning, so that cities may grow based on pillars of sustainability and ensure the quality of life of their populations. The growing urbanisation has become the twenty-first century challenge. In order to deal with this reality, different approaches regarding territorial planning have been tested and implemented worldwide. We intend to exploit the possibility of how the urban law instruments can be adjusted to address this challenge.

Vacant land in urban areas is perceived as a significant issue, (Coleman 1982; Accordino and Gray 2000; Gough and Accordino 2013) because it can disturb adequate urban and territorial planning. Urban vacant land is not favourable to sustainability. At the same time, it is a territorial environmental resource, providing

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opportunities for transformative and social ecological processes. (Németh and Langhorst 2014).

Within available literature, we find neither a definition in the law nor an evolution of the vacant land concept. However, to support the delimitation of a definition a review has been conducted on the concept of vacant land (Pagano and Bowman's 2000; Németh and Langhorst 2014; Smith et al. 2017). Pagano and Bowman's definition (2000 p. 2) was selected: is their definition states that vacant land is "abandoned, destroyed, degraded and unused land, public or private, which exists in cities". Moreover, it is important to distinguish vacant land from related concepts such as common land and vacant buildings. In accordance with article 2, paragraph 1, of the Decree-Law from 2006 (Portuguese Government 2006) vacant building "*it is considered vacant the urban building or the autonomous fraction unoccupied for over a year*". With the publication of current Law from 2017, the concept of common land has been clarified and defined as "*land with its integrating parts and equipment, owned and managed by local communities*", in the terms referred to in paragraphs (i) to (iv) of Article 2 (a) of the Law from 2017 (Portuguese Parliament 2017). In Portugal, common land with forest usage occupies approximately 14% of the global forest area in the continental territory, being organized in 115 forest perimeters distributed mainly by the mountains of the North and Centre of the country. It is thus clear that in Portugal the common lands are concentrated in rural areas, having a very small expression in urban ones, which are the subject of this paper.

There are a number of studies acknowledging that the reuse of vacant land represents an opportunity to the recovery of a wide range of urban areas (Pagano and Bowman 2000; Smith et al. 2017; Kim et al. 2018; Pothukuchi 2018). Greening vacant land could offer an interesting opportunity for land use (Sanches and Pellegrino 2016). Nassauer and Raskin (2014), as well as Anderson and Minor (2017 p. 146), argue that "Vacant land restoration is best addressed by an interdisciplinary approach that combines economic, social and environmental needs and concerns into a holistic urban land use paradigm".

Urban gardens represent a key element to be considered in urban areas as they bring together three key aspects of sustainable development: social justice, economic development and environmental protection. They can contribute significantly for the sustainable development of any city (Viljoen 2005; Pinto 2011). Urban agriculture and urban gardens are very interesting tools to bring benefits to cities, such as strengthening urban food security, reducing urban poverty, improving the urban-rural linkage, enhancing healthier urban environment and urban biodiversity protection, along with strengthening of a participatory culture.

Urban agriculture is a universal concept that is widely distributed across countless regions of the planet, both in developed and developing countries (Krikser et al. 2016). In this sense, urban policies should encourage the implementation of urban agriculture as a way to promote sustainable urban development (Tornaghi 2014). How urban planning system deals with the vacancy of urban land is a relevant research question (Trigo 2006). Since that greening vacant land represents an opportunity to the urban areas recovery, a relevant question is how legal instruments,

like municipal master plans (MMP), can contribute to achieve this goal. As mentioned before, available research evidence shows that greening vacant land could be turned into a sustainable and interesting land use. However, there is no research specifically focused on understanding how concepts such as urbanism, territorial planning and master plans can contribute to establish urban gardens on vacant land and by doing so to implement the sustainable development agenda at the municipal level. Hence, this paper addresses this gap by designing a proposal for a legal solution to encompass vacant land in municipal master plans thus enabling the accomplishing of urban sustainability goals. The objective is to gather evidence that an underexplored resource for ecological, social and economic benefits in cities is the reuse of vacant land.

In the following, this chapter is organised in eight sections. After this introduction, Sect. 2 describes its methodological approach. Section 3 provides an overview of the Portuguese legal system and legal concepts are briefly discussed in Sect. 4. In Sect. 5, the data used in the empirical analysis is introduced by comparison between the five Municipal Master Plans. In the next section, urban gardens as urban green spaces are explained. A seventh section reviews the literature on urban gardens as an alternative use for vacant land. The final section presents and discusses the results and concludes the paper, offering a synthesis of the findings and their practical importance.

2 Methodology

The chapter starts by identifying and describing both the international and Portuguese legal concepts of urbanism, territorial planning, environment, master plans and sustainable development and how they are interconnected. Empirical analysis is conducted through the analysis of MMPs from five municipalities of Porto conurbation (Porto and its four bordering municipalities of Matosinhos, Maia, Gondomar and Vila Nova de Gaia), located in the North of Portugal respecting their references to urban agriculture and the uses considered for vacant land. Porto municipality was chosen because it was the first municipality to conduct an experience of urban gardens in Portugal with the project “Horta à Porta”. This project was launched in July 2003 in the municipality of Porto and has been expanded to the neighbouring municipalities. The MMP and respective amendments were analysed and compared considering the Portuguese legal system (see Fig. 1).

A third task of this chapter was to identify good practices of converting vacant land in urban gardens. For that purpose, a literature review of case studies was conducted using a systematic search on the Web of Science. The review was prepared using some keywords such as: urban gardens; community gardens; vacant land. Case studies comprising simultaneously the terms of urban gardens, vacant land and the three pillars of sustainability were selected and analysed in more detail. Examples of good practices were selected by choosing the case studies that comprise simultaneously the urban gardens, vacant land and the three pillars of sustainability.

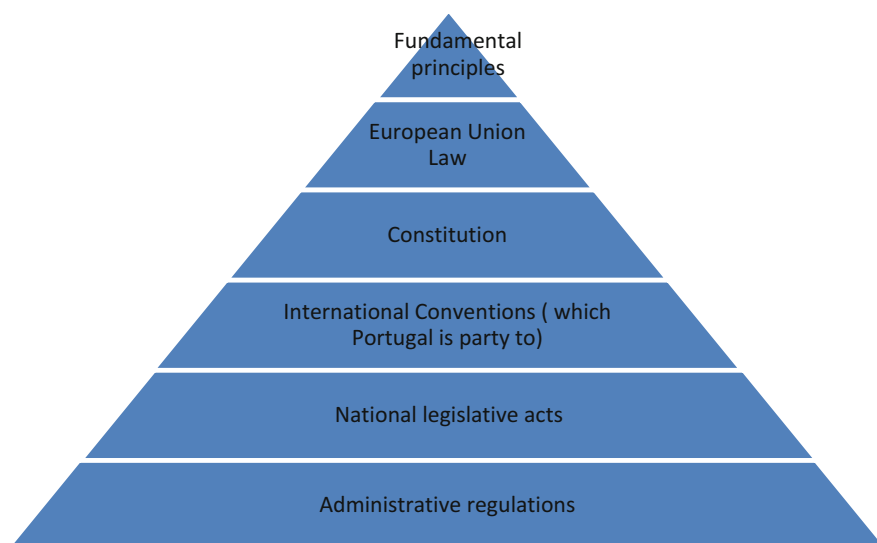


Fig. 1 Hierarchy of sources of law in Portugal. (Adapted from Calvão et al. 2018)

3 Portuguese Legal System

For a better understanding of the scope of this paper, it is important to understand the legal system in Portugal. Urban law, environmental law and territorial planning law are considered public law. It is a part of the juridical order, a complex system constituted by norms (principles and rules). Public Law is different from private law, because it grants public entities with authority powers and imposes special duties to private citizens, with the objective of pursuing public interests.

The hierarchy of sources of law in Portugal is presented in the Fig. 1.

The national legislative acts are the Law (Portuguese Parliament), the Decree-Law (Government, as in Portugal, the Executive has extensive legislative powers) and Legislative Regional Decree (Regional Parliaments, within the matters related to Autonomous Regions).

Despite certain matters described in the articles 164 and 165 of the Constitutional Law from 1976 (Portuguese Parliament 1976), law and decree-law have equal legal force. Within the matter above mentioned, the law has reinforced value, as the Portuguese Parliament is the main Legislator.

The article 8 of the Constitutional Law from 1976 (Portuguese Parliament 1976) establishes the rules concerning both the integration and position in the hierarchy of normative sources of the rules and principles of international law.

The administrative regulations are regulated by article 138 (3) of the Law from 2015 (Portuguese Government 2015c) and are presented in the Fig. 2.

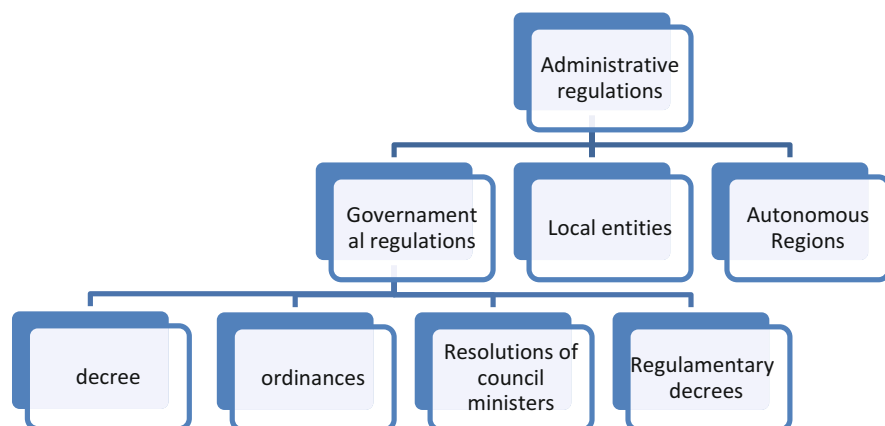


Fig. 2 Legal framework of administrative regulations. (Source: authors' own creation)

For this paper, it is important to understand that the governmental regulations, despite being administrative regulations, could have normative content as the national legislative acts.

4 Sustainable Development: The Role of Legal Concepts of Environment, Urbanism, Territorial Planning and Instruments

4.1 Sustainable Development: International and Portuguese Approach

Sustainable development is a multidimensional and polysemic concept. Multidimensional because it enshrines economic, social and environmental aspects. Both their exact boundaries and practical application have been at the centre of many discussions over the last few decades across many academic and international institutional fields. The polysemy feature remains because no single meaning has yet been set, its nature ranging between a moral principle, a legal principle, and a legal rule (Saraiva 2012). Sustainable development is an important goal for both individual countries and the global community, and it is part of the object and purpose of many important international treaty regimes.

As expressed in the 1987 Brundtland Report (UN 1987 p.8), sustainable development can be defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. According to Richard Ballhorn (2005), the conciseness of this most popular definition of sustainable development and its potential application to a wide range of policy fields makes it something very easy to be invoked in a range of meetings and documents.

However, it turns out to be difficult when one aims to apply it on a sectoral basis or enshrine it into a legal text. Sustainable development is closely related to, and could be viewed as a core objective of, both national and international investment law and policy. The concept of sustainable development has steadily risen in status through the 1990's and into the twenty-first century and it was confirmed by the Johannesburg World Summit as an inescapable development paradigm and as such as a crucial element of the international agenda.

About its legal nature, in the Portuguese legal system, sustainable development is one of the environmental principles, and it is also foreseen in public policy of land, land use planning and urbanism. Not to mention, its consideration on both social and economic policies. However, according to Canotilho (2010), sustainable development is considered a structuring principle of constitutional law, it is, as other structuring rule of law, an open principle which neither materialises nor contains concrete solutions, accommodating several and different types of decisions. This is another polysemic dimension of sustainable development, now within the law field. Thus, Gomez (2017) upholds that the principle of sustainable development is an example of a false legal principle of environmental law, which is nothing more than a circumstantial and conjectural equation of the interests of environmental preservation and the interests of economic development.

In short, its content and scope are not yet consensual – whether within the national or the international legal order – as even the Brundtland Report does not substantiate its normative feature (Saraiva 2012).

4.2 Environment, Urbanism and Territorial Planning: International Approaches

Considering the main public interests associated with urbanism, its diversity and territorial specificity, International Law, does not have to regulate in a homogeneous way, neither does urbanism have to emanate directives in this legal framework. Urbanism embodies several public interests to pursue. This inner trait explains the absence and even the impossibility of a homogenous, accurate and definitive legal framework, from both national and international legal order. The territory is a complex system, comprising not only urbanised, rural or other spaces, but also nature as a whole and the surrounding environment.

In 1970, the CEMAT (European Conference of Territorial Planning Ministers) was established within the Council of Europe. It was one of the studies carried out by the CEMAT that led to the creation of the charter for Europe (Torremolinos Charter 1983).

However, within the scope of the European Regional International Law framework and regarding territorial planning, we can find the European Regional/ Spatial Planning Charter of 1983 (CoE 1983). This is a relevant legal document as it defines the concept of territorial planning (Europa 2011) in its European dimension as well

as its democratic, global, functional and prospective dimensions. The fundamental objectives of this Charter sets out goals of spatial planning the balanced socio-economic development of regions, the improvement of the quality of life, the responsible management of natural resources and the protection of the environment, and the rational use of the territory, establishing the integration of the environmental component into the planning policies.

In Europe, the first major reference was the Green Paper on Urban Environment (European Commission 1990). In addition, the Alborg Charter (Alborg Charter 1994) calls for a generation of sectoral urban policies that integrate the impacts of development on the environment.

It should also be made a reference to the Declaration of Ljubljana (2003) on the territorial dimension of sustainable development adopted by the ministers responsible for regional planning at the 13th session of Europe conference of ministers responsible for regional planning (CEMAT). In order to promote sustainable development, spatial planning policies should reinforce their cross-sectoral dimension and vertical and horizontal governance and cooperation mechanisms to better evaluate the territorial impacts of all public policies and to strengthen synergies and the durability of results.

The United Nations adopted the International Guidelines on Decentralisation and the Strengthening of Local Authorities (2007), as well as the International Guidelines on Access to Basic Services for All (2009), which had been previously adopted by the UN-Habitat Governing Council.

Based on the resolution of the Council of Europe of April 23, 2015, the United Nations adopted the International Guidelines on Urban and Territorial Planning (Programme 2015). These Guidelines are designed to support the future implementation of the ongoing Post-2015 Development Agenda, and the New Urban Agenda of the third United Nations Conference on Housing and Sustainable Urban Development (UN Habitat III) in 2016. These Guidelines are important principles to take into account whenever establishing public policies.

4.3 Environment, Urbanism and Territorial Planning: Portuguese Legal System

At national level, the legal concepts of urbanism, territorial planning and the environment are very closely related. As mentioned in the previous chapter, Urbanism, environment and territorial planning are considered public law. Public law is autonomous from private law. Public law includes public legal persons, it grants them authority powers and it imposes special duties on them, with the objective of pursuing public interests. The reference to public law is important because it is an increasing challenge for public entities to adequately answering the need of urban provisions directed towards the social dimension of the principle of sustainable development.

Environmental law is defined as rules and normative principles, as well as relevant decisions for the environment (Antunes 2008; Gomes 2017). Urban law is a different concept and it includes all the provisions concerning the occupation, the use and the transformation of the soil and in a restrictive perspective, referring to the rational ordering of the city (Correia 2008; Carvalho 2017).

The distinction between urbanism and territorial planning is difficult to substantiate, especially within this broad concept of urban law. The wide concept of urban law deals with urban problems. It settles legal requirements concerning private building, it weights up the methods, the instruments and procedures that allow a dignified life for all who live and work in the city, therefore ensuring an adequate spatial planning of the territory (Oliveira 2002; Machado 2014). The distinction between territorial planning and urbanism can thus be the criterion of the range of the area of application or influence of the related instruments. Territorial planning has a wider range than urbanism. (Amaral 1994), but this is not enough to distinguish the concepts. Several criteria in the doctrine help distinguishing these two disciplines. Some authors (e.g. Oliveira 2017) adopt a mixed criterion, including the objectives pursued (if it is broader we refer to territorial planning if more restricted urbanism), the content (broader we speak of spatial planning, true norms applied to the land of urbanism) and the legal effectiveness of the related instruments (if they link public and private we speak of urbanism if they link only audiences we speak of the planning of the territory).

Both concepts, urbanism and territorial planning have been considered in Constitutional Law, in Articles 65 and 165 (Portuguese Parliament 1976). They arise in a complementary and distinct way and they have been treated differently. Article 165 foresees the parliament legislative power to pass the Law on Bases of spatial Planning and urbanism. Nonetheless, according to Article 65, the implementation of the housing policies relies upon the State. Those policies include in the general planning Territory plans, supporting by urbanization plans that ensure the existence of an adequate network of transport and social equipment.

Territorial planning and environment are also linked institutes. The environment received a large constitutional attention than urban law or spatial planning, because, as argued by article 66, everyone is entitled to an environment of human life, sound and ecologically balanced and the duty to defend it. Furthermore, the environment does not have territorial limits as urbanism and territorial planning. Land use planning has its origin in the recognition that economic development could lead to considerable differences in the population territorial distribution, thus favoring goals such as the protection of the environment. Environmental law has a decisive influence on urban law since many urban law provisions, in particular urban plan provisions, are increasingly aimed at protecting the environment. The “Urban environmental law” results from the coexistence of the urban law with the environmental law (Machado 2014).

At legislative level, a 2014 Law (Portuguese Parliament 2014) currently establishes the basis of land policy, land use planning and urbanism. The legislator established no provisions regarding the two concepts, of ensuring sustainable

development and intra- and intergenerational solidarity, assuring the present and future quality of life and a balanced socio-economic development.

Among the most relevant issues to be considered in this paper, urban law includes the legal regime of territorial management instruments and, in particular, at the municipal level, the municipal master plan (Oliveira 2018).

4.4 Portuguese Territorial Planning

4.4.1 Instruments

It is now important to address territorial management instruments and how they relate to vacant land and urban gardens, as well as the underlying policies, thus drawing us to the purpose of this chapter.

The basic concern of Portuguese Urban Law has always been the growth of cities and not the potential of abandoned land (Bothe 2014). Territorial management instruments, namely municipal master plans, aim at real territorial conformation. Considering this goal, the classification and the requalification of the land (which are both translated into options of planning) are focused on the urban land, but not absolving the role of city planning concerning rural land.

Article 38 of the 2014 Law (Portuguese Parliament 2014) is adjusted by article 2 of a 2015 Law Decree (Portuguese Government 2015a) herein stating that, land, territorial and urban planning policies are developed through territorial management instruments which act together and materialise in Programmes and Plans.¹ These laws have simplified and streamlined procedures, decentralized powers for municipalities, clarified the purpose, the content and the typology of municipal planning instruments.

Depending on the nature and territorial impact of the public interests pursued, the territorial management system is subdivided into national, regional, inter-municipal and municipal levels (Oliveira 2016). The policy of territorial planning and urbanism is based on the territorial planning system, which is organised in a framework of coordinated interaction in four areas (Fig. 3).

At municipal level, territorial plans, with their own options of local strategic development, set out the land usage regimes. Article 43 of the 2014 Law (Portuguese Parliament 2014) establishes the general bases of public policy of land, territorial

¹*Programs, establish the strategic framework for territorial development and its programmatic guidelines or defines the spatial incidence of national policies to be considered at each level of planning. On the other hand, Plans establish concrete options and actions in the planning and organization of the territory as well as define the use of land [paragraphs a) and b) of article (1) 38 of the 2014 Law in the version of the 2015 Law].*

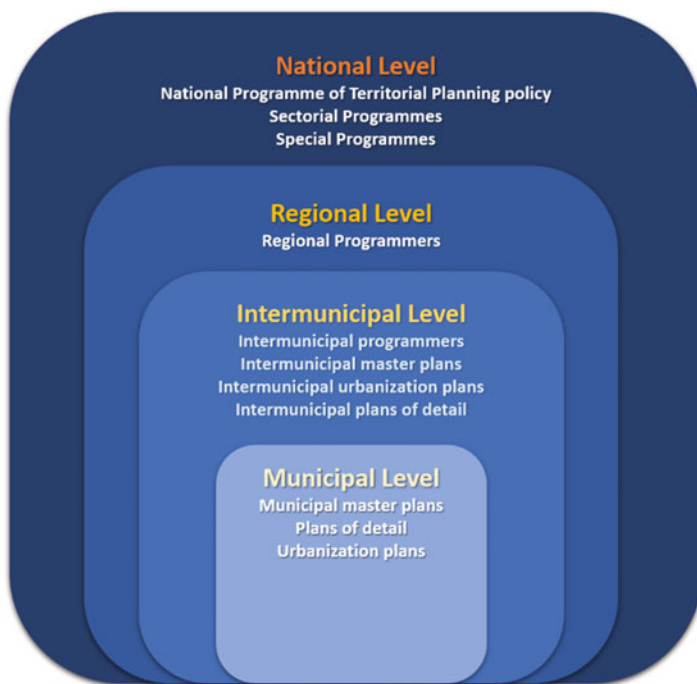


Fig. 3 Territorial planning and management system. (Source: authors' own creation)

planning and urban planning, and states that these plans are designated as municipal director plan, urbanization plan and detailed plan.²

In particular, this new generation of municipal master plans has been providing a reinforcement of the strategic character according to the strategic objective 3 constant of the PNPOT Portuguese Parliament (2019) action program (2018, 2019).

These new municipal master plans are no longer a hard tool, and they now have the task of defining policies for territorial planning, urbanism and other urban policies. The municipal master plan may be detailed by others plans.

There is another territorial planning level the National Agriculture Reserve which allows as the definition of the set of lands that present greater aptitude for agricultural activity in accordance with article 13 of the regulatory decree from 2015 and law decree from 2012 (Portuguese Government 2015b). It is a municipality duty to

²The municipal master plan elaboration is mandatory, unless there is an inter-municipal master plan, and establishes, namely, the municipal territorial development strategy, the municipal territorial model, the options for locating and managing collective use equipment and the relations of interdependence with neighbouring municipalities. The urbanization plan develops and materializes the municipal director plan and structures land occupation and its exploitation, defining the location of infrastructures and the main collective equipment. The plan of detail develops and implements the municipal director plan, defining deployment and volumetric) of buildings, the form and organization of collective use spaces and the layout of infrastructures (no.3.4 and 5 of article 43).

introduce in MMP the national agriculture reserve and the ecological reserve (not to determine them), and these reserves could be used to establish urban gardens in MMP.

4.4.2 Classification and Qualification of the Land

The classification and the qualification of the land was one of the subjects that underwent changes during the last Portuguese Urban reform. On the one hand, territorial plans become the only instruments capable of determining the classification and the qualification of land usage, as well as their respective execution and programming, thus having a strategic content in the territorial management system. On the other hand, the 2014 Law (Portuguese Parliament 2014) currently classifies and qualifies the land into only two categories, urban land and rural land.³

The law of territorial management instruments contains a new definition of urban land and the municipal master plans must make a new delimitation and revise it within 5 years (up to 2020).

This new twofold distinction differs from the previous classification of rural, urban and buildable land. Thus, it gives more room to classify certain soils as rustic, previously classified as buildable that were years in the expectation of becoming urban. This discouraged the economic activity inherent to the rural usage and constituted a total economic waste of the land. This new situation allows for rural land other more sustainable purposes in their economic, social and environmental aspects and being effectively and clearly utilized in their Municipal Master Plans (PDM) areas for urban agriculture (Oliveira 2015).

Having described the regulatory framework of the territorial management system, its instruments and the classification of land, it will be now assessed where vacant land can be placed therein.

Vacant land, understood here as abandoned, destroyed, degraded and unused land, public or private, which exists in cities, is not foreseen in any direct legal provisions, but only a few references throughout the legislative text, namely as

- (a) one of the objectives of territorial management [Article 37, paragraphs d) and e) of the 2014 Law (Portuguese Parliament 2014)];
- (b) one of the duties of owners, minimising the level of exposure to collective risks [cf. Article 14 (2) of the 2014 Law from 2014 (Portuguese Parliament 2014)];

³Pursuant to the provisions of Article 10, “rural land” means “the soil which, by virtue of its recognized ability, is intended, in particular, for agriculture, livestock breeding, forestry, conservation, valorisation and exploitation of natural, geological or energetic resources, as well as that which is intended for natural, cultural, tourism, recreational and leisure spaces or risk protection, even if occupied by infrastructure, and that which is not classified as urban “and by “urban land” that which is totally or partially urbanized or built and, as such, attached in territorial planning for urbanization or edification.”, concepts embodied in article 71.

- (c) Article 12 (2) (e) of 2015 Law (Portuguese Government 2015a), states that territorial plans identify territorial resources relevant to nature conservation and biodiversity, and
- (d) Article 16 of 2015 Law (Portuguese Parliament 2015) also seems indirectly to refer to rural buildings as key areas for protection and enhancement environment, setting soil use conditions to ensure the well-being of people.

Nothing else is set regarding the use of unused, degraded, abandoned and/or destroyed urban or rural land.

However, this issue may be addressed at the municipal level, namely in the Municipal Master Plan (MMP) and Detail Plan (DP). In accordance with the provisions of Article 103 (2) a) of 2015 Law (Portuguese Government 2015a, b, c), one of the specific modalities of the detail plan is the intervention plan in the rustic space.

In times of change and challenges, urban management models have to be adjusted to the needs and must at the same time guarantee the economic and financial sustainability of the territorial occupation (Carvalho and Oliveira 2016). Vacant land restoration is best addressed by an interdisciplinary approach that combines economic, social and environmental needs and concerns into a holistic urban land use paradigm (Anderson and Minor 2017).

The following chapter explains how to take advantage of this opening of the law, granted by the most recent legislative changes to the instruments of territorial management, for a sustainable development perspective to enable urban agriculture to flourish in the vacant land of cities. This will contribute to the targets set out in the 11th Sustainable Development Goal (UN 2015) aiming at making cities and human settlements inclusive, safe, resilient and sustainable⁴ by giving vacant land a sustainable purpose by the promotion of urban gardens.

5 Portuguese Case Study

This section provides an overview of the municipal master plans' contents. It includes the distinction between urban and rural land and the references to urban agriculture. We intend to identify at what extent reference is made to urban agriculture in the MMP from Porto, Matosinhos, Maia, Gondomar e Vila Nova de Gaia (Fig. 4).

Table 1 is based on the referred Article 94 of the Law decree from 2015 (Portuguese Government 2015a), which addresses the national territorial information system and the information it contains concerning municipal master plans, and respective information on the internet sites of each of the referred municipalities (Guedes 2015). The project in the municipality of Porto began in July 2003 and it was expanded to their four bordering municipalities.

⁴<https://sustainabledevelopment.un.org/#>

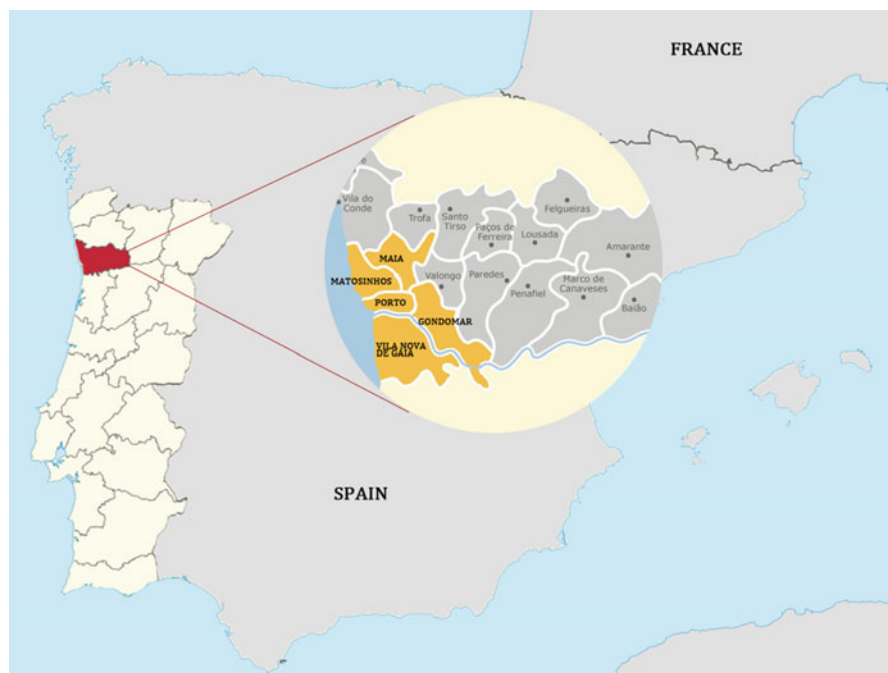


Fig. 4 Porto and four boundaries municipalities. (Source: authors' own creation)

As the table shows, it turns out that the Gondomar, Vila Nova de Gaia and Maia's municipal master plans distinguish between rural and urban land, exception to Matosinhos and Porto (Porto Government 2012), which consider all the land as urban. In Matosinhos, the distinction is however described in the Plan of Detail. The reason why there is no explicit reference in this MMP is that the municipality of Matosinhos has approved a Municipal Regulation of land occupation.

In the same way, apart from Matosinhos' MMP, all the remaining plans have provisions regarding the destination of the land for urban agriculture purposes, either rural land expressly used for agricultural purposes, or urban land. Still, a small reference is made in accordance with article 74 of the decree law from 2015. This last regulation establishes the criteria for classification and reclassification of soil, as well as the criteria of qualification and categories of rural and urban soil according to the dominant use. There is still plenty of room for an adequate and sustainable prediction of the use of vacant land for urban gardens and even the prediction of urban or rural land for urban agriculture and the use of vacant land for urban agriculture. Only the legally foreseen designation of green spaces or mixed green areas could be found. And even these green spaces, absolutely vital for a sustainable city, are not evidenced in the planning instruments (Sousa and Madureira 2017). None of the master plans analysed contained any contrary provision to the law. The mere absence of provisions has no legal consequences whenever the law gives room to municipal bodies to decide. If there were provisions against or contrary to imperative legal

Table 1 Comparison between the five MMP (Municipal Master Plans)

	PDM (MPP)	Distinction between urban and rural land	Land references for urban agriculture purposes	Other regulations	Regulatory decree n.º 15/2015 of 19 August
Porto	Notice n.º 14332 of October 25th, 2012	Classification of land as urban (Article 7). No classification as rural land	Article 8 (2) paragraph a) Land Belonging to Ecological Structure; b) Green Area of Public Use. Article 38 paragraph c) Mixed-use Urban Green Areas. Article 39 paragraph c) Private Green Area. Article 40 paragraph d) Green Area for Space-channel Framing. (Article 41)	Pea Park enlargement	Articles 7, 13 and 14 and Article 25 (1) d)
Matosinhos	Order n.º 92/92 of September 3rd; Notice n.º 3139/2014 of February 28th		Article 41 and 42 Green Area		
Maia	Notice n.º 9751/2013 of July 30th	Article 13 Classification of Urban Land and Rural Land. Article 14 Qualification of Rural Land a) Agricultural Space. Article 15 Qualification of Urban Land a) e) Green Spaces	Article 33 Agricultural Spaces, Article 83 Green Spaces a) Green Spaces of Public Use and d) Mixed-use Urban Green Spaces		Article 7 and Article 17 a) and Article 25 (1) d)
Gondomar	Notice n.º 13057/2015 of November 9th	Article 16 Qualification of Land; Article 17 and Article 18 Rural and Urban Land	Article 30 Agricultural Spaces; Article 60 Green Spaces a) green spaces of public use		Article 7 and Article 17 a) and Article 25 (1) d)
Vila Nova de Gaia	Notice n.º 14327/2009 of August 12th	Article 8 Rural and Urban Land; Articles 22, 35 e 83	Articles 22, 83, 84, 85 and 86	Regulation of urban gardens	Article 7 and Article 17 a) and Article 25 (1) d)

provisions, the MMP could be declared null according to article 96 (3) or suspended as result of article 126 both from the decree Law from 2015 (Portuguese Government 2015a).

In accordance with article 14 of the Decree Law from 2015 (Portuguese Parliament 2015), programmes and territorial plans identify the areas committed to agricultural uses applying the classification of the regulatory decree from 2015 (Portuguese Government 2015b). As a way of compensating these discontents, during the planning of countless Portuguese cities, green plans were developed, as supporting documents for the municipal directors' plans. As an example Quintas (2014) designates the green Plan of Lisbon, which was developed in 1997, as a complement to the respective MMP.

No priority has been given to the integration of agricultural land (related with rural land) in territorial and urban planning, as it has not yet acquired true importance, always being a second-ranked action in the face of its economic devaluation (Fadigas 2017).

Vila Nova de Gaia Municipality has published in 2018 a Regulation on urban gardens (Vila Nova de Gaia Municipality Government 2018) Regulation No. 442/2018, of July 19th, approving the municipal rules of their urban gardens' network. According to Saraiva (2015), such urbanization plans and detailed plans at municipal level are useful to slow down real estate expansion and assure the creation of green spaces in the urban centres. These plans are based on the National Plan of Territorial Planning Policy-strategy (Portuguese Parliament 2019), which considers the synergies of urban and rural spaces fundamental and points to the importance that municipal planning instruments consider areas that promote these synergies. The plans take in consideration a resolution of the Council of Ministers from the Portuguese Government 2015, which approves the "sustainable Cities" Strategy that provides in paragraphs 2.5 and 2.9 evidences of both, the integration of rural and urban land in cities and the provisions regarding land's use.

Urban gardens translate a spontaneous way of using the interstitial spaces of cities (Foo et al. 2014). According to Guerreiro (2008) the interstitial spaces are the unbuilt spaces resulting from the disposition and adjunct of the buildings. In architecture, these spaces are called negative or empty, such as hidden streets.

6 Urban Gardens as Urban Green Spaces

Although not explicitly mentioned among the various types of urban green spaces, urban gardens are the typology that can present greater benefits (Celata and Coletti 2018; Wong et al. 2018). As argued by Telles (1996), it becomes essential that the urban interferes in rural land and re-models the rurality of the city. In this line, the gardens that the citizens seek are not static (just sitting on the bench), but dynamic

and allow to work on the gardens while breathing deeply (Madaleno 2001; Barthel et al. 2013).

The reasons that lead individuals and communities to participate in urban gardens are various. Armstrong (2000) lists several reasons, such as access to fresh food, taste for nature and health benefits, breakdown of social barriers and reduction of crime, among others.

The role of urban gardens in social cohesion is also noticeable by the evidence that collective urban gardens experiences promote inter-personal interaction, facilitate integration of newcomers and help raising the sense of community and neighbourhood (Shaw et al. 2016; Sotelo 2017). They also appear to help linking economic and other dimensions of sustainability by providing households and communities the opportunity to value food variety and food safety along with the cost and effort of producing food in an environmentally-sound way.

In this sense, as stated by Tornaghi (2014), urban policies should encourage the implementation of urban agriculture as a way to promote sustainable urban development, an argument that is corroborated by other authors (e.g., Barthel et al. 2013; Moragues-Faus and Morgan 2015). Community gardens and urban gardens can play an important role in promoting health, social inclusion, civic participation and sustainable living practices in urban environments (Turner et al. 2011) and can also serve as integration catalysts. According to Sotelo (2017), in certain more deprived or immigrant communities, urban gardens act as alternative households and food production sites where children are nourished and protected, where, as stated by Baeten (2016), the sick are cured, and as places of conviviality for moments of leisure, socialization and quiet individual reflection.

In this sense, urban gardens are life quality enhancers, contributing significantly to making people feel happier, changing and improving their daily habits (Costa et al. 2017; Moreira et al. 2017).

Urban gardens show a multidimensional importance encompassing economic, social (food security, health promotion and welfare), environmental, pedagogical and aesthetical aspects (Carlsson et al. 2016; Truong et al. 2016). As reinforced by Pereira (2017), the concept of the new wave of urban gardens and urban agriculture appears to be associated with a multifunctional character, including leisure and recreation, food supply, restoration and/or recovery of degraded land, as well as social cohesion and a sense of belonging, intangible benefits (Barthel et al. 2013; Gonçalves 2014).

Some studies (e.g., Truong et al. 2016; Carlsson et al. 2016) argue that experiences with nature since childhood influence the adoption of more sustainable behaviours, particularly in relation to food. It is intended that fruits and vegetables are cultivated in areas around or near the school, providing a source of basic small-scale foods, as well as other activities (Sottile et al. 2016). In particular, a study by Carlsson et al. (2016) points to the fact that these gardens can facilitate positive links between the school and the home, and, at the same time, allow the community a better understanding of the food ingested and greater civic responsibility.

Despite all the benefits of urban gardens outlined in the previous section, there is still a deficient legal provision of urban gardens in the territorial management instruments.

7 Converting Vacant Land into Urban Gardens: Identifying Best Practices in Europe and Worldwide

Already in 2000 a study by Schukoske (2000) shows that legislation often does not promote the temporal sustainability and successful use of vacant land. The study argues that urban gardening in the United States has developed as a viable alternative to vacancy land. Numerous studies have proven that the use of vacant land is a gain to communities and the environment and should be increased (McClintock et al. 2013; Draus et al. 2013; Sanches and Pellegrino 2016; Smith et al. 2017). According to Newman et al. (2016 p.303) “Sustainable growth approaches such as smart growth, the strategic reuse and infill of urban vacant land can represent a major opportunity for encouraging greater density and reducing suburban development”. The transformation of vacant lands into green spaces, including the urban gardens, is envisaged with growing interest by urban land planning policies (e.g. Park and Ciorici 2013; Sanches and Pellegrino 2016; Newman et al. 2017) Anderson and Minor (2017) highlight that these are the type of initiatives that enhance the sustainable development of cities and urban conurbations, in line with the Brundtland report of 1987 (UN 1987).

Urban gardens and vacant lands are increasingly at the convergence of a variety of urban policies and planning issues in North American, European and Australian large and medium cities (Drake and Lawson 2013). Vacant lots are becoming incorporated into the urban ecological paradigm in European cities (Anderson and Minor 2017). Since one of the objectives of this paper is to identify good practices of converting vacant land in urban gardens built on a literature review of available evidence, this section presents those results.

While trying to identify the good practices in Europe and worldwide through the literature, some case studies were selected and its analysis allowed for the identification of three good practices:

1. Having an updated inventory of public and private vacant land. Newman et al. (2016) present the results of a US country level survey on urban land vacancy in large American cities. This survey was adapted from Pegano and Bowman survey instrument for online use. These inventories show how the ratio of vacant land to city land area has increased along the time and why that has happened. Hence, they allow evaluating the effectiveness of different urban land planning policies of US large cities. The importance of having an updated vacant land inventory is also highlighted by Trigo (2006) in a study aiming at understanding how the

urban planning system deals with the vacancy of urban land in the cities of London and Madrid. This author concludes that there is a lack of primary data sources on the nature and extent of vacant land, that vacant land is used in a broad sense to define a wide variety of empty spaces, and that there is no consensus about the reasons and conditions of vacancy.

To achieve an updated inventory of public and private vacant land it is necessary to find the most adequate theoretical and holistic framework (Trigo 2006). There are some good examples in the literature (Accordino and Gary 2000; McClintock et al. 2013; Newman et al. 2016). Tackling the existence of urban vacant land is a matter of great importance for any sustainable agenda.

2. Integrating urban garden in the cities master plans. According to Hou and Grohmann (2018), in large cities such as Washington, DC or Oakland, CA, community gardens have been considered in the cities comprehensive or general plans, and in Seoul (South Korea), the Municipal Government put forward an Urban Agriculture Master Plan in 2012 that included community gardens as a major component. Using the city of Seattle as case study, Hou and Grohmann (2018) defend the integration of community gardens that were originally vacant land into the city urban park, as a way of preventing these gardens from being converted back to vacant land. The authors in their study examine lessons and challenges of integrating urban gardens in major urban parks. Another study by Németh and Langhorst (2014) focused on the temporary uses of vacant land. In their study Németh and Langhorst adopt a definition derived from Bishop and Williams that argues that the term “temporary” cannot be based on the nature of the use, but rather the intention of the user, developer or planner that the use should be temporary (Németh and Langhorst 2014). They argue economic, social, political and ecological advantages of the temporary use and conclude that a temporary use model might just serve as an instrument to encourage more realistic approaches to urban transformation. They argue that any attempt to implement temporary uses needs to be grounded in the specific conditions and process of a particular location at a particular time. Reinforcing this way, the idea of the need for a legal framework to integrate vacant land and allow its permanent conversion to urban gardens. As a result of this survey, city land policies were deemed important as methods for decreasing vacancy.
3. Developing a specific legal framework to promote urban gardens. Schukoske (2000) reviews the legal framework of urban gardens in US. This author proposes a model for local governments to implement urban gardens programmes, entailing elements such as:
 - assigning the duty of inventorying vacant public lots and vacant private lots,
 - authorising contracting with private landowners for lease of vacant lots,
 - authorising the use of municipal land for minimum terms long enough to elicit commitment by gardeners (such as 5 years), and,
 - providing gardeners tools, water, compost, liability insurance, favourable tax treatment.

8 Discussion and Introduction of a Proposal to Integrate Urban Gardens in to Portuguese Municipal Master Plans as Way to Reuse Vacant Land

As a result, despite all the benefits of urban gardens there is still an incipient indirect reference of urban gardens in the Portuguese territorial management instruments. And if a MMP does not include urban gardens as a priority and still makes a small reference to urban agriculture, despite all international inputs to transform their territorial instruments into greener ones, maybe the reuse of vacant land could be a good answer for this lack.

Portugal could, at first, considering its legal system, the actual state of territorial instruments and the small influence from international territorial planning, the good practices implemented worldwide and the success of some legal instruments that were used in other countries, establish both the duty of inventory of vacant land and the duty to disclose information readily accessible to the public. This last duty would be similar to a land stock exchange. It would allow to create a framework for identifying and designating vacant lots that are better suitable for either developmental or ecological purposes (Newman et al. 2017). To achieve this goal, we purpose to start tackling the existence of vacant land in Portuguese cities and trying to identify the type of vacant land. Thus, it would be necessary to conduct a national survey on vacant Portuguese land (in the sense of Newman et al. 2016), considering the factors and determinants contained in the previously presented literature review (e.g. Park and Ciorici 2013; Foo et al. 2014; Newman et al. 2016). This survey intends to identify the urban vacant land typology (if derelict; unexplored; abandoned; inhabitable...) the ability of the soil for agriculture purposes (if is contemned or not) and ownership (Sanches and Pellegrino 2016). Therefore it could be important to demonstrate if vacant land is close to commercial or residential areas (Park and Ciorici 2013), which are the community quality factors most affected by vacant land (Accordino and Gray 2000) or if vacant land is increasing or decreasing (Newman et al. 2016).

Secondly, as we seen in the Portuguese case study, urban gardens are not included, at least in a relevant way, in city master plans. The sustainable use of urban gardens in urban spaces and the identification of vacant land suitable for urban agriculture use, at least for a temporary period of time, is a possible solution, using the data that would result from the above mentioned survey.

Urban agriculture would benefit from legal regulation and its potential inclusion in municipal master plans (MMP) in the broader context of coherent local public policies, including on the municipal master plan or written in the plan of detail a prevision of:

- (A) the sustainable use of urban gardens in urban spaces based on principles of sustainable development, considering that land is one of the scarcest and most valuable resources in municipalities. The European Commission (1990) has

pointed out that sustainability should not only focus on sustainability growth but also addressing the existence of resources in a more effective way and
 (B) the assessment of land that can be considered vacant land usable for urban gardens purpose, supported by a categorisation of vacant land existent in municipalities, build on the above mentioned inventory.

One of the most effective ways of building a green structure and urban gardens is to adopt a more integrated approach to land planning. This can be achieved through territorial planning at municipal level.

9 Concluding Remarks

In conclusion, vacant land is a worldwide important issue because it continues to be seen as a problem that must be “fixed” and as a resource that can provide opportunities for transformative social and ecological processes. It has a particular meaning within the law. The reuse of vacant land depend and could benefit from public policies, territorial planning instruments, provisions in the different legal systems and its implementation.

Although the Portuguese legal framework already defines sustainability as a goal, and intergenerational solidarity as a principle of territorial planning and urban planning policy, its application has been far from implemented, given the various interests that determine the use of the land in urban space, encompassing conflictual economic interests and social policies.

The legislator must acknowledge that urban gardens are consistent with policies such as the promotion of public health and well-being, the environment, economic development, education, employment, and tourism. Promoting such policies through urban gardens requires regulation that provides their real implementation, as well as the technical and material support.

Furthermore, since cities are the largest consumers of natural resources and the largest producers of pollution and waste, it emerges as evidence that most of the obstacles to global environmental sustainability will have to be resolved at the urban level.

Bearing in mind best international practices and the findings in the Portuguese case study, we can conclude that in the Portuguese case we are still far from assigning a sustainable use to vacant land. It is imperative to do an inventory of vacant land and to establish legally the urban gardens in the Portuguese MMP. These proposals could help to achieve further sustainability of Portuguese municipalities. Ultimately, Portugal could be an example on how to achieve the 2030 agenda. Therefore, we propose to integrate the urban gardens in the Portuguese MMP as a way to take advantage of the vacant land.

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Part XI
Volker Mauerhofer, Daniela Rupó, Lara
Tarquinio, Summary and Conclusions

Summary and Conclusions



Volker Mauerhofer, Daniela Rupo, and Lara Tarquinio

1 Introduction

This chapter provides an overview of the main findings and the related conclusions of the 34 chapters in total included into the five Parts of general aspects and five Parts of specific aspects.

Apparently, already many of the chapters of the five Parts about general aspects (Parts II–VI) contain also many specific aspects such as the Parts VII–XI focus upon. Likewise, these later Parts also reflect in numerous way on general aspects mentioned in previous Parts. The difference lays – of course – in the extent of the focus. Also within the five general and the five specific Parts different points of view and a wide range of topics are addressed.

Most chapters of the book follow the classical legal tradition of a hermeneutic research approach being primary descriptive, interpretative and normative (e.g. Jørgensen 2009; McCaffrey et al. 2012). Several times, case studies are used therein to underpin legal arguments. Also, those chapters that have a more political science and governance focus use this qualitative approach (see also e.g. Mitchell and Bernauer 1998). While in comparison, a few of the chapters in the Parts IV and V related to cooperate sustainability apply more quantitative methods grounded in

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and based upon empirical-analytical research that is more explanatory in its approach (see in general e.g. Langbroek et al. 2017). This increases the methodological variety of the book and stronger reflects the interdisciplinarity across also the three dimensions of sustainable development, the environmental, the social and the economic one.

2 General Aspects with Conclusions

In the first half about “General Aspects” of the book, the first Part out five starts with “Basics of a Sustainable Development Law” and a chapter by Volker Mauerhofer titled “Sustainable Development Law in (only) one world: challenges and perspectives for governance and governments” (Mauerhofer [this volume](#)). This chapter deals particularly with stakeholders and their available instruments for implementing a goal of absolute reduction of the deterioration of environmental and social source and sink capacities through the Global North. Necessities and opportunities for substantial inter-national and intra-national finetuning regarding the Ecological Footprint are provided based on the concept of 3-D Sustainability and four related and quantifiable criteria, namely sufficiency, eco-effectiveness, ecological equity and socio-effectiveness. Particular interventions through rule-focused, economic-incentive-focused and information-focused instruments are elaborated for three overall types of stakeholders – namely (1) for-profit, (2) not-for-profit, and especially (3) governmental ones.

Then, Massimiliano Montini with his chapter on “Designing Law for Sustainability” (Montini [this volume](#)) leads first back to the historical and theoretical roots of sustainability. There he shows how its ecological core has been gradually forgotten and almost lost over time, suggests the progressive conflation of sustainability with the concept of sustainable development a reason and argues counter-measures. Furthermore, Montini ([this volume](#)) analysis whether and why a regulatory system for sustainability is needed and shows that only by prioritizing as objective the preservation of the health and integrity of ecosystems, a regulatory regime truly inspired by sustainability can be introduced. Finally he proposed fundamental changes grouped under the five headings, namely, (1) beyond reductionism, (2) beyond anthropocentrism, (3) beyond positivism, (4) beyond short-termism, and (5) beyond deregulation.

Geert Van Calster is the next in the row with as similarly titled chapter, namely “The Laws of Sustainable Development” (Van Calster [this volume](#)). Starting from the 1992 Rio Declaration and its 20+ 2012 follow-up, he selects their most relevant principles and explains what they mean not just as such, but particularly in how these principles impact upon the development of policy. Van Calster ([this volume](#)) then distinguishes in this context lawyers as be both, enablers and party spoilers: enablers, since successful application of the law and the professions which administer it (private counsel, police officers, judges...) grant a citizen, a State, a company etc. a solid title with which to change or maintain one’s status in society. Party spoilers,

since the same application by someone else, may jeopardise a lucrative, comfortable, safe etc. position. After elaborating the main principles of international law in connection with Sustainable Development, he concludes –addressing a broader audience beyond lawyers – that serious policy cannot function if the legal context is not properly understood and that a proper understanding of the principles discussed assists governments with the roll-out of practical and legal solutions for sustainable development.

Alike the previous contributions, Joanne Scott takes with her chapter “Reducing the European Union’s Environmental Footprint Through ‘Territorial Extension’” (Scott [this volume](#)) also a global perspective, starting from Regional Integration. She analyses legislative measures in the environmental domain that give rise to ‘territorial extension’ in that they seek to regulate the way in which imported products have been harvested or produced in third countries. These measures may be lawful according to her analysis of the case law of the Court of Justice of the EU and of the World Trade Organizations’ Appellate Body, if carefully designed. Furthermore, Scott ([this volume](#)) argues that they may also be justified in order to prevent the EU from being complicit in environmental wrongdoing in third countries and that environmental footprint studies using multi-regional input-output analysis can contribute to this by ensuring that the knowledge conditions for complicity are met.

Trevor Daya-Winterbottom finalizes this start of the general Part of this book with his provocatively titled Chapter “Resilience: Is Sustainability Dead?” (Daya-Winterbottom [this volume](#)). From his assessment of the New Zealand and transnational contexts about what the future guiding ethic for New Zealand environmental law should be, he concludes that resilience, adaptation, and risk assessment could (in limited circumstances) provide a more coherent framework to guide defensible and enduring environmental outcomes grounded on ecological integrity. In this way, Daya-Winterbottom ([this volume](#)) considers his analysis as potentially transformative by shifting current reform debates from their process focus to an implementation focus, and in constitutional terms by driving integration across all environmental statutes.

The five papers of the first Part provide a multifaceted and though-provoking view on the basic of sustainability and law. All five contributions put environmental aspects at the forefront of their considerations. Mauerhofer ([this volume](#)) shows based on 3-D Sustainability practical solution paths for governance and governments through also rule-based instruments for reducing the pressure on environmental carrying capacities in absolute terms based on the Ecological Footprint inter- and intra-nationally. Scott ([this volume](#)) argues also based on that ecological footprint and brings the responsibility of regional integration on the example of the EU and transcontinental trade law barriers from the side of the WTO stronger into the focus. Van Calster ([this volume](#)) revisits the main principles of international environmental law in order to improve their understanding beyond legal scholarship. Montini ([this volume](#)) and Daya-Winterbottom ([this volume](#)) both critically find a decline of environmental considerations within sustainability and come up with partly similar proposals how to overcome this situation, e.g. through a (re-)focus on ecological integrity. All five chapters particularly deal with questions how to effectively

addressing environmental limits while these authors come from different epistemological angles and levels of the geopolitical scale.

The ‘General Aspects’ of this book are then enriched by the findings of a second Part covering three chapters dealing with issues of overconsumption, rebound effects, degrowth and planetary boundaries. These chapters carry forward several of the issues touched upon in the previous chapters and broaden as well as specify them.

Joëlle Saey-Volckrick proceeds with the first contribution title “What does the rebound effect tell us? Reflection on its sources and its implication for the sustainability debate” (Saey-Volckrick [this volume](#)). She first enhances the theoretical foundations of the rebound effect by developing – based on a literature review – a comprehensive classification that distinguishes the different levels of the rebound effect and the mechanisms at play. Therefrom she highlights that (1) the rebound effect challenges the feasibility of an absolute decoupling between economic growth and resource use, and (2) improved resource efficiency alone cannot counterbalance the high environmental impact of P (population) \times A (affluence). Consequently, Saey-Volckrick ([this volume](#)) argues that the existence of the rebound effect implies that resource efficiency policies are not enough to achieve sustainability and can even be detrimental in the case of backfire, and, thus, that it is time to shed light on the pathways “producing and consuming differently” and “producing and consuming less”.

Melissa Gorrie catches up that stitch with her following chapter about “Regulating our Consumer Culture: What role can the law play in addressing excessive consumption?” (Gorrie [this volume](#)). By exploring the role of states in addressing personal consumption applying the law, using Canada as a case study, she demonstrates that the limited efforts – that have been undertaken to address consumption using the law generally – focus on increasing the *efficiency* of current production methods and changing *patterns* of consumption rather than ensuring actual reductions in the *amount* of consumption. Gorrie ([this volume](#)) was only able to locate a few discrete examples of laws at the municipal level that are arguably aimed at reducing the *amount* of consumption, while even the effectiveness of those laws is questionable. She concludes that there is a need to look beyond traditional state-based laws to address consumption, especially whether to include non-state regulation (i.e. social and cultural norms and rules) and to focus efforts on reforming those rules and norms from the bottom-up.

Minna Pappila explores the concept of planetary boundaries regarding national biodiversity decline through intensive forestry and atmospheric impacts in her chapter on “Biodiversity, climate change and Finnish forest regulation” (Pappila [this volume](#)). Her assessment finds that current Finnish regulation – which is still highly based on soft law and voluntary protection measures – makes insufficient changes towards ecologically sustainable forest management. Pappila’s ([this volume](#)) results show that this legal situation did not halt biodiversity decline over the last 20 years and the situation is becoming more critical due to the increasing amounts of logging in Finland. Restricting the amount of annual logging is not possible in Finland’s law according to her analysis as existing statutes only place restrictions on logging in certain protected areas and habitats. Moreover, Pappila

([this volume](#)) finds that many of the forest governance instruments such as subsidies and forest planning encourage an increased forest logging, while few measures enhance biodiversity or water protection. She concludes with a call for significant improvements to be enacted in forest governance.

All three researchers address here questions of ineffectiveness of existing law to address absolute limits within sustainability. Saey-Volckrick ([this volume](#)) criticizes the current efficiency-focus of product and service related legal measures and argues towards sufficiency and effectiveness as alternative criteria on which measures should be oriented on, on the international level (Saey-Volckrick [this volume](#)) and the national level (Gorrie [this volume](#)). Pappila's ([this volume](#)) contribution has the same objective towards degrowth of a negative environmental impact in absolute terms, but criticizes the lacking effectiveness due to insufficiency of voluntary measures and harmful financial subsidies, both also originating in the legal framework. In this way, all three contribution elaborate more in detail barriers to sustainable policies and ways forward.

The next two bigger Parts on general aspects are addressing the economic side of sustainability. The six chapters therein all are thematically located around corporate sustainability. Whereas the first three chapters primarily cover enterprise subjects while the latter three ones concentrate mainly on the social effects of companies.

Bosman Martine, Lambooy Tineke, Oral Elif and Jansen Bart, make the begin with their transcontinental analysis titled "The Chemicals Between Us": The use and discharge of chemicals in the life cycle of a pair of jeans – from legal theory to practice" (Bosman et al. [this volume](#)). They first provide an analysis of the adverse impacts in each phase of the entire life-cycle of a pair of jeans ('jeans'): (i) cotton farming and (ii) weaving & dyeing (Turkey); (iii) manufacturing (Vietnam); (iv) consumer use and (v) disposal (the Netherlands). Subsequently, the legal standards applicable to the use and discharge of (hazardous) chemicals in each of these five phases are discussed, covering international and EU law, soft law, domestic law and self-regulatory standards. In the final Part, the authors compare the legal standards with industries' best practices that emerged from the gathered information in a case study concerning a specific pair of jeans. Through this comparison, Bosman et al. ([this volume](#)) provide an in-depth insight in the gap between legal theory and practice, to initiate further action and to develop solutions by industry and politicians.

Patrizia Accordino then analysis a particular form of influence of politics on companies in her chapter titled "Fiscal policy for sustainable development: the Italian way to promote innovative entrepreneurship according to European Union rules". She indicates on one national example how this policy supported innovative enterprises' access to financial resources — especially in the early stages — and provided taxation benefits. Thus, the Italian legislation introduced – with a long-term strategy to ensure that introduced tax incentives and facilities for investors express all their potential – tax incentives to equity investors in accordance with European State aid rules. According to Accordino ([this volume](#)) this legal policy consists of 1) strengthening tax credits for investment in research and development, 2) simplifying

administrative procedures to start an innovative business and investment in it as well as 3) popularising the benefits of crowdfunding.

Emanuele La Rosa afterwards looks on companies from a different angle in his chapter about “Planned obsolescence and criminal law: a problematic relationship?” (La Rosa [this volume](#)). He finds in his analysis of the French legislature, which in 2016 introduced a new crime in the Consumer Code, that the use of criminal law undoubtedly has advantages in terms of general prevention. La Rosa ([this volume](#)) points out at the same time, that this is a problematic option, if the general principles ruling criminal law (principle of strict legality and principle of offensiveness) are taken into account. His research indicated the necessity to adopt a model of regulation that integrates soft law instruments, commercial law actions (class action) and administrative controls. Finally, La Rosa ([this volume](#)) emphasizes that against planned obsolescence, the use of criminal law should be limited only to cases of failure of other measures, according to the “*extrema ratio*” principle.

The three contributions of this part are taking significant different angles on the economic side of sustainability while all addressing companies. Bosman et al. ([this volume](#)) and La Rosa ([this volume](#)) are focusing on both, existing side effects of economic activities which have negative consequences for the environmental as well as social dimensions of a sustainable development. Nevertheless, both chapters provide the basis for the future application of a wide range of voluntary and binding instruments with enabling and restricting character towards effectiveness of the rule of law. While Accordino ([this volume](#)) addresses – also with a broad legal toolbox – a fiscal situation which is not negative in terms of sustainability, but which should – as a new situation – be kept and maintained on a sustainable pathway. Hence, two main functions of the law towards companies, a supporting one and a restricting one, are elaborated here in different foci.

The next larger Part of this book also addresses the economic side and corporate sustainability, but from more from the angle of the company itself and its social concerns.

Stefanía Carolina Posadas, Lara Tarquinio and Michele A. Rea make the start therein with their chapter titled “Political Corporate Social Responsibility and the role of companies. Evidence from Novo Nordisk” (Posadas et al. [this volume](#)). The authors show the political role taken on by corporations to fill regulatory gaps due to weak or insufficient social and environmental standards and norms, and thereby encourage socially and environmentally responsible conduct, by increasing governments’ and institutions’ interest in CSR and in its communication. In their empirical case study on Novo Nordisk A/S, Posadas et al. ([this volume](#)) demonstrate the applicability of Scherer and Palazzo’s framework of five characteristics that define political CSR (i.e. governance model, self-regulation, responsibility beyond liability, moral legitimacy, and deliberative democracy) on this company. More in detail, they find Novo Nordisk exhibits those characteristics and well describe the changing role of corporations as political actors. In this way, Posadas et al. ([this volume](#)) contribute to the literature on political CSR about how and why a company can change its role as a political actor and to operationalize this concept.

Another empirical study follows from Federica Balluchi, Katia Furlotti and Riccardo Torelli, on a similar issue – but by addressing more companies and quantitatively – in their chapter titled “Towards Mandatory Sustainability Reporting. Voluntary Corporate Social Responsibility Disclosure of Italian companies and Legislative Decree 254/2016 statements. A Quantitative Analysis of the Last 10 Years” (Balluchi et al. [this volume](#)). During their comparison of the decade preceding the introduction of a new law tracing the relationship between historical situation, business characteristics and the requirements of the current legislative Decree, they show that in a non-mandatory context the number of CSR reports published grew steadily. In this way, Balluchi et al. ([this volume](#)) reveal the voluntary behaviour of Italian companies, their early compliance with the requirements of the Decree with reference to the different dimensions of sustainability, as well as early use of international standards and guidelines. The findings of these authors also show a marked increase of the number of companies, which, in 2017, produced a non-financial report after the entry into force of the new law.

Domenico, Raucci, Lara, Tarquinio, Daniela, Rupo, Salvatore and Loprevite, finally in this Part also concentrate on reporting in their chapter with the title “Non-financial performance indicators: the power of measures to operationalize the law” (Raucci et al. [this volume](#)). In their assessment about how the Directive 2014/95/EU on Non-Financial Information (NFI) is implemented in Italy through the 254/2016 Legislative Decree, they are finding – when comparing non-financial reports produced before and after that Italian Decree entered into force – decreasing results for their sample of Italian companies belonging to the “sensitive sectors” (those with high social and environmental impacts). Thus, more in detail, Raucci et al. ([this volume](#)) document – adopting the content analysis, calculate a disclosure index of non-financial reports referring to the 2015–2017 financial years, and through this longitudinal analysis, find a decrease of the overall quantity of NFI disclosed via Sustainability Performance Indicators (SPIs) and a general reduction in their average value. According to these authors, this was more evident in the first year in which the Decree entered into force, and the reduction of the disclosure index can be related to the assessment of information reliability, in response to the legal requirement of NFI disclosure.

While Posadas et al. ([this volume](#)) describe within this fourth Part of the basic aspects of the book in qualitative ways the particular role of one global enterprise acting as frontrunner in sustainability reporting, Balluchi et al. ([this volume](#)) and Raucci et al. ([this volume](#)) intend to explain both the effect of a transnational legal act on the national reporting situation, with different approaches and quite different outcomes, namely an increase versus a decrease.

The results of the fifth and last Part in the ‘general aspects’ of this book now turns mainly to social aspects of law and sustainability. The chapter is titled “Human Rights, Non-Governmental Organizations and Public Participation in Environmental Matters” and main findings from its five chapters are summarized here.

Karin Buhmann comes first among the three chapters addressing particularly individual rights with her contribution titled “Collaborative regulation: Preventing regulatory capture in multi-stakeholder processes for developing norms for

sustainability conduct” (Buhmann [this volume](#)). The author develops the theory of collaborative regulation to prevent regulatory capture by actors in multi-stakeholder regulatory processes. Her point of departure is the complex interaction between public policy objectives on sustainability and the transnational character of many of the issues at stake. Buhmann ([this volume](#)) points out that there are documented risks of regulatory capture by powerful or otherwise privileged actors in such processes. Then, she exemplifies – by means of several past examples of such multi-stakeholder forums launched by international or regional organizations – a regulatory process that is inclusive while also balancing power disparities. Thus, Buhmann’s ([this volume](#)) outcome is a pledge for internal norms and organization of a multi-stakeholder process that can support turning a broadly representative input into a normative result (output) in such a manner that the output enjoys a high degree of legitimacy to support organizational uptake without strong enforcement institutions.

Ivana Savic continues then with the first of two chapters explicitly dedicated to Human Rights. Her chapter is titled “Right to Development and Right to Environment Sustainable Development Perspectives” (Savic [this volume](#)). Her reflections on the rights to environment and development which she both considers to be fundamental human rights provide a brief overview of the different types of environment-development conflicts. Then, an overview of the different types of human rights conflicts is given where she points out that unsustainable development is currently the main development paradigm. Therefrom, the chapter concludes that there is no genuine conflict between these two fundamental rights and that the references to the conflict of rights are a misinterpretation of the core issue in question, and assumptions based on fallacies. Besides, Savic ([this volume](#)) highlights that the implementation of the SDGs in this contexts is faced with conceptual and practical challenges, but due to confusing the symptoms of the problems with the problem itself.

Iryna Ivankiv provides the next chapter explicitly related to Human Rights, namely on “Peace as a Right of Humanity” (Ivankiv [this volume](#)). She offers a new concept of the right of humanity to peace presented through its co-dependence with human rights and sustainable development. Following the traditional division of human rights into three generations and its development into the rights of humanity, peace is argued by Ivankiv ([this volume](#)) to be one of three rights of humanity (others are: right to healthy environment and sustainable development). She argues that Humanity – unlike an individual or group – is an inclusive subject, meaning that it unites all human beings, that this global nature making it relevant in the increasingly interdependent world and that it also solves the ambiguity in understanding of the subjects of the human rights of third generation. Starting from a broad analysis of the international documents, which have had changed the legal definition of peace recognizing it as a human right, Ivankiv ([this volume](#)) argues in favour for recognition of humanity as the subject of the right to peace, along with its connection with sustainable development.

Kokila Konasinghe then leads over from individual to collective rights with his chapter titled “NGOs as Loudspeakers: Potential Role of NGOs in Bridging the North-South Gap in International Environmental and Sustainable Development Law Making Process” (Konasinghe [this volume](#)). Through qualitative analysis of data

and international legal instruments and Third World Approaches to International Law (TWAIL), he justifies the need to incorporate the southern concerns through equality: which encompasses representation of southern concerns at the international law-making forums by the use of NGOs in order to make this international law making fora more participatory, equitable and just. Konasinghe ([this volume](#)) argues that such an approach would reflect the move away from state centric governance towards a more democratic and inclusive international governance and law-making regime.

From general human right considerations and international legislation including collective rights, Tianbao Qin and Xuemin Chen, lead over to implementation and enforcement of rights on the national level through their chapter “Claims in Environmental Civil Public Interest Litigation in China: Problems and Solutions” (Qin and Chen [this volume](#)). They reveal the status quo of environmental civil public interest litigation and describe in detail major changes in the type of claims from traditional tort liabilities to more ecological restoration claims beginning with 2013. Qin and Chen ([this volume](#)) assume that there currently still exist some problems on claims of environmental civil public interest litigation, i.e. about unclear limitation of disposition of claims; undivided judicial and administrative power; low consideration of fulfillment, and over reliance on inquisitorial system. They additionally point out more in detail – based on the principle of “reasonable separation of functions of courts, administrative organs, and social organizations” – how the courts as an impartial body should play their moderate role and instruct plaintiffs in the course of proceedings, which in turn will lead to the progress of the rule of environmental law.

All these last five chapters in the Part on general aspects of this book address individual or collective rights related to sustainability and law, but from very different angles, highly diverse epistemologies and multiple levels of the geo-political scale. While the first three chapters (Buhmann [this volume](#); Savic [this volume](#); Ivankiv [this volume](#)) elaborate the theoretical underpinning of these rights, the last two chapters reveal their practical implementation in legislation and jurisdiction (Konasinghe [this volume](#), Qin and Chen [this volume](#)).

With this chapter the first, slightly larger Part of this book on general aspects ends and all the following chapters are considered to focus primarily on specific aspects. While overlaps with the general Part and its chapters as well as among chapters on specific aspects are natural, numerous and welcome.

3 Specific Aspects with Conclusions

The five Parts on specific aspects in this book follow a certain order. The first two Parts deal with certain environmental “assets” (biodiversity, oceans), their sustainable use particular by indigenous people and related threats, such as overuse, unfair benefit sharing, biofuels and invasive alien species. The next Part leads over to climate change and related energy consumption as a global threats and counter

strategies by the local level, by the construction sector and through carbon capture and storage. The next two Parts lead back to the issues of sustainable use of the environmental assets and explore in this regard the concept of ecosystem services and particularly food, water and energy issues.

The first Part of the specific aspects is titled “Biodiversity & Biofuels – Access and Benefit Sharing, Indigenous Peoples’ Knowledge, and Local Implications”.

Jorge Cabrera and Frederic Perron-Welch start therein with their chapter titled “Rules and Practices of International Law on Benefit-Sharing for Sustainable Development” (Cabrera and Perron-Welch [this volume](#)). The areas of law they cover in their assessment include biodiversity, climate change, desertification, oceans, indigenous peoples, and outer space. The main findings of Cabrera and Perron-Welch ([this volume](#)) are that several aspects of the principle of benefit sharing can contribute to the elaboration of international law for sustainable development, including aspects that are not currently well developed. While the authors point out that a number of obstacles exists to its implementation due to different understandings of the principle and a general lack of implementation thus far, even in domains where it is better defined. Cabrera and Perron-Welch ([this volume](#)) conclude that future research is needed 1. on the means of implementation of this principle expressing a fair distribution of the costs and benefits of resource use between States, and within States, 2. on the development of the principle in the numerous ongoing international negotiations and 3. on the potential future applications of the principle in international law.

Natalie Stoianoff shares then a practical case study in her chapter with the title “Sustainable use of Indigenous Ecological Knowledge: A Case Study for Implementing the Nagoya Protocol” (Stoianoff [this volume](#)). She presents the results of research commissioned for the NSW Office of Environment and Heritage in 2013 wherein the Indigenous Knowledge Forum proposed a legislative ‘Competent Authority’ framework for ‘Recognising and Protecting Aboriginal Knowledge Associated with Natural Resource Management’. This Authority would provide the governance framework for administering a legal regime covering the creation, maintenance and protection of community knowledge databases. The Garuwanga Project which Stoianoff ([this volume](#)) describes, addresses concerns over the form, independence and funding of such an Authority, as well as local Indigenous representation, by facilitating Aboriginal Community engagement in identifying, evaluating and recommending an appropriate Competent Authority legal structure. Finally, she reports on the governance model finally proposed by the Garuwanga Project in its Discussion Paper with a – unique because independent – Authority together with the preliminary outcomes of the consultations with Aboriginal communities across Australia.

Afterwards, Lakshmi Gopakumar presents a case study about (unsuccessful) natural biofuel resource management which covers the implementation and results stages for local communities in her chapter “Jatropha cultivation in South India – policy implications” (Gopakumar [this volume](#)). She describes in the findings how

this mission failed due to lack of proper implementation at different levels, the most important being gaps in implementation of the scheme from the government level to the farmer level. Gopakumar ([this volume](#)) shows that *Jatropha* was not a viable biofuel crop in South India while taking the factors like yield and advantages to marginal farmers into consideration. Additionally she reveals that intensive biofuel cultivation can also affect biodiversity by promoting monoculture, reducing the native biodiversity of so called ‘marginal lands’. Gopakumar ([this volume](#)) concludes that the cultivation which was not successful in utilization of marginal lands lead to wastage of large areas of marginal lands, energy, time and income of marginal farmers. Nevertheless, she also points out that biofuel crops in general can have a good future if they can be properly implemented with a successful policy back up and scientific studies.

The three chapters in the this Part provide a broad overview on issues related to the conservation and (un)sustainable use of natural assets, with a wide theoretical Part (Cabrera and Perron-Welch [this volume](#)) and two case studies related to indigenous peoples and local communities: one on a detailed procedure about introducing an authoritative governance system for implementing the Nagoya Protocol on Access and Benefit sharing in Australia (Stoianoff [this volume](#)) and one the multiple (including governance-related) reasons for the failed introduction of a biofuel plant in South India negatively effecting the livelihood of marginal farmers (Gopakumar [this volume](#)).

The next Part related to specific aspects in this book has the title “Invasive Alien Species & Oceans – MEAs Integration, Marine Resources and Law of the Sea”.

Here, Felix Frommelt makes the start with a global topic from a regional viewpoint. His chapter title “Invasive Alien Species – The Eradication or Use of Invasive Alien Species under EU Law” is relevant for life on land and under water and connects in this way the previous three chapters and this Part of the book (Frommelt [this volume](#)). The author analysis in his overview on the 2014 introduced EU-Regulation on Invasive Alien Species several critical aspects. In particular, Frommelt ([this volume](#)) discusses the Union list, the listing criteria, the restrictions set forth, as well as the – firstly in an EU-legislative act introduced – concept of ecosystem services. Furthermore, particular obligations and related derogation “ways” are analysed by him taking into account the European Commission’s opinion. Frommelt ([this volume](#)) scrutinizes also the management provision, particularly about commercial use with the related exemptions. In this connection, he develops concrete categories of “compelling public interest“, relying on provisions under the Habitats and Water Framework Directives and case law by the Court of Justice of the EU.

Carina Costa de Oliveira, Gabriela G. B. Lima Moraes and Priscilla Pereira de Andrade follow up in their chapter on “The limited contribution of environmental law to the sustainable management of marine resources in Brazil: the need for an integrated approach” (Costa de Oliveira et al. [this volume](#)). The authors demonstrate the difficulty to provide environmental protection within marine activities because of the lack of integration among different sectors. Costa de Oliveira et al. ([this volume](#)) point out in this context that Brazilian environmental law was not specifically

designed for the management of marine resources and so far does not contribute to the sustainable integration, throughout its principles, rules and instruments, of different sectors such as mining, oil exploitation, navigation and fishing. Additionally, they highlight that environmental law does not provide for an institutional framework where environmental agencies are at the center of the management of marine resources. However, Costa de Oliveira et al. ([this volume](#)) concede that there are some examples of norms and instruments that contribute to an integrated approach for the management of marine resources, but still in a limited way.

Ekaterina Vasilenko and Ekaterina Bliznetskaya follow – also ocean oriented but coming from the international viewpoint – with their chapter titled “International Environmental law and law of the sea: Analysis of legal and political aspects of institution interaction” (Vasilenko and Bliznetskaya [this volume](#)). These authors focus on analyzing the sources of sea pollution and on the global legal framework of setting restrictions upon these sources in order to find the justification for the necessity of cooperation between the relevant conventions. After comparing the MARPOL Convention 73/78, the Basel convention and the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Vasilenko and Bliznetskaya ([this volume](#)) discuss the necessity of cooperation between these conventions. By means of a case study, they then define the forces and achievements of existing institutional interactions on how and with what effects the relevant international institutions cope with the gap in the regulation of land-based sea pollution. Based on the results of legal analysis and this case study, Vasilenko and Bliznetskaya ([this volume](#)) finally outline the perspectives for the global regime on land-based sea pollution.

In this Part of the “special aspects”, Frommelt ([this volume](#)) first makes with his analysis a well-suited connection between Gopakumar’s ([this volume](#)) previous chapter on the introduction of an alien species (*Jatropha*) to South India as well as the following two marine oriented chapters as his results are valid also the sea territory of the EU-member States. The two marine contributions (Costa de Oliveira et al. [this volume](#); Vasilenko and Bliznetskaya [this volume](#)) are quite complementary regarding their respective level of the geopolitical scale. While they both solution-oriented analyse the institutional and organizational fragmentation and lack of integration of the relevant legal acts within these two levels (national, international).

The third Part also related to specific aspects turns towards a major pressure in terms of an environmental threat, namely climate change together with one of its major driving forces, namely fossil energy consumption, and discusses potential solution options.

Hitomi Roppongi initially proceeds with her chapter titled “From global to local: A multilevel approach to the local implementation of climate policies in Japan” (Roppongi [this volume](#)). She first provides an overview of domestic legislations that incorporate multilateral climate agreements at the national and subnational levels. Afterwards, Roppongi ([this volume](#)) shows – in the context of historical environmental governance – the state of local implementation and finds that Japan’s legislative framework and historical foundation are in favour of local implementation whereby prefectural leadership is observant. Afterwards, she identifies area of

potential improvements such as setting numerical total reduction target at the prefectural level and strengthening municipal implementations. Roppongi ([this volume](#)) proposes in her conclusions regarding future research to implement studies to understand cross-jurisdictional relationships, impacts of local climate actions, and translation of Nationally Determined Contributions into subnational goals and conceptualisation of climate policy involving energy policy.

Ruth Onkangi and Yvonne Getugi catching up this “stick” with their climate change and energy-related chapter on construction policy with the title “Integrating Sustainability in Governance and Legal Framework for a Sustainable Builtscapes in Kenya: Towards a Global Approach” (Onkangi and Getugi [this volume](#)). These authors establish a lack of a sustainable construction strategy and that the Kenyan Government is yet to make sustainability a core subject in the construction industry operations. Onkangi and Getugi ([this volume](#)) find that the fragmented nature of Kenyas’ industry has impacted leadership and governance and consequently left sustainable construction for voluntary uptake. They make – based on the findings from the literature review on Kenyan law – policy recommendations as well as other tangible solutions for a holistic integration of sustainability in the construction industry in Kenya. Onkangi and Getugi ([this volume](#)) conclude that, as a proactive measure, embracing sustainable development now will keep emissions of emerging economies low in the face of future growth and development. They further champion the use of regulations to enforce and promote provisions of sustainability in the construction industry in Kenya towards meeting the National Green Economy Strategy Implementation Plan.

Kenchihiro Yanagi and Akihiro Nakamura take up certain constructions, namely for Carbon Capture and Storage, as a solution pathway and bring the reader back to Japan with their chapter titled “Towards a Low/Zero Carbon Society for the Asia-Pacific Region: Policy and Legal Development for Carbon Capture and Storage (CCS) in Japan” (Yanagi and Nakamura [this volume](#)). The two scholars identify a number of key approaches to developing the existing CCS policy and legal framework in Japan to commercialise CCS deployment, based on ongoing research. Yanagi and Nakamura ([this volume](#)) address a number of key developments to be implemented such as: (1) to maximise a best mix technological solution to mitigating the GHG emissions in Japan including the role of CCS (i.e. Carbon Capture Utilisation and Storage), (2) to set specific targets for CCS and technological roadmap; (3) to consider two scenario options for a legal framework so called ‘regulatory-based model’ and ‘public-work model’; and (4) to utilize the role of Strategic Environmental Assessment and Environmental Impact Assessment which could be applied as the useful tools to conceptualize, review and improve the existing policy and legal framework. These authors further emphasise a need for a comprehensive framework at the regional level and attempt to address its key development areas to be considered, in order to realise a low/zero carbon society in the Asia-Pacific region.

This Part within the ‘special aspects’ all covers issues of global importance from a national perspective namely multi-level governance from a historical local perspective (Roppongi [this volume](#)), the binding integration of energy and climate relevant

keys actors beyond pure voluntary approaches (Onkangi and Getugi [this volume](#)) and exploring promising technical solutions to address climate change (Yanagi and Nakamura [this volume](#)) while keeping local particular risks in mind.

The fourth and the fifth Parts of the ‘specific aspects’ of the book address ecosystem services in general and localized rights related to food, water and energy in particular.

The Part about ecosystem services consists of three chapters.

Alexandra Langlais start with a critical view where she questions “Framing Ecosystem services for sustainability?” (Langlais [this volume](#)). She starts her chapters with the statement that the inclusion of the concept of Ecosystem Services (ES) in the legal framework related to sustainable development could help to prioritize decisions for sustainable development, but criticizes the legal literature written yet for exploring too less (1) the legal consequences of their ESs’ introduction into the law and (2) ESs’ relationship to sustainable development. Langlais ([this volume](#)) provides a reflection on the usefulness and modalities of taking into account ES in order to guide decisions towards greater sustainability by exploring two varying approaches. First, she focuses on the legal qualification of ES – more specifically on the relevance of a dedicated legal category – and identifies possible direct and specific legal effects arising from the introduction of ES into the legal corpus that could directly influence unsustainable behaviour. Secondly, she demonstrates that an approach based on the legal qualification of ES is not the only possible or most relevant legal approach. Even without direct legal effects, the concept is not without legal effectiveness.

A larger team of authors (Huu Loc Ho, Kim N. Irvine, Asan Suwanarit, Pakorn Vallikul, Fa Likitswat, Alisa Sahavacharin Chansopheaktra Sovann and Song Ha Le) then follows up with a couple of case studies, by comparatively analysing the implementation of ES into practice in their chapter titled “Mainstreaming Ecosystem Services as Public Policy in South East Asia, from Theory to Practice” (Loc et al. [this volume](#)).

In their research, they examine case studies from four Southeast Asian nations (Singapore, Thailand, Cambodia and Vietnam) and reveal that inclusion, or even consideration, of ES in public policy has been uneven throughout the region, ranging from essentially no consideration to quite sophisticated ES policy underpinnings. Furthermore, Loc et al. ([this volume](#)) show that even within a country there can be considerable difference in ES uptake. The authors conclude with the concern that ES concepts are too western-centric and that mainstreaming of ES into public policy still faces barriers in Southeast Asia although some barriers have been overcome. Loc et al. ([this volume](#)) further conclude that the principal barriers common across Thailand, Cambodia, and Vietnam are related to mandate and policy fragmentation and insufficient human and finance capacity. On the other hand, they reveal with further explanations how Singapore has successfully included ES concepts within its planning structure due to a number of factors, including a less fragmented policy-making approach, public-private partnerships and buy-in, and visionary leadership. Finally, Loc et al. ([this volume](#)) recommend potential ways forward for the three not-yet-so-successful nations by highlighting the roles of academics, government,

and major international agencies in furthering efforts to mainstream ES in policy-making.

Blaise-Pascal Ntirumenyerwa Mihigo and An Cliquet continue the line of practical implementation studies of ES into the law with their chapter titled “Payment for Ecosystem Services in the Congo Basin: Filling the gap between law and sustainability for an optimal preservation of ecosystem services” (Ntirumenyerwa Mihigo and Cliquet [this volume](#)). Their results refer geo-politically to the Democratic Republic of Congo (DRC). The authors apply indicators of land tenure security, classical conditions of contracts, 3E+ REDD+ criteria and measures on conservation and restoration on laws dealing with four ecosystem services, namely carbon sequestration and storage, biodiversity protection, watershed protection and landscape beauty. In summary, Ntirumenyerwa Mihigo and Cliquet ([this volume](#)) demonstrate that there is a need to update or enforce the existing laws related to PES applied in the DRC in order to increase the preservation of ecosystem services. They further argue that the transformation of the existing laws would positively influence the implementation of SDG 13 and 15.

In this Part on ES, the chapter written by Langlais ([this volume](#)) raises theoretical question on the applicability of the ES-concept within the law in a critical way. The two chapters on legal implementation studies of ES within countries show both in general similar results with improvement potential within countries having the status of a developing country (Loc et al. [this volume](#); Ntirumenyerwa Mihigo and Cliquet [this volume](#)), while a quite favourable implementation status is indicated for a country with a “developed” status (Loc et al. [this volume](#)). This raises question of the extraterritorial ecological footprint of developed countries and how this can be taken into consideration in county studies, but which cannot be further explored here.

The last Part also on “specific aspects” of this book deals in another three chapters with several main topics closely related to ES while not primarily focusing on that term, and is titled “Specific Aspects: Food – localized rights, transboundary water/energy nexus with groundwater and urban gardens”.

First, Paula Fernandez-Wulff provides a transcontinental comparison of case studies in her chapter with the title “Municipalities, social innovations, and the co-development of localized food rights” (Fernandez-Wulff [this volume](#)). She provides – based on examples from both the European Union and the United States – first a review of the latest legal developments in the human right to food at the international level and combines this with a description of the problematic of the definition and identification of local rights-based food policies. Furthermore, the chapter of Fernandez-Wulff ([this volume](#)) develops the concept of local rights-based food policy in the context of the EU and the US through two case studies based on semi-directed interviews with citizen groups working in these regions, and presents the opportunities and challenges of the concept and its implications on both sides of the Atlantic. She concludes by presenting ways forward for the inclusion of human rights within municipal food policy and argues this as a necessary feature of the holistic approach required for sustainable development.

Imad Antoine Ibrahim brings the issue of food in another broader thematical context with the chapter titled “Water-Energy-Food Nexus and Groundwater: Can the Nexus Support the Sustainable Management of Transboundary Aquifers?” (Ibrahim [this volume](#)). When analyzing the international and transboundary groundwater regulatory framework, the author points out that there are many issues that must be taken into account before considering the establishment of a WEF Nexus legal framework. Ibrahim ([this volume](#)) further notes that there is no proof that nations sharing water resources would include a WEF Nexus provision in their regional agreements or that they would comply with such provisions in terms of groundwater. The author concludes that it is still not clear how the WEF Nexus concept will be implemented in law or, indeed, whether such implementation is possible, but refers to the need for further research.

Alexandra Ribeiro, Raquel Carvalho and Livia Madureira bring back the focus to the local level and to practical implementation with their chapter titled “Establishing Urban Gardens on Vacant Land While Considering International Good Practices: A Legal Case Study from Portugal” (Ribeiro et al. [this volume](#)). The authors first comprise a literature review on good practices adopted in different countries regarding vacant lot restoration wherein their evaluation and provision of good practices was built on the achievement of three pillars of sustainability. Afterwards, Ribeiro et al. ([this volume](#)) use five Portuguese Municipal Master Plans (MMP) as empirical data and design thereby a new legal and regulatory framework. In this way, they enhance the sustainable destination of vacant land by converting them into urban gardens. Their analysis of these MMPs evidenced that these plans disregard urban gardens as a tool to promote urban sustainability in spite of global trends to make urban territorial planning and management instruments greener. An additional outcome presented by Ribeiro et al. ([this volume](#)) is a categorization of different types of vacant land in the five municipalities under analysis according to their suitability for urban garden conversion. They conclude that the design of the legal framework enhancing the conversion of vacant land into urban garden will contribute to the 2030 international agenda goals’ achievement.

4 Additional Wider Conclusions

This book on sustainability and law started in general with the “frame of the game”, underpinning theories, history as well as the distribution of substantial and procedural rights, and continued specifically via the environmental, social and economic stocks and their flows in terms of goods and services including major disservices and human-caused threats to them. Throughout the chapters, solution options are provided.

In many ways, all the 10 Parts and their 34 chapters are also explicitly or implicitly interwoven with the Sustainable Development Goals concluded 2015 on UN-level (UN [2015](#)) for the next pentads to come. While many of the chapters take an independent scientific angle, not mainly directed by this agenda.

This reflects and maintains scientific independence from political mainstreaming as well as allows also critical looks on the SDGs, on all their blind spots and inconsistencies (e.g. Deacon 2016; Spaiser et al. 2017; Bali Swain 2018; on related indexes Janoušková et al. 2018), despite their admittedly global merits in raising awareness about the necessity of a sustainable development and mainstreaming it into practical implementation.

In this way, the book remains timeless. Away from new overall buzzwords with overseeable life span, from following segregatively launched and fostered oxymorons, from jumping on short-term political discussion acting as - perhaps - intentional complexity-blindness, the book aims to contribute to the finding of theoretical and practical solutions towards sustainability through a legal approach.

In the tradition of systems thinking, multifaceted views are brought together to shed light on a super-complex puzzle, to explore valuable ways to go forward, but to admit also limits of knowledge: for future generations to benefit from and to research upon, hopefully.

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