A Critical Perspective on the Principle of State Sovereignty Over Natural Resources and its Role in Hindering the Effective Regulation of Climate Change at the International Stage

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Foreword

This thesis is the final assignment to complete my Nordic Master's in Environmental Law. Throughout the past four semesters, I have learned about various areas of environmental law, ranging from national to international law, and from issue-specific regimes, such as water law and energy law, to more general ones, such as the role of law in the formulation and implementation of environmental policies and the effective management of natural resources. The one recurring message throughout all these courses is that a lot is currently being done to address all aspects of environmental law in an attempt to preserve or restore our ecosystems, and to mitigate and adapt to the rise of greenhouse gas emissions. On paper, it seems as though we are doing well, yet, the 2023 report by the Intergovernmental Panel on Climate Change highlighted that we still must take more urgent action to properly address the climate crisis.[1]

While studying for one of the last exams of the program, I came across a quote in a reading on the negotiations surrounding the Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ) which made me question the extent to which the principle of sovereignty actually hinders the development of international law, and more specifically environmental law. This quote described the BBNJ process as not providing space "for any fundamental rethinking or transformation of the law of the sea, but seems locked to the status quo [...], consistent with the interests of the major States."[2] This sparked an interest to look into the role of the principle of state sovereignty through a critical lens, and was the starting point of my thesis research.

[1] IPCC 2023, <https://www.ipcc.ch/report/ar6/syr/downloads/press/IPCC_AR6_SYR_PressRelease_en.pdf> (last accessed 21 May 2023).
[2] Henriksen 2022, p. 112.

Abstract

This thesis explores the dual roles of states within the regime of climate change. On the one hand, as actors contributing to climate change and, on the one hand, as the primary lawmakers in this legal regime. Being the primary actors within the regime of climate change means that States, due to the principle of sovereignty and sovereignty over natural resources, have a crucial role in determining the type of response and targets that will be set in order to solve the (super) wicked problem of climate change.

This thesis provides a critical perspective, through the lens of Earth System Law, on the extent to which the principle of state sovereignty, and sovereignty over natural resources, hinders the effective regulation of climate change at the international stage. The thesis first explores the current legal standing of the principle of sovereignty, and sovereignty over natural resources, within international law. This was followed by an introduction to the framework of Earth System Law. Next, the development of the current regime of climate change at the international stage and the role states, and the principle of sovereignty, have played within it is explored. Lastly, this thesis discusses the extent to which the application of Earth System Law to the regime of climate change could result in more effective regulations at the international stage.

The conclusion is that the current regime of climate change is ineffective, partially due to the principle of sovereignty which hinders the ability to effectively address the climate crisis. The framework of Earth System law provides a possible solution, proposing a shift from a state-centric legal regime to an Earth System-centric one. To begin a shift towards an Earth System-centric model of climate change, Earth System Law outlines five key aspects which must be addressed: (1) recognizing of the need to be more normatively ambitious, (2) polycentric, (3) embracing onto-epistemologies of care, (4) recognizing the complexity of the Anthropocene epoch and (5) adopting a holistic Earth System focus.

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Abbreviations

AOSIS	Alliance of Small Island States
CO2	Carbon Dioxide
COPs	Conference of the Parties
ECtHR	European Court of Human Rights
EEZ	Exclusive Economic Zone
EU	European Union
GHG	Greenhouse Gasses
GDP	Gross Domestic Product
IPCC	Intergovernmental Panel on Climate Change
ICJ	International Court of Justice
IEL	International Environmental Law
ILO	International Labor Organization
IOs	International organizations
LDCs	Least Developed Countries
BBNJ	Marine Biodiversity of Areas Beyond National Jurisdiction
MEAs	Multilateral Environmental Agreements
NDC	Nationally Determined Contribution
OECD	Organization for Economic Cooperation and Development
SIDS	Small Island Development States
UN	United Nations
UNFCCC	United Nations Convention on Climate Change
UNEP	United Nations Environmental Program
UNGA	United Nations General Assembly
UNCLOS	United Nations Treaty on the Law of the Sea
USA	United States

Chapter 1: Introduction

1.1. Background

1.1.1. State Sovereignty Over Natural Resources

The principle of State sovereignty is considered as one of the fundamental principles of international law.[3] The formal roots of this principle can be traced back to the 17th century and more specifically, to the Treaty of Westphalia in 1648.[4] This treaty established "the principle of territorial delimitation of State authority and the principle of non-intervention."[5] In other words, this marks the birth of what is known today as sovereign States.[6] However, the concept of inter-State cooperation along with the development of modern international law only came into being after the end of the Second World War in 1945.[7] The principle of State sovereignty is not a static concept, but has evolved and developed over time, and is thus considered a rather dynamic one.[8] The principle of sovereignty has two main facets; internal sovereignty and external sovereignty.[9] Internal sovereignty can be understood as the "competence and authority to exercise the function of a State within national borders and to regulate internal affairs freely."[10] External sovereignty is the notion that the State should be protected from "all outside interference."[11] The early concept of external sovereignty induced the expansion of the field of international law into its current form, and played an important role in the shaping of the current framework of co-existence[12] and, since the end of the Second World War, cooperation.

To be recognized as a State under international law, a State must comply with the requirements laid out in Article 1 of the 1933 Montevideo Convention on the Rights and Duties of States.[13] These requirements are: "a permanent population, a defined territory, a functioning government, and the ability to engage in relations with other States."[14] Currently, there are 193 individual States recognized under international law.[15] These features *de facto*

[3] Schrijver 2021, p. 13.
[4] Besson 2011, p. 2-3.
[5] Ibid., p. 3.
[6] Schrijver 2000, p. 67.
[7] Besson 2011, p. 7.
[8] Schrijver 2021, p. 14.
[9] Besson 2011, p. 12.
[10] Snyman-Ferreira 2016, p. 4.
[11] Ibid., p. 4.
[12] Ibid., p. 5.
[13] Montevideo Convention on the Rights and Duties of States (adopted on 26 December 1933, entered into force 26 December 1934) 165 ILM.
[14] Ibid., art. 1.
[15] United Nations n.d., <https://www.un.org/en/about-us#:~:text=Member-,States,the%20current%20193%20Member%20States> (last accessed 21 May 2023).

require or presuppose the exercise of control over State territory. With time, States began claiming sovereignty not only over its territory but also over natural resources found within this territory.[16] Following the Second World War, the newly sovereign States that had recently fought for the end of colonial rule desired to legally protect their economic sovereignty against claims from foreign States or companies.[17] This established a practice within international law allowing, "within the limits stipulated by international law, every State [...to be] free to manage and utilize the natural resources within its jurisdiction."[18] After centuries of resource exploitation, this new legal development aimed to afford previously colonized States with protection from further abuse through way of exercising exclusive control over the raw materials found on their territory. This period additionally marked the beginning of an era, often referred to as the golden age of capitalism,[19] fueled by the rise of global industrialization, economic growth and international trade.[20] This in turn led to the development of more intricate world economics, based on models of economic liberalism and capitalism (as imposed by the Global North) which has led to governments "racing to the bottom" in order to secure resources for themselves.[21] However, as natural resources are neither infinite nor equally distributed around the globe, States started to become mutually dependent on each other to answer questions relating to "the growing scarcity of resources, the allocation of resources to development, the conservation of biodiversity, and environmental preservation in general."[22]

1.1.2. Climate Change and its Legal Regime

Since the start of the industrial revolution in 1850, "humans have emitted some 2,504 GtCO2 [gigaton of Carbon Dioxide] into the atmosphere."[23] The beginning of the industrial revolution marks the turning point for human civilization as it is then that new technologies, such as the steam engine, were invented and widely introduced.[24] This marked the beginning of economic growth for the then sovereign States as it meant an "increase in production and consumption of common people."[25] The industrial revolution period was marked with an

[16] Schrijver 2000, p. 2-3.
[17] Schrijver 1995, p. 3.
[18] Ibid., p. 227.
[19] United Nations 2017, p. 24.
[20] Ibid., p. 24.
[21] Gaan 2006, p. 14, 28-29.
[22] Schrijver 1995, p. 234.
[23] Carbon Brief 2021, <https://www.carbonbrief.org/analysis-which-countries-are-historically-responsible-for-climate-change/> (last accessed 21 May 2023).
[24] Mohajan 2019, p. 1.
[25] Ibid.

unprecedented amount of economic growth for western States, but also the introduction of the race to the bottom whereby States, and actors within a same State, aimed at controlling as much natural resources as possible to have the right to exploit these resources before someone else did.[26]

Concerns for environmental preservation, in light of the exploitation of the majority of the world's resources, led to the development of international environmental law from the 1970s onwards.[27] One such example of this is the development of the regime of climate change legislation at the international stage. As a result of the 1992 Rio Conference on Environment and Development, the United Nations Convention on Climate Change (UNFCCC)[28] was adopted with the intent to stabilize "greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[29] This Convention achieved universal coverage, being ratified by 198 States.[30] The universality of conventions addressing climate change is vital as climate change is classified as a 'wicked' problem[31] (and an international one). Wicked problems are problems which are multidimensional and thus where there is no clear one-size-fits-all solution.[32] They require intervention from multiple disciplines and we lack all the necessary information to address it effectively.[33] Some scholars refer to climate change as a super wicked problem, which has four main characteristics: "time is running out, those who cause the problem also seek to provide a solution, the central authority [...] is weak or non-existent, and irrational discounting occurs."[34] Due to the fact that climate change is defined as a (super) wicked problem, it is evident that a global problem such as this one would require an international response. The problem of climate change has shown the ways in which our world is inherently interconnected as actions in one part of the world can have repercussions on the opposite side of the globe.[35]

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[26] U.S. History Scene n.d., <https://ushistoryscene.com/article/second-industrial-revolution/> (last accessed 21 May 2023).
[27] Schrijver 1995, p. 218.
[28] United Nations Framework Convention on Climate Change (adopted on 9 May 1992, entered into force 21 March 1994) 84 ILM (henceforth referred to as UNFCCC).
[29] Ibid., art. 2.
[30] Schrijver 2021, p. 16.
[31] Levin et al. 2012, p. 123.
[32] Geneva Graduate Institute 2019, <https://www.graduateinstitute.ch/communications/news/super-wicked-problem-climate-change-action#:~:text=Climate%20change%20is%20a%20%E2%80%9Csuper,might%20well%20cause%20further%20problems> (last accessed 21 May 2023).
[33] Ibid.
[34] Levin et al. 2012, p. 124.
[35] IPCC 2022, p. 5.

Despite numerous efforts of addressing climate change through the UNFCCC, and most recently with the Paris Agreement,[36] the goal to stabilize greenhouse gas concentrations in the atmosphere has still not been achieved.[37] Some scholars, such as Speth and Haas,[38] claim that, at best, the "current of environmental law and governance response is effective only to a limited extent"[39] and that the well-being of the environment is actually deteriorating.[40] Many perceived the Paris Agreement as a positive step forward, referring to it as a 'monumental triumph' or the 'world's greatest diplomatic success'.[41] This is because it is the result of long-winded negotiations and, for the first time, set a universally agreed upon goal to "limit the temperature increase to 1.5°C above pre-industrial levels."[42] However, some scholars[43] critique this agreement for only setting an obligation of conduct, not an obligation of result, on States.[44] This means that States are honoring the agreement just by aiming to achieve the goals set in their nationally determined contribution (NDC) reports. There are no strict ramifications if a State fails to achieve the targets set in their NDC. A State must only prove that it has acted in good faith, by having been transparent in the way of sharing of information and data, while trying to achieve their NDC targets.[45] During the negotiations of the Paris Agreement, many parties, such as the European Union (EU) and small island States, argued that there should be an obligation of result.[46] This stance was strongly opposed by other States, such as the United States, China and India, which refused to be legally bound to such an obligation.[47] This led to the current wording of Article 4 of the Paris Agreement, which only requires an obligation of conduct. So in the end, as occurs often with treaties adopted at the international stage, its bandwidth was minimized and its agreements watered down in an attempt to ensure (near) universal ratification.

1.1.3. Purpose Statement

The above section has demonstrated the important role that States play in the creation of international treaties and its terms. The concept of State sovereignty is undoubtedly given

[36] Paris Agreement (adopted on 12 December 2015, entered into force 4 November 2016) 55 ILM (henceforth referred to as Paris Agreement).
[37] Stang and Ujvari 2015, p. 1.
[38] As cited in Kotzé 2014, p. 124.
[39] Kotzé 2014, p. 124.
[40] Ibid., p. 124.
[41] Bodansky et al. 2017, Paris Agreement, p. 209.
[42] Paris Agreement, art. 2(1)(a).
[43] For example: Bodle et al. 2016, p. 5.
[44] Bodansky et al. 2017, Paris Agreement, p. 231.
[45] Ibid.
[46] Ibid.
[47] Ibid.

primacy in the realm of international (environmental) law.[48] There is, however, a hierarchy of sovereignty between States: Dawda[49] argues that international law reflects more strongly western-centric States, largely known as the Global North, and fails to equally reflect the sovereign will of post-colonial States and the rest of the Global South.[50] This is also reflected within the regime of climate change, with the rise of global inequalities.[51] States must balance a multitude of interests and goals, all-the-while upholding a relatively high degree of care and responsibility towards its citizens. The principle of sovereignty not only gives States the right to be sovereign over their territory, but also requires them to fulfill certain legal obligations towards its citizens which restrict the level of discretion in which they can operate. Nonetheless, much discretion is given to States to balance social, environmental and economic development within their territory to ensure they meet their development goals. With the development of modern international law, we have seen a slow shift towards the "classical idea of sovereignty as an absolute and unlimited concept."[52]

This thesis aims to reflect the fact that States have a dual role within the realm of (international) climate change law as both actors contributing to it through the emission of carbon dioxide (CO2), and on the other as the primary lawmakers in the legal regime of international climate change law. Being the primary actors within the realm of international climate change law means that States have a crucial role in determining the type of response and targets that will be set in order to solve the global challenge of the climate crisis.

1.2. Theoretical Framework

In this section, the theoretical framework chosen for this thesis will be briefly introduced. In line with the research question and purpose of this research, the critical lens of Earth System Law was chosen and this choice will be explained below.

Earth System Law was developed to start an academic discussion on the legal aspects of Earth System Governance.[53] Earth System Governance "offers a common, inclusive, and deliberative scientific platform for scholars to convene around a critical global sustainability challenge, that is, interrogating 'organized human responses to Earth System

[48] Dawda 2016, <https://www.e-ir.info/2016/04/01/to-what-extent-does-international-law-reflect-the-sovereign-will-of-states/> (last accessed 21 May 2023).
[49] Ibid.
[50] Ibid.
[51] Columbia Climate School 2022, <https://news.climate.columbia.edu/2022/09/21/how-colonialism-spawned-and-continues-to-exacerbate-the-climate-crisis/> (last accessed 21 May 2023).
[52] Snyman-Ferreira 2016, p. 28.
[53] Kotzé and Kim 2019, p. 1.

transformation'."[54] Earth System Governance has, thus far, mainly focused on "human-social aspects of Earth System changes."[55] However, law plays an important part in shaping, directing and developing "'organized human responses' to an ever-changing Earth System."[56] Kotzé and Kim[57] call this an "anthropogenic gap",[58] "where we are unable to dissect, understand and respond juridically to the major implications induced by transgressions into a human-dominated planet from an Earth System perspective."[59] Kotzé and Kim[60] were the first to discuss this 'anthropogenic gap' in 2019 and offer a conceptual framework of Earth System Law. They believe that "Earth System Law could introduce a new era in legal scholarship, while seeking to comprehensively respond to the new regulatory challenges presented by a changing Earth System",[61] embodied within the Anthropocene. Earth System Law is not only concerned with the legal sphere, but rather aims at transdisciplinary and interdisciplinary debates in order to assess whether law is able to effectively address the complex challenges expressed by Earth System governance research, and if it is not capable of doing so, to re-imagine law while taking into account an Earth System perspective.[62] In all, the aim of Earth System Law is to "transform societies externally by transforming law internally."[63] This is in line with the aim of this thesis, which aims at critically analyzing the principle of sovereignty in its role of hindering the ability to effectively address climate change at the international stage.

Furthermore, Earth System Law is a suitable lens of critique as it is based on the understanding that we are currently in the Anthropocene. The term Anthropocene connotes a new epoch "in which the biophysical factors introduced by human beings [...] have begun to change the physical parameters that determine the functioning of all key Earth System processes."[64] Additionally, the Anthropocene also denotes the new reality that the human race, as a global society, need to contemplate how to respond to the "effects of global human-induced ecological change, which is mostly as a result of our energy-intense processes and consumer-driven neo-liberal economies."[65] This goes hand in hand with the

[54] Kotzé and Kim 2019, p. 1.
[55] Ibid., p. 1.
[56] Ibid.
[57] Ibid.
[58] Ibid., p. 2.
[59] Ibid., p. 1.
[60] Kotzé and Kim 2019.
[61] Ibid., p. 2.
[62] Kim and Kotzé, p. 1.
[63] Ibid.
[64] Kotzé 2014, p. 122.
[65] Kotzé 2014, p. 123.

regime of climate change law, as climate change is a (super) wicked problem which requires the understanding that the Earth system is interconnected and interlinked, which in turn requires global action and as a result demands reflection on the notion of the Anthropocene and Earth System Governance.

Lastly, using the lens of Earth System Law to critically assess the role of the principle of sovereignty allows the comparison of two starkly different conceptions of international law. On the one hand, the sacrosanct principle of sovereignty puts nation States at the center of picture, having the exclusive authority to shape international environmental law. On the other hand, Earth System Law argues for a widening of world views which welcomes pluralism and interdisciplinarity to go beyond "the strict confines of traditional legal research."[66]

1.3. Research Question and Scope

There are multiple sources[67] that bring forward the idea that to effectively combat climate change, economic liberalism must be denounced and replaced. However, legal academia has not thoroughly discussed the role of sovereign nation States and how they limit the ability of effectively enacting climate change laws and policies. Due to the fact that climate change is a (super) wicked problem, this thesis aims to ignite a discussion on whether addressing climate change through the prism of the nation State and state sovereignty is the most effective way of achieving climate goals. Hence, this thesis will critically discuss whether a Earth System-centered approach would lead to being able to better address climate change at the international stage.

The research question this thesis aims to answer is: To what extent is the principle of state sovereignty over natural resources hindering the effective regulation of climate change at the international stage?

The sub-research questions are as follows: What is the current legal standing of the principle of sovereignty and sovereignty over natural resources within international law? What is Earth System Law and where does state sovereignty and sovereignty over natural resources fit within it? What role do States play within the climate change regime and its development? To what extent would applying the framework of Earth System Law lead to

[66] Kim and Kotzé 2022, p. 2.
[67] For example: Fremstad and Paul 2022, p. 1-10; The Guardian 2021, <https://www.theguardian.com/environment/2021/oct/30/capitalism-is-killing-the-planet-its-time-to-stop-buying-into-our-own-destruction> (last accessed 21 May 2023).

more effective regulations in the regime of climate change? Each of these sub-research questions will be discussed within their own chapters below.

The principle of sovereignty was chosen over other principles of law as the focus for this research because this principle is seen as one of the most foundational and uncritically accepted principles of international law.[68] This is especially true in the regime of international environmental law, and also to different extents in various regimes of international law, where States are the primary subjects which "dictate the growth of institutional development at the international level."[69] Moreover, some scholars describe sovereignty as "the basic constitutional doctrine of the law of nations."[70] As a result, the principle of sovereignty was chosen as the key focus of this thesis as "few international rules can evolve without the ultimate endorsement, if not consent, by States."[71] This being especially true in the regime of international environmental law, and more specifically international climate change law, where States play a crucial role in deciding the extent to which climate change can be addressed. As the principle of sovereignty is immensely broad in nature and encompasses many aspects.[72] This thesis will mainly focus on the discussion surrounding a State's sovereignty over its natural resources. This is most useful for the analysis of the State in its dual role: on the one hand, as actors which contribute to climate change through the promotion of economic growth and building liberal capitalist economies which leads to an excessive amount of Carbon dioxide (CO2) emissions, and on the other as the main law and policy makers in the regime of climate change on the international stage. Lastly, this research chooses to focus on the regime of climate change as it is characterized as a (super) wicked problem which requires global unified action. Throughout this thesis, the regime of climate change law is to be understood as being closely related to, and intertwined with, the regime of international environmental law, as there is a clear link between them.[73] They are two separate regimes with distinctive aims, principles and features; however, it is imperative to see them as connected. This is because it is important to take a holistic, through for example an ecosystem approach, within law to successfully address any environmental issues. So far, as introduced above, there has not been sufficient effective measures implemented on the international stage to combat climate change. Thus, this thesis aims to provide a critical

[68] Besson 2011, p. 16.
[69] Schrijver 2021, p. 13.
[70] Brownlie as cited in Schrijver 2022, p. 14.
[71] Schrijver 2014, p. 14.
[72] The principle of sovereignty can include, amongst other things, a discussion on political power, individual sovereignty/ownership, parliamentary sovereignty, the Rule of Law.
[73] Reins forthcoming 2024, p. 8.

perspective on the principle of sovereignty, and sovereignty over natural resources, and how it has played a role in this effectiveness gap by using the perspective of Earth's System Law introduced above.

1.4. Methodology

In this section, the chosen methodology for this thesis will be outlined and explained. First, a legal doctrinal analysis on the principle of sovereignty and sovereignty over natural resources will be conducted. This is to develop an understanding of the legal standing of the principle within the international legal realm. This research will especially focus on the development of the principle of sovereignty and sovereignty over natural resources in environmental international law, and more specifically climate change law.

From there, the critical lens of Earth System Law will be firstly, introduced and secondly, there will be a discussion on the role of States, through the principle of sovereignty, and their place with Earth System Law.

Then, there will be a doctrinal analysis on the development of the climate change regime through the analysis of multilateral agreements and legal principles. This will provide us with a full picture on the current state of the regulations within the regime of climate change. Through a literature review of reports and academic literature written on the topic, we can then conclude whether the current regime is effective in addressing the climate crisis. Moreover, there will be a literature review conducted to analyze the role of States in the contribution to the climate crisis. This is to provide a dual picture of the role of States; on the one hand as the central lawmakers in the climate change regime, and on the other as actors contributing to the climate crisis. To determine the extent to which the current regime is 'effective' in addressing climate change, it is important to outline how 'effectiveness' will be assessed. Allott[74] examines what it means for a law to be effective. To do this, we must first look at what the purpose of the legal system is. According to Allott:

> "A legal system is a purposive system existing in a society, whose component laws are made by those having positions of power or influence in the society. The purpose of the laws is to regulate or shape the behavior of the members of the society, both by prescribing what is permitted or forbidden, and by enabling them, through the establishment of institutions and processes in the law, to carry out functions more effectively."[75]

[74] Allot 1981.
[75] Ibid., p. 233.

Therefore, “a general test of the effectiveness of a law [...] is to see how far it realizes its objectives, i.e., fulfills its purposes.”[76] Within the context of climate change, the Paris Agreement outlines the objective of limiting “the temperature increase to 1.5°C above pre-industrial levels.”[77] Thus, the criteria for effectiveness is whether the current regime of climate change is on track to achieve the limiting of global warming to 1.5°C above pre-industrial levels.

Next, the lens of Earth System Law will be applied to the regime climate change law to see whether this would render the regime to be more effective in combating the rise of CO2 emissions. This will result in a theoretical discussion as to whether or not shifting paradigms to one which has the Anthropocene, and Earth’s System, as the main focus, and thus leave behind, partially or fully, the idea of sovereignty and sovereignty over natural resources, would increase the efficiency of the regime of climate change law. In other words, this research inquires whether a shift, to an Earth System focus, would result in an achievement of more effective climate change regulations, and how that would compare to the current status quo with the principle of sovereignty as central.

1.5. Limitations

Within this subchapter, the limitations of this thesis and its research will be explained. Firstly, it is important to acknowledge that the principle of sovereignty has a wide scope. Within this thesis, this principle will be approached from a specific theoretical approach, with some examples to contextualize it. Secondly, the critical lens of Earth System Law was chosen to be applied within this paper. However, there exists a number of other lenses, such as the concept of common heritage of mankind, which could have been used to critique and explore the role of principle of sovereignty within the climate change regime. Thirdly, when discussing regulations under the climate regime, this thesis will not look at individual laws and/or policies, but will focus on the big picture and looking at the regime as a whole, with, for example, looking into the most important international treaties. Moreover, a few legal principles will be analyzed. Due to the limited scope of this paper, only principles relating to the ‘big picture’ regime of climate change and to the principle of sovereignty will be explored.

[76] Allot 1981, p. 233.
[77] Paris Agreement, art. 2(1)(a).

1.6. Structure

The remainder of this thesis is divided into the following chapters. Firstly, chapter 2 will provide a legal analysis on the principle of sovereignty and sovereignty over natural resources. Then, chapter 3 will delve into the critical lens of Earth System Law and where it positions the State therein. Next, chapter 4 presents the current state of climate change law and the role States have played in its development. Lastly, chapter 5, will explore whether a shift towards being more Earth System-centric would result in a more effective climate change regime and what role States may play in the potential adoption of such a legal system.

Chapter 2: The principle of sovereignty and sovereignty over natural resources

This chapter will provide a legal doctrinal analysis, firstly, on the principle of sovereignty and will, in a second instance, focus specifically on the principle of state sovereignty over natural resources.[78] This chapter aims at answering the sub-research question: *What is the current legal standing of the principle of sovereignty and sovereignty over natural resources within international law?*

2.1. The Principle of Sovereignty

The principle of sovereignty is a concept which has evolved over time and has thus been subject to differing definitions, interpretations and expansions. In its earliest stages, meaning the pre-Westphalian era, the principle of state sovereignty was understood as absolute.[79] Bodin[80] argued that sovereignty was "the supreme power within a State"[81] and thus could not be restrained, except by the laws of God and natural law.[82] Bodin's view can be understood as the "traditional understanding of sovereignty."[83] In the seventeenth century, Hobbes took a stronger stance, affirming that "a sovereign was not bound by anything and had a right over everything, including religion."[84] However, other scholars from the seventeenth century, such as Pufendorf, agreed with Bodin that sovereignty was the supreme power of a State, but that this power was not infinite.[85] This thus meant that sovereignty could

[78] These principles will be further analyzed and compared to some principles of climate change law within chapter 4.2 below.
[79] Schrijver 2021, p. 14.
[80] As cited in Snyman-Ferreira 2006, p. 5-6.
[81] Snyman-Ferreira 2006, p. 5.
[82] Ibid.
[83] Ibid.
[84] Ibid., p. 6.
[85] Ibid.

be constitutionally restricted.[86] De Vitoria, a Spanish philosopher considered as "one of the fathers of modern international law",[87] argued that "a State cannot refuse to be subjected to international law"[88] because the goals of a State are rooted in the "common good of the world community."[89] This means that societal interest steers a State's goals, in turn establishing restrictions on a State. De Victoria thus argues that a State cannot have absolute sovereignty as it "finds its limits in the common good of the world community to which all States are subject."[90] Lastly, Grotius brought forward the concept that *binding* natural law is one of the principal sources of international law (and thus limits States).[91] Natural law is defined as a set of moral, guiding, principles which apply to all human conduct.[92] Grotius argues that international law is binding on sovereign States even though it is only partially borne out of the autonomous will of States.[93] In all, the concept of sovereignty was first seen as absolute and indicated the independence of a State. However, theorists began to subject a State to higher norms.[94]

This notion was reinforced by the Westphalian treaty in 1648 which required States to acknowledge the independence and freedom of other States, thus for the first time combining the principle of sovereignty "with a duty to cooperate."[95] The Treaty of Westphalia established the "foundation for an international order based on independent sovereign States."[96] During the first half of the eighteenth century, Bodin's classical definition of sovereignty as absolute was further developed into "unlimited freedom and independence."[97] From this perspective, "international law has no binding force and a State therefore has the power to define freely its own competencies."[98] Thus, the capacity of a State to "determine the limits of its competencies"[99] is the core of the concept of sovereignty. By the early nineteenth century, there had been a number of revolutionary changes as the result of the enlightenment period in the eighteenth century.[100] This includes, for example, the switch from

[86] Snyman-Ferreira 2006, p. 6.
[87] Ibid.
[88] Ibid.
[89] Ibid., p. 7.
[90] Ibid.
[91] Ibid., p. 8.
[92] Britannica 2023, <https://www.britannica.com/topic/natural-law> (last accessed 21 May 2023).
[93] Snyman-Ferreira 2006, p. 8.
[94] Ibid., p. 9.
[95] Ibid., p. 10.
[96] Ibid.
[97] Ibid.
[98] Ibid., p. 11.
[99] Ibid.
[100] Ibid.

absolute monarchies to the creation of nation States and representative governments.[101] This led to the idea that sovereignty includes both the concept of independence and of equality of States.[102] As the concept of independence and sovereignty developed in the nineteenth century, so did the concept of equality and freedom of the individual, which led to the belief that "sovereignty was to constitute the legal expression of independence and equality that was appearing as two aspects of a single concept."[103] Moreover, the concept of sovereignty also includes the negative "principle of non-intervention in the internal affairs of other States."[104] This right was further recognized by the International Court of Justice in the *Nicaragua v United States* case,[105] where it held that the United States had violated Nicaragua's sovereignty by interfering in its internal affairs.[106] The principle of sovereignty thus shields States from intervention, but also from international law as States could only be bound to rules in international law in two ways; (1) through customary international law, or (2) through treaty-making.[107]

It was not until the beginning of the twentieth century that the classical definition of sovereignty, defined as absolute unlimited freedom and independence, was seen as a menace to international peace.[108] This was mainly a consequence of the wars which broke out during this century.[109] During this period, there was a strong shift from absolute sovereignty to relative sovereignty, bringing forward the idea that sovereignty meant "autonomy, independence and equality."[110] Three main theories of relative sovereignty were brought forward. The first one, argued for by Ninčić, asserts that it is not only States which are subjects of international law, but also individuals.[111] The second theory is that, with the development of positive international law, the principle of sovereignty would need to be abandoned or be revisited to be in line with this new development.[112] Lastly, the third theory of relative sovereignty is that States need to forgo their respective agendas and instead promote goals which are "in favor of the common interest and the common good."[113] A

[101] Historical Association 2018, <https://www.history.org.uk/secondary/categories/8/info/3637/age-of-revolutions-resources#:~:text=The%20Age%20of%20Revolutions%20is,cultural%2C%20and%20economic%20and%20technological.> (last accessed 21 May 2023).
[102] Snyman-Ferreira 2006, p. 11.
[103] Ibid.
[104] Ibid.
[105] As cited in Besson 2011, p. 10.
[106] Ibid.
[107] Snyman-Ferreira 2006, p. 11-12.
[108] Ibid., p. 12-13.
[109] Ibid., p. 13.
[110] Ibid., p. 16.
[111] Ibid.
[112] Ibid.
[113] Ibid.

prevailing feature in all three theories is the acceptance that international law overrules state sovereignty.[114] However, "the sovereignty of one State [...] cannot be subordinate to that of another State because sovereignties are, by their very essence, equal."[115] Herein lies the concept of independence which allows States to govern over their territory without the intervention of other States. However, this discretion given to States through the principle of sovereignty is not unlimited. The independence of a State is restricted by "the equal freedom and independence of other States as well as by international conventions and specific agreements entered into by States."[116]

In the period between the First and Second World Wars, there was a further shift from States as independent and autonomous within international law, to a "new international law of cooperation."[117] This marks the beginning of a new era of international law, moving away from mainly enacting negative customs of non-intervention and abstention, to positive laws of cooperation.[118] The *Wimbledon* judgment in 1923 by the Permanent Court of International Justice[119] showcased that sovereignty was now "conceived as limited and law-based."[120] The modern conception of external sovereignty was strengthened through the *Lotus* case in 1927.[121] There, the Court ruled that international law was "established in order to regulate the relations between these co-existing independent communities or [...for…] the achievement of common aims. Restrictions upon the independence of States cannot therefore be presumed."[122]

In the following years, States realized that in order to bring forward the common interest of society as a whole, cooperation was needed.[123] With the establishment of the United Nations in 1945, the Charter of the United Nations strongly incorporated together "the principle of sovereignty with the principle that States have to respect international law",[124] thus presenting the principle of sovereignty as a delimited concept. From 1945 onwards, the principle of sovereignty has seen a development in extending the idea of cooperation between sovereign States, which in turn has led to further limiting the sovereignty of States, both

[114] Snyman-Ferreira 2006, p. 16.
[115] Ibid.
[116] Ibid., p. 16-17.
[117] Ibid., p. 17.
[118] Ibid.
[119] As cited in Besson 2011, p. 7.
[120] Ibid.
[121] Ibid.
[122] Ibid.
[123] Snyman-Ferreira 2006, p. 17.
[124] Ibid., p. 23.

internally and externally.[125] One of the developments seen is the emergence of new subjects of international law which sovereign States have acknowledged and accepted.[126] This means that States delegated some of their sovereign powers to non-State actors. They mainly delegated power to international organizations (IOs) and regional, and global, institutions.[127] To a smaller degree, individuals and groups of individuals also received some of that delegated power through the development of human rights and right of self-determination.[128] Another way in which the principle of sovereignty has been restricted is that, as a by-product of the rise in cooperation and interdependence among States, agreements at the international law level started containing topics which used to solely belong in the national sphere.[129] For example, international agreements started including economic, human right, migration and environmental law, which are all areas which used to be fully under the sovereignty of a State.[130] Lastly, another development which led to the restriction of the principle of sovereignty in the second half of the twentieth century is the "new forms of relative normativity [...] by which States can be bound through objective legal norms they have not consented to,"[131] and the development of compulsory norms which States cannot derogate from, "even if they wanted to."[132]

Overall, we can see that with the development of modern international law, it appears as though a State's sovereignty has been restricted in a number of ways. Nonetheless, it would be wrong to state that these developments have led to the end of sovereignty.[133] These developments "are merely signs of its adaptation to new circumstances",[134] that of the development of a new world order wherein "modern international sovereignty finally became a function distinct from the legal persona of the State."[135] In all, we have seen that there has been a shift from seeing the principle of sovereignty as absolute and unlimited to a more "relative concept where the freedom and independence of States are limited both by the freedom of other States and by international law."[136] This shows that the classical idea of

[125] Besson 2011, p. 8.
[126] Ibid.
[127] Ibid.
[128] Ibid.
[129] Ibid.
[130] Besson 2011, p. 8.
[131] Ibid.
[132] Ibid.
[133] Ibid., p. 9.
[134] Ibid.
[135] Ibid.
[136] Snyman-Ferreira 2006, p. 27-28.

sovereignty is no longer present within our modern day world, where interdependence and cooperation between States keeps growing.[137]

2.2. The Principle of Sovereignty Over Natural Resources

Although the principle of sovereignty has evolved into a limited concept, there are still many areas within the international sphere in which States retain a large percentage of power and sovereignty. Within this section, the rights and duties given to States on sovereignty over natural resources will be explored.

The principle of sovereignty over natural resources encompasses a number of rights which States can rely on. An award from an arbitration tribunal stated, in 1977, that "territorial sovereignty confers upon the State an exclusive competence to organize as it wishes the economic structures of its territory."[138] Jiménez de Aréchaga, a judge at the International Court of Justice between 1970 and 1979, stated that under the principle of sovereignty over natural resources, a "territorial State can never lose its legal capacity to change the destination or the method of exploitation of those resources, whatever arrangements have been made for their exploitation."[139] This sheds light on a view that limitation of sovereignty over natural resources is only possible within a finite scope. It is currently accepted as the common norm that this principle excludes the possibility for a State to fully derogate from its rights over its natural resources.[140] However, it allows a State to enter into agreements in which there would be some form of limitation on its "exercise of its sovereignty in respect of certain resources in particular areas for a specified and limited period of time."[141] On top of this, States enjoy substantial discretion in choosing the way in which they decide to manage their natural resources.[142] This is called the right to dispose freely of natural resources.[143] Following from this right, is the right to explore and exploit natural resources freely,[144] as outlined in the United Nations General Assembly (UNGA) Resolution 626,[145] 1803,[146] 2158,[147] and 3171.[148] The UNGA Resolution 626 recommends for

[137] Snyman-Ferreira 2006, p. 27-28.
[138] Schrijver 1995, p. 245.
[139] Ibid., p. 247.
[140] Ibid., p. 248.
[141] Ibid.
[142] Ibid.
[143] Ibid., p. 244.
[144] Ibid.
[145] UNGA Res. 626, 21 December 1952. Right to exploit freely natural wealth and resources.
[146] UNGA Res.1803, 14 December 1962. Permanent sovereignty over natural resources.
[147] UNGA Res. 2158, 25 November 1966. Permanent sovereignty over natural resources.
[148] UNGA Res. 3171, 17 December 1973. Permanent sovereignty over natural resources.

Member States "to refrain from acts, direct or indirect, designed to impede the exercise of the sovereignty of any State over its natural resources."[149] The UNGA Resolution 2158 acknowledges the right of developing countries "to effectively exercise their choice in deciding the manner in which the exploitation of their natural resources should be carried out."[150] This was an especially important provision for developing countries who had gained independence post-colonial rule and wanted to ensure operative control over their natural resources.[151] These rights have been further expressed in treaty law, such as in the United Nations Treaty on the Law of the Sea (UNCLOS).[152] Article 56(1)(a) of UNCLOS outlines that coastal States have sovereign rights within their exclusive economic zone (EEZ) "for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non living [...]."[153]

The UNGA Resolution 626 recommends Member States "have due regard, consistently with their sovereignty, to the need for maintaining the flow of capital in conditions of security, mutual confidence and economic co-operation among nations."[154] This refers to the principle of using natural resources for national development.[155] This right is referred to in the preamble of the United Nations Framework Convention on Climate Change (UNFCCC),[156] where it states that States have "the sovereign right to exploit their own resources pursuant to their own […] developmental policies."[157] It is one of the only multilateral treaties which explicitly refers to it.

Lastly, the right to manage natural resources pursuant to national environmental policy is an important part of the principle of sovereignty over natural resources. It is referred to in principle 21 in the Rio Declaration[158] and within multilateral treaties such as the UNFCCC and the Biodiversity Convention.[159] The right to manage natural resources has also recently been acknowledged and discussed during the Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ) negotiations where States have come to an agreement on the

[149] UNGA Res. 626, 21 December 1952. Right to exploit freely natural wealth and resources, para. 2.
[150] UNGA Res. 2158, 25 November 1966. Permanent sovereignty over natural resources, para. 3 of the preamble.
[151] Schrijver 1995, p. 249.
[152] United Nations Convention on the Law of the Sea (adopted on 16 November 1982, entered into force on 16 November 1994) 21 ILM 1261 (henceforth referred to as UNCLOS).
[153] Ibid., art. 56(1)(a).
[154] UNGA Res. 626, 21 December 1952. Right to exploit freely natural wealth and resources, para. 1.
[155] Schrijver 1995, p. 254.
[156] UNFCCC.
[157] Ibid., preamble para. 8.
[158] United Nations Conference on Environment and Development, Rio de Janeiro (3-14 June 1992). Volume 2, Proceedings of the Conference (henceforth referred to as Rio Declaration).
[159] Convention on Biological Diversity (adopted on 5 June 1992, entered into force 29 December 1993) 31 ILM 818 (henceforth referred to as CBD).

"conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction."[160]

Although States have discretion and a multitude of rights over their natural resources and how to manage them, there are a number of duties and responsibilities which a State must abide by under international law. One responsibility given to States, through UNGA resolutions, is that "they must utilize such resources in order to be in a better position to further the realization of their economic development in accordance with their national interests."[161] By linking the right to exploit resources through the principle of sovereignty over natural resources with the duty to do so in accordance with national interests, the UNGA ensures that "the whole population should benefit from resource exploitation and the ensuing national development."[162] In Resolution 1803,[163] the UNGA referred to the principle of sovereignty over natural resources as a "right of nations and peoples and requires that it be exercised in the interest of the whole population."[164] This reflects the time period in which this resolution was adopted (1960s). The 1950s and 60s were heavily marked by the development of codification of human rights and the decolonization process, which explains why the UNGA wanted to make explicit the link between the principle of sovereignty over natural resources and the interests of peoples.[165]

Within the same vein, the principle of sovereignty over natural resources also brings a duty for States to respect the rights and interests of indigenous peoples.[166] This duty was developed during the 1960s by the United Nation bodies to address anti-discriminatory laws and protect the rights of minorities in a post-colonial world.[167] This duty is included within the International Labor Organization (ILO) Convention No. 107 concerning the Protection and Integration of Indigenous and Other Tribal and Semi-Tribal Populations in Independent Countries (1957).[168] However, this Convention has repeatedly been considered as only containing weak protection towards the rights and interests of indigenous peoples. This can been in Article 12(1) of the ILO Convention where it states that:

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[160] Government.no 2023, <https://www.regjeringen.no/en/aktuelt/worlds-countries-reach-agreement-on-conservation-of-marine-biodiversity-in-the-high-seas/id2965405/> (last accessed 21 May 2023).
[161] UNGA Res. 523, 12 January 1952. Integrated economic development and commercial agreements.
[162] Schrijver 1995, p. 293.
[163] UNGA Res. 1803, 14 December 1962. Permanent sovereignty over natural resources.
[164] Schrijver 1995, p. 295.
[165] Ibid.
[166] Ibid., p. 296.
[167] Ibid., p. 296-297.
[168] Indigenous and Tribal Populations Convention (adopted on 5 June 1957, entered into force 2 June 1959) (ILO No. 107 (henceforth referred to as Indigenous and Tribal Populations Convention).

> "The populations concerned shall not be removed without their free consent from their habitual territories except in accordance with national laws and regulations for reasons relating to national security, or in the interest of national economic development or of the health of the said populations."[169]

Here we can see that the ILO Convention outlines exceptions which allow States to derogate from their duty to protect the rights and interests of indigenous people with ample discretionary power. Another example can be found in the guidelines on Indigenous Peoples issued by the World Bank in 1992 which articulates that "identifying preferences through direct consultation [and] incorporation of indigenous knowledge [...] are core activities for any project that affects indigenous peoples and their rights to natural and economic resources."[170] At first glance, it might seem as though this guideline bestows onto indigenous peoples similar rights to that of States. However, a crucial distinction is that "indigenous people are still an object rather than a subject of international law."[171] In all, we see that despite there having been significant development in the rights of indigenous peoples and minorities around the world, the "decisive authority as regards [to the] use and exploitation of indigenous lands and their natural resources ultimately [still] rests with the State."[172]

Another duty for States to follow is that of conservation and sustainable use of natural wealth and resources. This duty first appeared within the sphere of international law in 1972 with the Stockholm Declaration on the Human Environment.[173] Within the preamble of the declaration, it states that "the protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world [...]."[174] This duty has been further developed in other international agreements and treaties, such as the Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat,[175] the Convention on Biological Diversity[176] and the UNFCCC.[177] The UNFCCC outlines a number of duties which all State parties are obliged to abide by. These include are, but not limited to: "protect the climate system for the benefit of present and future generations of humankind, to take precautionary measures with respect to climate

[169] Indigenous and Tribal Populations Convention, art. 12(1).
[170] Schrijver 1995, p. 303.
[171] Ibid., p. 303.
[172] Ibid., p. 304.
[173] Stockholm Declaration on the Human Environment (adopted on 15 December 1972) A/RES/2994.
[174] Ibid., preamble para. 2.
[175] Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat (adopted in 1971, entered into force 1975) as cited in Schrijver 1995, p. 315.
[176] CBD.
[177] UNFCCC.

change, and to promote sustainable development."[178] The operationalization of these duties by States go hand in hand with a State's exercise of the principle of sovereignty over natural resources.[179] In line with the newer understanding of sovereignty as meaning cooperation, the UNFCCC includes some provisions which outline that States can introduce joint policies and measures.[180] To ensure this to be in line with the principle of sovereignty over natural resources, these joint measures need to "take place on a voluntary basis and to respect the sovereignty of the host State, including its economic and environmental policies."[181]

2.3. Interim Conclusion

In this chapter, the development of the principle of sovereignty and sovereignty over natural resources has been outlined. The principle of sovereignty used to be regarded as an absolute and unlimited concept. However, its meaning has developed into a relative, "functional" concept which encompasses a multitude of rights and duties ascribed to States. The principle of sovereignty over natural resources developed in the post-colonial era to ensure that States, especially newly independent ones, would secure the right to their natural resources. However, it has evolved from that initial context to now encapsulate a number of rights, such as the rights to, but not limited to: dispose freely of natural resources,[182] explore and exploit natural resources,[183] use natural resources for national development,[184] and the right to manage natural resources pursuant to national environmental policy.[185] On top of this, there has also been a number of duties and responsibilities which have been developed within this principle. These include, as discussed above: the exercise of permanent sovereignty for national development and the well-being of the peoples,[186] the rights of indigenous peoples,[187] and the conservation and sustainable use of natural wealth and resources.[188]

It is thus clear that both these principles evolve with time to adapt to the modern circumstances they face. What remains unclear is the extent to which these principles will be able to continue to evolve and stay relevant for the current and future problems we face. (Super) wicked problems, such as climate change, requires global joint action which will:

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[178] Schrijver 1995, p. 316.
[179] Ibid.
[180] Ibid., p. 316-317.
[181] Ibid.
[182] Schrijver 1995, p. 244.
[183] Ibid., p. 248.
[184] Ibid., p. 254.
[185] Ibid., p. 258.
[186] Ibid., p. 292.
[187] Ibid., p. 296.
[188] Ibid., p. 308.

> "undoubtedly require a further evolution of present international law, which is mainly State-oriented and under which national resource regimes co-exist but barely interact, towards one which is humankind-oriented and under which environmental preservation and sustainable development are approached from a global perspective."[189]

This next step in the evolution of the principles of state sovereignty and sovereignty over natural resources will be vital in determining its place in the international law regime, and more specifically international climate change legal regime.

Chapter 3: Earth System Law - From Human-Centric to Earth-Centric

In this chapter, the critical lens of Earth System Law will be discussed. Firstly, an overview of its development will be given, followed by an analysis of the five key aspects of Earth System Law identified by Kotzé and Kim.[190] Moreover, there will be a discussion on the relationship between these aspects and the role of States, through the principle of sovereignty and sovereignty over natural resources. This chapter aims at answering the following sub-research question: *What is Earth System Law and where does state sovereignty and sovereignty over natural resources fit within it?*

3.1. The Emergence of Earth System Law

The point of departure of Earth System Law is that we have shifted from the Holocene epoch to the Anthropocene epoch. The Holocene and Anthropocene epochs are geological times within our world's history. The Holocene started 11,700 years ago, and succeeds the ice age epoch which is known as the last glacial epoch.[191] The Anthropocene describes a "new geological epoch that follows the Holocene epoch."[192] There is currently a debate about when, if ever, the shift occurred from Holocene to the Anthropocene epoch, but it is clear for many that we are now in an era in which human beings "have a devastating and overwhelming impact on the earth and its systems."[193] Human beings have been the main drivers for the ecological and global warming changes we are currently experiencing.[194] Scientists call this the 6th mass extinction, which is defined as "a short period of geological

[189] Schrijver 1995, p. 235.
[190] Kotzé and Kim 2019.
[191] Waggoner 1996, <https://ucmp.berkeley.edu/quaternary/holocene.php> (last accessed 21 May 2023).
[192] Kotzé 2014, p. 121.
[193] Ibid.
[194] Waggoner 1996, <https://ucmp.berkeley.edu/quaternary/holocene.php> (last accessed 21 May 2023).

time in which a high percentage of biodiversity dies out."[195] Now-a-days, most academics and members of society have accepted that we, as a human species, are having a negative impact on the environment and that our consumption and production habits are the driving force on our changing environment. Shearing[196] writes: "[Humans] must be conceived of as integral to earth systems. We act today…as biophysical 'actants' who have, through our actions, significantly reshaped the earth."[197] This highlights the fact that we, as humans, do not live in our own separate realms, but rather entangled with the natural world we find ourselves in.[198]

To be able to effectively address what some call the "triple planetary crisis of climate change, pollution and biodiversity loss",[199] some argue that we must rethink and "reimagine orthodox social institutional constructs such as global environmental law and governance, among others, and their ability to successfully mediate the human-environment interface."[200] From there was born Earth System Governance. Earth System Governance examines:

> "[...] the interrelated and increasingly integrated system of formal and informal rules, rule-making systems, and actor-networks at all levels of human society (from local to global) that are set up to steer societies towards preventing, mitigating, and adapting to global and local environmental change and, in particular, Earth System transformation, within the normative context of sustainable development."[201]

The notion of Earth System Law was established to delve deeper into the juridical dimensions of Earth System Governance and is defined as "an innovative legal imaginary that is rooted in the Anthropocene's planetary context and its perceived socio-ecological crisis."[202] It aims to indicate a potential paradigm shift "from governing environmental problems at a local level, towards dealing with a more fundamental transformation of the earth system."[203] With this paradigm shift, planet Earth, and its interconnected socio-ecological systems, would be put at the center of the legal system.[204] This can be seen as an attempt to "advance a paradigm shift that 'internalizes the natural living conditions of

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[195] WWF n.d., <https://www.worldwildlife.org/stories/what-is-the-sixth-mass-extinction-and-what-can-we-do-about-it> (last accessed 21 May 2023).
[196] As cited in Kotzé and Kim 2019, p. 3.
[197] Kotzé and Kim 2019, p. 3.
[198] Ibid.
[199] United Nations Climate Change 2022, <https://unfccc.int/blog/what-is-the-triple-planetary-crisis#:~:text=The%20triple%20planetary%20crisis%20refers,viable%20future%20on%20this%20planet.> (last accessed 21 May 2023.
[200] Kotzé 2014, p. 121.
[201] Biermann et al., 2010, as cited in Earth System Governance 2022, <https://www.earthsystemgovernance.org/what-we-do/> (last accessed 21 May 2023).
[202] Kim and Kotzé 2022, p. 1.
[203] Earth System Governance 2022, <https://www.earthsystemgovernance.org/ what-we-do/> (last accessed 21 May 2023).
[204] Kim and Kotzé 2022, p. 1.

human existence and makes them the basis of all law.'"[205] Earth System Law is thus in favor of a "planetary approach to law",[206] which could, for example, include "exploring forms of law that might be effective in advancing planetary justice while respecting planetary boundaries."[207] Others have argued that to effectively preserve the integrity of our planet and not surpass planetary boundaries, a global constitution would be necessary.[208]

Earth System Law defines an effective (environmental) regulation ought to: "at minimum act as legal boundaries that prevent human activities from reaching and breaching planetary boundaries, defined as the safe space for mankind to operate within."[209] Moreover, there has been emphasis on the fact that we must adopt a *systems* approach to law.[210] This means that Earth System Law proposes to bring together different legal regimes, such as ecological and planetary law, to create a new legal paradigm which would go "well beyond the strict confines of traditional legal research."[211] Earth System Law encourages pluralism, as it is only through being all-encompassing that law would be able to effectively address the complexities of the Earth System within the Anthropocentric epoch.[212] Furthermore, Earth System Law aims to be "neither State-centric nor non-State-centric."[213] Kim[214] claims that States could still play an important role within Earth System Law "as trustees, but at the same time there is an untapped potential of non-State actors."[215]

Some critics of Earth System Law have argued that by having the point of departure being the acknowledgement of planetary boundaries, the new legal system ends up becoming "an independent set of norms and procedures regulating the 'human' use of the 'environment' by specifying allowable harm rather than adjudicating on mutually enhancing relations."[216] Therefore, Earth System Law must ensure that it "remains sensitive to the possible tensions between the pursuit of planetary integrity and the plurality of ways in which this could be achieved."[217]

Earth System Law establishes the "Earth System" as "the new all-encompassing focal point that must direct the orientation of juridical science and of all governance and

[205] Kim and Kotzé 2022, p. 1.
[206] Ibid., p. 2.
[207] Ibid.
[208] Kim and Kotzé 2022, p. 2.
[209] Kotzé and Kim 2019, p. 2.
[210] Kim and Kotzé 2022, p. 2.
[211] Ibid.
[212] Ibid.
[213] Ibid.
[214] Kim and Kotzé 2022.
[215] Ibid.
[216] Ibid., p. 2.
[217] Ibid.

normative-juridico efforts in the Anthropocene epoch."[218] Law plays a fundamental "role in determining, directing, and optimizing 'organized human responses' to an ever-changing Earth System."[219] The United Nations General Assembly (UNGA) acknowledged already in 2014 that a new form of governance was necessary.[220] Although Earth System Law is still in its early days, Kotzé and Kim[221] believe that it provides the means to build a new legal framework with the ability to reflect the realities of being in the Anthropocene epoch.[222]

Earth System Law is promoted as being both a descriptive and prescriptive concept. It is descriptive as it discusses the legal aspects of Earth System Governance, which were otherwise outside the scope of the discussion.[223] Furthermore, it is prescriptive in the sense that it aims to "improve the ability of law to better respond to the deeply intertwined Earth System and its many complex socio-ecological challenges",[224] in turn aligning the legal regime with "the Anthropocene's normative demands."[225]

In all, Earth System Law aims to abandon the world-view in which law currently finds itself, meaning the leaving behind the assumptions that we find ourselves in a "one-dimensional Holocene-nested linearity, predictability, simplicity and harmony."[226] So far, academic papers have mainly used the example of international environmental law to showcase the effect a paradigm shift towards Earth System Law could have, by for example designing 'international environmental law 2.0'.[227]

3.2. Five Key Aspects of Earth System Law

In this subchapter, the five key aspects of Earth System Law as identified by Kotzé and Kim[228] will be outlined and analyzed. Moreover, throughout this subchapter, links between each of these aspects and the role of States and the principle of sovereignty will be explored. Du Toit and Kotzé[229] use these aspects to reimagine the regime of International Environmental Law (IEL) "through the lens of Earth System Law."[230] Kotzé and Kim[231]

[218] Kotzé and Kim 2019, p. 1.
[219] Ibid.
[220] UNGA 2014 as cited in Kotzé and Kim 2019, p. 2.
[221] Kotzé and Kim 2019.
[222] Ibid., p. 2.
[223] Ibid.
[224] Ibid.
[225] Kotzé and Kim 2019, p. 2.
[226] Du Toit and Kotzé 2022, p. 1.
[227] Ibid., p. 7.
[228] Kotzé and Kim 2019.
[229] Du Toit and Kotzé 2022.
[230] Ibid., p. 4.
[231] Kotzé and Kim 2019.

aimed to indicate which aspects they believed would become key to re-imagine law to ensure it could "maintain its position as an important regulatory instrument of choice to establish and maintain social order, predictability, legitimacy and stability while also pursuing justice."[232]

These aspects are as follows. Through the lens of Earth System Law, international environmental law could become; (1) "normatively ambitious", (2) "polycentric", (3) "all-embracing onto-epistemologies of care", (4) "Anthropocene complexity", and (5) "holistic Earth System focus."[233]

3.2.1. From the Inability to Achieve Deep Structural Reforms to Being Normatively Ambitious

The first aspect is the inability of the current regime of IEL to achieve deep structural reforms.[234] Kotzé and Kim[235] argue that the regime of IEL is currently ineffective and unsuccessful because humanity has already crossed four out of nine planetary boundaries, one of which being climate change which has been identified as a 'core' planetary boundary "based on its fundamental importance for the Earth System."[236] They bring forward the argument that a possible reason for this failure is the "worrying lack of normative ambition at a time when precisely such ambition is critically required in the Anthropocene."[237] Moreover, they argue that international environmental law now "faces a challenge [...] with respect to its *raison d'être*."[238] Due to the era we see ourselves in today, "many of the objects of traditional concern for [IEL] are being so radically disfigured or expunged that some environmental regimes are losing their power, significance, and purpose."[239] This is because the Anthropocene epoch puts in peril the "relevance and influence of the discipline."[240] If law as a discipline and science fails to adapt, it may result in having regulations which aim "to preserve a natural world that no longer exists."[241]

Du Toit and Kotzé[242] further comment on this by stating that "much of IEL's failures also have to do with lack of implementation, lack of political will, and structurally vested neo-liberal pro-growth corporate interests."[243] All of this links back to the argument that the current regime of IEL lacks normative ambition. This does not mean that the regime of IEL

[232] Kotzé and Kim 2019, p. 4.
[233] Du Toit and Kotzé 2022, p. 4.
[234] Kotzé and Kim 2019, p. 4.
[235] Kotzé and Kim 2019.
[236] Du Toit and Kotzé 2022, p. 2.
[237] Kotzé and Kim 2019, p. 2.
[238] Ibid.
[239] Ibid., p. 4.
[240] Ibid.
[241] Ibid.
[242] Du Toit and Kotzé 2022.
[243] Ibid., p 2.

has not developed. On the contrary, there has been an increasing number of regulations and treaties being adopted, however, "it is hard to ignore the fact that IEL remains unable to achieve deep structural reforms because it lacks normative ambition,"[244] especially when "as high as possible of a level of such ambition is urgently required."[245] One explanation for this is the fact that the regime of IEL is currently following a path-dependent norms,[246] and would instead require a normative shift where the law ought to avoid humanity from traversing any of the nine planetary boundaries.[247] Even the United Nations admitted, in 2014, that "environmental legislation has failed to protect the basic structure and integrity of the Earth's ecosystems."[248] States play an important role in the IEL's failures to be able to achieve deep structural changes as they are the central law markers within this regime at the international stage. The lack of political will could be explained by the safety States feel under the principle of sovereignty and sovereignty over natural resources. As these principles are strongly enshrined within international law, States enjoy the current status quo and politicians representing States during multilateral negotiations do not have strong political wills to reinvent the wheel. And those that do, typically being from developing countries or small island States, lack the authority or majority to be able to have enough significant effect during these negotiations. This was reflected within Paris COP27 where there were tensions between the least developed countries and small island developing states and the EU. Dworkin[249] explains that there is "growing criticism of insufficient European action."[250] This was also reflected within the recent BBNJ process.[251] It was noted that the negotiations "seems locked to the status quo and opening only for minor amendments or gradual evolution."[252]

To remedy this through the lens of Earth System Law, Du Toit and Kotzé[253] propose that the regime of international environmental law should become more normatively ambitious. According to Earth System Law, the "ultimate purpose of international environmental law should clearly be maintaining and restoring the integrity of Earth's life-support system as a precondition for sustainable development."[254] This would require

[244] Du Toit and Kotzé 2022, p. 2.
[245] Ibid.
[246] Ibid.
[247] Kotzé and Kim 2019, p. 4.
[248] Du Toit and Kotzé 2022, p. 5.
[249] European Council on Foreign Affairs 2022, <https://ecfr.eu/publication/well-always-have-paris-how-to-adapt-multilateral-climate-cooperation-to-new-realities/#conclusions-and-recommendations> (last accessed 21 May 2023).
[250] Ibid.
[251] Further reading on the BBNJ process: Henriksen 2022, p. 76-113.
[252] Henriksen 2022, p. 112.
[253] Du Toit and Kotzé 2022.
[254] Ibid, p. 5.

higher normative ambition from States and law-making bodies at the international stage. Some scholars, such as Bridgewater et al.,[255] have suggested that restoring the integrity of the Earth System "should be measured with reference to the planetary boundaries framework."[256] Another ambitious norm which could be implemented to the regime of IEL is to firmly establish the right for nature or to develop the regime of ecological law.[257] All of these examples would help boost the normative ambitiousness of the regime of IEL all the while shifting the central reference point of law to the earth's system in its entirety.[258] Instead of having either humans, states or nature as the central focus.

In all, Earth System Law argues for the need for law, and in this example regime of IEL, to become more normatively ambitious in order to ensure the conservation and integral restoration of the entire Earth System, which would be more in line with the current epoch we find ourselves in.[259]

3.2.2. From State-Centrism to Polycentrism

The second aspect, brought forwards by Kotzé and Kim,[260] as an explanation for the current inefficiency of IEL is the fact that the regime is currently predominantly State-centric.[261] This means that the regime "largely depends on the State as the central source of its legitimacy and authority."[262] This is regardless of the fact that, over the past decades, there has been a rise in non-State organizations and societal movements which could increase the efficiency of the regime. To this day, "non-State actors [...] still do not play any meaningful role in the negotiation, enforcement and revision of multilateral environmental agreements."[263] There are several reasons why States continue to have supremacy in the regime of IEL. Firstly, States are still considered to be the main actors in public international law. Another reason is the fact that "States still bear primary responsibility also as addresses of those norms and - insofar as the behavior of private [non-State] actors is concerned - they remain the primary implementing agents."[264] Both of these reasons stem from the fact that States enjoy sovereignty over their territory and resources within international law. However,

[255] As cited in Du Toit and Kotzé 2022, p. 5.
[256] Du Toit and Kotzé 2022, p. 5.
[257] Ibid.
[258] Ibid.
[259] Du Toit and Kotzé 2022, p. 5.
[260] Kotzé and Kim 2019.
[261] Ibid., p. 4.
[262] Kotzé and Kim 2019, p. 4.
[263] Ibid.
[264] Ibid. p. 5.

this approach to law, i.e., it being a "State-centric juridical paradigm",[265] heavily hinders the ability to entrust any form of responsibility to non-State actors, "at a time when such involvement is in fact critically required."[266] As a result, the governance of IEL is undemocratic.[267] Approaching IEL with a State-centric model means that the regime cannot "fully embrace the 'complex architectures of Earth System Governance' [...] in a way that would sufficiently enable it to respond to complex, integrated, multi-scalar Earth System challenges."[268]

Earth System Law proposes that IEL should shift to a polycentric model[269] which would promote a bottom-up approach to tackling environmental problems.[270] A bottom-up approach endorses the role of non-State actors within international environmental law and governance.[271] Earth System Law pushes for more purposeful participation to "address the democracy deficit in global environmental governance."[272] Increasing transparency by democratizing the decision-making will be viewed as more legitimate.[273] Importantly, the decision making process should pay specific attention on ensuring "the participation of affected parties",[274] which will in turn move the focus away from States "to also include a much more diverse set of actors responsible for continuously shaping, applying and enforcing IEL."[275]

Here, it is clear that States play a central role in this aspect of Earth System Law. There is little incentive for States to change the system to a polycentric as it could lengthen the already long decision making processes at the international stage. Adding polycentricity to the regime would potentially increase negotiation time and complexity since more actors with different views and opinions will need to be considered. Adding a wider range of actors within the regime would require a further restriction of the principle of sovereignty and sovereignty over natural resources. If polycentricity aids in the shifting of the world-view from State-centric to Earth System-centric, then it would potentially mean more stringent measures to ensure we do not traverse any of the planetary boundaries.

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[265] Kotzé and Kim 2019, p. 4.
[266] Ibid.
[267] Ibid.
[268] Du Toit and Kotzé, p. 3.
[269] Further reading on polycentric models for law: Van Zeben 2019.
[270] Kotzé and Kim 2019, p. 5.
[271] Ibid.
[272] Kotzé and Kim 2019, p. 5.
[273] Du Toit and Kotzé 2022, p. 5.
[274] Ibid., p. 6.
[275] Ibid.

In sum, one aspect which Earth System Law finds itself discussing is the shift from State-centrism in the decision-making process of the regime of IEL to a more polycentric, decentralized system.[276]

3.2.3. From Anthropocentrism Epistemologies of Master and Exploitation to All-Embracing Onto-Epistemologies of Care

Currently, some argue that the objective of "environmental law in broad terms has been to promote a [...] neo-liberal human growth agenda by protecting environmental resources for the socio-economic (and therefore *unsustainable*) development of some privileged humans."[277] Western societies have, through environmental law, mainly categorized 'the natural world' as a regulatory object.[278] The regime of IEL is thus criticized for being principally concerned with "human interests, health and well-being",[279] and thus for being too anthropocentric. This means that the current regime of IEL does not leave enough, if any, space to advertise "alternative ways of seeing, knowing, being and caring for the entire vulnerable living order."[280]

The regime of IEL has seen a slow introduction of alternate "onto-epistemologies of care."[281] For example, there has been a rise in recognition of the rights of nature.[282] This shows that IEL must continue to develop in this fashion, go beyond its traditional subjects and expand "to a greater range of societal actors to better reflect the entangled being of vulnerable [...] living and non-living entities present in the Earth System."[283]

Throughout the development of international law, and legal science in general, States have not left much room for the advertisement of differing world views. This is largely influenced by the fact that the current legal system is currently State-centric. The principle of sovereignty allows them to decide how to run the inner workings of their State as long as it does not affect the workings of another State. Thus, a shifting worldview, or a widening of their worldview is currently mainly possible only if the national government, or its citizens bring forward a strong united message and demand changes, raises the issue at national level

[276] Du Toit and Kotzé 2022, p. 5-6.
[277] Kotzé and Kim 2019, p. 5.
[278] Ibid.
[279] Du Toit and Kotzé 2022, p. 3.
[280] Ibid., p. 3-4.
[281] Du Toit and Kotzé 2022, p. 6.
[282] Further reading on the rights of nature: Thompson 2020, p. 12-15.
[283] Du Toit and Kotzé 2022, p. 6.

and then to the international community. For example, this was the case with the recent *Urgenda* case[284] in the Netherlands.[285]

Earth System Law thus proposes that the regime of IEL should shift to an all-embracing onto-epistemology of care. Shifting to a more all-embracing framework would also lead to a wider view of justice. This is because it allows the identification of "Earth System risks that impact equity and justice considerations."[286]

In all, Earth System Law aims to bring forwards the fact that the regime of IEL should "fully embrace onto-epistemologies of care, such as rights of nature"[287] to ensure it can appropriately preserve and restore the Earth System in the near future.

3.2.4. From Assumptions of Holocene Stability to Anthropocene Complexity

Law in general, and thus also the regime of IEL, has been built on the assumption that we are currently in the Holocene epoch.[288] In the Holocene epoch, it is assumed that there is "stability, harmony and continuity."[289] However, if we were to accept the fact that we are currently in the Anthropocene epoch, law would need to assume that we are currently in a time of "severe instability, [...] unpredictability and [...] complexity",[290] which would lead to a shift in which types of laws we would adopt. The regime of IEL does currently make use of the precautionary and preventive principles. These principles, introduced within the 1992 Rio Declaration,[291] provide a first attempt in foreseeing "Earth System disruptions well in advance."[292] However, from the perspective of Earth System Law, one would argue that these principles do not suffice to ensure adequate environmental protection in this unstable, unpredictable, and complex epoch we find ourselves in.

Earth System Law would argue for a shift towards the general acceptance that we find ourselves in the Anthropocene epoch, which requires strong forward-looking regulations.[293] The re-imagination of the regime of IEL requires the acknowledgement by the main actors of international law that we find ourselves in a fundamentally different epoch.[294] Moreover,

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[284] District Court of the Hague, Urgenda Foundation v. State of the Netherlands, ECLI:NL:RBDHA:2015:7196, judgment held on 24-06-2015; this case will be further examined in chapter 4.2.1.
[285] Further reading: Spijkers 2018, p. 305-344.
[286] Du Toit and Kotzé 2022, p. 6.
[287] Ibid.
[288] Kotzé and Kim 2019, p. 5.
[289] Ibid.
[290] Du Toit and Kotzé 2022, p. 4.
[291] Rio Declaration.
[292] Kotzé and Kim 2019, p. 5.
[293] Ibid.
[294] Du Toit and Kotzé 2022, p. 4.

Stephens[295] argues that this shift is necessary in order for environmental law to "avoid the risk of becoming irrelevant."[296] IEL should integrate the notion of planetary boundaries within its regime to take into account the complexity of the Anthropocene epoch.[297] Furthermore, a shift towards the Earth System centric framework would help promote regulations which take into account all of Earth Systems processes, instead of treating environmental problems independently as if these processes are not interrelated.[298] In addition, this shift would require for the regime of IEL to become more "flexible and adaptive while remaining firmly grounded in a commitment to a mutually enhancing human-Earth relationship."[299]

To ensure this transition, States would be required to show their understanding and acknowledge that we currently find ourselves in a different epoch. However, since this new Anthropocene epoch is marked by uncertainty and instability, it is intimidating for States to officially recognize this as it may bring new, and more stringent, obligations. This is because the acknowledgment of the Anthropocene era could lead to the shift towards an Earth System focus, meaning the restriction of human activities to ensure we stay within planetary boundaries. This would in turn further restrict the principle of state sovereignty and sovereignty over national resources because States would need to follow a whole new set of measures or targets, which will be set by taking into account the entire Earth System and its boundaries.

In sum, Earth System Law would aim to push forward the knowledge that we currently find ourselves in the Anthropocene epoch, and no longer in the Holocene one. With the wide acknowledgement that we currently find ourselves in the Anthropocene epoch, IEL, and the wider legal regime, must adapt its policies to be more forward looking to "foresee harm instead of only addressing it in an *ex post facto* way."[300]

3.2.5. From Reductionism to a Holistic Earth System Focus

Lastly, a key aspect, identified by Kotzé and Kim,[301] that is important in the agenda of Earth System Law is the fact that the current legal regime is reducing the Earth System to an object, still undefined.[302] As the regime currently stands, there seems to be an unwillingness and inadequacy "to respond to deeply complex patterns of socio-ecological change and Earth

[295] As cited in Du Toit and Kotzé 2022, p. 6.
[296] Du Toit and Kotzé 2022, p. 6.
[297] Ibid.
[298] Ibid., p. 6-7.
[299] Ibid.
[300] Kotzé and Kim 2019, p. 5.
[301] Kotzé and Kim 2019.
[302] Ibid., p. 5.

System complexity because [law has] not fully embraced an Earth System perspective."[303] Kotzé and Kim[304] argue that there is currently nothing within the legal regime that addresses the earth in its "wholeness and complexity",[305] which is exactly the problem here. Law, in its broad sense, has so far arguably only addressed environmental issues in narrow and sectoral terms. This is because we have designed our legal system without taking into account how our complex Earth System behaves and interacts.[306] For example, issues linked to air, water, and natural conservation are dealt with as isolated cases.[307] Due to this path-dependence approach, it has been difficult for environmental law to steer itself away from this approach.[308] To do so would require a paradigm shift. And to achieve a paradigm shift would require the States to make the initial move showing a general acceptance that this is the shift required in order to successfully address legal challenges, such as the climate crisis. Addressing issues relating to climate and the environment by addressing the entire complexity of it will likely result in more efficient and targeted measures.

Earth System Law advocates for this paradigm shift by proposing a holistic Earth System focus. This could include "transdisciplinary debates focused on understanding the complex, adaptive, erratic, and globally intertwined Earth System and its myriad socio-ecological implications for the living order."[309] From this perspective, we would shift to an adaptive-oriented system of law which must "simultaneously respect planetary-scale tipping points and pay due consideration to the dynamic interconnections of the Earth System components"[310] and at the same time accepting the intricacy of "planetary boundaries and safeguarding the integrity of earth's life-support systems."[311]

3.3. Interim Conclusion

As we have seen in this chapter, the concept of Earth System Law was first developed as "there [was] a need for a more pronounced role for law in Earth System Governance."[312] This is because law plays an essential feature of the human-political-social system[313] and is

[303] Kotzé and Kim 2019, p. 5.
[304] Kotzé and Kim 2019.
[305] Ibid., p. 5.
[306] Du Toit and Kotzé 2022, p. 4.
[307] Kotzé and Kim 2019, p. 6.
[308] Ibid., p. 5.
[309] Ibid., p. 6.
[310] Ibid.
[311] Ibid.
[312] Ibid.
[313] Ibid., p. 3.

designed to regulate and promote "a specific type of desired social order."[314] Law aims to do so "while seeking to offer a sense of social stability, inclusion, participation, representation, and accountability."[315] However, Earth System Law argues that law will need to adapt and evolve, by taking into account the shift to the Anthropocene epoch, in order to "maintain its position as an important regulatory instrument of choice" in determining the desired social order. As a first step, Kotzé and Kim[316] identify five aspects which Earth System Law research may find itself bringing forward to start reimaging law, and more specifically the regime of IEL. Re-imagined, the regime of IEL would become more normatively ambitious, more polycentric in its decision-making process, all-embracing, take into account the complexity of the Anthropocene epoch, and take a more holistic Earth System viewpoint.[317]

Although a shift to a more Earth System-centric may heavily impact and restrict the principle of sovereignty, and sovereignty over natural resources, I believe that this shift would end up being beneficial for States in the long-term. We are currently at a crucial turning point where we need strong leadership and action in the climate change regime. We can also see an increase of non-State actors, such as citizens all around the world, wanting to see more climate action and losing hope in their governments, with for example the widespread success of the Friday for Future marches.[318] If States took this risk and started a shift towards reaching an Earth System focus within the international legal regime, then they would start a new wave of climate change regulations which may result in successfully addressing climate change.

As the main law-makers in international law, States are at the forefront of this shift. Due to the principle of sovereignty, States are currently the main actors in international law, and in IEL specifically, which have the power to enact regulations which would provide the necessary shift to ensure we can adequately address environmental problems. Herein lies the paradox we find ourselves in. On the one hand, States are actors which heavily contribute to climate change, and thus the degradation of the earth's system, as they are responsible for the CO2 emissions their countries and actors within it emit, and benefit economically from this. While on the other hand, they are the primary lawmakers in international law and thus heavily determine how to respond to environmental problems. Through the lens of Earth System Law, perhaps the most important initial shift which must occur is the

[314] Kotzé and Kim 2019, p. 3.
[315] Ibid.
[316] Kotzé and Kim 2019.
[317] Du Toit and Kotzé 2022, p. 4.
[318] Fridays For Future n.d., <https://fridaysforfuture.org/> (last accessed 21 May 2023).

acknowledgement from States that we must shift from a State-centric regime to a holistic Earth System-centric regime. This is necessary in order to allow the legal regime to become more normatively ambitious, polycentric and address the complexities of the Anthropocene epoch, which would in turn potentially lead to more effective climate change regulations.

Chapter 4: The Role of States With Climate Change Regime And its Development

This chapter will provide an overview of the development of the climate change regime and which role States have played in shaping this regime. This chapter thus aims to answer the following sub-research question: *What role do States play within the climate change regime and its development?*

This chapter aims at exploring the dichotomous role which States play within the climate change regime; on the one hand as its primary lawmakers at the international level, and on the other as actors contributing to the climate crisis by emitting large amounts of greenhouse gas emissions.

Firstly, this chapter explores the legal development of the climate change regime through the implementation of multilateral agreements. Then, the next subchapter will explore the development of some legal principles and approaches within the climate change regime and the role of States within it. Finally, the last subchapter will explore the role of States as contributors to the climate crisis.

4.1. The Development of the Climate Change Regime

In the 1970s, scientists started to warn the general population that "if we did not take action to curb greenhouse gas emissions, we would see changes in climate by the end of the 20th century."[319] The Intergovernmental Panel on Climate Change (IPCC) was established as a United Nations body in the late 1980s in order to gather and evaluate all the current science related to climate change.[320] In their First Assessment Report, published in 1990, the IPCC addressed the fact that human activities are increasing greenhouse gasses, which negatively affect the world's climate.[321] Since then, the regime of Climate Change has seen exponential growth. The 1992 Rio Earth Summit was a pivotal moment for the development of the regime

[319] Time 2022, <https://time.com/6169294/climate-change-politicized-in-1990s/> (last accessed 21 May 2023).
[320] IPCC n.d., <https://www.ipcc.ch/about/history/#:~:text=The%20Intergovernmental%20Panel%20on%20Climate%20Change%20(IPCC)%20was%20established%20by,UN%20General%20Assembly%20in%20198 8.> (last accessed 21 May 2023).
[321] IPCC 1990, p. 63.

of climate change.[322] During this summit, the principle of sustainable development was established, recognizing "that integrating and balancing economic, social, and environmental concerns"[323] are necessary in order to "sustain human life on the planet."[324] Already in the 1990s, the interests of States did not align.[325] "At the one end of the spectrum, the small island developing countries, fearing inundation from sea level rise, supported strong commitments to limit emissions."[326] These countries formed together the Alliance of Small Island States (AOSIS), which still exists today.[327] At the other end of this spectrum were developing countries which depended on their oil productions.[328] These States pushed for a slower approach to climate change, challenging the available science.[329] Located in the middle of the spectrum were larger developing countries, such as India, Brazil, and China.[330] These States believed that "measures to combat climate change should not infringe on their sovereignty - in particular, their right to develop economically."[331] Moreover, they argued that developed countries were to blame for the climate change historically, and thus they should be held responsible to solve it. Nonetheless, as seen in the introduction, climate change is a (super) wicked problem which requires the action of all States in order to combat it successfully. Keeping these diverging stances in mind, this subchapter will delve into the three major agreements which were concluded at the international level, since the Earth Summit, to deal with climate change; the 1992 United Nations Climate Change Convention (UNFCCC), the 1997 Kyoto Protocol, and the 2015 Paris Agreement.

4.1.1. The United Nations Climate Change Convention (UNFCCC) (and the Kyoto Protocol)

The United Nations Climate Change Convention (UNFCCC)[332] was adopted in 1992, and entered into force in March 1994. It took roughly two years for the text to be agreed upon and it started gathering signatures during the Rio Earth Summit.[333] Initially, the negotiations of the UNFCCC modeled after the negotiations which had occurred in the past decade

[322] United Nations Conferences n.d., <https://www.un.org/en/conferences/environment/rio1992> (last accessed 21 May 2023).
[323] Ibid.
[324] Ibid.
[325] Bodansky et al. 2017, Evolution of the United Nations Climate Regime, p. 101.
[326] Ibid.
[327] Ibid., p. 102.
[328] Ibid.
[329] Ibid.
[330] Ibid.
[331] Ibid.
[332] UNFCCC.
[333] Bodansky et al. 2017, The Framework Convention on Climate Change, p. 100.

surrounding acid rain.[334] Acid rain had been the considered "the largest environmental threats of the time"[335] and this had resulted in the Convention on Long-Range Transboundary Air Pollution and Its Protocols.[336] This process showed that, when directly affected by an environmental threat, States are willing to act together and quickly to avoid any negative consequences. Moreover, by doing so, they also show a willingness to limit their sovereignty over natural resources as this convention and its protocols heavily regulate the use of specific organic compounds and metals.

The UNFCCC is a framework convention, based on a precautionary approach (more on this in chapter 4.2), which "urges action to preserve human safety where risks are high even in the face of scientific uncertainty."[337] According to Article 2, the underlying aim of the UNFCCC is to stabilize "greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[338] This shows that the Convention mainly aims at mitigating climate change. The precautionary approach, laid out in Article 3(3) of the UNFCCC, articulates that precautionary measures should be taken "to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects."[339] During the drafting of the text, the United States had a lot of influence in the wording of the precautionary principle within the UNFCCC. This influence resulted in adding a requirement that the precautionary approach should be "cost-effective so as to ensure global benefits at the lowest possible cost."[340] Furthermore, the Convention brings forward the principle of sustainable development (Article 3(4) UNFCCC)[341] and the principle of common but differentiated responsibility.[342] The latter principle was introduced within the preamble of the convention by stating that "the largest share of historical and current global emissions of greenhouse gasses has originated in developed countries."[343] The principle of common but differentiated responsibility is outlined in Article 4 of the UNFCCC. Article 4(1) outlines commitments which States have to abide by, but at different degrees as it takes "into account their common but differentiated responsibilities and their specific national and

[334] Bodansky et al. 2017, The Framework Convention on Climate Change, p. 104.
[335] Grennfelt et al. 2020, p. 849.
[336] Convention on Long-Range Transboundary Air Pollution (adopted on 13 November 1979, entered into force on 19 March 1983).
[337] Bodansky et al. 2017, The Framework Convention on Climate Change, p. 100.
[338] UNFCCC, art. 2.
[339] Ibid., art. 3(3).
[340] UNFCCC, art. 3(3).
[341] Ibid., art. 3(4).
[342] Bodansky et al. 2017, The Framework Convention on Climate Change, p. 101.
[343] Ibid.

regional development priorities, objectives and circumstances."[344] However, it is only Annex I States (which are the Organization for Economic Cooperation and Development (OECD) countries and (at the time) economies in transition) which commit themselves to measuring "emissions by sources and removals by sinks of greenhouse gasses [...]."[345] This shows a binary differentiation between developed and less developed States, wherein States included in Annex I have different commitments to take into account the diverging positions States found themselves in at the time of negotiations.[346]

During the drafting process of the UNFCCC, States and their government representatives were "very much in control and non-governmental actors played a limited role."[347] States were at the forefront of the negotiations and barely took into account the IPCC report during the negotiations process.[348] Additionally, although the focus of the negotiations surrounded topics which had real potential impacts on the earth's climate, the negotiations also heavily "focused more on semantics than on substance."[349] This is a theme which often comes back when States negotiate Multilateral Environmental Agreements (MEAs) at the international stage. There was a lot of debate over specific wordings within the agreement, to ensure States carefully selected terms which had specific political and legal meanings which aligned with their interests.[350] This is further observed in the fact that a consensus is needed in order to adopt the treaty text.[351] This means that a singular State, particularly "influential" ones such as the United States (USA), can have a significant leverage over the final outcome of the treaty.[352]

The UNFCCC negotiation process followed "a pattern common to international environmental negotiations."[353] The pattern is as follows: it is usually a slow start with States expressing their positions and not open to compromising. This process is highly political and allows States to "learn about and gauge the strength of other States' views."[354] It is only in the final months, or even hours, of the negotiation process that States will start compromising in order to come to a common agreement.[355]

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[344] UNFCCC, art. 4(1).
[345] Ibid., art. 4(2)(c).
[346] Ibid.
[347] Bodansky et al. 2017, Evolution of the United Nations Climate Regime, p. 103.
[348] Ibid.
[349] Ibid
[350] Ibid.
[351] Ibid., p. 104.
[352] Ibid.
[353] Ibid.
[354] Ibid.
[355] Ibid.

In all, the UNFCCC can be seen as an important baseline framework convention; it establishes "the regime's basic system of governance, including its objectives (Article 2), principles (Article 3), institutions (Article 7-10), and law-making procedures (Article 15-17)."[356] The obligations laid out within the UNFCCC are "general in nature, rather than legally binding emissions targets, as the EU and the Alliance of Small Island States had wished."[357] Nonetheless, the UNFCCC did go further than previous framework conventions "by establishing a financial mechanism [...] and comparatively strong implementation machinery, including detailed reporting requirements and international review."[358]

Shortly after the entry into force of the UNFCCC, "most countries began to argue that the convention's 'commitments' were inadequate and needed to be supplemented by more specific emission limitation targets."[359] The Kyoto Protocol[360] was entered into force in 2005 with an initial commitment period from 2008 to 2012, and the second commitment period being from 2013 to 2020.[361] This protocol came into being during a Conference of the Parties meeting under the UNFCCC during a difficult round of negotiations which took over 48 continuous hours. Although the Kyoto Protocol was largely replaced by the Paris Agreement, and is no longer in force, it remains a relevant piece of law which developed the regime of climate change. The Kyoto Protocol established "legally binding targets for 37 high-income countries and the EU to reduce their greenhouse gasses (GHG) emissions on average by 5% below 1990 levels during [the first commitment period]."[362] The Kyoto Protocol excludes developing countries from having to meet these GHG mitigation obligations. This is outlined in Article 3.[363] The Kyoto Protocol can be distinguished by four main features:

> "(1) A top-down regulatory approach, involving internationally-negotiated emissions targets and accounting rules, (2) sharp differentiation between developed and developing countries, (3) legal bindingness, including a strong compliance mechanism, and (4) market mechanisms to allow cost-effective implementation."[364]

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[356] Bodansky et al. 2017, Evolution of the United Nations Climate Regime, p. 104.
[357] Ibid.
[358] Ibid.
[359] Ibid., p. 105.
[360] The Kyoto Protocol (adopted on 11 December 1997, entered into force 16 February 2005) 37 ILM 22 (henceforth referred to as The Kyoto Protocol).
[361] Myclimate 2022, <https://www.myclimate.org/information/faq/faq-detail/what-is-the-kyoto-protocol/#:~:text=Two%20periods%20of%20validity%20were,2020%20(2nd%20commitment%20period).> (last accessed 21 May 2023).
[362] Congressional Research Service 2020, p. 4.
[363] The Kyoto Protocol, art. 3.
[364] Bodansky et al. 2017, Evolution of the United Nations Climate Regime, p. 105.

At the end of the first commitment period, some States had achieved their target reductions and others had not. The EU and Switzerland had committed to "an average reduction of [8]% and achieved a reduction of 11.7% compared to 1990."[365] However, other States such as the USA, China, Mexico, Brazil, and India, had seen an increase in their CO2 emissions instead.[366] In 2010, there was a recorded 29% increase of global greenhouse gas emissions compared to 1990 levels.[367] Since then, global CO2 emissions have continued to steadily rise (with the exception of a slight decrease in 2020 due to the global COVID-19 pandemic), with now over 34 billion tons of CO2 being emitted every year.[368] Critics of the Kyoto Protocol argue that "it is extremely easy for 155 signatory nations out of the 192 to vote in favor of it when they are exempted from all its requirements."[369] For example, India and China are collectively responsible for 35% of global total carbon emissions in 2020.[370] On the other hand, the United Kingdom, France and Germany accounted collectively for 4% of the global total carbon emissions in 2020.[371] This is partly due to the fact that developing countries were not under any obligations under the Kyoto Protocol.

4.1.2. Paris Agreement

The Paris Agreement was adopted in 2015 after "years of deeply contentious multilateral negotiations."[372] With the second commitment period of the Kyoto Protocol ending in 2020, the Paris Agreement is now the "primary subsidiary vehicle for process and action under the UNFCCC."[373] The UN Secretary General at the time of the adoption of the Paris Agreement, Ban Ki-moon, described this agreement as a "monumental triumph."[374] This is because it is the first multilateral agreement that is binding to all States, and not just to developed States.[375] During the four-year negotiation process, many States had differing options on the extent to which the agreement should be legally binding. The Alliance of

[365] Myclimate 2022, <https://www.myclimate.org/information/faq/faq-detail/what-is-the-kyoto-protocol/#:~:text=Two%20periods%20of%20validity%20were,2020%20(2nd%20commitment%20period).> (last accessed 21 May 2023).
[366] Ibid.
[367] Ibid.
[368] Our World in Data 2020, <https://ourworldindata.org/co2-emissions#citation> (last accessed 21 May 2023).
[369] CFI 2023, <https://corporatefinanceinstitute.com/resources/esg/kyoto-protocol/> (last accessed 21 May 2023).
[370] Ibid.
[371] CFI 2023, <https://corporatefinanceinstitute.com/resources/esg/kyoto-protocol/> (last accessed 21 May 2023).
[372] Bodansky 2021, <https://legal.un.org/avl/ha/pa/pa.html> (last accessed 21 May 2023).
[373] Congressional Research Service 2020, p. 5.
[374] Bodansky et al. 2017, Paris Agreement, p. 209.
[375] United Nations Climate Change n.d., The Paris Agreement, <https://unfccc.int/process-and-meetings/the-paris-agreement> (last accessed 21 May 2023).

Small Island States (AOSIS) argued that it should become a legally binding document, whereas Brazil, China and India were hesitant to bind themselves to a multilateral climate treaty as they were "concerned about the constraints of a new legal agreement on their development prospects."[376] Over the course of the negotiation process though, and mainly towards the end, every State ended up willing to bind themselves to this new instrument.[377]

The overarching goal of the Paris Agreement is to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels and [pursue] efforts to limit the temperature increase to 1.5°C above pre-industrial levels."[378] The Paris Agreement takes a bottom-up approach, in contrast to the top-down approach of the Kyoto Protocol, which "allows Parties to nationally determine their contributions to address climate change."[379] Some provisions of the agreement create legal obligations while others are only non-binding which promote specific conduct or action.[380] Article 4(2) of the Paris Agreement outlines that Parties "shall prepare, communicate and maintain successive nationally determined contributions [(NDC)] that it intends to achieve."[381] Article 4(3) further outlines that each party's successive NDC "will represent a progression beyond the party's then current [NDC] and reflect its highest possible ambition."[382] The NDC can be understood as an obligation of conduct, but not of result. It is binding for States to submit NDC's every 5 years,[383] but there are no legal repercussions if a party does not achieve the goals laid out within its NDC. The binding articles within the Paris Agreement are procedural in nature, i.e., submitting NDCs, developed States must "provide financial resources to assist developing country parties with respect to both mitigation and adaptation,"[384] and two reporting and review mechanisms, one under Article 6 relating to NDCs, and one under Article 13 relating to the implementation of a transparency framework.[385]

The Paris Agreement includes a number of non-binding articles which encourage State action. For example, Article 4(4) recommends that:

> "developed countries Parties should adopt economy-wide, absolute emission reduction targets [and that] developing country Parties should continue enhancing

[376] Maljean-Dubois 2021, p. 211.
[377] Ibid., p. 211-212.
[378] Paris Agreement, art. 2(1)(a).
[379] Bodansky 2021, p. 1.
[380] Ibid., p. 7.
[381] Paris Agreement, art. 4(2).
[382] Ibid., art. 4(3).
[383] Bodansky 2021, p. 7.
[384] Paris Agreement, art. 9(1).
[385] Ibid., art. 13.

their mitigation efforts, and are encouraged to move over time towards economy-wide emission reduction or limitation targets in the light of different national circumstances."[386]

The adoption of the Paris Agreement showed that it is possible to achieve a world-wide consensus on climate change action, all-the-while allowing States to be flexible in how they choose to address and combat climate change as long as they adhere to the main goal of the agreement.[387] The Paris Agreement could only reach near-global accord (with only Iran, Libya and Yemen not being Parties to the agreement)[388] by allowing Parties to maintain significant discretion and sovereignty over what will be included in their NDCs, and thus how they choose to mitigate and adapt to climate change. This is one of the key aspects of the Paris Agreement; it "largely leaves the substance of climate policy to national discretion and prescribes procedural rules."[389] Moreover, the Paris Agreement shows innovation when combining prescription and discretion into the same article. For example, it allows:

> "developing States to self-determine whether they face capacity constraints that warrant flexibility under the enhanced transparency framework, but requires them to explain the nature of their capacity constraints and to provide a timeline for addressing those constraints."[390]

Another example is that States may choose which qualitative and quantitative indicators they want to use when tracking their NDC progress, as long as they are fully transparent about which ones they are using.[391]

Since the adoption of the Paris Agreement, every party to the agreement (except for the Holy See) has submitted at least one NDC.[392] Some have only submitted one NDC, whereas others have submitted multiple, with Australia holding the current record at 4 NDCs.[393] The first global stocktake will occur at the end of 2023 during the Conference of the Parties (COP) 28 in Dubai.[394] The global stocktake "enables countries and other stakeholders to see where they're collectively making progress towards meeting the goals of the Paris

[386] Bodansky 2021, p. 7.
[387] Maljean-Dubois 2021, p. 7.
[388] United Nations Climate Change n.d., Paris Agreement - Status of Ratification, <https://unfccc.int/process/the-paris-agreement/status-of-ratification> (last accessed 21 May 2023).
[389] Bodansky 2021, p. 8.
[390] Ibid.
[391] Ibid.
[392] United Nations Climate Change n.d., NDC Registry, <https://unfccc.int/NDCREG> (last accessed 21 May 2023).
[393] Ibid.
[394] Climate Champions UNFCCC 2022, <https://climatechampions.unfccc.int/what-is-the-global-stocktake/> (last accessed 21 May 2023).

Agreement - and where they're not."[395] This meeting will be crucial, as currently we are not on track to meeting the 1.5°C. According to a United Nations Environmental Program (UNEP) report from 2022, the "latest data indicates that the world is on track for a temperature rise of between 2.4°C and 2.6°C by the end of this century."[396] In the current best case scenario, where we see a full implementation of all NDCs "and additional net-zero emissions commitments",[397] it is possible to attain only a 1.8°C increase.[398] However, this is unlikely according to an UNEP report, as there are too many inconsistencies "between current emissions, short-term NDC targets and long-term net-zero targets."[399] We find ourselves in a time where incremental changes are not enough anymore, and only systematic "transformations of our economies and societies can save us from accelerating climate disaster."[400]

Lastly, just like any other international agreement, States may ratify it and later decide on exiting if its practices or goals no longer match. This occurred in 2020, when the USA became "the first nation in the world to formally withdraw from the Paris climate Agreement."[401] Nearly a year later, during Biden's first day in office replacing Trump as the president of the country, the USA started the procedure of rejoining and re-ratifying the Paris Agreement.[402] The United States is the biggest polluter in our world's history, and emitted 5,981 million metric tons of carbon dioxide equivalents in 2020 alone.[403] Having a country, such as the USA, which emits a large percentage of the world's total carbon emissions, being able to retract itself from the Paris Agreement severely impacts the ability to combat climate change at the international level. However, the principle of sovereignty allows for States the ability to do this as they must always be consenting parties to an international agreement, as discussed within chapter 2 above. Transforming the legal regime into one which focuses on the well-being of the Earth System instead of State-centrism would allow for a potentially more predictable climate change regime in which political volatilities affect the environment less.

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[395] United Nations Climate Change n.d., <https://unfccc.int/topics/global-stocktake> (last accessed 21 May 2023).
[396] UN News 2022, <https://news.un.org/en/story/2022/10/1129912> (last accessed 21 May 2023).
[397] Ibid.
[398] Ibid.
[399] Ibid.
[400] Ibid.
[401] BBC 2020, <https://www.bbc.com/news/science-environment-54797743> (last accessed 21 May 2023).
[402] U.S. Department of State 2021, <https://www.state.gov/the-united-states-officially-rejoins-the-paris-agreement/#:~:text=On%20January%2020%2C%20on%20his,becomes%20a%20Party%20again%20today.> (last accessed 21 May 2023).
[403] United States Environmental Protection Agency n.d., <https://www.epa.gov/climate-indicators/climate-change-indicators-us-greenhouse-gas-emissions> (last accessed 21 May 2023).

4.1.3. Interim Conclusion

In all, States have played a very important role in the development of the climate change regime as being the major lawmakers within international law which can adopt multilateral treaties on the topic. Without the willingness of States, there would not be this many agreements and meetings held at the international stage to find a way to combat climate change. Nonetheless, we see that States have not been able to fully address the rising CO2 emissions equivalent as reports show that the current NDCs are not enough to meet the Paris Agreement target of 1.5°C.[404] This means that the current regime of climate change is not effective enough. As introduced in the introductory chapter of this thesis, the criteria for effectiveness is whether the current regime is on track to achieving the 1.5°C Paris target, which it currently is not. Although many measures have been implemented worldwide, no sources declare that we are currently on track to meeting this target. We can see a willingness from States to act, and this could mean that we have enough actors which are willing to push for climate-forward measures. However, our current legal system might be too human/State-centric focused, and could benefit from shifting towards an Earth System-focus. This will be developed within chapter 5 below.

4.2. Legal Principles and Approaches Within the Climate Change Regime

The regime of climate change has not only evolved through the creation of multilateral agreements, but has also done so with the guidance of a number of legal principles, concepts and approaches. One being the principle of state sovereignty, which is at the core of this thesis and has been introduced in chapter 2 above. It is important to explore which other principles have played a role in the development of legal regulations to help combat climate change, and which role States have played in their development, keeping in mind the principle of state sovereignty and sovereignty over natural resources.

This subchapter will explore the no-harm principle, the precautionary approach, and the principle of common but differentiated responsibilities. Moreover, it will also explore their relationship with the principle of sovereignty and sovereignty over natural resources.

4.2.1. The No-Harm Principle

The principle of no-harm is nowadays firmly established within international law.[405] It started off as a "widely recognized principle of customary international law whereby a State

[404] UN News 2022, <https://news.un.org/en/story/2022/10/1129912> (last accessed 21 May 2023).
[405] Maljean-Dubois 2021, p. 15.

is duty-bound to prevent, reduce and control the risk of environmental harm to other States."[406] This principle was first recognized in the landmark 1941 *Trail Smelter* arbitration where the court highlighted that "the obligation not to cause damage [is] a positive obligation, and more specifically a duty of due diligence."[407] This means States have an obligation of conducting themselves in a way to prevent environmental harm to another State, but they do not have an obligation of result.[408] It was further developed in the *Pulp Mills* case in 2010, where the International Court of Justice (ICJ) described the principle as an obligation:

> "which entails not only the adoption of appropriate rules and measures, but also a certain level of vigilance in their enforcement and the exercise of administrative control applicable to public and private operators, such as the monitoring of activities undertaken by such operators."[409]

This makes it clear that this thus also puts an obligation on States to regulate private actors within their jurisdiction to the best of their ability.

The principle was originally "aimed at fostering good neighborly relationships between equal States"[410] and thus used in a transboundary context. However, as Mayer[411] points out, the rationale used to apply the no-harm principle to transboundary harm also applies to "circumstances where the stakes include the prosperity, viability or survival of other States and human civilization as a whole."[412]

The due diligence obligation also includes some procedural obligations, such as "information, notification, cooperation, impact assessment, and continuous monitoring."[413] Within the context of climate change, we can see that much has been done by States in terms of cooperation, and continuous monitoring which has led to the bettering of scientific information.

The no-harm principle can be understood as a chapeau obligation, meaning that it "does not conflict with treaty-based obligations, but rather could make up for the potential shortcomings of treaties."[414] States have shown their acceptance of the no-harm principle with regard to the fight against climate change within the preamble of the UNFCCC, where it lays

[406] Lawyers Responding to Climate Change 2012, p.1.
[407] Maljean-Dubois 2021, p. 16.
[408] Ibid.
[409] Ibid.
[410] Ibid.
[411] Ibid., p. 16-17.
[412] Ibid.
[413] Ibid., p. 17.
[414] Maljean-Dubois 2021, p. 17.

out the essence of the no-harm obligation.[415] Since the no-harm principle is part of customary international law, it is binding to all States, and not just to those which have ratified the multilateral agreements.[416] This means that it can be a complementary principle, used to bind States to customary legal obligations if they, for example, one day decide to withdraw from the Paris Agreement. Maljean-Dubois argues that the current "commitments to reduce emissions pursuant to the climate treaties have been insufficient to 'prevent dangerous anthropogenic interference with the climate system'."[417] Thus, according to them, the current climate change regime does not "fully embody the customary due-diligence obligation."[418] This means that a State party to the Paris Agreement could be complying with the obligations laid out within the agreement, but may be "failing to meet its obligations under customary law, whether with regard to the substantial or procedural components of this obligation."[419] The due diligence obligation under the no-harm principle "could inform [...] the assessment of the ambition of the [NDCs]."[420] Through NDCs, States party to the Paris Agreement essentially report on how they are implementing their due-diligence obligation under international law.[421] The Supreme Court of the Netherlands used the same line of reasoning "regarding the State's 2020 target in the *Urgenda* Case."[422] The Court referred to the no-harm principle under customary law and its expression within the preamble of the UNFCCC and asked States to "account for the duty arising from this principle."[423] The Court thus ruled that the Netherlands had committed a wrongful act by "knowingly exposing its own citizens to danger"[424] by not fulfilling its due diligence obligation. The Netherlands must thus "take more action to reduce [its] greenhouse gas emissions"[425] and lower them by at least 25% (with 1990 as the base year) by 2020.[426] The Netherlands appealed the decision, arguing, in part, that it is only responsible for its own emissions.[427] However, the Supreme Court held the

[415] Maljean-Dubois 2021, p. 18.
[416] Ibid., p. 18-19.
[417] Ibid., p. 19.
[418] Ibid.
[419] Ibid.
[420] Ibid.
[421] Ibid.
[422] Ibid.
[423] Ibid.
[424] Urgenda n.d., <https://www.urgenda.nl/en/themas/climate-case/climate-case-explained/> (last accessed 21 May 2023).
[425] District Court of the Hague, Urgenda Foundation v. State of the Netherlands, ECLI:NL:RBDHA:2015:7196, judgment held on 24-06-2015, p. 1.
[426] Ibid.
[427] The Hague Court of Appeal, Urgenda Foundation v. State of the Netherlands, Case number 200.178.245, judgment held on 18-04-2017, p. 89.

original ruling, thus obliging the Dutch government to reduce its emissions.[428] The appeal shows that the Dutch government aims to protect their interests over those of the earth's system which is degrading rapidly.

The no-harm principle thus restricts in part the principle of state sovereignty over natural resources as States must ensure that their use of natural resources does not cause harm to other States. Nonetheless, it remains complicated to hold a State liable through court proceedings for not fulfilling its due diligence obligations with regard to climate change, with only a few cases having done so. Following similar reasoning as in the *Urgenda* case, new cases have been brought forward to hold private companies accountable for their emissions. Also in the Netherlands, the *Milieudefensie et al. case v Royal Dutch Shell plc* (henceforth referred to as the Shell case) was a landmark case in which the Hague District Court "ordered Shell to reduce its emissions by 45% by 2030, relative to 2019, across all activities."[429] There are also three cases being brought forward to the European Court of Human Rights (ECtHR) this year, which aim to hold States liable for meeting the Paris target of 1.5°C.[430] Since the Paris Agreement "protects countries' sovereignty over their climate action, it is crucial that they abide by the spirit and objective of the treaty",[431] including their due diligence obligation.

The no-harm principle and the principle of sovereignty over natural resources are contrasting and give rise to tensions. When putting these two principles side by side, States must balance the two concepts, to on the one hand ensure they fulfill their obligation under no-harm principle, but on the other want to ensure they do just what is required of them, to keep as much sovereignty as possible. Herein lies the tension "between restrictive and expansive conceptions of sovereignty."[432] Courts have restricted the principle of sovereignty and sovereignty over natural resources through case law, such as the *Trail Smelter* Arbitration, *Pulp Mills*, and most recently the Shell case as discussed above. This shows that the principle of sovereignty is continuously evolving and shifting, which allows courts the discretion to ensure the due diligence obligation is always upheld by States, even in scenarios which had not been foreseen during the early development of the principle.

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[428] Urgenda n.d., <https://www.urgenda.nl/en/themas/climate-case/climate-case-explained/> (last accessed 21 May 2023).
[429] Climate Case Chart 2022, <http://climatecasechart.com/non-us-case/milieudefensie-et-al-v-royal-dutch-shell-plc/> (last accessed 21 May 2023).
[430] Climate Home News 2023, <https://www.climatechangenews.com/2023/03/28/climate-in-court-the-paris-agreements-role-in-safeguarding-human-rights%E2%80%AF/> (last accessed 21 May 2023).
[431] Ibid.
[432] Van Asselt 2021, p. 2.

In conclusion, the no-harm principle is a legal principle which has been applied to transboundary environmental damage and most recently used in case law to argue that States are not doing enough to prevent transboundary harm and thus breaching their duty of care.[433] This principle plays an important role in balancing the protection of the environment versus the principles of state sovereignty and sovereignty over natural resources. The new wave of national and regional court cases show that there is a desire by non-State actors to hold States and large polluting private companies liable for their role in the warming of our climate. For it to become significant enough to curb emissions, more governments and multinationals around the world would need to be brought to court and be legally obliged to reduce their emissions. This would also give rise to an increased role for non-State actors within the regime of climate change.

4.2.2. The Precautionary Approach

The precautionary approach is laid out in Article 3(3) of the UNFCCC, where it states that "parties should take precautionary measures to anticipate, prevent, or minimize the causes of climate change and mitigate its adverse effects."[434] It further specifies that the lack of scientific certainty is not an excuse for postponing the implementation of precautionary measures.[435] The precautionary approach forces lawmakers to "debate about the type and quantities of human-induced harm to the environment that are acceptable."[436] Debates surrounding climate change and how to combat it brought the precautionary approach at the forefront of the discussion.[437] During the negotiations of the various multilateral instruments and meetings surrounding climate change, States have shown a willingness to adopt this approach as a principle.[438] Although we can talk of there being a precautionary *principle* within the climate change regime, it is viewed as a 'guiding' principle. States must have this principle in mind when drafting their NDCs, but what is the consequence if they do not apply it fully? Some areas of environmental law, such as marine law, view precaution as an approach and not a principle. The 1995 Fish Stocks Agreement[439] and the 2000 Convention

[433] The Legal Responsive Initiative 2021, p. 5.
[434] UNFCCC, art. 3(3).
[435] IISD 2020, <https://www.iisd.org/articles/deep-dive/precautionary-principle> (last accessed 21 May 2023).
[436] James and Abouchar 1991, p. 3.
[437] Ibid., p. 3.
[438] Ibid., p. 4.
[439] United Nations Fish Stock Agreement (adopted on 4 August 1995, entered into force 11 December 2001) 34 ILM 1542 (henceforth referred to as UNFSA).

and Management of Highly Migratory Fish Stocks in the Western and Pacific Ocean[440] mention that States must "apply the precautionary approach."[441] Although these agreements are not a part of the climate change regime, it shows that a principle can only develop as far as States, as main lawmakers within international law, will allow it to.

Within all regimes relating to the protection of the environment, thus both within climate change and marine regimes, it is important to ensure the full protection of ecosystems and the Earth System as a whole in order to ensure adequate measures and policies are put in place. The global community's willingness in advancing approaches such as the precautionary one into a full pledge principle and duty thus reflects the extent to which they are ready to respond to the climate crisis and hold themselves liable if their measures are not sufficient. The willingness of the global community to do so is widely influenced by the principle of state sovereignty and sovereignty over natural resources. The recognition by States that the concept of precaution should become a principle would require them to act differently with regards to their natural resources. This would thus further restrict the principle of sovereignty, and sovereignty over natural resources.

The precautionary principle thus remains a principle that, within the regime of climate change, has not been sufficiently used and could be developed further to ensure a more adequate response to climate change. Design and Widmer argue that the precautionary principle should be used instead of the trial and error strategy which has been adopted when designing the energy transition.[442] The precautionary principle is still evolving, and although it has been used in several international and national cases, the courts "have been careful not to base any decisions on it, leaving its exact legal meaning unresolved."[443]

4.2.3. The Principle of Common but Differentiated Responsibilities

The principle of common but differentiated responsibilities has evolved through time via the various agreements within the climate change regime. Within the UNFCCC and the Kyoto Protocol, there was a binary differentiation of responsibilities. As already introduced within chapter 4.1, the UNFCCC divided States into 'developed' and 'developing' countries

[440] Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (adopted on 5 September 2000, entered into force 19 June 2004) 40 ILM 278 (henceforth referred to as WCPFC Convention).
[441] UNFSA, art. 6; WCPFC Convention, art. 5.
[442] Design and Widmer 2021, p. 2.
[443] IISD 2020, <https://www.iisd.org/articles/deep-dive/precautionary-principle> (last accessed 21 May 2023).

and they have "differentiated commitments."[444] It is only developed countries parties to the UNFCCC which have to measure their emissions.[445]

In 2007, the Bali Action Plan[446] aimed at bringing some parallelism with regards to responsibilities between developed and developing countries. In light of the new IPCC report, states decided to "launch a comprehensive process to enable the full [...] implementation of the Convention through long-term cooperative action."[447] During the negotiations of the Bali Action Plan, many suggestions were presented as to how to differentiate between countries.[448] Some States, such as Australia, Japan and Turkey, suggested using Gross Domestic Product (GDP) to categorize States.[449] The United States "suggested global emissions and economic development as relevant criteria."[450] Most States included a caveat in which "Least Developed Countries (LDCs) and in some cases Small Island Developing States (SIDS) who, in their view, cannot be expected to contribute significantly to the mitigation effort."[451] In the end, as can be seen by the final text, Article 1(b) of the Bali Action Plan outlines that all developed countries party to the UNFCCC must enhance their action through enacting "measurable, reportable and verifiable nationally appropriate mitigation *commitments or actions*."[452] Moreover, Article 1(b) outlines that developing States are to set "nationally appropriate mitigation *actions*."[453]

The 2009 Copenhagen Accord[454] and the 2010 Cancún Agreement[455] entrenched this further as they show a shift from "differential treatment for developing countries towards differentiation or flexibility for all countries, as well as towards increasing parallelism between developed and developing countries in some respects."[456] The Copenhagen Accord "requires Annex I Parties to commit to targets, and non-Annex I Paris to undertake mitigate actions."[457] However, since it was rejected by 12 countries (the Bolivarian Alliance, Sudan and Tuvalu), "the Copenhagen Accord has no formal legal standing in the UNFCCC

[444] Bodansky et al. 2017, The Framework Convention on Climate Change, p. 4.
[445] UNFCCC, art. 4(2)(c).
[446] Bali Action Plan (adopted 15 December 2007 during the Conference of the Parties on its thirteenth session) (henceforth referred to as Bali Action Plan).
[447] Ibid., preamble para. 4.
[448] Rajamani 2013, p. 158.
[449] Ibid.
[450] Ibid.
[451] Ibid.
[452] Bali Action Plan, art. 1(b)(i).
[453] Ibid., art. 1(b)(ii).
[454] Copenhagen Accord (adopted 18 December 2009 during the Conference of the Parties on its fifteenth session).
[455] Cancún Agreement (adopted on 11 December 2010 during the 2010 United Nations Climate Change Conference).
[456] Rajamani 2013, p. 152-153.
[457] Ibid., p. 159.

process."[458] Nonetheless, a large majority of States (141 to be exact) have submitted pledges following this accord. The Copenhagen Accord allowed for States "to self-select and list mitigation commitments and actions",[459] and thus replaces "a regime of differentiation in favor of developing countries with a regime of differentiation for all countries, providing flexibility for all."[460]

The 2010 Cancún Agreement uses the building blocks from the Copenhagen Accord by permitting "self-selection of mitigation targets and actions and auto-listing by Parties."[461] The Cancún Agreement furthered the idea of parallelism by including "identical framing and tone and by leveling the requirements placed on developed and developing countries."[462] Within this new agreement, developing countries "aim at achieving a 'deviation in emissions relative to business as usual' by 2020."[463]

The latest development of the principle of common but differentiated responsibilities can be seen within the 2015 Paris Agreement. Within the preamble of the Paris Agreement, it is stated that the objective of the Convention is to be guided by the principle of "common but differentiated responsibilities and respective capabilities, in the light of different national circumstances."[464] This principle is reiterated within Article 2(2) of the Paris Agreement to outline that the target of the Paris Agreement is to be implemented with this principle in mind.[465] Moreover, this principle is to be kept in mind when assessing a State's initial and successive NDCs as outlined in Article 4(4) of the Paris Agreement.[466] The Principle of common but differentiated responsibilities and respective capabilities has allowed for flexibility in three areas: (1) mitigation, (2) transparency, and (3) finance.[467] Firstly, this principle allows for differentiation in mitigation by way of self-differentiation.[468] It also allows for flexibility by asking for the 'highest possible ambition' with each successive NDC allowing for States to identify their respective capabilities.[469] Secondly, this principle allows for flexibility in terms of the implementation of the transparency framework, laid out in Article 13 of the Paris Agreement,[470] including "in the scope, frequency, and level of detail of

[458] Rajamani 2013, p. 152-153.
[459] Ibid., p. 160.
[460] Ibid.
[461] Ibid., p. 161.
[462] Ibid.
[463] Ibid., p. 162.
[464] Paris Agreement, preamble para. 3.
[465] Ibid., art. 2(2).
[466] Ibid., art. 4(4).
[467] Bodansky et al. 2017, Paris Agreement, p. 222-224.
[468] Ibid., p. 224.
[469] Ibid.
[470] Ibid., p. 225.

reporting, and in the scope of review."[471] Lastly, the principle allows for flexibility in terms of finances. The Paris Agreement expanded the donor base, allowing for developing countries to "provide such support voluntarily."[472] However, the Paris Agreement still ensures support to developing countries and it "remains a central crosscutting feature of the climate regime."[473]

All in all, the principle of common but differentiated responsibilities has seen some development through the years and throughout the development of the climate change regime. It takes time for principles to evolve naturally and for States to allow new responsibilities put on them. The latest development allows for States to self-determine the extent to which they can address climate change, given their national circumstances. This gives States a large degree of discretion whilst drafting their NDCs and which measures to include within it. Allowing States the discretion to evaluate their own individual capabilities goes hand in hand with the principle of state sovereignty, and sovereignty over natural resources. The principle of sovereignty brings forth the argument that States would know best how to deal with their circumstances and natural resources, as they have sovereignty over them. However, this could in turn lead to suboptimal results as States could mis-identify themselves, and not necessarily on purpose. As all of this is quite a new development with the climate change regime, the future COPs, and especially the first global stocktake at the end of 2023, will reveal whether or not this has played a role in the ability to effectively address the climate crisis.

4.2.4. Interim Conclusion

This section has shown the development of some legal principles within the regime of climate change throughout the years and the important role that States have played in their development, as well as its interlinkage with the principle of sovereignty and sovereignty over natural resources. A legal principle is mainly developed, and evolving, through State action. Thus, States, through the use of their sovereignty and role as lawmakers at the international stage, have played an irreplaceable role in the development of the field of climate change law and its principles. Nonetheless, this means that they also have an immense responsibility and discretion to dictate the degree to which a principle or approach will be developed at the international level and evolve to include new obligations within it. The precautionary approach is a great example of this. It is daunting for States to establish

[471] Bodansky et al. 2017, Paris Agreement, p. 225.
[472] Ibid., p. 226.
[473] Ibid.

something as a principle as it means bounding themselves to further responsibilities and imposing further duties.

4.3. States as Actors Which Have, And Are, Contributing to Climate Change

As seen in the past two subchapters, States have played a central role in the development of the climate change regime through the adoption of multilateral agreements and the development, and continuous evolution, of legal principles and approaches. On the other side of the spectrum, States are actors which have benefited, and are still benefiting, economically and socially throughout the years by emitting CO2 emissions. This subchapter will explore the ways in which States have contributed to the climate crisis through their economic and social development, and which has played an important role in how the climate crisis has been framed at the international stage.

By the start of the Second World War, a large part "of the world's population was living under the sovereignty of a colonial power, for the most part European."[474] From 1945 onwards, the colonies had started to rebel against their colonial powers to fight to gain their independence. This started with now-a-days India and Pakistan fighting for their freedom against the British, followed by Indochina in the east, and then finally the African colonies, with Portugal being the last State to give up its colonial powers.[475]

The newly independent States all around the world then "sought to develop new principles and rules of international law in order to assert and strengthen their position in international relations and to promote their social and economic development."[476] This led to the development of the principle of sovereignty over natural resources, as introduced in chapter 2 of this thesis. The industrialized countries of the time, which had had a colonial rule, were opposed to this as it would mean the loss of allowance, or restriction thereof, to exploit the resources of the newly independent States.[477] In 1946, there were 35 member States party to the United Nations, and by 1970 there were 127 members.[478] The developing States introduced this new principle within United Nations (UN) debates, and it developed not "in isolation, but as an instrument used during or as a reaction to international political

[474] The Map as History 2018, <https://www.the-map-as-history.com/Decolonization-after-1945> (last accessed 21 May 2023).
[475] Britannica 2023, <https://www.britannica.com/topic/Western-colonialism/The-Sinai-Suez-campaign-October-November-1956> (last accessed 21 May 2023).
[476] Schrijver 2000, p. 1.
[477] Ibid.
[478] Office of The Historian n.d., <https://history.state.gov/milestones/1945-1952/asia-and-africa> (last accessed 21 May 2023).

events."[479] Newly-independent States and lesser developed States around the world began to see a rise in economic development from the 1960s onwards, helped by the implementation of development programs set by the international community.[480] Some argue that the "global north has imposed on the global south a development model based on the unconditional exploitation of nature and human beings."[481] Investors from the global north "saw a great opportunity for profit in the vulnerability of working class and of marginalized communities in developing countries"[482] of which you can still see the effects of today. This is due to the fact that colonialism "was a form of subjugation: it destroyed local knowledge and inflicted violence through cultural denial, exploitation of natural resources and political oppression."[483] It was difficult for newly freed States to start from the bottom and build their country up again. The colonizers had acquired a large part of their wealth and natural resources for their own benefits.[484] Colonialism "remains one of the most destructive phases of human history",[485] having widely destroyed ecosystems on the basis of economic growth. Colonialism and its practices largely defined our modern-day definition of development, and how to divide developed and developing countries.[486] These distinctions are then used in regimes such as the climate change one to differentiate responsibilities and State capabilities. The wealthier, more developed States, those which have mainly benefited during the colonial era, are "responsible for 80% of historical global emissions, and yet their population share is just 20%."[487] However, as Michael Parenti declared, "these countries are not 'underdeveloped', they are over exploited."[488]

During the Glasgow summit, a COP meeting for the Paris Agreement in 2021, one of the major disagreements revolved around climate justice. An alliance of the 47 least developed Countries within the Paris Agreement argued that, for example, the country of "Bhutan bears little responsibility for global warming [... yet it] faces severe risks of rising temperatures, with melting glaciers in the Himalayas already creating flash floods."[489] Whereas, "the accumulation of wealth and power in the hands of the few means that those

[479] Schrijver 1995, p. 3.
[480] World Bank 1977, p. v.
[481] Singh 2023, p. 1.
[482] Ibid.
[483] Ibid., p. 3.
[484] Ibid.
[485] Ibid., p. 4.
[486] Ibid., p. 2.
[487] Singh 2023, p. 6.
[488] Parenti 1986, <https://www.youtube.com/watch?v=odWerz1Az6k> (last accessed 21 May 2023).
[489] The New York Times 2021, <https://www.nytimes.com/interactive/2021/11/12/climate/cop26-emissions-compensation.html> (last accessed 21 May 2023).

most responsible for climate change are likely to adapt to changing conditions,"[490] rendering them unharmed by the climate crisis longer. This shows that the less developed countries have been "systematically left behind by the post-colonial capitalist economic system."[491] Throughout the development of the climate change regime, and since its early days, it is developing countries which are the most at risk of climate change that have been pushing for stronger measures and agreements. For example, the Alliance of Small Island States (AOSIS) have been pushing for strong commitments since the creation of the UNFCCC.[492] The call for increased support was not met with open arms during the summit, and it is only the government of Ireland which pledged to allocate 2.7 million dollars "for victims of climate disasters."[493] States must thus be willing and able to support developing ones in the fight against climate change, and get discretion to decide their position.

Vanuatu has launched a successful initiative in 2023 to form "a global coalition of 132 Co Sponsoring countries adopting a UNGA Resolution calling for an Advisory Opinion on Climate Change from the [ICJ]."[494] They have done so as the ICJ is the only principal UN organ which has yet "been given an opportunity to help address climate change."[495] They ask the ICJ to clarify "how existing International Laws can be applied to strengthen action on climate change, protect people and the environment and save the Paris Agreement."[496] This could very well cause a major shift within the climate change regime, and restrict the principle of sovereignty of all States to ensure a stronger set of measures to curb emissions worldwide.

Another positive development in recent times is the call from the president of Ireland for "a paradigm shift towards a more inclusive Ireland."[497] The president denounced the "limits of the neoliberal paradigm"[498] and was thus very critical over "the economic policies of successive governments that have prioritized growing the economy over the realities of climate change."[499] He proposes to "move away from a 'growth narrative' [...because…] growth requires an increase in output which requires more resources which is the very thing

[490] Singh 2023, p. 7.
[491] Ibid., p. 8.
[492] Bodansky et al. 2017, Evolution of the United Nations Climate Regime, p. 102.
[493] The New York Times 2021, <https://www.nytimes.com/interactive/2021/11/12/climate/cop26-emissions-compensation.html> (last accessed 21 May 2023).
[494] Vanuatu ICJ Initiative n.d., <https://www.vanuatuicj.com/> (last accessed 21 May 2023).
[495] Ibid.
[496] Vanuatu ICJ Initiative n.d., <https://www.vanuatuicj.com/> (last accessed 21 May 2023).
[497] Buzz 2023, <https://www.buzz.ie/news/irish-news/higgins-bad-economics-speech-ecological-29845957> (last accessed 21 May 2023).
[498] Ibid.
[499] Ibid.

that the planet is being depleted of."[500] Although there is yet to be concrete implementation of this with Irish regulations, this new form of rhetoric from a western Head of State could lead to a paradigm shift away from the current neo-liberal capitalist market, and possibly towards a system which takes into account planetary boundaries and the wellness of the Earth System as a central focus.

However, a lot of work remains to be done in this department as the International Energy Agency has recorded that governments worldwide have "spent more €900 billion on fossil fuel subsidies in 2022, [which is] the highest figure ever recorded."[501] It is thus clear that States continue to contribute to the climate crisis by supporting the fossil-fuel industry. Most of the countries in our world today operate under a capitalist model. It seems to be a taboo topic to address within the regime of climate change, along with the topics of constant economic growth and neoliberalism.[502] This is why the address from the Irish president is extremely significant. Monboit[503] outlines in a Guardian article, that "the main cause of your environmental impact is your money."[504] He further describes that capitalism protects a reality in which "people are extremely rich because others are extremely poor: massive wealth depends on exploitation,"[505] such as the exploitations by the colonial powers in their colonies. States aim for long term economic growth, backed by capitalist ideals, but this only "leads to the increased consumption of natural resources, pollution, and loss of biodiversity and simultaneously widens the income gap between the wealthy and the poor."[506] However, it is impossible for modern-day society to say that the rise of mass-production and technologies which were introduced during the industrial revolution were wrong. These advancements led to the increased standard of living of millions of people, improved healthcare, led to the inclusion of minority groups by officially giving everyone access to basic human rights, and much more. Some will argue that the climate crisis was inevitable, and simply a part of human existence on this planet.[507] Nonetheless, States have an important role in defining the

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[500] Buzz 2023, <https://www.buzz.ie/news/irish-news/higgins-bad-economics-speech-ecological-29845957> (last accessed 21 May 2023).
[501] Euronews 2023, <https://www.euronews.com/green/2023/02/20/energy-crisis-governments-spent-more-than-900-billion-on-fossil-fuel-subsidies-in-2022> (last accessed 21 May 2023).
[502] The Guardian 2021, <https://www.theguardian.com/environment/2021/oct/30/capitalism-is-killing-the-planet-its-time-to-stop-buying-into-our-own-destruction> (last accessed 21 May 2023).
[503] Ibid.
[504] Ibid.
[505] The Guardian 2021, <https://www.theguardian.com/environment/2021/oct/30/capitalism-is-killing-the-planet-its-time-to-stop-buying-into-our-own-destruction> (last accessed 21 May 2023).
[506]Pit Journal 2020, <https://pitjournal.unc.edu/2022/12/24/how-capitalism-is-a-driving-force-of-climate-change> (last accessed 21 May 2023).
[507] The University of Manchester 2021, <https://sites.manchester.ac.uk/global-social-challenges/2021/05/05/is-thefundamental-cause-of-climate-change-capitalist-economic-growth/> (last accessed 21 May 2023).

future of human beings on this planet and play an important role in the efforts which can be enacted to protect the Earth's system as much as possible.

Partly shielded by the principle of sovereignty over their territory and natural resources, States have had to try to find a balance within the regime of climate change as both actors contributing to climate change, and as actors being in charge of addressing the (super) wicked problem of climate change. However, we see that it is a hard task for States, with varying interests they must balance and take into account when deciding which climate measures they are willing to enact and bind themselves to.

4.4. Interim Conclusion

In conclusion, this chapter explores the ways in which States have played a role in the development of the regime of climate change. On the one hand, States have played a major role as the primary law-makers by adopting multilateral agreements, such as the UNFCCC, the Kyoto Protocol and most recently the Paris Agreement. States have also played a central role in the development of legal principles and approaches within the regime of climate change with notably the no-harm principle, the precautionary approach and the principle of common but differentiated responsibilities. On the other hand, States have also played an undeniable role in the development of the climate crisis through the continuous emissions of greenhouse gas emissions. This can be seen through social and economic development of States around the globe. This allowed for a rise in standards of living, but also brought about the climate crisis as it is today undeniable that the exponential rise of human activities has led to this crisis.

Chapter 5: Applying Earth System Law to the Climate Change Regime

In this last chapter, the critical lens of Earth System Law will be applied to the climate change regime to discuss whether this application would lead to more effective regulations in the regime of climate change. The sub-research question for this chapter is thus: *To what extent would applying the framework of Earth System Law lead to more effective regulations in the regime of climate change?*

5.1. (Super) Wicked Problems and Earth System Law

As defined in the introduction of this thesis, a super wicked problem has four main characteristics: "time is running out, those who cause the problem also seek to provide a

solution, the central authority [...] is weak or non-existent, and irrational discounting occurs."[508] As the current regime of climate change has not yet been able to adequately address the climate crisis, this subchapter aims at discussing whether Earth System Law would be a suitable alternative to address (super) wicked problems.

The first characteristic of (super) wicked problems is that time is running out. According to Levin et al,[509] "the notion that time is running out separates many environmental concerns from social challenges."[510] Social challenges, such as health, tend to be addressed within national governments until an appropriate solution has been found, as they are not considered (super) wicked problems. However, national politicians " wishing to address super wicked problems such as climate change [...] do not have the luxury of 'coming back' to the political system for a retry, exacerbating the 'one shot' problem."[511] As stated by the Secretary General of the United Nations, "we can act on climate change but time is running out."[512] With the current legal system, as discussed with chapter 4 above, States have discretion, due to the principle of sovereignty, in deciding how to address climate change. They have addressed it on the international stage since the early 90s, yet the climate crisis has only worsened since then. This can, for example, be seen by the fact that the "past eight years are on track to be the eight warmest on record."[513] Taking an Earth System-centric perspective through the lens of Earth System Law would, theoretically, bring the climate crisis to the top of all national and international agendas. This would ensure that the climate crisis will be continuously dealt with until an effective solution is found.

The second characteristic of (super) wicked problems is that "those seeking to end the problem are also causing it."[514] In the context of climate change, this is especially clear as outlined in chapter 4 above and throughout this thesis. States have a dual role within the regime of climate change as the actors which contribute significantly to climate change, and as those which have the authority to address it in a meaningful way. By using Earth System Law and through it, for example, adopting a polycentric model, non-State actors would be

[508] Levin et al. 2012, p. 124.
[509] Ibid.
[510] Ibid., p. 127.
[511] Ibid.
[512] UN Secretary General 2021,<https://www.un.org/sg/en/content/secretary-generals-statement-the-ipcc-working-group-1-report-the-physical-science-basis-of-the-sixth-assessment> (last accessed 21 May 2023).
[513] World Meteorological Organization 2022, <https://public.wmo.int/en/media/press-release/eight-warmest-years-record-witness-upsurge-climate-change-impacts> (last accessed 21 May 2023).
[514] Levin et al. 2012, p. 127.

able to contribute to the regulation of climate change and promote "knowledge exchange and capacity-building."[515]

The third characteristic of (super) wicked problems is that "the central authority needed to address them is weak or non-existent."[516] For the case of climate change, there is a sort of central authority present, that being the international order of governance.[517] The rise of modern international law serves as a centralized order in which to conduct any affairs between States. However, this is weakened by the principle of sovereignty and sovereignty over natural resources. These principles, as outlined with chapters prior to this one, allow States a large amount of discretion in which types of measures to enact. Applying an Earth System-focus instead of a State-centric one at the international level could allow the alleviation of some of their discretion. This would in turn restrict the principle of sovereignty even more, shifting the concept of sovereignty further away from "absolute and unlimited"[518] and towards a delimited concept.

The fourth and final characteristic of (super) wicked problems is that "policies discount the future irrationally."[519] Taking into account the three other characteristics discussed above, (super) wicked problems provoke a scenario where governments, "even in the face of overwhelming evidence of the risks of significant or even catastrophic impacts from inaction, make decisions that disregard this information and reflect very short time horizons."[520] One metaphor used by Levin et al.[521] is that of smoking.[522] Although smokers know that there is a high probability that smoking causes considerable health issues, which can lead to death, they still choose to smoke "based on immediate gratification."[523] This is synonymous to climate change, as even though States know that the climate crisis will likely cause significant, potentially irreversible damage to human beings and the planet, given the choice, they still continue to pick the option with instant gratification, which most likely is not the option which helps us save the world from the climate crisis. However, this is not completely true as States have made, and are still making, attempts to address the climate crisis at the international stage. This can for example be seen by the fact that 110 countries

[515] Hale 2018, p. 1.
[516] Ibid., p. 127-128.
[517] The international order was defined by George Lawson in Lawson 2020, p. 40 as "regularized practices of exchange among discrete political units that recognize each other to be independent."
[518] Snyman-Ferreira 2006, p. 28.
[519] Levin et al. 2012, p 128.
[520] Ibid.
[521] Ibid.
[522] Ibid.
[523] Ibid.

around the world have pledged to become carbon neutral by 2050.[524] However, long term policies, such as a strong implementation of the rights of future generations, are harder to implement in today's society.[525] The principle of sovereignty and sovereignty over natural resources provide a foundation for States to set their national policies as they please, and national governments tend to lean more towards short-term ones.[526] Theoretically speaking, the application of Earth System Law would promote the implementation of long-term regulations which systematically takes into account the future. This would improve the rational decision making and implementation of regulations at the international stage.

All in all, through the use of Earth System Law and the adoption of an Earth System-centric approach, the (super) wicked problem of climate change could potentially be more efficiently addressed. Each characteristic of (super) wicked problems could be, at least partially, addressed through Earth System law which could lead to the end of the inability to address (super) wicked problems. The question remains, what is an effective regulation of climate change?

5.2. What are Effective Regulations in the Climate Change Regime?

When discussing which regulations would be best suited to effectively address climate change, it is important to exactly define what effectiveness entails. Throughout the research conducted for this thesis, three different definitions of effectiveness were found. Within the introduction of the thesis, the traditional definition of what an effective law is, given by Allot,[527] was introduced. Within the climate change regime, only the IPCC defines effectiveness within its reports.[528] Lastly, Earth System Law also defines what effectiveness would mean within a legal regime which is Earth System-centric.[529]

Allot[530] defines the effectiveness of a law as being able to realize its objectives.[531] Within the context of climate change, this would thus mean that States have implemented effective regulations if they manage to reach the goals set within the Paris Agreement, this being to "limit the temperature increase to 1.5°C above pre-industrial levels."[532] At first

[524] Net0 2022, <https://net0.com/blog/net-zero-countries#:~:text=By%202020%20more%20than%20110,the%20largest%20emitter%20by%202060.> (last accessed 21 May 2023).
[525] Spurling 2020, p. 1.
[526] Levin et al. 2012, p. 128.
[527] Allot 1981.
[528] IPCC 2022, p. 7.
[529] Kotzé and Kim 2019, p. 4.
[530] Allot 1981.
[531] Ibid., p. 233.
[532] Paris Agreement, art. 2(1)(a).

glance, one may think that this is an acceptable way of measuring the effectiveness of regulating climate change at the international level since it is a target set by States within international law to hold them accountable and measure their progress towards limiting the global temperature rise. However, accepting this definition of effectiveness would mean that we accept the status quo and the role of the principle of sovereignty, and sovereignty over natural resources, has played in the development of the current regime. Can this definition of effectiveness, i.e. meeting the 1.5°C Paris target, be an effective way of measuring the regulation of climate change if it was mandated within the current legal paradigm, which is so heavily influenced by the principle of sovereignty, and sovereignty over natural resources? I argue that we cannot accept this as our measure to evaluate effectiveness because the Paris target was set under this legal regime which allows States discretion through the principle of sovereignty. The 1.5°C goal is the result of international state diplomacy, so this goal has been set by States in the enactment of their sovereignty within the current legal regime. That same legal regime which is not on track to meeting this goal.

Another definition of effectiveness can be found within some IPCC reports. The IPCC report from 2022 defines effects as "the extent to which an action reduces vulnerability and climate-related risk, increases resilience, and avoids maladaptation."[533] This definition is more scientific and allows for a more complex analysis of how to measure the effectiveness of a regulation within the regime of climate change. However, this way of measuring effectiveness misses the inclusion of an ecosystem-based approach. The ecosystem-based approach "emerged as a key instrument to confront [the concerns of climate change] across sectors of business and society, offering multiple benefits in a potentially cost-effective manner."[534] It is therefore important in my opinion to ensure that the ecosystem-based approach is included within the evaluation of effectiveness of a regulation.[535]

Lastly, this brings us to the, potentially, newest definition of effectiveness which could be used to evaluate regulations within the climate change regime. This is the definition of effectiveness brought forwards by Earth System Law. Earth System Law scholars defines that:

> "effective environmental legislation must at minimum act as legal boundaries that prevent human activities from reaching and breaching planetary boundaries, defined as the safe space for mankind to operate within…in other words, legal

[533] IPCC 2022, p. 7.
[534] Environmental Change Institute 2011, p. 2.
[535] Further readings on the ecosystem based approach and its importance: Tarlock 2008, p. 574-595; Muang 2013, p. 67-71; Chong 2014, p. 391-405.

> boundaries must translate the physical reality of a finite world into law and thereby delimit acceptable levels of human activity."[536]

This definition of effectiveness goes beyond the use of the ecosystem approach and includes the concept of planetary boundaries. This concept was coined in 2009[537] when a group of scientists aimed "to identify the processes that regulate the stability and resilience of the Earth System."[538] They identified nine planetary boundaries and this concept aims to "provide a science-based approach to understanding the limits of the Earth's capacity to support human development, while also ensuring that human activities do not exceed these limits"[539] which would generate permanent damage to the Earth's system. Earth System Law includes the concept of planetary boundaries within their definitions of measuring effectiveness because current "environmental law has failed to keep humanity from crossing critical planetary boundaries."[540] When reimagining the legal regime, it is imperative, in the eyes of Earth System Law, to include planetary boundaries within the definition of effectiveness to ensure the wellbeing of the Earth System. This is because the current legal regime has already "failed to meaningfully contribute to regulatory efforts that aim to keep humanity from reaching and breaching these boundaries."[541] Still, this way of measuring a regulation's effectiveness is not without its flaws. First of all, for such a definition to be used at the international level would currently require States to consent to it, because of the principle of sovereignty. This is arguably the hardest step in accomplishing a restructuring of the legal regime from State-centricity to an Earth System-focus. It does not necessarily mean the abolition of the principle of sovereignty, but it would require a significant shift of decision-making power from States to a new entity/organization which would have the power to enact climate change regulations without axiomatically asking States for consent. Secondly, even under an Earth System-focused regime, it would still be a human being writing and enacting regulations to combat the climate crisis. It is natural for all humans to have some unconscious biases[542] or differing interests.[543] Thus, even in a world in which our legal system is Earth System-centric instead of State-centric, this may not be enough to adopt perfectly effective regulations within the regime of climate change.

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[536] Kotzé and Kim 2019, p. 4.
[537] BCG n.d., <https://www.bcg.com/capabilities/climate-change-sustainability/nature-based-solutions/planetary-boundaries> (last accessed 21 May 2023).
[538] Ibid.
[539] Ibid.
[540] Kotzé and Kim 2019, p. 4.
[541] Ibid.
[542] Cuellar 2017, p. 333.
[543] I.e., sustainable development, increasing life standards, health standards, or power / monetary gain.

Although the adoption of perfectly effective regulations is near-impossible to achieve currently, it is important to use a measuring rod of effectiveness which reflects the ideal. Thus, I would endorse the use of the definition brought forwards by Earth System Law. This ensures that we strive to the best of our ability to "prevent human activities from reaching and breaching planetary boundaries",[544] and get as close as possible to that goal.

Applying the chosen definition of effectiveness to the current regime of climate change, we can see that the regime has not been able to adopt measures which ensure we do not cross any of the planetary boundaries. More importantly for the climate crisis is that there is a specific planetary boundary for climate change. "Recent evidence suggests that the Earth, now passing 390 ppm [particles per million] CO2 in the atmosphere, has already transgressed the planetary boundary and is approaching several Earth System thresholds."[545] The most important question currently is "how long we can remain over this boundary before large, irreversible changes become unavoidable."[546] States have adopted many measures and regulations, created working groups and financial schemes to deal with the climate crisis. However, since all of these efforts have been made within a State-centric system, instead of an Earth System-focused one, they have failed to adequately address this (super) wicked problem.

5.3. Applying Key Aspects of Earth System Law to the Climate Change Regime

In the previous subchapter, we have established that the definition of effectiveness given by Earth System Law is the most appropriate and we have established that the current climate change regime has not adequately addressed the climate crisis since it is too State-centric, due to the principle of sovereignty and sovereignty over natural resources. Within chapter 3, we explored the framework of Earth System Law and five key aspects which can help shift the climate change regime from a State-centric to an Earth System-centric model. Within this subchapter, we will explore how applying these five aspects to the climate regime may theoretically make it more effective at addressing climate change. Largely, by applying an Earth System-focus, the discretion of States and the principle of sovereignty, and sovereignty over natural resources, will be diminished. For each of the 5 aspects introduced in chapter 3, this subchapter will give an example of how to apply it to the regime of climate change to illustrate which measures could be introduced within this regime

[544] Kotzé and Kim 2019, p. 4.
[545] Stockholm Resilience Center 2015, <https://www.stockholmresilience.org/research/planetary-boundaries/the-nine-planetary-boundaries.html> (last accessed 21 May 2023).
[546] Ibid.

to start a shift towards being more Earth System-focused. It is first important to recognize that each of the five aspects of Earth System Law are interconnected and the implementation of one would lead to the, at least, partial implementation of another.

5.3.1. Becoming Normatively Ambitious

The first aspect of Earth System Law is to shift the legal regime towards being more normatively ambitious. Kotzé argues that if the regime of International Environmental Law wants to remain relevant in the decades to come and maintain its relevance, it "must provide for ambitious norms."[547] I argue that this is the same for the regime of climate change. When discussing how Earth System Law can normatively guide specific regimes within it, it is essential to address two relevant concepts: (1) the principle of sovereignty over natural resources and (2) the no-harm principle.[548] These two concepts give rise to tensions between "developed and developing countries; between economic development and environmental protection; and between restrictive and expansive conceptions of sovereignty."[549] These tensions are reflected within international environmental law, and more specifically within the climate change regime. From the perspective on Earth System Law, it is disappointing, and even unsettling, that the regime of climate change "lack[s] a systematic, forward-looking, and inclusive vision that is guided by planetary boundaries,"[550] because such a view would ensure that States are in line with their due diligence obligation under the no-harm principle. Within chapter 4.2.1, we have seen that the current climate change regime does not "fully embody the customary due-diligence obligation."[551] The adoption of an Earth System-centric model could embody the full implementation of the customary due-diligence obligation, ensuring that States would, ideally, always adequately follow its standard of care. Earth System Law seeks to start a discussion about how law should look like to provide the normative guidance which takes into account the fact that we currently live in the Anthropocene epoch.[552] The climate change regime could become more normatively ambitious in a number of ways. The normative ambition of a legal regime:

[547] Kotzé 2019, p. 215.
[548] Van Asselt, p. 2.
[549] Ibid.
[550] Ibid., p. 7.
[551] Maljean-Dubois 2021, p. 19.
[552] Van Asselt 2021, p. 7.

> "could relate to its legal character (binding or non-binding norms), the parties it applies to (States and Non-State), its geographical reach, measures for compliance and enforcement, [...], the political will and, finally, the substance of its norms."[553]

One way to increase the substance of its norms is to recognize "ecological norms such as rights of nature, Earth System integrity, and ecological sustainability."[554] However, "their adoption has been actively resisted by States who continue to claim exceptionalism and the protection of state sovereignty in efforts to avoid incurring ecological obligations."[555] After all, these all have the potential "to push for a radically different and more ambitious normative framework to address the systemic challenges"[556] within the climate crisis, but it would result in the further limitation of the principle of state sovereignty, and sovereignty over natural resources, which States are so dearly holding onto. The adoption of more normative norms would require an intentional shift from States to actively pursue an ambitious norm. The increase of the normative ambition of the climate change regime would probably require the increase in the role of non-State actors to bring forward different perspectives and interests to the decision-making process. This is because we have seen that the current regime, with States as the primary actors at the international stage, has not been able to increase its normative ambition.

5.3.2. Polycentricity

The second aspect of Earth System Law is the implementation of a more polycentric model. The adoption of a polycentric decision-making process within the regime of climate change would allow for, for example, an increase in normative ambition. Ostrom[557] concludes in her paper that:

> "the advantage of a polycentric approach is that it encourages experimental efforts at multiple levels, as well as the development of methods for assessing the benefits and costs of particular strategies adopted in one type of ecosystem and comparing these with results obtained in other ecosystems."[558]

Within a polycentric model, amongst other things such as the possibility of including different accountability mechanisms, a wider range of worldviews such as those of Indigenous communities could be more systematically included in meetings such as the Paris

[553] Kotzé 2019, p. 216.
[554] Ibid., p. 213.
[555] Ibid., p. 216.
[556] Ibid.
[557] Ostrom 2016.
[558] Ibid., p. 39.

COPs. Johnson and Sigona[559] argue that, for example, “Indigenous knowledge systems have the ability to challenge Western epistemologies and human-centered norms dominant in current environmental governance thinking.”[560] A systematic engagement “with some of the rich and varied viewpoints of Indigenous perspectives will be of value to global governance and policy efforts.”[561] Some countries, such as Ecuador, New Zealand and Australia have already started to include “Indigenous ideas and values as normative referents in mainstream environmental governance and legislative efforts.”[562] Indigenous communities often practice “the notions of ‘keeping good relations’ and ‘reciprocity’”[563] which, if applied worldwide, would promote a shift towards an Earth System-centric model. The former concept accentuates the fact that “all beings - plants, animals, marine life, insects, elders, youth, men, women, etc.- are considered relatives through a complex web of interconnectedness.”[564] The latter refers to the fact that we each have an “on-going obligation to maintain balanced and harmonized relations with social, ecological, and spiritual realms.”[565] The recognition of these two concepts at the international stage would, however, require the recognition of a further limitation of a State’s sovereign powers. This is because these concepts would require an immense amount of cooperation on a global scale to come to a common agreement with regards to how natural resources should be used. This would thus require long negotiations and the need for a shift in worldview. If we are aiming at an Earth System focus instead of a State or individual one, then these notions would not be as far-fetched anymore.

5.3.3. Towards an All-embracing Onto-Epistemologies of Care

The third aspect of Earth System Law is the shift towards an all-embracing onto-epistemologies of care framework. Interlinked with the two aspects above, to shift towards an all-embracing onto-epistemologies of care would include the need to expand our current view of justice to identify environmental “risks that impact equity and justice [...] that affect all present and future human and non-human beings everywhere, and to consolidate and move towards a deeper understanding of intergenerational justice.”[566] A concrete example can be found within the general regime of international law with the World Charter

[559] Johnson and Sigona 2022.
[560] Ibid., p. 2.
[561] Ibid.
[562] Ibid.
[563] Ibid.
[564] Ibid.
[565] Ibid.
[566] Du Toit and Kotzé 2022, p. 6.

for Nature[567] "which emphasizes the protection of nature as an end in itself."[568] However, there is no explicit mention of this within the regime of climate change and its multilateral agreements. The acknowledgement of such a concept would enable the shift towards more focus being put on the wellbeing of the Earth System, and away from a human/State-centric model.

5.3.4. The Complexity of the Anthropocene Epoch

The fourth aspect of Earth System Law is the acknowledgement of how complex the Anthropocene epoch is compared to the Holocene one. This aspect is deeply related to the other 4 aspects, as the basic starting point for all these discussions is that we find ourselves in a different epoch, and thus must shift our perspective towards an Earth System one. To acknowledge the complexity of the Anthropocene epoch would require the overt recognition of the structural drivers which are partly responsible for the switch to a new epoch. One of these structural drives is the promotion of long term economic growth by States.[569] The current international law regime has seen strong "global normative ambition [on] projects that promote the kind of neoliberal economic development that structurally exacerbates the drivers of the Anthropocene; not the other way around."[570] For the regime of climate change to remain relevant, it must become more normatively ambitious, however, these "norms are seen (quite rightly so [...]) to restrict the short-term focused, neoliberal, capitalist, growth-without-limits agenda."[571] This shift will thus be met with forceful "resistance from those actors that have vested interests in perpetuating this agenda,"[572] i.e., States. It is thus important to include other viewpoints within the decision-making process to combat the resistance upheld by States and other actors such as multinational corporations. However, if this recognition does not occur soon, "the world will [...] speedily move towards environmental tipping points from which there is no hope of return."[573]

5.3.5. A Holistic Earth System Focus

Lastly, the fifth aspect of Earth System Law is that the legal regime should have a holistic Earth System focus. This would mean that although the focus of the thesis is to

[567] World Charter for Nature UNGA (adopted on 28 October 1982).
[568] Du Toit and Kotzé 2022, p. 6.
[569] Kotzé 2019, p. 221.
[570] Ibid.
[571] Ibid., p. 224.
[572] Ibid.
[573] Atapattu 2021, p. 185.

discuss the possibility of this shift at the international stage, it would then need to be implemented within each national jurisdiction. Every national or regional lawyer, judge, or other lawmaker under the jurisdiction of a State, would need to ensure that they include the notion of planetary boundaries, Earth System wellbeing or something of the sort while applying the law. To exemplify this more concretely, I will use the case of *Greenpeace Nordic Ass'n v. Ministry of Petroleum and Energy (People v Arctic Oil)*,[574] brought forward to the Oslo District Court in 2016. The plaintiffs argued that the Royal Decree of 10 June 2016, which awards "a block of oil and gas licenses for deep-sea extraction from sites in the Barents Sea"[575] is invalid as it breaches Section 112 of the Norwegian Constitution.[576] Section 112 of the Norwegian Constitution "establishes a 'right to an environment that is conducive to health and to a natural environment in which productivity and diversity are maintained'."[577] The plaintiffs argued that these licenses "would allow access to [...] undeveloped fossil fuel deposits, and such development is inconsistent with the climate change mitigation required to avert global warming of 1.5°C."[578] However, the Oslo district court, and later the Norwegian Supreme Court, ruled in favor of the Norwegian Government, stating that "the government did not violate any relevant rights because it had fulfilled the necessary duties before making the licensing decision."[579] Moreover, the Courts outlined that "emissions of CO2 abroad from oil and gas exported from Norway are irrelevant when assessing whether the Decision entails a violation of Article 112."[580] The Supreme Court adds that it can only become a violation of Article 112 if it directly impacts or causes damage in Norway.[581] This Court case shows that the current climate change regime in Norway does not fully embrace the fact that we currently live in an integrated, interconnected ecosystem. Moreover, this case clearly shows the impact of the principle of sovereignty and sovereignty over natural resources. If the Norwegian Court would accept the arguments brought forwards by the plaintiffs, then it would open the floodgates to countless other cases due to the large oil and gas operations currently ongoing within the Norwegian territory. Furthermore, this shows the individuality that the principle of sovereignty brings to the international stage. Each

[574] Greenpeace Nordic Ass'n v. Ministry of Petroleum and Energy (People v Arctic Oil), district court judgment held 01-04-2018.
[575] Climate Case Chart 2020, <http://climatecasechart.com/non-us-case/greenpeace-nordic-assn-and-nature-youth-v-norway-ministry-of-petroleum-and-energy/> (last accessed 21 May 2023).
[576] The Norwegian Constitution (adopted on 17 May 1814), section 112.
[577] Climate Case Chart 2020, <http://climatecasechart.com/non-us-case/greenpeace-nordic-assn-and-nature-youth-v-norway-ministry-of-petroleum-and-energy/> (last accessed 21 May 2023).
[578] Ibid.
[579] Ibid.
[580] Ibid.
[581] Ibid.

national court only concerns themselves with domestic affairs, and cannot comment on the impact of emissions elsewhere. However, this is no longer possible within the Anthropocene epoch. Emissions from one country do affect the wellbeing of individuals on the other side of the planet, and that is the challenge we face with (super) wicked problems.[582] If the global world order would adopt a holistic Earth System focus, national courts, such as the Norwegian ones, would have to factor in the fact that their exported oil and gas will negatively affect the Earth System, and worsen the climate crisis.

In conclusion, this subchapter explored how the application of Earth System Law to the regime of climate change could concretely contribute to more effective regulations at the international stage. If we follow the definition of effectiveness from chapter 5.2, then the application of any of the examples brought forwards in this subchapter could theoretically lead to more effective climate change regulations. This is because they take into account the fact that we must move towards an Earth System focus, even though this will not come without its challenges due to the principle of sovereignty, and sovereignty over natural resources. Ultimately, the hardest step in shifting the legal regime from State-centric to an Earth System focus may be the initial acknowledgment required by States in order to get the ball moving. From that point on, any small step towards the recognition of the need to be more normatively ambitious, polycentric, embracing onto-epistemologies of care, recognizing the complexity of the Anthropocene epoch and adopting a holistic Earth System focus will be a step in the right direction.

5.4. Interim Conclusion

This chapter aimed at analyzing to what extent the application of the Earth System Law framework would lead to more effective regulations in the climate change regime. It is difficult to exactly quantify the extent to which the application of an Earth System focus would lead to more effective climate change regulations, however, it is clear that it would improve it. Theoretically speaking, Earth System Law seems to be a framework which fits well to address (super) wicked problems, such as climate change, as all of the aspects of (super) wicked problems could be addressed with this framework. We then saw that there are currently multiple ways of measuring effectiveness within the climate change regime; (1) there is the traditional definition of legal effectiveness, that of reaching the goal set by the lawmaker, (2) the IPCC reports have defined what it means for a regulation to be effective in the regime on climate change, and (3) the definition provided by Earth System Law. For the

[582] Adaptation without Borders 2021, p. 2.

purpose of this thesis and this specific chapter, the definition provided by the framework of Earth System Law allows for an analysis of the extent to which the current climate regime adopts measures with the concept of planetary boundaries in mind or not. To shift towards a legal regime which has the Earth System as its focus instead of States, it is crucial to integrate the concept of planetary boundaries within the definition of what an effective law is. Lastly, we looked at the key aspects of Earth System Law and how they could be integrated within the regime of climate change. Each of the examples proposed may individually seem as small, or having negligible impact, however, considered altogether they can be very impactful and provide significant change within the legal regime, and more specifically the climate change one. Nonetheless, the question remains whether these changes, which will likely be small and incremental, be enough to avoid the Earth System reaching irreversible tipping points. Or whether forceful, strong, action would be needed within the next decade will be needed to ensure we shift to an Earth System focused worldview before it is too late.

Chapter 6: Conclusion

This thesis has aimed at answering the extent to which the principle of state sovereignty over natural resources hinders the effective regulation of climate change at the international stage. It is clear throughout this thesis that States have a dichotomous dual role to play within the regime of climate change. On the one hand, they have, in a way, created and are still benefiting from the climate crisis (albeit at different degrees due to the climate injustice) by creating and maintaining the current liberal capitalist, with the eternal economic growth cycles, models which is currently the dominant ecosystem system in the world. On the other, States are the primary lawmakers within international law and must consent to all new measures enacted to combat the climate crisis.

Chapter 2 looked at the current legal standing of the principle of sovereignty and sovereignty over natural resources, concluding that these principles have evolved over time to adapt to the modern circumstances they face. The principle of sovereignty has evolved into a limited concept and could see itself be continuously limited to ensure the effective regulation of climate change is achieved. Chapter 3 introduces the framework of Earth System Law and how it provides us with a lens through which to analyze the regime of climate change. This framework argues for a shift from a State-centric model to an Earth System centric model. Five key aspects of this Earth System focused model are analyzed to show what it would take to make this shift. To shift to an Earth System-centric model, the regime of climate change

must become more normatively ambitious, adopt a polycentric model, embrace onto-epistemologies of care, acknowledge the complexity of the Anthropocene epoch and take a holistic Earth System focus. Chapter 4 explored the development of the current climate change regime and the role of states within it. The thesis found that States have attempted to address climate change through the establishment of the UNFCCC and the Paris Agreement, as well as with the use of legal principles, such as the no-harm principle, the precautionary approach and the common but differentiated principle. However, we have seen that the principle of sovereignty, and sovereignty over natural resources, has impacted the ability to fully address the climate crisis.

We, thus, still find ourselves with a climate change regime whose development is, at least partially, restricted by the principle of sovereignty and sovereignty over natural resources. The shift towards an Earth System-focus, discussed within chapter 5, is currently mainly a theoretical discussion as it is difficult to imagine a reality in which States would accept to further limit this principle and acknowledge the faults of our current economically liberal world. Acknowledging this would mean the need to reimagine the entire political and economic system of the world and we currently do not have any models which would be adequate enough to shift to. Fully committing to an Earth System focused model includes a conscious shift towards a potentially new paradigm, which may ultimately take a lot of time to achieve. The well-being of the Earth System is a top priority in order to combat the climate crisis, however States cannot ignore other immediate priorities, such as energy security and ensuring a minimum standard of living for all its citizens. It would be interesting to further research the interaction and tension between those explored within this thesis and energy security or the accomplishment of the sustainable development goals. Climate change is a (super) wicked problem, and that means that there is no single perfect solution which can be found to address it perfectly. Instead, many varying interests must be taken into account to try and find multiple avenues to address all its facets. Earth System Law provides us with a critical view that the principle of sovereignty is an important driving factor in the possibility of effectively addressing the climate crisis. We must continuously learn from our failed attempts and implement new regulations until we find those which work. States have tried to address climate change since the 1990s at the international stage and have not been able to address all of the drivers of the climate crisis. It may be time for them to acknowledge this and allow non-state actors to be part of the legal decision making process to start a potential paradigm shift towards an Earth System centric model and the phasing out of the principle of sovereignty.

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