

A Global Guardian to Address the Ecological Crisis

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Dedication

To my children Tumas, Lucia and Anna.

To *all* children.

Declaration of Authenticity

I, the undersigned, Roberto Debono [REDACTED] declare that this thesis is my original work, gathered and utilised especially to fulfil the purpose and objectives of this study, and has not been previously submitted to any other university. I also declare that the publications and archival material cited in this work have been personally consulted.

Roberto Debono
[REDACTED]

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Abstract

The current global ecological crisis poses an existential threat to humanity. It is characterised by complexity, urgency, inertia and irreversibility, and has serious implications for future generations. The thesis develops the case for a global guardian – a constitutionally limited, legitimate coercive global authority – to secure ecological sustainability. The case is made on the basis of a theoretical framework that is firmly rooted in normative political philosophy and that draws on contractarianism, liberalism, republicanism and deliberative democracy, among others. Through this theoretical lens, I have argued that there is a legitimate case for the development of a globally-binding legal framework that provides effective protection to the global ecological commons as a global public good. A refined conceptual understanding of the global ecological commons is developed to refer to goods that are necessary for the maintenance of Holocene-like conditions on Earth. I have also elaborated three ethical principles of distributive justice that would serve to guide the fair distribution of access to the global ecological commons among states. Finally, the concept of global guardianship is linked to four principles of good governance which are presented as necessary conditions for legitimate global governance. These are sufficiency, subsidiarity, democracy and solidarity. The thesis develops the normative case for global guardianship as a realistic utopia and identifies conditions that are necessary for its realisation.

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List of Abbreviations

CBD – Convention on Biological Diversity

CFP – Common Fisheries Policy

CSO – Civil Society Organisation

EEZ – Exclusive Economic Zone

G7 – Group of Seven

GEO – Global Environment Organisation

GHG – Greenhouse Gases

IEA – International Energy Agency

IGO – Intergovernmental Organisation

IMF – International Monetary Fund

INGO – International Non-Governmental Organisation

IPBES – Intergovernmental Panel on Biodiversity and Ecosystem Services

MPA – Marine Protected Area

NGO – Non-Governmental Organisation

OECD – Organisation for Economic Cooperation and Development

OECMS – Other Effective Area-Based Conservation Measures

pH – potential of Hydrogen

PBF – Planetary Boundaries Framework

PRGF – Poverty Reduction and Growth Facilities

SAP – Structural Adjustment Programmes

TAC – Total Allowable Catch

TCC – Transnational Capitalist Class

TNC – Transnational Corporation

UN – United Nations

UNCLOS – United Nations Convention on the Law of the Sea

UNFCCC – United Nations Framework Convention on Climate Change

UNGA – United Nations General Assembly

UNTC – United Nations Treaty Collection

US – United States of America

UK – United Kingdom of Great Britain and Northern Ireland

WEO – World Environment Organisation

WHO – World Health Organisation

Introduction

The current global ecological crisis is a defining feature of the 21st century. It is an anthropogenic state of ecological disorder with serious implications to the survival of the human species (Mayhew, 2015). Unaddressed, it will likely lead to a planetary state shift which will make Earth relatively uninhabitable or inhospitable to the human species.

In this doctoral research I seek to examine the drivers of the ecological crisis and propose solutions to secure ecological sustainability, that is, ‘development that meets the needs of the present without compromising the [ecological conditions] of future generations to meet their own needs’ (adapted from Brundtland, 1987, Chapter 2, Article 1). More specifically, I draw on empirical evidence and theory across various disciplines to make the case in favour of global guardianship to address the ecological crisis. My approach is grounded in normative political theory where philosophy interfaces with Earth system science, economics, sociology, anthropology, ethics, and political science.

The dissertation takes the structure of an introduction, five main chapters, a shorter chapter on presuppositions, limitations and terminology, and a conclusion.

The first chapter is a literature review that includes the core elements of global commons, global environmental governance, and global democracy. It examines the evolving understanding and governance of global ecological commons from three perspectives. First, it traces the transformation of the conceptualisation of global ecological commons, from a traditional definition based on jurisdictional boundaries to a more refined understanding that incorporates an Earth system perspective. Second, it analyses institutional challenges and proposed reforms in global environmental governance. Finally, it explores the complex interplay between globalisation, democracy, and environmental governance, and the potential of deliberative democratic processes in global politics to address the global ecological crisis.

The second chapter deals with the philosophical methods and the theoretical framing of the thesis. The thesis is described as residing in the domain of normative political philosophy. It is argument-based, issue-oriented and seeks logical

coherence. It also seeks to reconcile several normative and positive principles in the case for global guardianship to address the ecological crisis. As a thesis in normative political philosophy, the research addresses issues related to justice, distribution of goods, legitimacy, collective decision making freedom and security, among others. Its positioning vis-à-vis moral and political philosophy is also described. It then proceeds to locate itself in comparison to established strands of political theory and discusses the extent to which it overlaps or diverges from these political ideologies. These include social contract theory, liberal theory, republicanism and deliberative democracy. This examination frames the position of the thesis on global ethics and global distributive justice, and the conceptualisation of international politics and law.

The third chapter seeks to present the scientific and socio-economic nature of the ecological crisis. It is divided into three sections. The first section is a description of the scientific nature and the defining attributes of the global ecological crisis. These include irreversibility, inertia, uncertainty, and urgency. The second section analyses the relationship between economic growth and ecological sustainability. It describes the role of neoclassical economic theory in ecological degradation and examines different understandings of economic growth. Furthermore, it provides a social critique of economic growth in relation to material affluence, human advancement, and income inequalities. It ends with a critique of the inter- and intra-political imperatives of economic growth. The third section examines the claim that market capitalism, rather than the economic growth imperative, is the root cause of the ecological crisis. This section provides an ecological, social and ethical critique of capitalism.

The fourth chapter advances the case for global guardianship to protect the global ecological commons. Based on the critique of the preceding chapters, I argue that a ‘global guardian’ – a constitutionally limited legitimate coercive global authority – is a necessary and a critical component in global multi-layered governance that seeks to achieve ecological sustainability and deliver distributive ecological justice. In this chapter, I further argue that the global guardian’s mandate is justified by the urgency for a far-reaching political, social and economic transformation to avert global catastrophe. Conceptually, the guardian’s principal role would be to circumscribe a safe ecological space and apportion access to the global ecological

commons in the form of ‘ecological entitlements’ to states worldwide along ethical principles of distributive justice. A refined conceptual definition of the ‘global ecological commons’ is proposed to better align to the global guardian’s overarching aim to secure Holocene-like conditions on planet Earth. Several rationalisations to argue against the fears of global coercion are presented. The chapter then proceeds with an examination of the manner by which global distributive justice is applied in relation to the global ecological commons. This is followed by an articulation of the importance of international peace as a fundamental backdrop to the pursuit of ecological sustainability and a discussion on the care with which a global transformation to ecological sustainability should be handled.

Assuming that there is a legitimate case for global coercion to secure ecological sustainability, chapter five proceeds with an elaboration of four necessary principles of good global governance. These principles are sufficiency or appropriateness, subsidiarity, democracy and solidarity. The strengths and limitations of the application of these principles at a global level are discussed. I argue that together these four principles constitute a necessary starting point for good global governance and that they are essential for the legitimacy and effectiveness of the global guardian. The chapter then proceeds to discuss some characteristics of the global guardian which would be the institutional embodiment of the principles of good governance. This includes the elaboration of a constitution and a legal framework, separation of powers, the role of scientific bodies, and the extent of the global guardian’s coercive capability. It then presents tentative proposals on the setting up the global guardian as prefigured by existing supranational organisations such as the European Union. Finally, the chapter provides a conceptual understanding of ‘ecological entitlements’ – the main tool to be used by the global guardian to apportion available ecological space – where I argue that ecological entitlements should generally be non-market global goods and that they should apply wherever the enjoyment of a good or service occurs. It also discusses the ethical implications of varying population growth rates worldwide on the distribution of ecological entitlements and dismisses alarmist concerns about a global ‘population bomb’.

Finally, chapter six describes the premises and some of the limitations of global guardianship, and provides clarification and justification for the choice of some of the terms in the thesis. Among others, it provides the *rationale* behind the choice of the term ‘global guardian’.

1.0 Literature review

1.1 Introduction

This literature review examines the evolving understanding and governance of global ecological commons from three interconnected perspectives. First, it traces the transformation of the concept of global ecological commons, from a traditional definition based on jurisdictional boundaries to a more refined understanding that incorporates ecological function and Earth system stability (1.2). This evolving conceptualisation raises fundamental questions about the governance of ecological resources that are vital for planetary stability. Second, the review analyses institutional challenges and proposed reforms in global environmental governance (1.3). It explores the limitations of current regimes and evaluates proposals for new global environmental organisations. Additionally, it examines crucial debates around distributive justice and the role of market mechanisms. Finally, the review investigates the complex interplay between globalisation, democracy, and environmental governance (1.4). It examines how neoliberal market forces affect democratic institutions. It also analyses the feasibility of global democracy and explores the potential of deliberative democratic processes in a global political architecture designed to address global ecological challenges.

1.2 Global ecological commons: conceptual evolution and definition

This section explores the evolving concept of global ecological commons and its significance to environmental governance. Beginning with the traditional definition of commons as areas or resources beyond state boundaries (such as deep oceans, Antarctica, outer space, and the atmosphere), this section traces how this concept has expanded over time to potentially include resources within national jurisdictions that are critical for Earth system stability. The review examines key characteristics of commons – notably scarcity and access – and critically analyses how the traditional definition based on national jurisdiction may actually undermine environmental protection efforts. Through various examples and scholarly perspectives, the text illustrates the complexity of defining and governing global ecological commons in an increasingly interconnected world where environmental challenges transcend national boundaries.

1.2.1 Traditional concepts of the commons

In international relations, the idea of global commons is a relatively recent area of discussion which started gaining ascendancy in international discussions following the publication of the influential Brundtland report in the 1980s (Vogler, 2012). Global ecological commons¹ have been traditionally defined as areas or resources – many times unregulated – beyond state boundaries (Wijkman, 1982; Buck, 1998; Vogler, 2012; Schrijver, 2016; Bosselmann, 2017). Wijkman (1982, pp. 511-512) defines the global commons as resources ‘free of national or international regulations’ or ‘as a resource to which no single decision-making unit holds exclusive title’. International legal agreements identify four commons, beyond national jurisdiction: the deep oceans and seabed, Antarctica, outer space – marked by the lowest satellite orbits – and the global atmosphere (Vogler, 2012; Stafford-Smith and Metternicht, 2021). This idea is embraced by international organisations such as the Organisation for Economic Co-operation and Development (OECD) which defines the global commons as ‘natural assets, outside national jurisdiction such as the oceans, outer space and the Antarctic’ (Vogler, 2012, p. 61).

The idea of the high seas and maritime resources, beyond the narrow territorial sea under national jurisdiction, as a global commons has been around for hundreds of years, and powerfully promoted by Hugo Grotius’ doctrine of *Mare Liberum* (1609), also known as the freedom-of-the-seas doctrine in the 17th century. It gained ascendancy in international law and found its most mature expression in the ratification of the United Nations Convention on the Law of the Sea (UN, 1982), upon Arvid Pardo’s, Malta’s Ambassador to the United Nations, call for ‘an effective international regime over the seabed and the ocean floor beyond a clearly defined national jurisdiction’ at the twenty-second session of the United Nations’ General Assembly in New York in 1967 (UNGA, 1967).

¹ The term ‘global commons’ is sometimes also used to refer to non-ecological areas and resources such as cyberspace, ‘digital ecosystem’, intellectual property and crop genetic resources (Vogler, 2012, p. 61). This conceptualisation is evidently outside the scope of the thesis as it is not directly related to the issue that I seek to address – the global ecological crisis.

In contrast, Antarctica is considered to be a special case because it represented a historical breakthrough in the way states appropriated undiscovered land. As argued by Vogler, with the exploration of Antarctica in 1958 and at the height of the Cold War,

‘there was no reason for [Antarctica] to be treated any differently from other ‘undiscovered land’ subject to appropriation by competing states ... [instead] this frozen continent had the characteristics of a commons bestowed upon it by an international treaty that placed the competing claims to sovereignty into abeyance’ (Vogler, 2012, p. 62).

Eventually, outer space was also declared a global commons by the international community with the coming into being of the UN Treaty on the Peaceful Uses of Outer Space (1967) – the Outer Space Treaty – which explicitly stated in Articles 1 and 2, that ‘outer space, including the moon and other celestial bodies, shall be free for exploration and use by all without discrimination of any kind...’ and space ‘...is not subject to appropriation by claim of sovereignty, by means or use of occupation or by any other means’. The Moon Treaty (UNTC, 1979), which entered into force in 1984, and which sought to reapply the principle of ‘common heritage of mankind’ as in the Outer Space Treaty, however, did not enjoy the support of states with lunar missions and to date has been ratified by only nineteen countries. This shows that the international community has not consistently recognised open access areas outside national jurisdiction as global commons in international law.

The recognition of the global atmosphere as a global commons has found expression in a number of UN treaties such as the 1987 Montreal Protocol on the regulation of ozone-depleting chemicals and the 1992 Framework Convention on Climate Change. This involved an imaginative leap and involved ‘notions, for example, of a contested carbon space’ (Vogler, 2012, p. 62). As with other global commons, the atmosphere shared characteristics of open access and scarcity, and it could be argued that it resided beyond national jurisdiction.

Notwithstanding general agreement in international relations scholarship that the oceans, the atmosphere, Antarctica and outer space are global commons, this

classification remains somewhat arbitrary, an observation that is also shared by Steve Charnovitz (2002), an influential scholar in international law, who remarked:.

‘Is biodiversity to be included? Are ocean fisheries? How about nuclear waste or other toxic waste? Are forests global because of their services to combat climate change, or non-global because they root within national boundaries? Is the Antarctic a regional or global concern? Lines can be drawn but they will remain debatable.’
(Charnovitz, 2002, p. 357)

It is evident that the idea of commons as goods residing outside national borders fails to capture global ecological goods, such as biomes or biodiversity, which reside within and transcend national borders but are still equally critical for global ecological stability.

1.2.2 Implications of traditional concepts

Defining the commons on the basis of whether resources reside within or outside national jurisdictions can arguably undermine environmental protection of the global commons. Indeed, Vogler (2012, p. 62) argues that over time the commons have come under the threat of ‘enclosure’,

‘driven more by the territorial ambitions of states than conservation motives, to change the property status of the commons, bringing them within some form of sovereign control’.

With technological progress, areas of the commons that were previously unexploitable become potential lucrative opportunities for exploitation of resources. These resources include fishing, offshore oil, gas and mineral extraction which, over the course of the twentieth century, has led to ‘enclosures of the ocean commons, notably with the establishment of 200 nautical mile national exclusive economic zones (EEZs) under the 1982 UN Convention on the Law of the Sea’ (Vogler, 2012, p. 62). Holder and Flessas (2008, p. 305) similarly observe that the commons have been historically sometimes defined ‘by the threat of their enclosure ... in the face of invasion, dispossession ...’, as in the cases of the high seas and ocean seabed, Antarctica and outer space. Yet, the question of whether an extension

of national jurisdictions over resources that have been traditionally openly accessible to all, increases efficiency (Wijkman, 1982) or, more importantly, improves environmental protection, lingers on. Importantly, most undiscovered global oil and gas reserves in the Arctic region are within the existing Exclusive Economic Zones of the Arctic states (Vogler, 2012) and would thus not qualify as a global commons resource under the traditional definition of commons as resources residing outside national jurisdiction. The same argument can be made for rainforests, coral reefs and other biomes, that are critical to Earth system functioning but that reside within national jurisdictions.

1.2.3 Expanding conceptualisations

Outside international law, however, there are authors who identify the global commons as goods that are critical for Earth system stability independent of whether they reside within or outside state jurisdiction. Kim (2007, p. 291), for example, describes global commons as

‘physical or biological systems of resources that are largely outside the jurisdiction of any individual member of a society ... [to] include pollution, water shortage, over-fishing, deep seabed minerals, the electromagnetic spectrum, ozone layer, the global climate system, the global hydrological system, and outer space’.

Evidently, this conceptualisation of the commons as outside individual jurisdiction goes beyond the identification of commons as recognised by international law, is more far-reaching, and includes ecosystems to which people have a collective responsibility. Stafford-Smith and Metternicht (2021) similarly present their case for including drylands as ‘global environmental commons (GECs)’. Bosselmann (2017, p. 37) reluctantly sticks to the traditional definition of commons as ‘areas beyond national jurisdiction’ but remarks about the difficulty to appropriately define the commons.

There is recognition of the need to classify some areas or resources within state boundaries as global commons (Schrijver, 2016; Stafford-Smith and Metternicht, 2021). Drawing on the writings of Oran Young (1994, 1997), Kim (2007, p. 293)

speaks of ‘trans-boundary externalities’ which occur ‘when activities within the boundary of one nation-state have positive or negative effects on those of neighbouring countries’. He cites destruction of tropical forests in Brazil causing increased atmospheric emissions of carbon dioxide as an example of a negative transboundary externality and asserts that ‘around the globe, it is believed that the state is no longer the sole guardian institution to undertake public functions’ (Kim, 2007, p. 306). This observation leads him to argue for a more central role for transnational NGOs. Similarly, Pinto et al. (2008, p. 340) use Brazil’s example to analogise the global commons to ‘a type of common pool resource on a global scale’ to underscore the need for states to reconcile their national interests with the common global good.² Stafford-Smith and Metternicht (2021, p. 115) likewise argue that there are commons that are ‘critical for providing services that are not limited by national boundaries, such as tropical forests, land, soil, biodiversity and climate’. This conceptualisation goes beyond the traditional definition of commons as historically understood in international law and has also been recently embraced by the United Nation’s (2023) Global Sustainable Development Report under the umbrella term ‘global environmental commons’ (GECs).

1.2.4 Key characteristics: scarcity and access

Moving away from the traditional definition of global commons as resources exclusively residing outside national jurisdiction, authors have sought to identify those characteristics that would qualify an Earth system component as a global ecological or environmental commons. In their article promoting drylands as a global environmental commons, Stafford-Smith and Metternicht (2021, p. 115) describe commons as,

² ‘Common pool resources’ is a term that was coined by Elinor Ostrom to make the case that some commons, such as forests and fisheries, are best managed collectively by their users. Ostrom however held that global ecological commons differed substantively from common pool resources, and merited different management. This view is also expressed by Vogler (2012, p. 66) who remarked that: ‘Elinor Ostrom’s studies about governing common pool resources has limitations in its application to governing the global commons: There are reasons for caution in attempting to apply her insights and findings at the global level, not the least of which is that there are evident differences between a local community working together to govern a local commons resource and an international community composed of over 190 sovereign state governments’.

‘scarce, rivalrous (i.e. depletable) yet non-excludable – that is, their quantity can be depleted to the point where it affects others, and yet it is mostly not possible to prevent others from depleting behavior; they are GECs [global environmental commons] if they matter globally.’

The authors also call for a disaggregation of biomes of global significance to enable more tailored governance and management responses. In their opinion, drylands qualify as global environmental commons because,

‘in the context of growing pressures from humanity, they are scarce, depletable and increasingly non-excludable, yet they provide vital services to the Earth’s life support system’ (Stafford-Smith and Metternicht, 2021, p. 122).

Scarcity and open access have been implicit elements in the understanding of the global commons at least since Grotius (1609) writings of *Mare Liberum*; with open trade in the high seas being potentially threatened by the dominating presence of the Portuguese and Spanish navy in the Atlantic and the Pacific oceans.. Political conceptions of the deep oceans as scarce and open access global commons were further strengthened with the arrival of intensive whaling and fishing. Likewise, major international debates over the mining of polymetallic manganese nodules in the ocean seabed during the 1960s and 1970s were premised on the scarcity of a valuable resource which could eventually be exploited by those with the technological means to do so (Vogler, 2012). Garrett Hardin’s 1968 essay on the tragedy of the commons was similarly based on a pasture that was scarce and accessible to all, with self-interested overuse (or unregulated use) leading to environmental collapse. On scarcity, Wijkman (1982, p. 513) aptly remarked:

‘Traditionally, access to a commons has been free for all, and any individual could exploit the resource independently of others. As long as the resource is plentiful, users are unlikely to interfere with each other. However, when it becomes scarce, uncontrolled access results in congestion and overuse.’

There are indeed historical examples of unregulated open access leading to ecological collapse such as the long term serious ecological decline in seas and oceans, and the near collapse of great whale stocks in the 19th and 20th century (Vogler, 2012).

Scarcity has also been conceptualised in ecological terms, for example by Boulding (1966) with reference to ‘pollutable reservoirs’ where a pollutable reservoir is an ecosystem component with limited carrying capacity to accommodate waste products. The climate is a case in point; access being limited by a finite amount of greenhouse gases that can be emitted into the atmosphere before dangerous climate changes occur. The conceptualisation of the commons as a ‘pollutable reservoir’ is particularly appropriate in the management of the global ecological crisis because ecological unsustainability frequently relates to the inability in the bioregenerative capacity of the Earth system to absorb emissions or disruptions from human activity.

It is to be noted that scarcity and access of ecological goods change over time. This is in part related to technological development. This means that the classification of open access areas or ecological goods is also bound to change over time depending on its abundance or level of scarcity. Indeed, for hundreds of years, only the high seas and maritime resources were classified as a commons, at a point in time when scientific and technological development in navigation opened up the far oceans to trade and exploration (Steinberg, 2001). Open access is also identified as a defining feature by Hardt and Negri (2009) who assert that a commons is neither private nor public property but is recognised by its enjoyment of equal and open access, and democratic decision-making which is central to its governance (Hardt & Negri, 2009).

Stafford-Smith and Metternicht’s (2021) conceptualisation of the global ecological or environmental commons is arguably an improved definition on the traditional understanding of a commons – defined as a good residing outside national jurisdiction – for the purpose of pursuing global ecological sustainability. This is because it conceptualises the commons from the perspective of their critical function to Earth’s critical services independently of whether they reside within or outside national jurisdiction, as is the case with the traditional definition. From the

perspective of ecological conservation, Stafford-Smith and Metternicht's conceptualisation of the commons is more appropriate and has enhanced application value in deliberations focused on ecological sustainability. The next section examines global mechanisms and governance approaches and their effectiveness in protecting the global ecological commons.

1.3 Global environmental governance

This section examines the challenges and proposed solutions in global environmental governance focusing on its institutional failures and potential reforms. The discussion begins with an analysis of the fundamental shortcomings of existing environmental regimes, including institutional weaknesses, fragmentation of governance structures, and collective action problems. It then examines proposals for a World Environment Organization (WEO) or Global Environment Organization (GEO), detailing different conceptualisations and their potential benefits and drawbacks. This section concludes by engaging with crucial debates around distributive justice and burden-sharing in global environmental governance, particularly examining the tension between market-based approaches and environmental justice considerations, while highlighting the growing scepticism toward neoliberal solutions to environmental challenges.

1.3.1 Failure of existing global environmental regime

While appreciating the role of international norms and institutions in maintaining international peace and order (Ruggie, 1992), several authors have highlighted the inadequacy of the existing global environmental regime to address the global ecological crisis (Murphy, 2000; Charnovitz, 2002, Held, 2006; Esty, 2008; 2009; Pelletier, 2010; Brousseau et al., 2012; Biermann and Bauer, 2017 [2005]; Biermann et al., 2017; Biermann, 2021). As aptly stated by Held (2006, p. 157):

‘The paradox of our times can be stated simply: the collective issues we must grapple with are of growing extensity and intensity and, yet, the means for addressing these are weak and incomplete ... The failure of the international community to generate a sound

framework for managing global warming is one of the most serious indications of the problems facing the multilateral order.’

These authors argue that the failure of global governance mechanisms to halt global environmental degradation entails two parts. On one side there is the pervasive influence of implicit worldviews and assumptions including an instrumental and anthropocentric conception of non-human nature (Visvanathan, 1991; Pelletier, 2010; Higgins, 2012; Bosselmann, 2015; Humphreys, 2015; Kim & Bosselmann, 2015; Wienhues, 2017; Sullivan, 2017; Biermann, 2021), the Cartesian human-nature dichotomy (Haila, 2000), capitalist ideology and market neoliberalism (Cox, 1997; Gill, 1995; 2008; Murphy, 2000; Weiss, 2000; Rupert, 2003; Wood, 2007; Gillard et al., 2017; Scholte, 2017), which are in part informed by globalisation forces (Rosenau and Czempiel, 1992; Ricklefs and Miller, 2000; Patomäki, 2001; Held & Patomäki, 2006; Hines, 2013), global economic and social change (Saurin, 1996), and which are reflected in institutional shortcomings related to social justice and equity (Najam, 2003; Schlosberg, 2013; Gillard et al., 2017), distributive justice (Paavola, 2005), ecological integrity (Kim & Bosselmann, 2015) and economic development (Amin, 1992; Stevenson, 2021; Tian et al., 2019).

On the other side, within the context of globalisation, authors identify global institutional weaknesses (Olson, 1971 [1965]; Weiss, 2000; Ruggie, 2003; Dryzek, 2008; Thérien & Dumontier, 2009; Weiss & Wilkinson, 2014; Kim & Bosselmann, 2015), resistance of social and political structures to change (Pirages, 2003), and organisational fragmentation as chief reasons for a lack of an effective global environmental regime (Held, 2006; Esty, 2008; 2009; Biermann & Bauer, 2017 [2005]). Institutional weaknesses include the lack of an appropriately elaborate global legal framework and rule of law (Archibugi & Held, 2012; Biermann et al., 2017), insufficiently effective multilateral treaties (Falkner et al., 2010; Burch, 2013; Bréchet et al., 2016), progressive weakening of UN authority (Moore and Pubantz, 2022), procedural shortcomings and weak mechanisms (Sussking & Ali, 2015; Stevenson, 2021), lack of enforcement (Weiss & Thakur, 2010), and the need for UN reform (Kennedy, 2006; Franda, 2006).

More fundamentally, one potential reason behind the failure of effective action in global environmental governance is the ‘collective action problem’ as described by

Mancur Olson (1971 [1965]) in his seminal work *The Logic of Collective Action: Public Goods and the Theory of Groups*. In this work, Olson draws on empirical evidence to show how individuals in large groups may fail to act in their shared interest due to the challenges posed by public goods and free-rider problems, leading him to argue that coercion – the use of force or the threat of force – can be an essential tool for overcoming the collective action problem. Olson shows that this observation relates mostly to large groups, as in small groups, the individual can ‘readily see some connection between his individual contribution and the general good in which he may share’ (Sufrin, 1966, p. 641).

The next section will provide a more detailed analysis of discussions related to organisational fragmentation and institutional weakness in global environmental governance, and how these discussions have led to proposals related to world environment organisations.

1.3.2 Fragmentation of global environmental governance

A number of authors identify increasing fragmentation – characterised by ‘dozens’ of environmental organisations and ‘numerous environmental treaty secretariats’ (Esty, 2009, p. 427) – as the principal reason behind the presumed failure in global environmental governance. This has led Biermann and Bauer (2017 [2005]), among others, to advance a case for a World Environment Organisation characterised by a more coherent multilateral approach to environmental governance. Likewise, Held (2006, p. 165) argues that ‘there is a fundamental lack of ownership of global problems at the global level’ and that institutional fragmentation leads not just to overlapping jurisdictions and inefficiency, but also to the problem of ‘issues falling between agencies’.

This view is not shared by all authors, however. Some argue that fragmentation does not provide sufficient justification for setting up a new global organisation. Najam (2003) furthermore argues that fragmentation is, in any case, not the problem but a feature which is present by design reflecting deeper institutional shortcomings related to social justice, equity and deliberative democracy which calls for better integration of civil society organisations in the deliberations of ‘interstate organisations’ (Najam, 2003):

‘The coordination deficit is not something that crept in; it was something that was painstakingly designed into the system because the countries that are most responsible for the global ecological crisis have never demonstrated the intention of owning that responsibility ... The coordination deficit is indeed real, but it is not organizational. It is institutional...’ (Najam, 2003, p. 373).

On setting up a new global organisation, Pelletier (2010, p. 220) supports the idea of a WEO as a ‘partial solution’ to governance of the global ecological commons in favour of policies constraining economic activity, arguing against ‘rampant materialism, technological optimism, and an expansionary economics premised on the axiomatic necessity of unconstrained growth’. In a similar tone, Boda (2003, p. 213) argues that ‘an economic approach to [managing] the commons should be subordinated to a genuinely ethical one’.

Interestingly, some authors are not fundamentally against fragmentation *per se* and see merits in having an intermediary level of fragmentation. For example, Biermann et al. (2009) analyse different kinds of fragmentation in the global governance architectures, and observe that while some fragmentation is conflictive and unappealing, other forms of fragmentation are ‘synergistic’. They argue that synergistic fragmentation is,

‘a realistic second-best option in a world of diversity and difference in which purely universal governance architectures are more a theoretical postulate than a real-life possibility’ (Biermann et al., 2009, p. 31).

Charnovitz (2002, p. 329) similarly argues that while fragmentation carries disadvantages, ‘it may also have advantages in spurring the continuous institutional innovation that has distinguished the environmental regime from many others’ and expresses concerns about consolidating disparate environmental issues under one centralised operation. He draws on management research to argue that,

‘innovation proceeds most rapidly under conditions of some optimal, intermediate degree of fragmentation ... Since a high capacity for innovation may be the most distinguishing feature of the

environmental regime, and a key source of its successes, policymakers ought to be careful when undertaking a reorganization that would reduce fragmentation, and hence innovation, too much.’ (Charnovitz, 2002, p. 335)

Oberthür & Gehring (2004, p. 376) expressed a similar sentiment and are wary of proposals for a World Environment Organisation which seek to integrate ‘hundreds of separate international [environmental] regimes into a more centralised institution’. More fundamentally, the authors remark that WEO proponents have largely failed to convincingly show the merits of one framework over multiple frameworks to address the ecological crisis.

The discussion on organisational fragmentation in international relations led to proposals for a World Environment Organisation, which became a centre of discussion in its own right, and within which proposals to address institutional weaknesses in global environmental governance mechanisms were put forward. The next section documents the main arguments on the proposal of a WEO.

1.3.3 Proposals for a World Environment Organisation

A World Environment Organization or WEO was originally conceived as a ‘global environmental umbrella organization of the United Nations’ (Charnovitz, 2002, p. 324). It featured in prominent articles in the early 1970s as proposals for an International Environmental Agency or Authority, or a World Environmental Organisation modelled on the practice of the International Labour Organisation, which had been established in 1919. Instead, at the time, the United Nations Environment Programme was established (Charnovitz, 2002). The idea was again presented at a special session of the United Nations General Assembly in June 1997 but was met with scepticism. In his critique of proposals for a WEO, Charnovitz (2002, p. 331) argues that centralisation under one umbrella organisation should not necessarily imply centralisation of operation but rather a ‘consolidation’ of ‘the myriad, disconnected organizational boxes of global environmental governance ... into fewer boxes with more networking among the entities’. He calls for the replacement of the United Nations Environment Programme with a World Environment Organisation that enjoys better internal and external coherence, and

that would partially centralise international environmental affairs. He also suggests that a WEO should be capable of influencing economic policy.

There are however different conceptions of a World Environment Organisation which differ substantively from each other. For example, Biermann and Bauer (2017 [2005]), in contrast to Charnovitz (2002), conceived of a WEO within the existing organisational architecture of the United Nations, possibly taking the form of a United Nations Environment Programme with a stronger mandate and enforcing capability. For them, the WEO proposal was conceived to promote efficiency and provide a centralised platform for all global environmental issues. In contrast, Runge (2001a) believed in the idea of a global environment organisation (GEO) giving a stronger ‘voice’ to environmental concerns, serving as a *chapeau* to the growing number of international environmental treaties, and alleviating pressure on the World Trade Organisation at a time when WTO policy conflicted with environmental policy. In his view,

‘a GEO can be envisioned which is both pro-trade and pro-environment, strengthening the global trading system, and its rules, while carving out new areas of international environmental competency. Achieving this vision will be difficult, but it is this author’s view that it is an effort to which we are condemned to succeed’ (Runge, 2001b, p. 42).

Some counter-arguments to a WEO include the fear of infringement on national sovereignty (Wijkman, 1982; Esty, 1996), the fear of centralisation in an era of decentralisation, and the concern that an organisational reshuffle would not necessarily lead to better integration among its components (Charnovitz, 2002; Biermann & Bauer, 2017 [2005]).

In later years, the idea of a Global Environment Organisation was revived by Daniel Esty (2008; 2009), this time to refer to a ‘leaner and more focused ... new international organization model’ with a ‘strong commitment to good governance’ (Esty, 2009, p. 428) and to address exclusively global environmental concerns. The global environment organisation would need to have three fundamental institutional virtues: effectiveness, fairness and legitimacy (Esty, 2008). For Esty (2008, p. 117),

‘effectiveness’ carries an economic connotation. It means that ‘a policy mechanism will produce net benefits’ otherwise ‘there is little reason to invest in governance and to bear the costs of providing public goods’. ‘Fairness’ (Esty 2008, p. 118) means that property rights should be respected and polluters must be held accountable for transboundary harms, both in neighbouring countries and globally. This accountability means that polluters must pay for the damage caused in line with the polluter-pays principle (Esty, 2008, 2009). Fairness, for Esty, also entails ‘distributional equity’ and calls on richer countries to bear the costs of providing global environmental public goods on the ‘ability to pay’ principle. He embraces global collective action that respects diversity. Drawing on Habermas, Esty also emphasises the procedural dimension of fairness which ‘gives "due process" to all parties interested in the outcomes that emerge, including national governments, nongovernmental organizations, business entities, and individuals’ (Esty, 2008, p. 118). Moreover, he underscores that good governance requires that such procedures should be carefully constructed to include transparency, public participation, mechanisms to hold decision-makers accountable, an orderly rulemaking process, and checks and balances, among others.

Esty (2008, p. 118) argues that ‘legitimacy’ is particularly hard to establish in an international organisation where top officials are appointed rather than elected, and where lines of accountability are hard to establish. This notwithstanding he argues that there are mechanisms that can secure this. He states that principles of good global governance, such as transparency and subsidiarity, can address a global democratic deficit, citing the European Union as a useful model. The success or effectiveness of the organisation is also important for the organisation’s legitimacy (Esty, 2009). Esty’s proposals address Held’s (2006, p. 172) call for enhancing the ‘transparency, accountability and effectiveness of leading functional IGOs, and building new bodies of this type where there is demonstrable need for greater public coordination ...’. On subsidiarity and multi-layered governance, and drawing on the work of Ingel Kaul et al. (2003), Esty (2008, p. 118) explains:

A ‘multitier approach to environmental governance at the supranational scale probably makes sense. Many transboundary issues can be addressed by neighboring countries working together

bilaterally. A subset of issues is best dealt with by regional organizations that link larger groups of countries. Issues that are truly worldwide in scope should be addressed by a GEO'

Esty and Ivanova (2001) distinguished 'global' problems from 'world' problems, and suggested that a GEO should be limited to 'global-scale pollution control' and to the protection of the global commons. 'World' problems, such as drinking water and air pollution should be excluded from the jurisdiction of a GEO. This contrasts to WEO proposals that did not limit the scope of a global organisation to global issues. Runge (2001a; 2001b), for example, suggested that a WEO should look at a wide range of global public goods, including irrigation schemes and the international transfer of water. Biermann (2001) argued that a WEO should also look at issues such as indoor and outdoor air pollution.

Generally speaking, WEO and GEO proponents advocate for a 'multitier' approach (Esty, 1996; 2008; Bosselmann, 2017) or 'networked governance' consisting of decentralisation, flexibility and multi-level approaches (Biermann and Bauer, 2017 [2005]). Sørensen (2017) also speaks of multilevel governance interlocking with supranational elements and integrating an economy embedded in cross-border networks. Bosselmann's (2017) proposals are particularly intriguing. Like Esty (2009), he cites the European Union as a prefiguration of multi-layered governance where sovereignty is transferred supranationally and argues for a World Environment Organisation that enjoys the legal recognition to protect the global ecological commons and holds states accountable:

'Through environmental trusteeship at the state level, territorial sovereignty is conceptually restricted at the global level, leading to a paradigm shift in environmental law. Instead of state sovereignty setting limits to environmental protection, environmental protection would set the limits to state sovereignty.' (Bosselmann, 2017, p. 41).

The idea of a global legal architecture committed to the overarching concept of ecological integrity and to which states are held accountable is novel. However, a commitment to the protection of the global ecological commons, a global public good, necessarily implies discussions on the distribution of the 'burden' of

responsibility worldwide, and mechanisms to ensure that distributive ecological justice is being served.

1.3.4 Distributive justice and burden sharing in global environmental governance

In his criticism of the international environmental regime, Esty (2008, p. 117) remarks that ‘fundamentally, the Kyoto Protocol lacks a clear principle for burden sharing’. He favours ‘distributional equity’ where, according to him, a commitment to ‘common but differentiated responsibility’ provides the ethical foundation for international environmental efforts (Esty, 2008, 2009). He grounds this assertion on his observation that,

‘successful efforts to coordinate environmental policy at the global scale have almost always built upon the principle of common but differentiated responsibility for shared problems, implying that every nation has an obligation to participate in joint efforts commensurate with national capacity and level of development’ (Esty, 2009, p. 429)

He also clearly favours a market approach to cutting global greenhouse gas emissions arguing that:

‘From an economic point of view, what is needed is a clear price signal attached to greenhouse gas emissions that provides a significant incentive to cut emissions. This could take a number of forms: tradable emissions allowances, a tax on carbon dioxide and other greenhouse gas emissions’ (Esty, 2008, p. 117)

Indeed, market thinking in environmental regulation has pervaded international relations thinking in the 1980s, 1990s, and the first decade of the 21st century. Wijkman (1982, p. 522), for example, speaks of the necessity of the commons being enclosed and parcelled out through market forces and private property rights, on a ‘willingness to pay’ principle, ‘whereby the right of access is sold on the open market’ and arguing that non-market methods are ‘inherently discretionary and inevitably arbitrary’. The author favours the issuing and enforcement of marketable

quotas to governments that is determined based on the carrying capacity of a resource. Runge (2001b, p. 42) also speaks of a global environmental organisation facilitating 'market access' to Least Developed Countries, for the export of agricultural products and textiles for example, to make the idea of such an organisation 'attractive' to the Global South. Likewise, Whalley and Zissimos (2000, p. 3) propose a World Environment Organisation as 'a new world agency on the environment' that 'should focus on removing impediments to bargaining (and trades) on the global environment'. They analogise this to the work of the World Trade Organisation whose work is 'to liberalize trade in goods and services by removing border impediments on trade through negotiated exchanges of trade policy concessions'. They conceive the WEO as a global environmental agency that facilitates market exchanges between poor countries and the international community, internalising environmental externalities, exchanging environmental concessions (that is a commitment for environment protection in poorer countries) in return for cash, and enforcing contracts. In addition, Charnovitz (2002) does not exclude market engineering stating that the idea of an environmental regime exchanging economic and environmental commitments is not a new one and deserves greater attention. Biermann et al. (2012) also promote 'novel financial mechanisms, such as global emissions markets or air transportation levies' (p. 1307) as financial support to secure equity and fairness.

Market-based approaches for environmental management and protection of the global commons are however being increasingly perceived with suspicion and scepticism. For example, Fuentes-George (2013) criticises the promotion of payment for ecosystem services (PES) 'as the most rational approach to environmental management' (p. 144). He criticises the economic and neoliberal language of the World Bank and the Global Environment Facility as well as Environmental NGOs in attempting to persuade developing countries to preserve biodiversity on economic grounds, inadvertently contributing to the commodification of nature, and exclusively reducing it to its economic value. Fuentes-George (2013) is suspicious of neoliberal policy that purports to conserve environment on the back of injustices and inequalities, further arguing that neoliberal economics would prioritise the short-term over the long-term, but, more importantly, it undermines the non-economic valuations of nature and the broader

value of biodiversity. Likewise, Martinez-Alier (2009) criticises the commodification of nature and the pervasive market thinking that relegates social values secondary to economic ones. Okereke and Dooley (2010, p. 82) also question the legitimacy and effectiveness of market-based approaches to forest governance in international climate negotiations under the UNFCCC. The authors argue that,

‘whilst such market-based approaches might serve the preferences of powerful players, their effectiveness in terms of forest preservation, the protection of indigenous peoples and sustainable community development remains extremely dubious’.

Other authors have similarly argued that it is highly unlikely to find solutions within a neoliberal institutional architecture that has systematically produced social inequality and environmental degradation (Corbera et al., 2007; Newell & Paterson, 2010; Purdey, 2010; Kütting, 2011; Ford and Kütting, 2017; Stevenson, 2021). Drawing on Schumacher’s (2011 [1973]) book *Small is Beautiful*, Ford and Harris (2024, p. 498) argue that ‘there is an urgent need to interrogate the fundamental norms and values built into capitalist logics of production, distribution and exchange’. Similarly, Okereke and Dooley (2010, p. 82) question the prevailing notion that the market is an efficient and equitable distributor of resources and argue that,

‘the international arena is not beyond the pale of moral arguments but rather that the governance of global environmental change implicates elemental ethical questions regarding which ways of life human beings ought to pursue’.

They continue: ‘whilst values and morality might not be popular concepts in international negotiation circles there remains an intimate link between ethics and public policy’ (Okereke & Dooley, 2010, p. 93). Boyce et al. (2007) also speak about every person’s fundamental moral right (not privilege) to a healthy environment, and that such access should not be based on political or purchasing power.

Indeed, some authors equate the ‘fair and equal distribution of environmental burdens and benefits at local, national and international levels’ as a matter of

environmental justice (Lewis, 2012, p. 65). Conceptually, environmental justice also holds that those who are most likely to be affected by environmental changes participate meaningfully in decision-making processes on the distribution of these burdens and benefits (Bullard & Johnson, 2000). Lewis (2012) also argues that the existing internationally recognised framework of human rights can be used to advance environmental protection and achieve environmental justice, including at the global level. The author argues that evoking the human rights language, specifically in relation ‘to the right to health, the right to an adequate standard of living, the right to self-determination and the right to life itself’ (p. 65), could serve as an effective and complementary platform to global environmental governance. Securing the meaningful participation or representation of all worldwide in global environmental governance is a matter of global democracy.

1.4 Global democracy

In international relations, the idea of a global democracy is a relatively new concept and was not found in international relations textbooks prior to 1989. The idea of world politics being more transparent, more participative, and respecting the rule of law is found before, for example in the writings of Immanuel Kant. However, in international relations, ‘democratic theory ended at state borders: it had nothing yet to say beyond this level of analysis’ (Archibugi & Held, 2012, p. 14).

Whereas some authors hold global democracy to be a contested and controversial concept (Holden, 2000), other authors lift democracy to the status of an accepted international order of legitimacy (Shaw, 2000). It is nonetheless questionable whether democracy is an accepted international norm in subordination to the international hegemony of Western liberal democratic values, or whether it will prevail with the potential decline of Western liberal democratic states on the international stage (Keohane, 2011). According to Thérien and Demontier (2009), since the end of the Cold War, the UN has promoted cosmopolitan democracy to reflect the recent reconfiguration of political forces. However, as the authors observe,

‘democratic norms remain weak in many parts of the world. It is doubtful that governments unreceptive to public debate and

participation at home would adopt such values at the global level’
(Thérien & Dupontier, 2009, p. 371).

Furthermore, the authors highlight a critical limitation in the UN charter. It is founded on very traditional power structures, allows veto rule in the Security Council, and consequently undermines UN efforts to promote global democracy (Thérien & Dumontier, 2009).

Authors who are critical of the idea of global democracy include Robert Dahl, Ralf Daharendorf, David Miller and Philippe Schmitter (Archibugi & Held, 2012). One of the main criticisms of global democracy is that the democratic deficit is bound to grow as one moves farther away from the rule-takers (Dahl, 1999; Zürn, 2004; Grant & Keohane, 2005). Simply put, ‘there is obviously a trade-off in democratic quality by ‘scaling up’ democracy’ (Hüller, 2012, p. 268). Others pin down the democratic deficit to inadequate institutions in the context of globalisation. For example, Nagao Menezes and Contipelli (2023, p. 1) state that,

‘the world is currently experiencing a democratic deficit of representative institutions resulting from the context of globalization and the polycentrism of power’.

For many authors, globalisation and the emergence of new global challenges justify the need for strengthening global democracy ‘as the main legitimating principle of government’ (Dryzek, 1999, p. 30). These include, among others, Jürgen Habermas, Richard Falk, Ulrich Beck, Simon Caney, Mary Kaldor, Tony McGrew, Jan-Aart Schölte and Saskia Sassen (Archibugi & Held, 2012; Hüller, 2012).

The following section explores the complex relationship between globalisation, market forces, and democratic governance in the context of global ecological challenges. Beginning with a critical examination of how neoliberal market ideology affects state autonomy and democratic institutions, the text progresses through key debates about the feasibility and nature of global democracy, the distinctions between domestic and global democratic governance, and the role of deliberative democracy in addressing global ecological issues. The discussion encompasses various theoretical perspectives on international organisations, the growing influence of civil society organisations, and the importance of integrating

local and global governance scales. Through analysis of works by influential scholars such as Habermas, Dahl, Keohane, and others, the text provides a comprehensive overview of the challenges and possibilities for democratic governance in an increasingly interconnected world facing pressing ecological concerns.

1.4.1 Globalisation, market liberalism and democratic governance

Neoliberal market ideology has long been criticised as undermining democracy and constraining the political autonomy of the state and state-like institutions, also in environmental protection, among others. For example, Cox (1997) argues that the neoliberal market ideology, which prioritises market freedom and individual liberty over democratic values and social justice, leads to a situation which mostly benefits powerful corporations and individuals. He argues that globalised market forces, if left unchecked, undermine the power of the state, and can lead to a ‘race to the bottom’, where states compete with each other to provide the most favourable conditions for business and enterprise. Likewise, Murphy (2000) observes how market liberalism established itself as an international norm after the end of the Cold War. Gill (1995; 2008) similarly posits that dominant market ideology and forces of globalisation constrain the power of the state and undermine democratic values and institutions. He terms this ‘market civilisation’, where the logic of the market pervades all aspects of social life. For Gill (1995; 2008) neoliberalism is not only an economic doctrine but a political and a cultural project that disciplines people to conform to market principles. This observation was eventually made again by communitarian philosopher Michael Sandel (2012; 2013) where the philosopher made a strong case for markets to respect moral limits. Others, such as Hines (2013) and Trainer (2019a), argue for a shift away from globalisation and towards localisation, self-sufficiency and community-based economies.

There is a recognition that a fundamental market liberalism subordinates states and state-like institutions, including international organisations, to the dictates of the market.³ As argued by Dryzek (1999, pp. 30-31):

‘more insidiously, the international system bears witness to the consolidation of regimes for trade and finance that entrench the [undemocratic] authority of the market and of those actors and organizations (such as the International Monetary Fund and World Trade Organization) designated as economic police officers.’

He argues that states are locked in a global capitalist system where they find themselves vulnerable to the global market logic:

‘States in particular are heavily constrained ... in the international economic system ... the main fear of any state is disinvestment and capital flight ... even if governments want to (say) introduce a progressive environmental policy, they may find these impersonal economic constraints militating against it.’ (p. 49)

Acknowledging global market capitalism as a fundamental ‘structure of power’ that challenges democratic and effective global governance, Colás (2003, p. 97) argues in favour of more democratic control of the ‘private economic sphere’ and speaks about ‘the power of the territorial state in subordinating the undemocratic operations of the global capitalist system to collective needs’ (p. 98).

These concerns were expressed earlier by Jürgen Habermas (1973) in his book *Legitimation Crisis* where he argues that modern capitalist democracies face several contradictions. Part of his argument is that governments may face legitimation crises when they intervene to stabilise the market during economic crises, as they may be perceived as contravening market principles. He emphasises the role of the public sphere to address the legitimation crisis – a space in which citizens engage on political issues – but argues that the public sphere has been dominated by consumer culture and mass media. Consequently, he advocates for democratic

³ To be sure, a distinction needs to be made here between market fundamentalism, as critiqued above, and the market *per se*, the latter being perceived as a platform that spurs innovation (Esty, 2008).

renewal. The legitimisation crisis provides an opportunity for citizens to reclaim the public sphere, create spaces for dialogue and consensus building. Habermas advocates for political and economic reform which he argues can be undertaken if there is a shift in values towards greater solidarity and mutual understanding.

In his later work *The Post-National Constellation*, Habermas (2001) expresses a need to rethink traditional forms of governance, statehood and democratic participation, in view of the growing tensions between the democratic state and globalisation. In a globalised world, he argues, states have a diminished capacity to manage internal affairs on their own, not least because globalisation submits national economies to international market forces. In his view, globalisation has changed the idea of state sovereignty and the role of the state must evolve to reflect global interdependence, leading him to advocate in favour of the development of new forms of governance and political participation at the supranational and global levels, as well as a more important role for global civil society. He cites the European Union as a valuable experiment in creating a transnational form of governance that combines the benefits of cooperation with democratic mechanisms.

Some authors, such as Shaw (2000), go against the grain and argue that economic change is subordinate to a central driving political dynamic – the emergence of a global state which is constituted of countries in the North Atlantic, Japan, Australia and New Zealand, and intergovernmental organisations, and backed by military force. However, Shaw's (2000) work is criticised for failing to integrate the critique on economic globalisation, in particular, global capitalism (Robinson, 2001) and for being biased towards Western capitalist states (Williams, 2001).

Wendt (2003, p. 491) draws on self-organisation theory to additionally argue that the emergency of a 'world state' is 'inevitable' and details a four-stage process through which a world state comes into being. This will happen, he argues, as individuals and groups struggle for recognition of their subjectivity and universal collective security; values that are not secured in an international anarchy. Similarly, on collective security, Ruggie (1992, p. 569) advances the view that a collective security scheme,

‘rests on the premise that peace is indivisible, so that a war against one state is, *ipso facto*, considered a war against all. The community of states therefore is obliged to respond to threatened or actual aggression, first by diplomatic means, then through economic sanctions, and finally by the collective use of force if necessary. Facing the prospect of such a community-wide response, any rational potential aggressor would be deterred and would desist. Thus, the incidence of war gradually would decline.’

On Habermas’ line of thought, other authors argue that the state remains a central actor in global politics but needs to adapt to new challenges (Gilpin, 2002; Bell and Hindmoor, 2009; Weiss & Wilkinson, 2014). The concept of state sovereignty needs to change to embrace proposals that require a collective effort for global ecological protection (Pinto et al., 2008; Bosselmann, 2017). Rather than being subordinated to the influence of the global market, Bell and Hindmoor (2009) argue that the state has the power to shape markets through regulation, taxation and other policies. However, they also acknowledge that the global market has the power to influence state policy e.g. to avoid capital flight or job losses. The authors recognise the increasing influence of non-state actors, such as international organisations and multinational companies, but call primarily on the state to coordinate efforts with other state and non-state actors to overcome global challenges. These views are also shared by Keohane (2001), Gilpin (2002), Held (2004; 2006; 2009) and Weiss and Wilkinson (2014).

The next section explores political proposals for a global democracy, in the face of globalisation forces and the rise of international non-state actors, in an international system where the state still retains a central role and one which increasingly holds international organisations to account.

1.4.2 Characteristics of a global democracy

The distinction between global democracy and national democracy

There is a structural recognition that global governance cannot match the democratic credentials of national democracies (Weiss, 2000; Keohane, 2001;

Grant & Keohane, 2005; Archibugi & Held, 2012). For example, Keohane (2001, p. 2) states:

‘it would be quixotic to expect global governance to reach the standard of modern democracies or polyarchies ... Instead, we should aspire to a more loosely coupled system at the global level that attains the major objectives for which liberal democracy, or polyarchy, is designed at the national level’.

He continues:

‘Our standards of accountability, participation, and persuasion will have to be quite minimal to be realistic in a polity of perhaps ten billion people ... Global governance will have to be limited and somewhat shallow if it is to be sustainable’ (Keohane, 2001, p. 3).

Similarly, Weiss (2000, p. 810) acknowledges that ‘there is no clear-cut equivalent at the global level to the national prescriptions of democratisation and economic liberalisation as the constituent components of humane governance’. Likewise, Grant and Keohane (2005) conclude that a simple analogy cannot be drawn between domestic democratic politics and global politics:

‘At the domestic level, those affected by the power-wielders are generally understood to be those subject to the laws of the polity, so it is fairly easy to determine who has a right to participate. But having the right to participate in politics as an affected party is ambiguous at the global level.’ (Grant & Keohane, 2005, p. 33)

These authors acknowledge that there are substantive differences between global and national democracies on the basis of sheer scale and global diversity of political and cultural values (Dahl, 1999; Stevenson, 2019). At a global level, the degree of consensus on principles, even procedural principles, are likely to be too weak ‘to support decisions that reach deeply into people's lives and the meanings that they construct for themselves’ (Keohane, 2001, p. 3). On the view that consensus is likely to decrease as one moves up the hierarchical ladder, many authors evoke the principle of subsidiarity in global governance (Wendt, 2003; Boonen et al., 2019)

and argue that ‘most functions of governance should be performed at local and national levels’ (Keohane, 2001, p. 2). Notwithstanding this, many authors express the need for global organisational change to promote global democracy.

One example is that of Archibugi and Held (2012) who argue that global democracy requires the championing of national democracy and that international institutions and non-governmental organisations should take it upon themselves to promote national democracies:

‘A state willing to become a champion of cosmopolitanism should make an effort, where possible, to reduce disparities between natives and strangers and offer to aliens the political rights enjoyed by its citizens ...’ (Archibugi & Held, 2012, pp. 16-17)

From this perspective, Archibugi and Held (2012) argue for the promotion of democratic standards in foreign policy such that a democratic state is ‘a good member of the international community even at the expense of short term disadvantages’ (p. 17). The authors also justify interference in domestic politics to ‘support foreign political parties and activists willing to foster democracy’ (p. 17).

Held (2006) goes further in his proposals and supports the idea of establishing an ‘effective, accountable, regional and global police/military force for use as the last resort of coercive power’ (p. 173) to uphold international humanitarian and cosmopolitan law. On the environmental front, Stevenson (2021) argues for reforms in climate regime arguing that such regimes should be democratised and brought under greater public scrutiny and control. She argues that this would not require ‘shrinking the role of either state or non-state actors, but rather bringing their decisions and actions under greater democratic control’ (p. 96).

Notwithstanding the principle of subsidiarity and differing ideas on how global democracy should be conceived and promoted, several authors feel that international organisations still have a legitimate role to play in executing functions at a global level. Since international organisations face inherent democratic deficits that are greater than those of domestic organisations, these authors propose alternative models and mechanisms of global accountability. This is reviewed in the next section.

Models and mechanisms of global accountability

Grant and Keohane (2005), for example, distinguish between participatory and delegation models of democratic governance:

‘In the participation model, those affected hold power-wielders accountable directly through participation, whereas in the delegation model, those delegating power hold power-wielders accountable through a variety of mechanisms for judgment after the fact.’ (pp. 32-33);

On this distinction, the authors ask whether international organisations (which follow a delegation model of democratic governance) should be held accountable to states, who authorised their creation in the first place, or to people who are ultimately going to be affected by their policies. They cite the IMF and the World Bank as examples of international organisations that follow a delegation model of democratic governance and which at times have had to bend their policies to satisfy the requests of powerful countries, such as the United States. They also suggest that international organisations also suffer from greater democratic deficit by virtue of the delegation model of democratic governance that they follow. Still others point at the undemocratic representation of states on the executive boards of international organisations such as the IMF as a matter which needs to be addressed in its own right (Ehresman & Stevis, 2018).

Some authors focus on accountability mechanisms rather than direct democratic participation as benchmarks of global democratic governance. For example, Keohane (2001, p. 3) proposes three principles for an ‘acceptable global governance system’ which consists of accountability, participation and persuasion. He emphasises that international organisations should remain accountable to democratic states, which in turn should retain sufficient autonomy and authority, if participation at a global level is to remain meaningful. He also speaks of honest communication, voluntary cooperation and rational persuasion as the strongest guarantee for a global legitimate process, citing Habermas and Rawls. In contrast, Slaughter (2004b, p. 163) advances her ideas of ‘a networked world order’ which is based on ‘generalizable principles’ (p. 190) rather than formal codification in a

constitution, and which can be held accountable by the people in like manner to national governments. She asserts that ‘principles and norms ... can operate independently of formal codification’ (p. 175), echoing Rittberger (1993) on his ideas of governance without government, and advances of democratic global governance which include, among others, global deliberative equality, checks and balances, and subsidiarity.

Dahl (1999) takes a *prima facie* more radical stance and outright states that international organisations cannot be democratic. While he acknowledges that some matters of importance to the citizen are beyond the capabilities of national governments to deal with effectively, the author feels that ‘international decision-making will not be democratic’ (Dahl, 1999, p. 23). In his words: ‘the opportunities available to the ordinary citizen to participate effectively in the decisions of a world government’ to deal with problems of a universal scope ‘would diminish to the vanishing point ... "delegating authority" would simply be a misleading fiction useful only to the rulers’ (Dahl, 1999, p. 22). He opposes arguments of authors, on in the vein of those promoted by Archibugi and Held (2012), who call for the democratisation of international institutions.

Dahl (1999) also refers to global pluralism as a major challenge to global democracy:

‘when a democratic unit is enlarged to include new territory and people, the demos is likely to become more heterogeneous. Diversity in turn tends to increase the number of possible political interests and cleavages based on differences in economic position, language, religion, region, ethnic or racial identity, culture, national affiliation, historical memories, organizational attachments ...among a large group of persons with varied and conflicting ends, goals, interests, and purposes, unanimity is unattainable, disagreement on the best policy is to be expected’ (Dahl, 1999, p. 26)

On this observation, Dahl (1999) argues that the role of international organisations in promoting global democracy is by expanding human rights and the rule of law. He evokes the ancient Greek view of rule by an ‘elite of guardians possessed of

greatly superior knowledge and virtue' (Dahl, 1999, p. 32) as superior to democracy, and asks whether such a model is more appropriate at a global level, while retaining his view that domestic democracy should prevail at a state level. He concludes with his reiteration that international organisations might still be required to address important human needs, but that their undemocratic characteristics should be subjected to scrutiny against an agreed set of objective criteria and standards.

Countering Dahl, Koenig-Archibugi (2011, p. 537) argues that while a global democracy is an unlikely evolution, it is still a possibility. He cites Dahl's (1999, p. 34) observation that 'the last three centuries are a graveyard packed with the corpses of "inevitable" developments' to advance his view that,

'multiple paths to democracy exist ... while a certain level of political centralization — the existence of a polity — seems logically and empirically necessary for democracy, a complete centralization of the means of coercion is not' (Koenig-Archibugi, 2011, pp. 536-537).

Indeed, Koenig-Archibugi (2011, p. 522) defines 'global democracy' as referring to a range of conceivable institutional systems that share a number of characteristics including global representation, empowerment of supranational bodies to make binding decisions, globally representative and decision-making bodies, transparency, accountability, constitution and rules of procedure, independent supranational judicial bodies for conflict resolution, and robust mechanisms for promoting compliance to decisions and rulings. This conception echoes Esty's (2008) and Charnovitz's (2002) arguments who similarly argue that the global democratic deficit can be addressed with principles of good global governance such as transparency and subsidiarity. Likewise, Low and Gleeson (1999) support the idea of a 'global constitution' and of legitimate supranational judicial bodies, such as a 'World Environmental Court'.

Grant and Keohane (2005) also view democracy as a manner to hold global organisations accountable and to restrict abuse of power. They argue that democratic elections are not viable mechanisms at the global level, implicitly

dismissing arguments in favour of world parliaments as proposed for example by Archibugi and Held (2012), and instead restate their view that 'claims to legitimacy at the global level depend on inclusiveness of state participation and on general norms of fairness' (Grant & Keohane, 2005, p. 34), including 'human rights norms that are widely shared by the elites and publics of the most powerful states in the global political system and that are maintained by a public discourse' (Grant & Keohane, 2005, p. 35). Indeed, the authors argue that even though global governance cannot conform to ideal democratic practices, we should nonetheless strive to introduce measures that hold global organisations accountable and to limit potential abuse of authority. Legitimacy of international organisations depends on a combination of conformity to shared norms and established international law.

Furthermore, Keohane (2011, p. 100) argues that expectations on the democratic practices of international organisations should be less than those on institutions in domestic democracies:

'Although the standards we use for assessing the legitimacy of global governance practices should be derived from democratic theory, the threshold of acceptability that it is appropriate to use should be lower than it would be in a well-order domestic society'.

However, Little and MacDonald (2013) criticise Buchanan and Keohane's critique that global democracies are not feasible under prevailing global social conditions, and argue that framing the viability of global democratic practice through the lens of domestic democracies is flawed and leads to fundamentally flawed assumptions. In their view, a highly idealised account of national democracies is a limiting factor to the critique of global institutions. They argue that:

'an overly narrow and state-centric analytical lens ... conditions analysis of political institutions and other practices that constitute 'democracy', with these usually being imagined to resemble 'well-functioning' national democracies ... [and] frames analysis of the underlying social conditions within which these democratic practices are able to exist ... these are usually imagined to accord

with a highly idealised account of existing national democratic societies' (Little & MacDonald, 2013, p. 791).

These views are also shared by Moravcsik (2004, p. 362) who criticises analysts that attack international organisations on the basis of their democratic credentials being far from ideal, arguing that national democracies are also non-ideal: 'the baseline should be the real-world practices of existing governments acting imperfectly under complex constraints'.

Indeed, Little and MacDonald claim that such analogies are flawed and preclude meaningful assessment of the prospects of emerging global democratic practices. Importantly, they fail to 'generate useful lessons regarding how democratic norms might best be promoted beyond the boundaries of the state' (Little & MacDonald, 2013, pp. 791-792). Instead the authors argue that global democratic practices should be understood as democratic in character 'to the extent that they contribute something meaningful towards protecting and promoting core democratic values (however imperfectly)' (Little & MacDonald, 2013, p. 811). Such a commitment to democratic values can be understood,

'as demanding an ongoing struggle for social change: to counter power-differentials, exclusion and domination, and to enhance control by ordinary people over collective decisions in which they have an important stake' (Little & MacDonald, 2013, pp. 811-812).

One of the key characteristics of a global democratic order is the presence of spaces for informal public deliberation and their influence on the formal decision-making structure. This idea is principally Habermasian and is captured in the concept of deliberative democracy which is discussed in the next section.

1.4.3 Deliberative democracy

The concept of deliberative democracy

Chandler (2005, p. 126) argues that global power is constrained by norms and values that are in part developed by a well-developed global civil society. Unlike rationalist approaches which subordinate morality to the interests of power,

Chandler observes that power is guided not only by state interests for self-protection and national security, but also by international norms and values. Such norms and values are many times forged through public deliberation, outside formal decision-making structures.

Indeed, as a way to address the democratic deficit which is inherent in state-like institutions, but more so in larger political architectures, several authors support deliberative democracy as a model for effective and legitimate governance of the global ecological commons (Najam, 2003; Dryzek, 2008; Esty, 2008; 2009; Bosselmann, 2015). For example, Bosselmann (2015) advances a vision of transnational and Habermasian deliberative democracy, with inclusive and active citizen participation, to address the ecological challenges of the commons. Similarly, Esty (2008; 2009) values the influence of deliberation on formal decision-making bodies and argues for procedures that promote informal deliberation. He argues that:

‘An effective global response to climate change cannot be achieved without both vigorous debate and creation of a policymaking process that promotes dialogue. A structure of decision making that aligns with the emerging consensus around principles of good governance will thus be needed’ (Esty, 2008, p. 120)

Likewise, Dryzek (2008) wrote extensively about the critical role of ‘discursive democracy’ in shaping international politics. He compares discourses to ‘social structures ... both enabling and constraining’ that ‘provide the context within which people think and act’ (p. 480). Whereas a constitution is a shared set of formal rules, ‘a discourse is a shared set of informal understandings’ (p. 478). According to Dryzek, deliberative or discursive democracy bears special relevance in the global sphere which, according to him, is characterised by weak or absent formal institutions, and where the influence of the informal is presumably more pronounced in such absence.

Deliberative democracy is fundamentally Habermasian, in the sense that it was conceptually elaborated by the philosopher Jürgen Habermas in his seminal works. In *Moral Consciousness and Communicative Action*, Habermas (1990) argues that

‘communicative rationality’ is the foundation of morality and that a sound democracy relies on a healthy public sphere – the ‘lifeworld’ as he calls it – where citizens engage in honest and open dialogue and debate on issues of public concern. Consequently, he cautions against institutional structures and bureaucracies that can undermine the values and principles of the lifeworld. Rather, he advocates for the institutional protection of the ‘lifeworld’ where citizens can engage in free-wheeling deliberation and argumentation (Scheuerman, 2006). For Habermas (1996, p. 296), deliberative democracy is ‘a culturally established background consensus shared by the citizenry’. Legitimacy, in turn, rests on the institutionalisation of open communication and collective reflection (Keohane, 2001). Habermas supports John Dewey’s arguments that ‘the essential need is the improvement of the methods and conditions of debate, discussion, and persuasion’ and that in majority rule ‘the *means* by which a majority comes to be a majority is the more important thing’ (Dewey, 1954 [1927], pp. 207-208, *italics mine*). The ideal that Habermas, Rawls and Dahl upheld is ‘that of rational persuasion – changing others’ minds on the basis of reason, not coercion, manipulation, or material sanction’ (Keohane, 2001, p. 2).

International civil society organisations

Internationally, the role of civil society organisations or non-governmental organisations in global democratic governance has been cited as an important source of deliberation and a significant democratic improvement by several authors (Rosenau and Czempiel, 1992; Dryzek, 1999; Falk, 2000a; 2000b; O’Brien et al., 2000; Weiss, 2000; Runge, 2001a; Charnovitz, 2002; Najam, 2003; Slaughter, 2004b; Held, 2006; Kim, 2007; Esty, 2008; Thérien & Dumontier, 2009; Archibugi & Held, 2012; Ford, 2018). Charnovitz (2002, p. 351), for example, argues that:

‘it is vital that a WEO build such [nongovernmental] participation into its constitution ... If the WEO is simply an upgraded version of UNEP that includes only governments without establishing any firm roots into business and civil society, then the enormous effort and resources expended to set up a WEO will be a poor investment’.

Likewise, Dryzek (1999, p. 48) states that,

‘the role played by international civil society is crucial ... in establishing deliberative democratic control over the terms of political discourse and so the operation of governance in the international system’.

Falk (2000a) similarly speaks about the critical role of ‘global civil society’, including NGOs and transnational actors, to counter the power of states and corporations and to promote values like human rights, environmental protection and social justice, for a more democratic world order. He opts to choose the term ‘global civil society’ *in lieu* of the terms ‘transnational’ or ‘non-governmental’ to avoid rooting ‘the identity of the actors in the subsoil of national consciousness’ (Falk, 2000a, p. 162) or confer a derivative status to civil society organisations to the superordinate Westphalian system of states. He describes ‘global civil society’ as ‘the field of action and thought occupied by individual and collective citizen initiatives of a voluntary, non-profit character both within states and transnationally’ (Falk, 2000a, p. 163). Unlike others (Charnovitz, 2002; Commission on Global Governance⁴, 1995), Falk excludes business from the definition of civil society organisations. He also acknowledges the challenges to global civil society, including its uneven distribution and the potential of NGOs being corrupted or subsumed by powerful world players.

This sentiment is also echoed by Thérien & Dumontier (2009) who underscore the *complementary* role that non-state actors should play in an inclusive form of world political organisation but caution against painting transnational NGOs as superior forms of governance. The authors argue that,

‘non-state actors in global governance ... can be no more than a proxy for global democracy. While they like to define themselves by referring to the public good, NGOs as well as corporations always represent some special interests.’ (p. 372)

International non-governmental organisations are also valued for their transnational character, a characteristic which states do not enjoy (Kim, 2007). While retaining

⁴ The Commission on Global Governance was formed in the post-Cold War era to address the challenges of global interdependence.

that states should remain central players in the provision of public goods, Kim (2007, p. 306) identifies NGOs as viable institutional alternatives to fill a transnational 'political vacuum' in global environmental governance where they can establish themselves as 'effective and fully engaged partners'. Likewise, Cronin (2002, p. 59) observes that governments are the primary participants in the United Nations but NGOs are deeply involved in 'norm and policy setting, policy execution, contracting, and interlevel mediation'. He supports UN support for providing opportunities for 'non-governmental actors to exercise a level of influence in world politics that they would otherwise never be able to achieve' (Cronin, 2002, p. 68).

Archibugi and Held (2012) go further in their proposals for a 'cosmopolitan democracy'. They also express strong support for civil society organisations or international non-governmental organisations (INGOs) – understood as 'non-territorially bounded political communities composed of individuals with common interests' (p. 22) – underscoring their vociferous role in the democratisation of global governance and in catalysing reforms in international organisations. Moreover, the authors raise the possibility of a 'world parliamentary assembly' as a body that is representative of the people, not of governments; a proposal which is met with scepticism by others (Dahl, 1999). They further argue that such an assembly should be tasked with the official selection of INGOs in official fora. Furthermore, the authors argue that INGOs, among other international actors and democratic states, should ratchet up the economic, social and political rights of authorised migrants to those of the natives, as a way to promote cosmopolitan democracy. Moreover, cosmopolitan democracy should enjoy better representation and active participation by the 'dispossessed', 'the bottom billion' or the 'wretched of the earth', that is by people in underdeveloped countries (Archibugi & Held, 2012, p. 23).

Weiss (2000) also remarks about the increasing presence of non-state actors, as he calls them, in the international realm. He observes how non-state actors – including international non-governmental organisations such as Human Rights Watch and CARE, transnational corporations such as Shell and Citibank, and global media houses such as the BBC and CNN – changed the political landscape of countries

towards the end of the twentieth century by penetrating into ‘what once had been almost exclusively matters of state policy’ (p. 800). He argues that the implications of the growth of NGOs for global governance in the UN system is not fully understood or appreciated but that ‘the proliferation of non-state actors and their growing importance and power is a distinctive feature of contemporary world affairs’ (Weiss, 2000, p. 806). Drawing on the work of Morten Bøås, Weiss (2000) argues that power is held in formal government institutions as well as in the informal civic realm:

‘Essential to governance is the civic realm, which is maintained by political actors from both the state and society ... governance is concerned with the regime which constitutes the set of fundamental rules for the organisation of the public realm, and not with government ... Governance clearly embraces government institutions, but it also subsumes informal, non-governmental institutions operating within the public realm’ (Weiss, 2000, p. 800).

Falk (2005, p. 159) likewise observes how the UN became a ‘major arena for transnational civil forces’ after the Stockholm Conference on the Human Environment in 1972 and that this served ‘both as a source of pressure exerted on intergovernmental activities and as an occasion for transnational civil society networking and organising’. He observes how every UN conference, especially after the 1992 Rio conference, involved large-scale NGO participation ‘as members of official delegations (Falk, 2005, p. 156). Likewise, Khagram and Ali (2008, p. 252) argue that there is evidence that legitimate actors in world affairs is proceeding from,

‘a 20th century world of states and IGOs to 21st century world consisting of multiple actors with trans-territorial constituencies, capacities and world views ... multi-stakeholder networks as opposed to either unilateralism or multilateralism will or could be the future of world affairs.’ (p. 252).

Integration of local and global governance scales

Several authors have also underscored the importance of knowledge-bridging, multi-scalar governance, and the coupling of bottom-up and top-down initiatives in environmental governance. They argue that, in addition to the important role of NGOs, the integration of local and global governance scales is essential for global deliberative democracy.

Chan (2016, p. 134) argues that cities and city diplomacy, not state-centred systems, present us with ‘our best hope to transcend nationality for the common well-being of humanity, connect local citizens to global public policy, and move towards cosmopolitan democracy’. Rathwell et al. (2015) speak about the critical importance of ‘knowledge bridging’, that is the incorporation of indigenous and local perspectives into Western style scientific knowledge for governance in the context of environmental change. The authors underscore the importance of multi-scale environmental governance, incorporating the values of social justice and democracy, that acknowledges the legitimacy of diverse knowledge systems. Bridging knowledge systems enhances ‘the collective capacity to navigate, complex environmental change ... under conditions of ... uncertainty’ (Rathwell et al., 2015, p. 872). Furthermore, Lightfoot (2008, p. 100) calls for the recognition of indigenous rights in the ‘international human rights framework’ and argues in favour of an international rights discourse that accommodates the possibility of ‘a meaningful nation-to-nation relationship between indigenous nations and the state’. He speaks of ‘a liberal, plurinational conception of the state’ that accommodates the desire for recognition by Indigenous peoples and for the preservation of their cultural integrity. Dhillon (2018; 2021), an anticolonial scholar, elaborates on this and argues that the reclamation of territorial rights by the Dakota Sioux and Indigenous groups forms part of the environmental justice movement.

Patterson and Kinchington (2024) draw on the lessons learned from education initiatives among children in India and underscore the importance of bottom-up education initiatives to cultivate values of community and ecological sustainability. On multi-scalar governance, Dunlap and York (2008, p. 551) challenge the long-held assumption that citizens of poor nations are too preoccupied with their everyday needs to have an environmental conscience and instead argue that,

‘recognizing that citizens of poorer nations, particularly those whose livelihoods depend directly upon available natural resources, are motivated to protect the environment can help both national and international governmental bodies design more effective policies’ (p. 551)

Boonen et al. (2019) examines the theoretical debate between commons theory and global public goods (GPGs) to highlight fundamental differences in how these frameworks approach global governance: commons theory advocates for bottom-up self-governance and local management, while GPGs theory supports more top-down, state-centred approaches with supranational enforcement mechanisms. Despite these contrasts, both frameworks acknowledge the need for multi-level governance and recognize subsidiarity as an important principle, suggesting that effective solutions to global challenges likely require a combination of both bottom-up and top-down approaches.

Similarly, citing Hurrell, Slaughter (1995) reminds us that international law needs the constant cooperation and support of national legal systems, and that there needs to be a continuum between laws applied at different hierarchical scales.

On a different note, Wickberg et al. (2024) assert that there is an ongoing huge amount of data collection on the global environment, which is critical for Earth governance and management, but which can be exploited by powerful and influential players, including private corporations. The authors caution against the non-democratic use of such data on the premise that the global environmental commons are a ‘public interest of concern to all people’ (p. 1), and call for an assessment on the gathering, use, ownership and access to such data.

1.5 Conclusion

The conceptualisation of global ecological commons has evolved significantly from its traditional definition as areas beyond national jurisdiction to a more nuanced understanding based on ecological function and Earth system stability. While the traditional definition encompassing the deep oceans, Antarctica, outer space, and the atmosphere remains influential in international law, it has important limitations.

The focus on national jurisdiction rather than ecological significance can actually undermine environmental protection efforts, as demonstrated by issues like rainforest and coral reef conservation. A more comprehensive approach, which considers key characteristics like scarcity and access while recognising the critical role of resources within national boundaries, may better serve global environmental governance. This expanded conceptualisation acknowledges that vital Earth system components, such as biodiversity, forests, and drylands, function as *de facto* commons regardless of their jurisdictional status. Moving forward, effective environmental protection may require governance frameworks that prioritise ecological significance over traditional jurisdictional boundaries, while carefully balancing national sovereignty with global environmental responsibilities.

The challenges facing global environmental governance are complex and multifaceted, ranging from institutional weaknesses and fragmentation to fundamental issues of distributive justice and burden-sharing. While proposals for a World Environment Organisation or Global Environment Organisation have offered potential pathways for reform, there remains considerable debate about their optimal structure and scope. The evolution of thinking around environmental governance has seen a notable shift away from purely market-based approaches, with growing scepticism toward neoliberal solutions and increasing emphasis on environmental justice, human rights, and ethical considerations. Effective global environmental governance may require a careful balance between institutional consolidation and flexible multilevel approaches, while ensuring that governance frameworks prioritise environmental protection and social equity. This suggests the need for governance models that go beyond market mechanisms to incorporate broader moral and ethical principles, meaningful participation from all communities worldwide, and recognition of diverse ways of valuing nature.

The debate on global democracy reveals several interconnected challenges and opportunities in addressing environmental governance. While there are inherent limitations to achieving democratic standards at the global level comparable to national democracies, some mechanisms and approaches offer promising paths forward. Deliberative democracy, particularly through the growing influence of international civil society organisations, provides important channels for public

participation and accountability. The integration of multiple governance scales – from local to global – and diverse knowledge systems appears crucial for effective environmental governance. Furthermore, while globalisation presents challenges to democratic governance, it also creates opportunities for new forms of participation and accountability. This indicates that the key lies not in replicating domestic democratic structures at the global level, but in developing global governance mechanisms that can integrate democratic principles while effectively addressing global environmental challenges. This would involve strengthening deliberative processes, enhancing the role of civil society, ensuring better integration between local and global scales, and developing robust accountability mechanisms for global organisations and actors.

2.0 Philosophical methods and theoretical framing

2.1 Introduction

My doctoral research is best approached as ‘problem-solving research’ where the researcher starts with the identification of a real world problem, draws on a variety of intellectual resources, and works their way to identifying solutions every step of the way (Phillips and Pugh, 2005). This type of research is particularly suitable for world problems that are not solvable within the confines of singular disciplines. One such complex world problem which merits this type of research is the global ecological crisis. Indeed, the case for global guardianship to address the ecological crisis was developed as a potential solution only after having thoroughly examined the nature and the drivers of the ecological crisis. The proposal for global ecological guardianship was merely incidental to the thought and research process. As Phillips and Pugh (2005, p. 52) write in their handbook for students and supervisors pursuing a PhD on problem-solving research:

‘In this type of research, we start from a particular problem in the real world, and bring together all the intellectual resources that can be brought to bear on its solution. The problem has to be defined and the method of solution has to be discovered. The person working in this way may have to create and identify original problem solutions every step of the way. This will usually involve a variety of theories and methods, often ranging across more than one discipline since real-world problems are likely to be ‘messy’ and not soluble within the narrow confines of an academic discipline.’

In this chapter, I will discuss the philosophical methods to which this thesis most closely aligns (2.2) and the theoretical framework that I use to develop the case for global ecological guardianship (2.3).

2.2 Philosophical methods

The description of one’s methodology in philosophy should be approached with caution, as there is no lexicon of philosophical methods. Rather, there are diverse philosophical practices which can be observed and classified to some degree. As is

aptly observed by Dever (2016, p. 11) in his chapter *What is Philosophical Methodology?* in Cappelen et al.'s (2016) first edition of *The Oxford Handbook of Philosophical Methodology*,

‘it is an open question whether there is anything distinctively *philosophical* in philosophical methodology ... Actual philosophical practice involves pretty much every imaginable epistemic method: arguments deductive and inductive, experimentation, open survey, reflective equilibrium, critical self-examination, phenomenological introspection, textual exegesis and eisegesis, and so on. If there is nothing distinctively philosophical in philosophical methodology, and philosophical methodology is just the epistemology of philosophical practice, then philosophical methodology collapses into epistemology.’

Similarly, Hájek (2016, p. 348) observes that there are ‘certain recurring patterns of thought’ in philosophy to which he refers to as ‘philosophical heuristics’ but which ‘are not studied or taught’. Dever (2016, p. 14) argues that ‘one *desideratum* for theory selection is that our selected theories be the theories we are justified in endorsing’. He continues, however: ‘Not every philosophical activity needs to have a taxonomic box to contain it’ (Dever, 2016, p. 15). Notwithstanding, for the sake of the exercise of describing my philosophical methods, I will attempt to identify those philosophical practices or ‘heuristics’ to which my philosophical methodology most closely aligns.

My research methodology can be best described as residing in the domain of normative political philosophy. It is argument-based, issue-oriented and seeks logical coherence. In this thesis, I seek to reconcile several normative and positive principles in the case for a global guardian to address the ecological crisis.

In normative political philosophy, the aim of the philosophical methodology is ‘to say what the goals of philosophy are’ and describe ‘how these goals can be met.’ (Dever, 2016, p. 14). Normatively, the goals of this thesis are to identify the principal drivers of the ecological crisis and to provide normative proposals to address these drivers. The proposal for global guardianship and the elaboration of

the concept of a global guardian to address the ecological crisis are grounded in empirical evidence and theory, and presented as a ‘realistic utopia’ in the Rawlsian tradition⁵.

As is expected of a thesis in normative political philosophy, this thesis addresses issues related to justice, distribution of goods, legitimacy, collective decision making, freedom and security, among others. It addresses ‘conceptual, normative, and evaluative questions concerning politics and society, broadly construed’ (List & Valentini, 2016, p. 525). More specifically, the case for a global guardian is grounded in concepts related to distributive ecological justice, freedom and self-determination, legitimacy of global authority, security and non-domination, among others. My theoretical approach aligns closely with a core branch of contemporary political theory, referred to as ‘analytic political theory’, where the term ‘analytic’ is ‘meant to refer to an argument-based and issue-oriented ... approach that emphasizes logical rigour ... and clear exposition’ (List & Valentini, 2016, p. 525).

The term ‘analytic’ should not be interpreted narrowly and

‘is not intended to refer only to the logical and linguistic traditions of philosophy associated with the Vienna Circle and philosophers in Oxford and Cambridge in the first half of the twentieth century. Contemporary analytic political theory goes well beyond conceptual analysis. At least since the publication of John Rawls’s *Theory of Justice* (1971/1999), the development of normative theories has been one of the field’s central concerns.’ (List & Valentini, 2016, pp. 525-526)

Indeed, the case for a global guardian employs an argument-based approach to the issue of ecological sustainability.

Normative political theory should be distinguished from political science. Whereas ‘political science addresses empirical and positive questions concerning politics and society’, political theory ‘addresses conceptual, normative and evaluative questions, such as what a democracy is, how we ought to organize our political

⁵ Of note, in *Utopophobia*, political philosopher David Estlund (2020) defends the value of utopian and ideal theory irrespective of whether the preconditions for its realisation are met.

systems and how to evaluate the desirability of policies ...' (List & Valentini, 2016, p. 526). Political theory and political science complement each other when normative recommendations have to respect feasibility constraints (Gilbert & Lawford-Smith, 2012). The feasibility constraints of normative proposals are examined to some extent in the thesis as part of its overarching aim to provide *practical* and normative solutions to the global ecological crisis.

Methods in normative political philosophy are generally held to be distinct from methods in moral philosophy. As List and Valentini (2016, p. 527) write:

‘the political theorist, at least under modern conditions, is engaged in problem solving under a particular constraint: the presence of pluralism and disagreement about how to solve the problem at hand ... any compelling solutions to the problems of political theory, such as how to define justice or how to design a legitimate procedure for collective decision making, must appeal to people with a variety of (reasonable) viewpoints, precisely because those solutions are meant to apply to, and be acceptable in, pluralistic societies’.

Following this line of reasoning, and notwithstanding the ethical basis of the principles that form the case for global guardianship to secure ecological sustainability, my method aligns more closely to normative political philosophy, and indeed I do take global pluralism and world diversity as a positive principle in the thesis. Notwithstanding, what is ‘reasonable’ in diverse viewpoints is usually nonetheless ethically informed and ‘may itself rely on moral premises’ (List & Valentini, 2016, p. 549). The case for global guardianship might also enjoy some relation to normative ethics if ecological sustainability is viewed as a desirable consequential good of global guardianship. Consequentialism, a dominant strain of thought in normative ethics, holds ‘that the moral value of an action depends on the goodness of its consequences’ (Antony & Rey, 2016, p. 573).

I also seek to attain what is known as ‘overlapping consensus’ (Rawls, 1993) – a normative theory that can reasonably be ‘endorsed from the perspective of different reasonable comprehensive doctrines held in society’ (List & Valentini, 2016, p.

549) – on the basis that the proposal for global guardianship needs to enjoy the support of diverse perspectives worldwide.

The thesis also discusses the appropriate mechanisms for global distribution of access to the ecological commons, and whether this should be market-based or rights-based, in view of their implications to peoples' standard of living and global inequality. This is not new in political theory. Indeed, the work of contemporary political theorists, such as Rawls' *Theory of Justice*, has drawn on the normative work of economists such as Kenneth Arrow, John Harsanyi, and Amartya Sen (List & Valentini, 2016).

In the thesis, I attempt to present a case for a global guardian to address the ecological crisis, which satisfies the criteria of a 'good theory' (List & Valentini, 2016, p. 539). The case for global guardianship can be understood as

‘a set of statements – propositions expressed in language – which is a candidate for playing some theoretical or practical role and which is, ideally, representable as the set of all implications of some underlying principles. The set of principles from which the theory can be derived – if there is such a set – is called the *theory formulation*.’ (List & Valentini, 2016, p. 536).

In this sense, the word ‘theory’ is not being used to refer to academic fields of enquiry, such as political theory or economic theory. A theory that is ‘false, irrelevant, or superseded still counts as a theory.’ (List & Valentini, 2016, p. 537). In this thesis however, I aim to provide a well-supported and practical case for global ecological governance.

In the practical and normative sense, my philosophical method can be viewed to share some aspects with critical theory, which ‘emerged from but is distinct to Critical Theory that designates German philosophers in the Western European Marxist tradition known as the Frankfurt School. (Bohman, 2021, Intro., para. 1, p. 1). It is a method that seeks to combine the poles of political philosophy and the social sciences. As Bohman (2021, section 1., para. 1, p. 6) writes,

‘while it [a critical theory] defends the emphasis on normativity and universalist ambitions found in the philosophical tradition, it does so within the context of particular sorts of empirical social research, with which it has to cooperate if it is to understand such normative claims within the current historical context.’

A critical theory qualifies as one if it contemporaneously meets three criteria: it must be explanatory, practical, and normative (Bohman, 2021) and only in this sense does my methodology qualify as a critical theory. It combines empirical social inquiry with normative philosophical argumentation. The thesis does not however develop theoretical frameworks for human emancipation from oppressive structures, or critique social conditions and power structures within societies as its main aim, which is in the tradition of the Frankfurt School of Critical Theory. It does not ‘seek out contradictions within the existing [hegemonic] order’ as its principle aim to base its proposals, which is the definition that is given of ‘critical theory’ by prominent scholars of international relations and political science such as Mearsheimer (1994, p. 38).

It shares commonalities with Critical Theory only insofar as explained by Bohman (2021, Intro., para. 2, pp. 1-2):

‘While Critical Theory is often thought of narrowly as referring to the Frankfurt School that begins with Horkheimer and Adorno and stretches to Marcuse and Habermas, any philosophical approach with similar practical aims could be called a “critical theory”’.

In my thesis, I also distinguish between concepts and principles. Whereas concepts are the classification of objects (e.g. justice, freedom, equality, legitimacy) and serve as the building blocks of principles, principles have propositional content. Principles can have ‘evaluative’, ‘normative’ or ‘positive’ content. (List & Valentini, 2016, p. 536).

The case for global guardianship is developed on the principles that the world should embrace ecological sustainability, distributive ecological justice, self-determination and autonomy, respect for global pluralism and diversity, respect for future generations, the value of binding agreements, and that authority should be

legitimate. The latter, in turn, demands that such authority should be appropriate (sufficient), subsidiary, democratic (representational) and one embracing the concept of solidarity. These normative principles are contextually grounded in the current global political reality of interdependent states, globalisation and transnational forces, and the rise of civil society organisations. The principles also acknowledge the reality of a global ecological crisis that is spiralling out of control. The argument or theory attempts to be logically consistent, deductively closed, axiomatizable and with an appropriate sense of simplicity, along List and Valentini's (2016) understanding of these criteria. Logical consistency refers to a set of statements constituting the theory that are simultaneously true. A theory that is 'deductively closed' means that any statement that is logically entailed by the theory belongs to the theory. In other words, 'a set of statements is deductively closed if it contains all its implications' (List & Valentini, 2016, p. 539). A theory is axiomatizable 'if there exists a finite set of principles such that the entire theory can be expressed as their body of implications ... together with some auxiliary assumptions' (List & Valentini, 2016, p. 539). Furthermore, 'we require a good theory to avoid any unnecessary complexity, and to be as simple as possible, in an appropriate sense of simplicity ... Rawls, for instance, also emphasizes simplicity as a virtue of a normative theory ... To be illuminating, the theory ought to be simpler, for example, than the target phenomenon it seeks to account for ...' (List & Valentini, 2016, p. 540).

My method also broadly aligns with a method of theory testing known as the 'reflective-equilibrium' method. Since Rawls' *Theory of Justice*, reflective equilibrium has been one of the most widely used methods in political theory. As List & Valentini (2016, pp. 541-542) write:

'It [reflective-equilibrium] does not treat our intuitions as independent evidence, prior to the theory in question, but requires us to reach a "mutual fit" between the theory and our considered judgements. This works as follows. We begin with some initial theory, perhaps inspired by our intuitive judgements or given by some *prima facie* principles, then consider the implications of the theory and ask whether they are also in line with our judgements.'

If those implications fit our judgements, the process stops. It is more likely, however, that only some of the theory's implications fit our judgements, while others do not. We then reassess both the theory and our judgements. In some cases, we may decide, on reflection, to revise the theory by changing some of the constituent principles, so as to bring the theory in line with the judgements we are unwilling to give up. In other cases, we may decide to overrule our judgements and embrace the theory's implications as our new considered judgements. A *reflective equilibrium* is reached when the implications of our possibly revised theory are in line with our possible revised judgements.'

Reflective equilibrium is a state which is achieved through engagement in a reflective process where the researcher moves back and forth, revising their intuitions, judgements or beliefs, and the theoretical principles in their thesis 'until one ends up with a final set of beliefs and principles which cohere with each other' (Cath, 2016, p. 214). Indeed, the method of reflective equilibrium is standardly viewed as being a 'coherentist method' (Cath, 2016, p. 218). Cath (2016) also asserts, citing Rawls, that the intuitions and beliefs in the reflective equilibrium method need to possess some positive normative status.

Enjoying some positive normative status does not however mean that a theory formulation needs to be based on beliefs that are universally shared. Researchers are bound to have different belief systems which can determine the scope of their research from declared premises. As observed by Gutting (2016), both believers and non-believers stand to benefit from such research:

'If the picture associated with the convictions is shown to be internally consistent, to cohere with well-established bodies of knowledge, and to suggest interesting and fruitful responses to questions important even to those not sharing the convictions, then even non-believers may well need to take these convictions seriously'. (Gutting, 2016, p. 317)

As is common practice in normative political theory, the proposal for a global guardian is an abstraction, as theories are meant to simplify the world, making abstraction unavoidable and an innocuous intellectual exercise (O'Neill, 1996). The case for a global guardian is not a type of ideal theory with conditions taking the form of 'if such-and-such conditions hold, then such-and-such follows' (List & Valentini, 2016, p. 545) where these conditions are impossible or outside human natural capacity (Estlund, 2020), thus making it unattainable. The proposal for global guardianship is a realistic utopia; feasible and attainable upon the satisfaction of a number of conditions in the domain of the possible.

In conclusion, this section has outlined the philosophical methodology employed in examining the case for global ecological guardianship. The methodology is firmly grounded in normative political philosophy, utilising an argument-based and issue-oriented approach that emphasizes logical rigour and clear exposition. Through the method of reflective equilibrium, the thesis seeks to achieve coherence between theoretical principles and considered judgments, while remaining sensitive to the urgent realities of addressing the ecological crisis in a pluralistic world.

The methodological framework acknowledges the inherent challenges in philosophical inquiry, particularly in the domain of global governance where multiple theoretical traditions intersect. By drawing on normative political philosophy, while remaining cognizant of insights from moral philosophy and other philosophical traditions, this approach enables a comprehensive examination of the complex questions surrounding global ecological governance.

The methodology's emphasis on realistic utopianism positions the thesis to develop practical, normative proposals that address the drivers of the ecological crisis while respecting the principles of distributive justice, self-determination, and legitimate authority.

2.3 Theoretical framework

Before I start writing the section on the theoretical framework of my doctoral thesis, I want to emphasise that political theory has no dominant methodology or

theoretical approach. As aptly stated by Dryzek et al. (2006, pp. 5-6) in the first edition of the *Oxford Handbook of Political Theory*,

‘Political theory is an unapologetically mongrel sub-discipline, with no dominant methodology or approach. When asked to describe themselves, theorists will sometimes employ the shorthand of a key formative influence – as in “I’m a Deleuzean,” or Rawlsian, or Habermasian, or Arendtian – although it is probably more common to be labelled in this way by others than to claim the description oneself. In contrast, however, to some neighboring producers of knowledge, political theorists do not readily position themselves by reference to three or four dominant schools that define their field. There is, for example, no parallel to the division between realists, liberals, and constructivists, recently joined by neoconservatives, that defines international relations theory’ (Dryzek et al., 2006, pp. 5-6)

As a doctoral thesis in normative political philosophy, I will be drawing on aspects of established theoretical frameworks or concepts that form the basis for examining global guardianship to secure ecological sustainability and the conditions such guardianship must satisfy to be legitimate and effective. As observed by Dryzek et al. (2006), the thesis will not, and cannot, be framed in one of the dominant theoretical ideologies of say, international relations. Such an approach would, by default, undermine the foundations of a thesis in normative political philosophy which aims at addressing questions of a fundamental nature. The thesis does not endorse the view that the lessons of one political school of thought are necessarily at odds with those of another political school of thought, as is commonly held, for example, in international relations, where neorealist and neoliberal or institutionalist frameworks are traditionally held to be opposed to each other (Grieco, 1988; Mearsheimer, 1994; Shearman, 1998). To the contrary, it embraces Andrew Hurrell’s assertion that,

‘there is an overriding need ... to maintain a pluralism of approaches. ... An excessive homage to existing work and Theory and Practice of Global Governance to the leading figures, excessive

citations of articles from within an extraordinarily narrow range of journals ... can easily become counterproductive' (Hurrell, 2011, pp. 152-153)

In the second half of the twentieth century, political theory rejected unitary conceptions and moved towards more pluralistic conceptions in their place. However, the field's pluralism should be seen more 'as a virtue and a strength, rather than a weakness in need of rectification' (Dryzek et al., 2006, p. 6). My theoretical framing therefore builds on proposals by different school of thoughts in recognition that different schools of thought 'are not necessarily exclusive or contradictory to each other' (Dryzek et al., 2006, p. 16). They also tend to change over time and overlap with each other. Similarly, the institutions (including courts and legislatures) that deliberative democrats once criticised, became the home for deliberation. Another example is critical theory and how it changed from the days of the Frankfurt School, in the hands of Habermas and during Habermas' life, with Habermas redefining himself as a constitutionalist in the 1990s. Yet another example is Rawls, a prominent liberal, who in his later works proclaimed himself a deliberative democrat (Dryzek et al., 2006). These transformations go to show that there is considerable overlap between different schools of thought in political theory.

Dryzek et al. (2006, p. 34) expose the tension that runs between two opposing trends of academic thought, that is, between one which views the discipline of political theory with tight boundaries in the belief that this route leads to 'deeper and more systematic knowledge', and another which embraces 'cross-disciplinary and interdisciplinary work' for the simple and 'modest' realisation that 'there may be much to learn from other areas of study'. My theoretical framework adopts the latter transdisciplinary approach in recognition that some solutions in normative political theory are best found by drawing on the insights of a diverse range of academic disciplines and schools of thought. In this section, I will be outlining the conceptual framework of the thesis in relation to established political theories and concepts namely contractarianism, liberalism, republicanism, deliberative democracy, and cosmopolitanism, among others.

2.3.1 Social contract theory

Social contract theory posits that legitimate authority must derive from the consent of the governed, with this consent emerging from mutual agreement between parties (Cudd & Eftekhari, 2021). While this foundational concept has evolved significantly since its Ancient Greek origins, its core premise – that social rules can be rationally justified through collective agreement – remains central to modern political thought (D’Agostino et al., 2024). In addressing contemporary challenges of ecological sustainability and global ecological governance, social contract theory offers valuable frameworks for conceptualising and legitimising new forms of political authority.

The idea of an agreement as the source of the origin and organisation of political society (Boucher and Kelly, 2005) has its roots in Ancient Greece. There was also the idea, as promoted by Socrates, of an ‘implied contract and its concomitant obligations between citizen and state’ (Boucher and Kelly, 2005, p. 2). It was not, however, before the era of civil contractarianism, starting with Thomas Hobbes, that the idea of an implied social contract between the rule-makers and the rule-takers, for one’s own security and for the common good started taking shape. Indeed, Pufendorf argued that agreements incur obligations, whether in the presence of a sovereign or not but that civil law and authority convert imperfect obligations in a ‘state of nature’ into perfect obligations (Boucher & Kelly, 2005). The theoretical frame of the thesis embraces and advances the idea of an imaginary social contract between the peoples (the states) and a global guardian. It draws on social contract theory to make the case for coercive political authority and discusses normative constraints on its ‘coercive’ authority. It embraces the idea that legitimate authority can only rest on broad consent. The case for global authority is made on the apparent lack of truly binding global agreements which undermines efforts, by states and other actors, to address the global ecological crisis. This approach shares commonalities with civil contract theory. As stated by Boucher and Kelly (2005, p. 4):

‘*Civil* contractarianism is that form of social compact, whether historical or hypothetical, whose role is either to legitimize coercive political authority, or to evaluate coercive constraints independently

of the legitimation of the authority from which they derive ... Most importantly, the civil contractarians posit moral and rational constraints upon conduct that are not merely the result of preferences, but which are consolidated, extended or transformed by the social contract’.

Civil contractarianism stems from the Hobbesian line of social contract thought that holds that,

‘persons are primarily self-interested, and that a rational assessment of the best strategy for attaining the maximization of their self-interest will lead them to act morally’ (Cudd & Eftekhari, 2021, p. 1).

In this line of thought ‘morality consists in those forms of cooperative behaviour that it is mutually advantageous for self-interested agents to engage in.’ (Ashford & Mulgan, 2018, p. 4). One fundamental limitation of this view is that if the contractarian does not appeal to prior moral norms in order to secure agreement, then the outcome agreed may fail to be a moral outcome (Rawls, 1971; Cudd & Eftekhari, 2021).

The theoretical frame also shares elements with constitutional contractarianism. Throughout the middle ages, the conception of a conditional government was juristic, where the rights and duties of both the sovereign and the subject were legally defined. The sovereign was held to obey the law – which at the time was a repository of customs and practices – and protect the people of the kingdom. The contract, thus conceived, was not strictly speaking with the people but with the laws intended to protect the people. A breach of this duty was held to be a breach of contract in the relationship between the sovereign and the people (Boucher & Kelly, 2005). The theoretical frame of the thesis draws on these constitutional elements to advance the idea that global guardianship should enjoy legitimacy both by popular (democratic) consent but also by respecting its written mandate and observing its legal constitution, which in turn is also intended to protect the interest of the peoples within an ecologically sustainable world order. Constitutionalism is seen as providing stability to global governance and to prevent it from swaying away from

the original principles it was created upon, unless there is a concerted, sustained, democratic and legally (constitutionally) defined procedure for the constitution to change. This theoretical framework is also, to some degree, supported by Rawls' liberal principle of legitimacy where Rawls (2001, p. 41) argues that 'political power is legitimate only when it is exercised in accordance with a constitution (written or unwritten) the essentials of which all citizens, as reasonable and rational, can endorse in the light of their common human reason'. The thesis' proposal for the elaboration of a legal framework is consonant with Hugo Grotius' idea that 'the contract that establishes civil society constitutes a legal community consonant with man's natural sociability, and consistent with the mutual recognition and protection of his moral rights' (Boucher & Kelly, 2005, p. 4). According to Grotius, the obligation to keep agreements emerges from human's inherent rationality and sociability.

Social contract theory encompasses three main categories: moral contractarianism, which grounds moral principles in self-interest; civil contractarianism, which focuses on legitimising political authority and evaluating constraints; and constitutional contractarianism, which deals with legally defined rights and duties (Boucher & Kelly, 2005). A crucial philosophical distinction also exists between 'contractarianism' and 'contractualism' – the former emphasising rational self-interest while the latter focuses on respect for persons as rational autonomous agents (Ashford & Mulgan, 2018). This distinction becomes particularly significant when addressing ecological challenges that span generations and require consideration of future peoples' interests. The thesis' theoretical framework draws on civil contractarianism for legitimising coercive political authority, constitutional contractarianism for establishing legal frameworks, and contractualism for incorporating moral obligations to future generations and principles of ecological sustainability.

Contractualism stems from the contractarian thoughts of Rousseau and Kant and holds that:

'rationality requires that we respect persons, which in turn requires that moral principles be such that they can be justified to each person. Thus, individuals are not taken to be motivated by self-

interest but rather by a commitment to publicly justify the standards of morality to which each will be held' (Cudd & Eftekhari, 2021, p. 2).

In Thomas Scanlon's understanding, contractualism is grounded in the equal moral status of persons and their capacity as rational autonomous agents. It has its roots in Rousseau's perspective of 'free and equal citizens' and illuminates the compelling Kantian insight that:

'we ought to treat persons never as mere means but always as ends in themselves. It [Scanlonian contractualism] interprets this as treating them according to principles they could not reasonably reject.' (Ashford & Mulgan, 2018, p. 3).

Indeed, the idea of seeking principles 'no one can reasonable reject' is specifically Scanlonian and contrasts with Kant's moral theory and Rawls' contract around 'principles everyone would agree to, rather than principles no-one *could reasonably reject*' (Ashford & Mulgan, 2018, p. 5). In their entry on Scanlon's contractualism, Ashford and Mulgan (2018, p. 4) summarise the difference as follows:

'Under contractarianism, I seek to maximise my own interests in a bargain with others. Under contractualism, I seek to pursue my interests in a way that I can justify to others who have their own interests to pursue.'

With respect to ecological governance, contractarianism thus understood works well in spaces where environmental cooperation benefits self-interest and leads to mutual benefits. However, it struggles to support agreements where benefits are not equally distributed or where the benefits accrue to future generations. As Ashford and Mulgan (2018, pp. 47-48) write:

'It is hard to see how we can have any obligations to such people [future generations], as they cannot be parties to our contract. This is principally because of the absence of any possibility of mutually advantageous interaction between distant generations. The quality of life of future generations depends to a very large extent on the

decisions of the present generation ... Contractualism, by contrast, easily avoids this particular problem, as it begins by assuming that moral agents are motivated by a desire to justify themselves to others. There is no reason why those others must be currently existing people. When deciding how to act, I can ask myself whether future people who are affected by my actions might reasonably reject a principle permitting those actions ... Because it works with the possibility of reasonable rejection – rather than actual bargaining – contractualism can accommodate obligations to future people. This is a significant advantage over other social contract theories.’

For this reason, my theoretical framework also draws on contractualism as this frame permits parties to the contract to base their positions on moral grounds, which includes the value of safeguarding the interests of future generations. It also incorporates key elements of civil and constitutional contractarianism. This synthetic approach enables the construction of a robust theoretical foundation that can address both the practical challenges of establishing legitimate global authority and the moral imperatives of intergenerational ecological sustainability. Such a framework accommodates both self-interested cooperation and moral duties to future generations. Furthermore, the pursuit of ecological sustainability as a common good will likely not translate into equal benefits to all parties to the contract. Vulnerable countries, who are more likely to suffer adverse ecological effects and who lack the means to protect themselves, are likely to benefit more. The thesis advances the moral principle of solidarity in its institutional framework to inform the deliberations of the proceedings within the global guardian. Whereas contractarianism can be evoked as a theoretical frame in areas which lead to mutual benefits and are in the interest to all states, contractualism opens up possibilities for states to frame their positions on moral grounds and evoke arguments concerning care for others and for future generations.

2.3.2 Liberal theory

The theoretical framework of this thesis conditionally shares premises with classical liberalism, but reframes them in the context of states as political corporate

actors in the world order rather than adopting an individualistic stance. While it accepts liberalism's premise that political actors (in this case, states) are generally the best judges of their interests, it departs from traditional liberal assumptions about self-interest as the primary motivator. Instead, the framework posits that both individuals and collectives can be motivated by concern for others, including future generations, as much as by self-interest.

This foundation supports market economies, but with important qualifications regarding their appropriate scope and application. Markets are valued as means of exchange, but their operation must be constrained by hierarchical levels, types of goods, and considerations of inequality. Critically, the framework positions itself against predominant market-based approaches at the global level to managing the ecological commons, such as carbon cap-and-trade systems. Certain elements of the ecological commons, such as forests and coral reefs, that serve as critical ecosystem components should enjoy state or state-like protection on aspects that maintain their integrity within the bioregenerative capacity of the Earth system, irrespective of their use and the commodification of their services and goods on the market.

The framework adopts classical liberalism's emphasis on neutral constitutional rules to reconcile competing interests, proposing a legal framework within which state interests and values can be reconciled. It maintains liberal commitments to checks on power and constitutional rights, particularly human rights, while emphasising that rights carry corresponding obligations. As Dryzek et al. (2006, p. 15) note, 'rights are accompanied by obligations on the part of their holders to respect rights held by others, and duties to the government that establishes and protects rights.' In the context of the global ecological commons, states' rights of access are inseparable from their duties to respect other states' rights of access.

The case for global guardianship situates itself within what can be termed 'realistic utopia' – where 'utopia' represents political theory's capacity to think beyond current limitations (Dryzek et al., 2006), and 'realistic' refers to proposals that remain 'within the limits of what is currently possible' (Patton, 2006, p. 126). This positioning aligns with contemporary liberal theory's aim of establishing rational principles for just and democratic institutions that align with considered moral

intuitions. The framework thus bridges idealistic aspirations with practical possibilities, seeking transformative change within the realm of what is politically feasible.

The aim of this research to explore potential elements for transformative change should not be underestimated and is a central premise of the thesis. The thesis is premised on the belief that transformative change is possible notwithstanding the challenges that need to be surmounted for such a transformation to realise itself. Such a belief is historically premised. As David Held aptly reminds us:

‘There was once a time when the idea that the old states of Europe might share a set of economic, monetary and political institutions seemed improbable, to say the least. It also appeared improbable that the Cold War would be brought to an end by a peaceful revolution. The notion that Nelson Mandela would be released from jail alive in South Africa, and that apartheid would be undone without substantial violence, was not anticipated by many. That China and India would be among the fastest growing economies in the world once seemed unlikely. Let us hope that the task of reframing global governance is similarly possible, even though now it seems remote. Let us hope as well that this task is pursued with an increasing sense of urgency.’ Held (2006, p. 173).

Indeed, the idea of global guardianship is a realistic utopia in the sense that it is an imagined reality based on observed reality, residing in the domain of the possible and of the achievable. The theoretical framework shares Buchanan’s (2005, pp. 70-71) observation that ‘we lose our focus if we stay too closely with the scientific cocoon of observed reality. It is the imagined reality that might be which pulls us forward’.

The thesis’ theoretical foundation supports a distinctive approach to contemporary global challenges. It recognises the need for strong institutional frameworks while preserving state autonomy, respects and acknowledges market mechanisms while acknowledging their limits, and promotes universal principles while respecting

cultural diversity. These elements come together to support a system of global ecological governance that is ambitious in its aims and realistic in its application.

Building on these foundations, the framework embraces global pluralism and multiculturalism within a liberal conception, viewing them as instrumental for both individual and collective autonomy (Kymlicka, 1995; Gray, 1997; 2007). This approach follows Galston's (2002, p. 199) argumentation that a liberal pluralistic society 'will organize itself around the principle of maximum feasible accommodation of diverse legitimate ways of life.' It shares Schlosberg's (2006, p. 153) view, echoing Raz (1986), that 'the liberal value of autonomy ... can only be realized in a pluralistic society, and so valuing autonomy leads to the endorsement of moral pluralism'.

However, the proposal for global guardianship rests on the premise that the 'reasonableness' of diverse peoples, notwithstanding their different values and perspectives, leads them to converge on a minimum set of rules that make possible the global and just regulation of the ecological commons. These rules are bound to be ethically informed. As aptly stated by Boucher and Kelly (2005, p. 9), the concept of 'reasonableness' depends on one's 'moral or ethical commitments'. 'Reasonableness' is also central to Rawls' (1999) theoretical framing in *The Law of Peoples*. The case for global guardianship embraces Rawls' (1993) emphasis on 'reasonableness' in democratic deliberations as a criterion for the legitimacy of proposals and draws on Rawls' (1999) idea of respect towards hierarchical non-liberal, well-ordered states that respect a certain minimum of human rights. It borrows the idea that an effective global regime needs to enjoy the support and political participation of liberal democratic and non-liberal states. The theoretical framework of the thesis embraces Kant's ideas of perpetual peace and a global pacific federation to secure freedom among states on the basis that international peace is instrumental for global ecological sustainability. It however parts from the ideal Kantian notion of global democracy as a federation of representative democratic states and instead favours a more Rawlsian conception that a stable international order needs to be representative of both liberal democratic and non-democratic, but decent, states.

My theoretical framing is built on the liberal egalitarian idea that ‘justice is a matter of treating people as equals rather than treating them equally’ and that individuals should be viewed as ‘responsible agents, accountable for their own choices’ (Dryzek et al., 2006, p. 32). However, since the theoretical framework deals with proposals at a global level, ‘responsible agents’ are taken to be peoples not persons. In this sense, the theoretical framework is not readily individualistic but rather leans towards the collectivistic. Principles of self-determination and non-domination endorse the view that, undominated, peoples can take responsibility for their action. The framework also presupposes that peoples and communities have an inherent capability for self-determination. It accepts the multiculturalist view that nations have a right for self-determination (Dryzek et al., 2006) on values that peoples have reason to value. I draws on Rawls’ (1993) *Political Liberalism* which affirms that a society that avoids sectarianism and embraces pluralism satisfies a liberal ideal of legitimacy.

The thesis’ theoretical framework can be viewed as residing in the domain of political liberalism insofar as access to the global ecological commons by the distributing agent does not dictate *how* such access is to be availed of. Rawls’ (1999, p. 80) principles of justice as fairness,

‘does not look beyond the use which persons make of the rights and opportunities available to them in order to measure ... the satisfactions they achieve’.

As stated by Arneson (2006, p. 59),

‘Rawls suggested that the principles of justice for the basic structure of society are stringently egalitarian but that individuals are free to live their lives as they choose so long as they abide by the rules of just institutions’.

This principle underlies the proposal for a global distributing agent that takes a circumscriptive, rather than prescriptive, approach, where possible. This underscores the need for a global political architecture that employs the principle of subsidiarity. As a matter of justice, the distribution of ecological entitlements is

built on a negative conception of freedom in that states' potential to harm others is regulated by circumscribing the ecological space available to peoples or states.

The theoretical framework does not readily take a stance in favour or against capitalism but identifies this area of research as an area for investigation given the assertions by some authors that capitalism is the principal driver of the global ecological crisis. After an independent examination, the thesis argues that global capitalism, in its current form, is an independent driver of the ecological crisis and subjects actors (including states and corporate actors) to pursue ecologically unsustainable economic activity in a competitive manner. The thesis recognises that capitalism has its merits (e.g. in the efficient employment of capital to raise material standards of living) but asserts that capitalism needs to be regulated if it is to remain ecologically sustainable. In the case for global guardianship, however, the thesis argues that issues such as global tax harmonisation to prevent capital accumulation might not warrant coercive global authority, as progress has been registered in global multilateral agreements. This does not, however, by itself guarantee ecological stability. Instead, the thesis advances the argument that a global guardian with coercive capabilities is necessary to protect the integrity of the global ecological commons, further taking on itself the task of assigning access to the global ecological commons in the form of ecological entitlements to states along ethical principles of distributive ecological justice to which states collectively agree. Since capitalism thrives on the exploitation of cheap nature, the direct regulation of nature will stall the advance of neoliberal capitalism and the unsustainable ecological degradation that is associated with it. This is however not a guarantee for stalling growing global inequality in material standard of living. Consequently, the thesis proposes a non-market-based distribution of ecological entitlements to states (sections 4.3.2 and 5.4), which would provide a necessary and protected ecological space for peoples to thrive. Since distribution of such entitlements is non-market based, such a space will be protected from the encroachment of capital and the possibility of such a space being relinquished to those with capital. It is argued that a non-market-based distribution of entitlements at a global level will decrease global inequality in material standard of living between states. It is important to note that the theoretical framing of the market in the thesis is not Marxist, that is, the market is not inherently seen as a *de facto*

‘generator of oppression and inequality’ (Dryzek et al., 2006, p. 15) but as a valuable means of exchange which has its place in society.

2.3.3 Republicanism

The thesis’ theoretical framework also shares some predominant republican values including the value of the common good, active citizenship, civic virtue and non-domination. It advances the case for a globally-binding institutional framework to protect a valuable common good (ecological stability), promote active and responsible engagement by all states, and hold principles (such as democracy and solidarity) that promote civic virtue. The thesis holds republican non-domination in the global sphere to be a necessary element for the security and freedom of peoples to self-determine themselves and take responsibility for their actions, on the understanding that:

‘Only men who governed themselves in a free state (*civitas libera*) could summon the level of agency necessary for virtuous action ... By contrast, slaves – those unfortunates who lived in a state of dependence upon the will of their masters – became passive, demoralised, and impotent in the face of tyranny’ (Nelson, 2006, p. 194).

Citing Cicero, Nelson (2006, p. 195) also speaks about the instrumental value of the ‘preservation of private property ... to secure *concordia*,’ the internal harmony of the *respublica*. In like manner, the thesis advocates for respect of state territorial jurisdictions for the maintenance of international peace and order but applies Philip Pettit’s theory of non-domination (vs. non-interference) to argue that states have ecological responsibilities towards the global *polis*. It rebuts claims for the coercive redistribution of natural resources or territory on ethical grounds or principles of distributive justice as, for example, argued by left-wing Lockeans who claim, ‘that the distribution of ownership of the world must be roughly equal’ (Arneson, 2006, p. 57).

This notwithstanding, the thesis makes a distinction between natural resources that can be domestically enjoyed unencumbered, and resources, the enjoyment of which

has negative implications on other states and on humankind as a whole. According to Cicero (1913, p. 23 as cited in Nelson, 2006, p. 197),

‘property becomes private’ in part ‘through long occupancy,’ and
‘each one should retain possession of that which has fallen to his lot;
and if anyone appropriates to himself anything beyond that, he will
be violating the laws of human society [*ius humanae societatis*]’.

As in the classical liberal tradition, I stand with the idea that freedom demands responsibility to refrain from harming others. While the thesis generally supports the institution of private property, it also makes the case that some goods should be beyond the reach of private (or state) ownership, and their ownership would thus constitute a violation of the laws of human society. Pollution, in the form of, for example, greenhouse gas emissions that exceed what a state should reasonably emit, constitutes both a threat to others and a claim on resources (atmosphere) that cannot be claimed as one’s own. Pettit’s theory of republican non-domination provides justification to the global *polis* to rightly interfere in the domestic affairs of a state to prevent it from harming others and to relinquish its claims on property that violate ‘the laws of human society’.

2.3.4 Deliberative democracy

The thesis’ theoretical framework also embraces the value of democracy as a fundamental liberty on the lines promoted by Anderson (1999) and Cohen (2003), and understood as ‘the right to participate on equal terms with other members of one’s society in collectively setting the laws that coercively regulate all member’s lives’ (Arneson, 2006, p. 60). More specifically, it shares characteristics promoted by deliberative democrats and recognises the value of deliberation for global democracy as justification for the exercise of coercive state power and its contribution to the reasonable character of authority (Scheuerman, 2006).

The thesis does not however take a radical Habermasian approach, as captured by this quote:

‘a vision of global (deliberative) democracy [resting] on the
realization of ambitious new forms of transnational democratic

decision-making subject to global civil society' (Scheuerman, 2006, p. 91).

Global civil society, which also carries limitations of democratic deficit at a global level, will contribute to decision-making, but is not intended to subordinate the formal to the informal. Formal decision-making structures have equally valid, if not better, democratic credentials to the informal structures. This is, notwithstanding, a democratic deficit which tends to widen as political structure grows in size and complexity; a limitation also acknowledged by Habermas but which did not change his position in favour of supranational political architectures such as the European Union. The thesis concurs with Habermas' stance as a 'defender' of 'relatively powerful forms of supranational European governance ... committed to the ideals of deliberative democracy' (Scheuerman, 2006, p. 92) and uses this as a prefiguration for a global formulation.

The theoretical framework shares the view that global institutions should represent the needs, interests and perspectives of everyone, as argued by Iris Young (2004 as cited in Scheuerman, 2006, p. 91), but only through a multi-layered global political structure. In such a configuration, states remain central features and retain vital administrative functions, but are called to respect a strong principle of subsidiarity such that the needs, interests and perspectives of everyone can be accounted for at the most appropriate hierarchical level and an optimal degree of granularity. Young also calls for strengthening and democratising the UN, which can be read as meaning that deliberation within UN structures should be as representative as possible of people on the ground while at the same time promoting and protecting fundamental human rights (Scheuerman, 2006, p. 91). UN 'strengthening' should not however be conceived to mean subordinating its formal structures to global civil society and the thesis rejects this view. As Scheuerman, (2006, p. 99) argues, 'non-state bodies will undoubtedly play a key role' but that this 'should not lead us to obscure the indispensable functions [of] existing state and new state-like institutions'. He continues:

'The important point for now is to recognize the potential perils of an interpretation of deliberative civil society that misleadingly generates an unwarranted neglect – and even skepticism – of the

necessity of institutional mechanisms that will need to play a crucial role in realizing the legally binding and effectively accountable general results of free-wheeling deliberation' (Scheuerman, 2006, p. 99).

My research shares Scheuerman's view that informal foci of deliberation and Habermasian 'free-wheeling argumentation' should complement, not replace, the formal decision-making structures. Furthermore, the theoretical framework endorses the idea that spaces for deliberation should be formally protected and promoted.

Some Habermasian deliberative democrats propose 'ambitious models of cosmopolitan democratic government, where supranational formal institutions would take on many tasks presently exercised by the nation state', including 'fundamental alterations to the distribution of economic resources on the global level' (Scheuerman, 2006, p. 95). Scheuerman counter-argues that these models are 'fundamentally utopian given present economic and political conditions' where privileged rich countries are unlikely to accede to a global redistribution of economic resources. The thesis rejects the Habermasian view of cosmopolitan democratic governments taking on the task of the domestic state and argues beyond Scheuerman's view that coercive global economic redistribution is not only politically unfeasible, but also unnecessary for ecological sustainability and ethically objectionable.

The theoretical framing shares the view held by communitarians that individuals are embedded within communities and that community 'creates individuals as they actually exist' (Dryzek et al., 2006, p. 19) but also recognises that individuals have inalienable rights (e.g. human rights) independent of the community they belong to. The principle of subsidiarity in global guardianship aims to empower states and communities at sub-state levels to take collective action at the most appropriate hierarchical level. The thesis also shares the communitarian stand that individuals 'have obligations to the community not just to the political arrangements that facilitate their own interests' (Dryzek et al., 2006, p. 19). In this thesis, states have obligations to the international community that go beyond self-interest and that are taken in solidarity with other states. The pursuit of ecological sustainability, which

is a pursuit for a common good, while in the interest of all, will benefit some actors (e.g. vulnerable low-lying states) more than others.

With regards to distributive ecological justice, the theoretical framework endorses states (or peoples) and communities (at sub-state level) as collective and moral units in the global polis. It concurs with Beitz (1979) and rejects the view that international relations is morally discontinuous with domestic society. Drawing on the writings of the classical international jurists from Pufendorf to Vattel, Locke, Kant, and Mill, Charles Beitz (1979, p. 408) argues that,

‘international society is understood as domestic society writ large, with states playing the roles occupied by persons in domestic society. States, not persons, are the subjects of international morality, and the rules that regulate their behavior are supposed to preserve a peaceful order of sovereign states’.

To be sure, the thesis is premised on the view that internationally both states and persons, depending on the issue at hand, can be the subject of international morality, and one is not exclusive of the other. The theoretical framework shares Canovan’s (2006, p. 355) approach who argues that people can be seen both as a collection of individuals and as a collective whole, ‘the people’ as one body. She states that Italian medieval jurists ‘described a *populus* that was not just an aggregate of individuals but a *universitas*, able to act as a body through legally-defined organs’. These thinkers saw the ‘people’ as ‘a political actor in the real world’. Many social contract theorists, such as Pufendorf, also perceived the people that bring a legitimate state into being, as a ‘compound moral person’ (Canovan, 2006, p. 356).

2.3.5 Cosmopolitanism, international relations, and other schools of thought

As a matter of global ecological justice, the theoretical framework does not readily align to either statist or cosmopolitan views, the latter of which holds that we do not ‘owe more to fellow citizens than to distant needy strangers’ (Arneson, 2006, p. 61). The theoretical framework is anchored in the belief that legitimate international rules that promote a global well-ordered and ecologically sustainable society should be respected by all states or peoples. Rawls’ (1999) *The Law of*

Peoples is arguably anti-cosmopolitan urging ‘minimal duties towards outsiders’ but on the other hand also promotes a core set of human rights that apply to all irrespective of citizenship or membership to states or communities. The theoretical framework aligns to the view that there are fundamental duties, such as respect for the ways of life of other peoples, the value of non-domination, respect for self-determination, respect for human rights, the pursuit of distributive ecological justice, that apply globally as much as locally. International rights can be state-centric (e.g. the right of states to self-determination) and person-centric (e.g. the human right to health). In this sense, it shares commonalities with cosmopolitanism.

This thesis’ theoretical frame does not readily align itself to international relations schools of thought. It shares observations made by the realist school that states tend to maximise security and draws on the liberal institutionalist school to advance the idea that institutional cooperation is possible and desirable, even at a global level. On one hand, it rejects the radical realist view that global institutions are merely the embodiment of already existing international agreements, which effectively means that the existence of global institutions is merely cosmetic and their functions are redundant (Jervis, 1999). To the contrary, the theoretical frame endorses the view that global institutions have a role in influencing global norms and facilitating global agreements. On the other hand, the theoretical frame does not share an overly optimistic radical institutionalist stand that an organisational framework is, by itself, *the* solution to the global ecological crisis. Instead, the research is framed on the premise that a legal and organisational framework, while necessary, needs to be complemented and supported with shared values, norms and principles which find expression and are embodied in the aforementioned framework.

The thesis draws on Catholic social teaching because it recognises the Roman Catholic Church as a world leader. Indeed, the Vatican holds a seat and is a non-voting member of the United Nations General Assembly together with the international community of states. The thesis does not, however, adopt this as a theoretical frame but rather occasionally draws on the insights of the Roman Catholic Church in like manner to other authoritative bodies because the Church still plays an influential role in world politics.

The doctoral research values the history of political thought and draws extensively on it. However, as observed by Dryzek et al. (2006, p. 31),

‘the role and object of historical inquiry has been much debated in recent decades, and the idea that one should search the classical texts for answers to the perennial problems of political life has been subjected to especially searching critique’.

For this reason, the thesis recognises the limitations of historical inquiry on the application to today’s problems and seeks to contextualise proposals, inspired by historical thought, to contemporary global realities.

2.4 Conclusion

This chapter has established the methodological and theoretical foundations that will guide the examination of global ecological guardianship. The methodology is firmly grounded in normative political philosophy. It employs an argument-based approach that emphasises logical rigour while being sensitive to the complexities of global ecological governance. Through the method of reflective equilibrium, this research seeks to achieve coherence between theoretical principles and considered judgements. It allows for systematic examination of both the practical challenges and moral imperatives inherent in global ecological governance.

The theoretical framework deliberately transcends traditional theoretical boundaries, synthesising insights from multiple traditions in political thought. This synthesis is particularly evident in its integration of contractarianism with Scanlonian contractualism, which provides robust grounds for considering obligations to future generations. The framework further incorporates the republican values of common good and non-domination, alongside deliberative democracy’s insights on legitimate authority, and liberalism’s no-harm principle. This theoretical synthesis accommodates practical concerns and long-term sustainability imperatives.

Importantly, while drawing on multiple theoretical traditions, the framework maintains a critical stance toward their limitations. It recognises that addressing complex global challenges often requires synthesising insights from multiple

intellectual traditions rather than adhering strictly to any single theoretical paradigm. This approach allows for the development of proposals that are theoretically rigorous while remaining grounded in the realities of contemporary global governance.

This methodological and theoretical framework provides the foundation for the following chapters, which will examine specific drivers of the global ecological crisis and develop the case for global ecological guardianship. This framework will inform the analysis of key questions regarding legitimacy, authority, and effectiveness in global ecological governance. It will ensure that the proposed solutions remain both normatively justified and practically feasible, while recognising their limitations. By grounding the analysis in these robust philosophical foundations, this thesis aims to contribute meaningfully to the literature on global ecological governance.

3.0 The Nature of the Ecological Crisis; science, economic growth and market capitalism

3.1 Introduction

This chapter is divided into three sections. The first section is a description of the scientific nature of the global ecological crisis and an exploration of its defining attributes (3.2). Rockström et al.'s (2009b) Planetary Boundaries Framework is used as a framework to dissect the ecological crisis into separate components, for the singular purpose of breaking down a complex reality into discernible components. Such components include climate change, ocean acidification, biosphere integrity, stratospheric ozone depletion, nitrogen-phosphorus biogeochemical flow imbalance, land system change, and other novel entities. The human implications of each of the identified components is discussed in detail. Action taken by the international community towards mitigating the adverse effects of each component is discussed with a view to identify underlying facilitators and barriers to effective ecological action. Four defining attributes of the ecological crisis are developed. These include irreversibility, inertia, uncertainty, and urgency. The implications of weaning humanity off abundant energy sources – a principal cross-cutting driver of global ecological degradation – are briefly described.

The second section (3.3) analyses the relationship between economic growth and ecological sustainability in view of the fact that global economic growth is widely held to be one of the main drivers of the global ecological crisis (Georgescu-Roegen, 1971; Daly, 1991; Latouche, 2009; Kosoy et al., 2012; Raworth, 2017; Hickel, 2019; Williams, 2019; Jackson, 2021). In this section, I analyse the association between economic growth and ecological degradation, describing the role and evolution of ecologically blind neoclassical economic theory to ecological degradation. The ecological relevance of different understandings of economic growth is described – these include GDP growth, material economic growth and structural growth. I then proceed to present a social critique of economic growth in relation to material affluence, human advancement, and income inequalities. Finally, I end with a critique of the political imperative of economic growth describing an inter- and intra-national political dynamic that creates a premise for more growth.

The third section examines the claim that market capitalism, rather than the economic growth imperative, is the root cause of the ecological crisis (3.4). This is based on the assertion that the root cause of the ecological crisis is capitalist; a result of the metabolic rift between human beings and nature (Foster et al., 2010; Smith, 2010; Moore, 2016; 2018; 2019; Liodakis, 2018; Soriano, 2018a; 2018b). Instead of viewing the capitalist mode of production as a consequence of the economic growth imperative, these authors argue that the economic growth imperative is created by capitalism, and capitalists, for capitalism's perpetual survival. This section provides an ecological, social and ethical critique of capitalism by dissecting capitalism into its four principal components: private property, wage labour, profit, and market economy. This section ends with a general critique of market capitalism where I argue that capitalism and its components are not objectionable on ecological grounds on condition that they are regulated by state and state-like institutions, and complemented by non-market institutions.

3.2 Defining the challenge – the science behind the ecological crisis

Unsurprisingly, the 'ecological crisis' represents more of a crisis for humanity than for the Earth system *per se*. 'Crisis' is defined as 'a time of intense difficulty or danger'; it is 'a time when a difficult or important decision must be made' (Oxford English dictionary, 2019). The danger that is inherent in the ecological crisis refers to the possibility of loss of quality of human life, threats to current ways of life of human societies, and the possibility that the human species will drive itself to extinction by forcing a planetary state shift. The Earth system has undergone numerous planetary state shifts in the past and it has experienced at least five mass extinctions (Barnosky et al, 2012). From an Earth system perspective, the 'ecological crisis' and the possibility of a planetary state shift would be one other event in the geological and evolutionary record of the planet. It is humanity and humanity's way of life that are most prominently jeopardised by a planetary shift, perhaps along with the survival of other large species. Since the crisis is anthropogenic in nature, it is increasingly evident that the ecological crisis also represents a time in human history when difficult and important decisions must be made.

3.2.1 History of human impact

Pre-industrial

The earliest impacts of humans on the planet can be traced back to around 2 Mya when *Homo erectus* mastered the use of fire to keep dangerous animals away, for hunting and for cooking. The late Pleistocene epoch is also marked by megafauna extinctions, such as those of the woolly mammoth in Northern Eurasia and giant wombats in Australia, very likely a result of human intervention. This was followed by the domestication of dogs and farm animals, forest clearing and agricultural development in the Holocene epoch, which may have also led to small increases in atmospheric carbon dioxide and methane concentrations (Steffen et al., 2007; Malhi, 2017), both of which are principal greenhouse gases. Notwithstanding, these impacts were mostly localised, transient, or restricted in scale.

The first significant industrial use of fossil fuels (coal) was seen during the Song Dynasty in China (960-1279), mainly for the growing iron industry, and peaked in the late 11th century (Hartwell, 1962; 1967). Similarly, the use of coal, first as an industrial fuel and then for home heating, in London can be traced back to at least the 13th century and reached high levels in the late 17th century (Te Brake, 1975; Brimblecombe, 2000). However, coal use in the preindustrial era represented regional exceptions and the rest of the world depended on wood and charcoal as primary sources of energy (Steffen et al., 2007). Indeed, ‘preindustrial humans did not have the technological or organisational capability to match or dominate the great forces of nature’ (Steffen et al., 2007, p. 614).

Industrial era (1800 – 1945)

The Industrial era is taken to correspond roughly to the period between the beginning of the Industrial Revolution and the end of World War 2. With the onset of industrialisation, first in England around the 1700s, but then spreading rapidly to the Low Countries (first Belgium) and then to the rest of the world in the 19th century (Mokyr, 1974), humanity’s ecological impact rose significantly. The enormous expansion in the use of fossil fuels (coal, oil, and gas) is a central feature of the Industrial era. Kosoy et al. (2012, p. 77) also argue that the Industrial Revolution ‘was as much a social transformation as a technological process’ and

that ‘the invisible routines, conventions, and habits’ that accompany technological progress have had far reaching effects on sustainability.

The year 1784 is arguably the most important year in the evolution of the industrial process as it marks the year when James Watt invented the steam engine (Crutzen, 2002). The invention of the steam engine, and subsequently the development of the internal combustion engine, together with the use of fossil fuels shattered a bottleneck in energy supply which had been present for centuries. This opened an era of abundance and material wealth. As stated by Steffen et al. (2007, p. 616) ‘fossil fuel use offered access to carbon stored from millions of years of photosynthesis: a massive energy subsidy from the deep past to modern society...’ The availability of a readily transportable rich energy source revolutionised the production process and massively increased production, leading to higher standards of living and population growth. In fact, industrial society is estimated to have used around four to five times the energy used by agrarian society (Steffen et al., 2007).

In addition, the industrial era was also characterised by land-use change, waste production and a global population boom, all of which increased markedly humankind’s global ecological footprint on the planet. Between 1820 and 1950, the world population increased from a mere 1 billion to approximately 2.5 billion people. Deforestation and conversion to agriculture increased exponentially. By 1950, the atmospheric concentrations of methane and carbon dioxide, both of which recognised as principal greenhouse gases, had increased from pre-industrial concentrations of 850ppbv and 275ppmv to 1250ppbv and 311ppmv respectively (Steffen et al., 2007). In fact, global warming, a defining component of the ecological crisis, is agreed to have started with the onset of the Industrial Revolution.

Notwithstanding, humanity’s imprint on the planet during the Industrial era pales in comparison to the planetary Earth system changes that were set in motion following the political, technological and economic changes after the Second World War, during the period better known as The Great Acceleration.

The Great Acceleration (1950 – 2015/present)

The Great Acceleration refers to ‘the remarkable explosion in the human enterprise from the mid-twentieth century, and the associated global-scale impacts on many aspects of Earth system functioning’ (Steffen et al., 2007, p. 617). It came about in a political and social context which was mainly focused on international peace and security, and which gave little account of humanity’s growing impact on the planet. In fact, the Great Acceleration began soon after the Second World War and followed from a period which was plagued by two world wars (World War I – 1914-1918; World War II – 1939-1945) and the Great Depression (1929-1939) – three devastating experiences which affected adversely the livelihood of many people globally. Leading scientists and ecological historians, including Will Steffen and John McNeill, assert that the political and social conditions of the 1950s were ideal for the rapid global population and economic expansion, and its associated global ecological impacts that were yet to come (Steffen et al., 2007).

The lessons learned from the three painful events of the first half of the twentieth century inspired a new wave of international institutions, promoted technological innovation and advanced industrial production to unprecedented levels. Global population boomed, and standards of living increased dramatically even if inequitably distributed within societies and across the globe. The most far-reaching of the international institutions was the United Nations, which officially came into existence after several years of preparation on the 24th of October 1945 (UN, 2019). Quoting the Charter of the United Nations (UN, 1945), Chapter 1, Article 1: ‘The purposes of the United Nations are: 1. To maintain international peace and security...’. This is the climate within which the Great Acceleration took off.

After the 1950s, technological innovation surged and there was unprecedented political commitment for research and development with funds that were available in an era of re-found peace and prosperity. Technological advancement coupled with a widely available and relatively cheap source of energy – fossil fuels – made industrial production boom. The Haber-Bosch process – the industrial production of inorganic ammonia-based fertilisers from atmospheric nitrogen – is one typical example which captures the spirit of technological and industrial advances that were underway after the Second World War (Mackenzie et al., 2002). Likewise,

phosphate rock mining for inorganic fertiliser production increased (Mackenzie et al., 2002). Between 1950 and 1994, the consumption of nitrogen and phosphorus-based fertilisers exploded from a measly 3 and 2.4 Mtons respectively to 74 and 13 Mtons respectively. The availability of nitrogen and phosphorus fertilisers revolutionised agriculture, increased crop yields and sustained a global population boom from around 2.5 billion at the end of the Second World War to around 6 billion at the end of the twentieth century, over the span of around 50 years (Steffen et al., 2007; Worldometers, 2019). However, the widespread use of synthetic fertilisers heavily disrupted the natural nitrogen and phosphorus cycles, both of which are also recognised as important components of the ecological crisis.

In addition to more rapid population and global economic growth, the Great Acceleration is also characterised by the rise of the city and the ‘mega-city’. Whereas in 1880, perhaps 200 million people lived in cities, this figure had exploded to around 3 billion by the end of the twentieth century. The urban population increased significantly from 30% in 1950 to 50% in the year 2000 (Steffen et al., 2007) and continues to increase. Whereas the village was the typical habitat for humans for millennia, the city increasingly became the characteristic habitat of *Homo sapiens* in the twentieth century, and an engine of technological innovation and economic growth (Steffen et al., 2007). Mega-cities – defined as ‘cities with more than 10 million inhabitants’ – increased from one in 1950 (New York) to seventeen by the year 2000 (Lambin et al., 2003, p. 212). The number of reservoirs and dams constructed to benefit human society increasing markedly after the 1950s, disrupting ‘the ecological connectivity of rivers’ (Lehner et al., 2011, p. 494). The area of cropland and that under pasture increased 4 to 6-fold by the year 1990 over pre-industrial times, with forest areas and grasslands experiencing a rapid decline in the second half of the twentieth century (Lambin et al., 2003; Lambin & Geist, 2006). Similarly, motor vehicles increased 15-fold over the span of around 50 years. Fossil fuel use and petroleum consumption rose exponentially. International travel increased and there was increasing interconnectedness with the explosion of communication technology and increasingly globalised trade (Steffen et al., 2007). As a result, global terrestrial surface changes reached 30-50% by the year 2000 (Crutzen, 2002) and climate change had quickly climbed the international political agenda.

The political and ecological relevance of the Great Acceleration on humanity's increasingly growing imprint on the planet is indisputable. In fact, the 1950s are being seriously considered as a start date for a new geological epoch – the Anthropocene – as it is the time around which anthropogenic large-scale planetary shifts, beyond the natural variability of the Holocene, became evident (Steffen et al., 2015a; Jørgensen, 2017). To be sure, the impact continues at an increasingly alarming rate today. Quoting Steffen et al. (2015a, p. 94), before the 1950s,

‘human activities were insignificant compared with the biophysical Earth system, and the two could operate independently ... it is now impossible to view one as separate from the other’.

Similarly, Malhi (2017, p. 98) describes the Anthropocene, and more so the Great Acceleration, as ‘an entanglement of human history and Earth history that did not exist before’. In her review of Hamilton's (2017) *Defiant Earth: The Fate of Humans in the Anthropocene*, Ruder (2018, p. 130) aptly summarises humanity's recently pronounced impact on the planet by stating that ‘there is a long history of humans and other species affecting the Earth; but, this is the first time that any being has altered the Earth system as a dynamic whole’.

3.2.2 Planetary boundaries – components of the ecological crisis

The ecological crisis manifests itself as climate change, ocean acidification, stratospheric ozone depletion, loss of biosphere integrity, disruption in global biogeochemical flows, land system change (deforestation, urbanisation and agricultural intensification), freshwater change, and the contamination of wildlife with synthetic man-made materials such as micro-plastics. These ecological components have been conceptualised in the Planetary Boundaries Framework (PBF) by Rockström et al. (2009b) consisting of nine planetary boundaries which, if transgressed, may irreversibly trigger a planetary state shift which threatens humanity. Since 2009, the number of transgressed boundaries has increased. Six of the nine boundaries have been transgressed suggesting that ‘the Earth is now well outside of the safe operating space for humanity’ (Richardson et al., 2023, p. 1). Ocean acidification is rapidly approaching its safe operating boundary. Climate

change and biosphere integrity are deemed to be core boundaries as, by themselves, they can initiate planetary transitions (Steffen et al., 2015b) Richardson et al. (2023, p. 2) show that these two boundaries are in a zone of ‘rapidly increasing’ and systemically linked risks. Rockström et al. (2009a, p. 25) defines the Earth system as

‘the integrated biophysical and socioeconomic processes and interactions (cycles) among the atmosphere, hydrosphere, cryosphere, biosphere, geosphere, and anthroposphere (human enterprise) in both spatial—from local to global—and temporal scales, which determine the environmental state of the planet within its current position in the universe’.

Thus, the Earth system is a highly complex system in which human life is intrinsically intertwined.

Climate change

Climate change is currently accelerating as a result of increased anthropogenic greenhouse gas emissions. Greenhouse gases trap heat in the troposphere leading to global warming. Global warming super-charges the climatic system and manifests itself as increased frequency and intensity of extreme weather events including heatwaves, heavy precipitation, flooding, prolonged periods of drought and storms (IPCC, 2023). With increasing annual average ocean temperatures, oceans expand. Ocean expansion and glacial melting lead to sea level rise. It is now universally accepted that accelerated climate change is anthropogenic and that it is directly related to fossil fuel burning and to land-use change such as deforestation, among other. Carbon dioxide, nitrous oxides and methane, the latter of which is also a product of the cattle industry, are recognised as principal greenhouse gases (IPCC, 2023).

The greenhouse effect was first noted as early as 1827 by French scientist Jean-Baptiste Fournier. In 1896, the Swedish chemist Svante Arrhenius linked this observed warming effect to increased atmospheric concentrations of carbon dioxide. It was not until the 1940s, however, that global warming was presented as an issue of concern and was directly associated with fossil fuel combustion

(Houghton, 2009). By 1957, Roger Revelle and Hans Suess of the Scripps Institute of Oceanography in California described anthropogenic global warming as ‘human beings ... carrying out a large-scale geophysical experiment’ (Houghton, 2009, p. 23), signalling at the magnitude of potential repercussions of increased human activity on Earth. In 1979, the editorial of the journal *Nature* described the atmospheric release of carbon dioxide by the burning of fossil fuels as ‘the most important environmental issue in the world today’ (Nature, 1979, p. 1) clearly noting the urgency of the issue. From then on, climate change climbed the political agenda of the international community quickly. In 1992, nations approved a general framework to fight climate change better known as the United Nations Framework Convention on Climate Change (UNFCCC) (UN, 1992a) which culminated in the historic, but arguably vague, universally endorsed 2015 Paris agreement (Tollefson & Weiss, 2015). Despite this, the rate of global greenhouse gas emissions continues to increase annually (IPCC, 2018). Developed countries such as the United States of America and countries which are today members of the European Union have originally been the principal emitters. However, a large proportion of global greenhouse emissions is increasingly being attributed to developing countries such as China, which by itself was responsible for around 30% of global emissions as of 2014, approximately equivalent to that of the United States of America and the European Union together (Tollefson and Weiss, 2015).

Warming of the climate system is unprecedented and unequivocal. Records covering the past 800,000 years show that anthropogenic greenhouse gas emissions are the highest in history (IPCC, 2023). It is estimated that human activity has caused approximately 1.1°C of global warming above the period 1850-1900 (IPCC, 2023). Three quarters of cumulative carbon dioxide emissions have been released since 1945 (Jørgensen, 2017) and greenhouse gas emissions have accelerated further at the turn of the twentieth-first century (IPCC, 2014a). At the current rate of global GHG emissions, the average atmospheric temperature is projected to reach 1.5°C above industrial times in the mid-2030s and above 2.0°C by the end of the 21st century (IPCC, 2023). Beyond an atmospheric warming of 1.5°C, the risks to natural and human systems are likely to be severe, pervasive, long-lasting, or irreversible, and the IPCC advocated for more radical political, institutional, and technological changes, proposing alternative energy options to fossil fuels.

Furthermore, above 1.5°C there is a greater likelihood that global warming reaches a tipping point beyond which warming takes off irreversibly and uncontrollably leading to a situation where Earth (termed as ‘Hothouse Earth’ by Steffen et al. (2018)) is transformed into an inhospitable or inhabitable space for the human species. A target of 2°C, as pledged by nations in the Paris agreement, is insufficiently safe and very risky for the wellbeing of humanity and of future generations. Notwithstanding, Tollefson and Weiss (2015) have noted that the pledges made under the Paris agreement are very challenging to keep. Indeed, the IPCC (2022) has shown that countries are not keeping to their pledged commitments.

Furthermore, climate change will accelerate biodiversity loss, another important component of the ecological crisis. Since climate change causes local changes in temperature and precipitation, it will put pressure on reservoirs of biodiversity, such as tropical rainforests, which are already experiencing high rates of extinction from other human threats (Barnosky et al., 2012). It is estimated that at the current rate of warming, up to 30% of mammal, bird and amphibian species will be close to extinction by the end of the twenty-first century (Diaz et al., 2005). This is because contemporary organisms are unable to adapt with the speed of change in the climate and in their habitats. By the end of the twenty-first century, up to 10-48% of terrestrial surface is expected to experience novel or disappearing climates (Williams et al., 2007).

Ocean acidification

Oceans cover around two-thirds of the Earth’s surface and contribute massively to Earth’s biodiversity (Steffen et al., 2011). They also serve as a highly efficient carbon sink and have absorbed more than half of the carbon dioxide emitted from fossil fuel burning since industrial times (Raven et al., 2005). When carbon dioxide dissolves in water it forms carbonic acid, and this is the process by which ocean acidification occurs. Even small changes in ocean pH (acidity) have serious implication to marine life. One example is coral reefs, which are particularly sensitive to minor changes in surface ocean temperature and pH. Coral reefs are the bedrock for a plethora of marine organisms. Ocean acidification has serious implications on the longevity and stability of coral reefs (Raven et al., 2005;

Rockström et al., 2009a). As a result, entire ecosystems of marine life are jeopardised by current and projected increases in ocean acidification, and the bleaching of coral reefs, among others, is likely to lead to an impoverishment of marine ecosystem services which are vital for humanity.

Prominent authors have expressed concern about the staggering and accelerating rate of change in ocean pH. Surface ocean pH has decreased by about 0.1 pH units since the Industrial Revolution (Guinotte & Fabry, 2008), a change which is at least 100 times faster than observed at any time during the last 20 million years (Rockström et al., 2009a). Over the past two decades alone, ocean pH decreased by an astounding 0.05 pH units (Barnosky et al., 2012) and is projected to decrease by 0.5 pH units over pre-industrial times by the end of the twenty-first century in a business-as-usual scenario (Raven et al., 2005).

Furthermore, ocean acidification is mostly irreversible as it will take tens of thousands of years for ocean chemistry to return to conditions like those of pre-industrial times (Raven et al., 2005). The irreversibility of humanity's impact on the Earth system manifests itself also in other components of the ecological crisis, such as climate change and ozone depletion. In fact, atmospheric and ocean warming from past anthropogenic carbon dioxide emissions, and its associated impacts on the climate system such as sea level rise, will persist for centuries to millennia even if greenhouse gas emissions were stopped altogether today (Steffen, 2011; IPCC, 2018; 2023). This is characteristic of the inertial effect of emissions on the climate system and on ocean chemistry – humanity's ecological impact today will be felt for generations to come. It is also one of the lessons learned from the ozone depleting effects of chlorofluorocarbons which were phased out altogether in the 1980s and 1990s, yet, the ozone layer over Antarctica has been observed to have started healing only around the year 2015 (Steffen et al., 2015a; Solomon et al., 2016).

Biosphere integrity

Along with the atmosphere, the hydrosphere, the cryosphere and the geosphere, the biosphere is an integral part of the Earth system (Rockström et al., 2009a). It has been in existence for at least the past 3.7 billion years and is the part of the Earth

system occupied by living organisms (Nutman et al., 2016). All biological activity and life on Earth is thus referred to as the biosphere. The biosphere is regarded as one of the, if not the most, important component of the Earth system since it is directly affected by all the other components of the ecological crisis including ocean acidification, climate change, land system changes and biogeochemical pollution (Mace et al., 2014; Richardson et al., 2023). Like climate change, it operates at the level of the whole Earth system. Large changes in biosphere integrity can, on their own, push the Earth system out of the Holocene-like state (Steffen et al., 2015b).

Species extinction is a natural process and occurs with or without the interference of human beings (Barnosky et al., 2012). However, since the 1950s the rate of species extinction has risen hundred times higher than the background rates that were typical in Earth's history (Pimm et al., 1995; IPBES, 2019), largely as a result of anthropogenic resource use, pollution and climate change (Barnosky et al., 2012). These rates of species extinction were last seen during the last global mass extinction event of 66 million years ago, leading authors such as Steffen et al. (2007), Dalby (2016) and Ceballos et al. (2020) to refer to the current wave of species extinctions as the 'sixth mass extinction event'.

Biosphere integrity as a planetary boundary has been breached beyond a level of uncertainty at least since 2009 (Rockström et al., 2009a) and is now in the 'high risk zone' (Richardson et al., 2023). In a landmark paper, Rockström et al. (2009a, p. 54) warned that 'the world cannot sustain the current rate of loss of species without resulting in functional collapses' and highlighted biodiversity loss as being the planetary component furthest outside the safe operating space for humanity. This boundary breach was confirmed again by Steffen et al. (2015b) and Richardson et al. (2023). Rates of species loss for terrestrial and marine life continue to grow. In 2002, Harvard biologist Edward Wilson (2002) contended that the scientific community generally agreed that, in a business-as-usual scenario, 50% of species will be extinct by the end of the 21st century, leading him to establish the Wilson Biodiversity Foundation to promote the protection of half of the Earth's terrestrial and ocean surface.

Over the course of the twenty-first century, the rate of species extinction is projected to accelerate, not least because of climate change and ocean acidification

(Rockström et al., 2009b). Biomes – fundamental components of the biosphere including rainforests, coral reefs, the Arctic tundra, and the Savannah – are projected to be adversely affected (Barnosky et al., 2012; Mace et al., 2014). This will have serious repercussions on the availability of ecosystem services for humanity, not least because of the functional role that biomes play in the preservation of biodiversity. Moreover, biomes have important climate and ecosystem regulatory functions which, once destabilised, would lead to further global warming and subsequent deterioration of functional biosphere integrity (Mace et al., 2014; Richardson et al., 2023).

Wilson (2014) summarises the anthropogenic drivers of biodiversity loss into a classification represented by the acronym HIPPO. These include habitat loss (H), the introduction of invasive species (I), pollution (P), population growth (P) and overharvesting (O). Habitat loss is the result of deforestation, the conversion of grassland and the adverse impacts of climate change. The accidental introduction of invasive species is related to increased travel and transport. Pollution refers to contaminated freshwater and marine bodies from agricultural practices. Population growth refers both to the sheer increase in population number as well as increase in *per capita* consumption worldwide. The best example of overharvesting is of fisheries which has resulted in dwindling fishery stocks worldwide.

Biodiversity is unlikely to be replenished anytime soon after humanity has reduced its ecological impact to sustainable levels. This is because it takes hundreds of thousands to millions of years for the evolutionary process to rebuild biodiversity back to ‘pre-crash’ levels after a mass extinction (Sahney and Benton, 2008).

Biosphere integrity, including genetic and functional biodiversity (Mace et al., 2014; Steffen et al., 2015b; Richardson et al., 2023), is critical for Earth system functioning. *Homo sapiens*, being an organism itself, is at risk of suffering the fate of many species – extinction – as the ecological crisis runs its course. In the eventuality that humankind manages to escape the fate of extinction, Barnosky et al. (2012) express concern about the capability of seriously deteriorated ecosystem services to support a massive global human population which has now exceeded 8 billion. As rightly stated by Dalby (2016, p. 33), ‘the future will be bad for at least

most of humanity as we accelerate the sixth extinction event on the planet' unless we change course quickly.

Stratospheric ozone depletion

Stratospheric ozone protects the planet and humanity from harmful ultraviolet radiation. Stratospheric ozone depletion is caused by the anthropogenic release of chlorofluorocarbons (CFCs). CFCs are synthetic chemicals which were previously thought to be harmless until scientific observation in the mid-1970s showed their dramatic, unexpected depleting effects on the ozone (Crutzen, 2002). Awareness about the erosion of the ozone layer led to the adoption of the Montreal Protocol in 1987 (Steffen et al., 2007), which entered into force in 1989 and was followed by four amendments. In 2009, the Montreal Protocol was hailed a success of truly global participation after it became the first ever Protocol to obtain universal ratification by the 197 Parties to the United Nations (UNTC, 2016). In fact, ozone depletion is the only planetary boundary for which effective and definitive international action has been taken. As a result, stratospheric ozone depletion is within a safe operating space (Richardson et al., 2023). This contrasts with international agreements to reduce greenhouse gas emissions, which have dragged on since the inception of the UNFCCC (UN, 1992a).

Notwithstanding, it took 30 years after entry into force of the Montreal Protocol for the Antarctic stratospheric ozone to show early signs of recovery (Steffen et al., 2015a; Solomon et al., 2016) and is projected to take another 50 years to heal (Rockström et al., 2009a). This is because the negative effects of ozone depleting substances are not immediately reversible.

Still, in his seminal paper, Crutzen (2002) states that humanity should count itself lucky that by chance, more than by wisdom, it averted a catastrophic situation were brominated fluorocarbons used instead. He states,

‘if it had turned out that chlorine behaved chemically like bromine, the ozone hole would by [the mid-1970s] have been a global, year round phenomenon, not just an event of the Antarctic spring’ (Crutzen, 2002, p. 23).

Unfortunately, Steffen et al. (2015b) assert that humanity is not yet applying the insights garnered from previous experience and is still running large-scale experiments with potential catastrophic effects.

Biogeochemical flows

Biogeochemical flows is a category which was identified by Rockström et al. (2009a) as constituting an important ecological component. It primarily refers to two main biochemical cycles – the nitrogen and the phosphorus cycle – and is a planetary boundary that resides in the high risk zone (Richardson et al., 2023).

The synthesis of ammonia from atmospheric nitrogen, as well as phosphate mining, started after 1945. The use of synthetic fertiliser revolutionised agriculture and increased crop yields. The widespread use of fertiliser sky-rocketed and by the end of the twentieth century more nitrogen was being converted into reactive forms by energy-intensive fertiliser production than naturally by all terrestrial ecosystems put together (Galloway & Cowling, 2002). This created a biochemical imbalance which has ecological implications in the form of regional or localised eutrophication, biodiversity loss, and loss of ecosystem services.

Synthetically fixed nitrogen leaching into water bodies, such as rivers, groundwater, and coastal waters, causing major ecological perturbations. It reduces drinking water quality and causes eutrophication (Fenn et al., 2003). Nitrogen deposition affects the composition of plant and microbial communities leading to a cascading ecosystem effect on organisms that depend on the affected communities (Fenn et al., 2003). Eutrophication potentially leads to hypoxic or ‘dead’ zones, directly threatening the livelihood of native species (Paine et al., 1998). One cited example is fertiliser leaching into the Mississippi river which, after a flooding event in 1996, increased the already large ‘dead zone’ in the Gulf of Mexico to around 18,000km². Oxygen-deficient waters threatened the livelihood of sea creatures, such as shrimp and crabs, and led the government of the United States of America to take steps to reduce fertiliser use (Kaiser, 1996 as cited in Paine et al., 1998).

Global nitrogen and phosphorus cycle perturbations are directly linked to synthetic fertiliser use. This practice contributes to climate change, speeds ocean acidification, and hastens biodiversity loss, further eroding ecosystem services. For

these reasons, biochemical flow imbalances contribute significantly to the ecological crisis jeopardising the survival of numerous species and the livelihood of people around the world.

Land system change

Since the start of the Holocene and the onset of civilisation, humans have transformed natural land to suit their own needs. Wildlife was cleared for settlements and for agricultural purposes. Trees were cut down for fuel. There are stories about the collapse of ancient civilisations following the depletion of natural resources and deforestation. One classical example is the collapse of the early Rapa Nui society on Easter Island, one of the world's most remarkable civilisations, which saw its population numbers plummet following the complete deforestation of the island around 1400 A.D. (Ponting, 1993; Brander, 2007). This fate was shared by other civilisations and cities in human history, most of which collapsed after people depleted the neighbouring woodlands on which they depended for fuel (Diamond, 1994). Thus, human history teaches us that, at least at a local or regional level, land system change has had devastating and sometimes irreversible implications for some of the most technologically and socially advanced civilisations of their time.

With rapid global population growth and human enterprise, the ecological implications of relatively confined terrestrial land changes have historically coalesced and taken global proportions. As McNeill and Engelke (2016, p. 66) remark, 'deforestation is an ancient phenomenon, but the greatest acceleration of deforestation on a global level has occurred since 1945'. Even though anthropogenic land system change is not something new, the sheer scale of humankind's transformation of land at a global level is disconcerting. It is estimated that at the turn of the twenty-first century, 43% of terrestrial ecosystems had been directly transformed by humans, mostly for agriculture (Barnosky et al., 2012). Vast swaths of land were converted into agricultural land to quench the needs of a bigger population and the luxuries accompanying the higher material standard of living of developed societies. With the rise of the city, 3% of Earth's terrestrial surface is now covered in buildings and road infrastructure. Urbanisation is projected to expand further worldwide, and this trend is likely to be particularly pronounced in

the developing world, including Africa and Asia (Steffen et al., 2015a). A typical example of this rate of change is China. Between 1978 and 2012, China's urban population swelled from 17.9% to 52.6% (Bai et al., 2014). This trend is not only likely to continue over the foreseeable future but will almost certainly be replicated in regions of the world which have embarked on a similar trajectory of development to that of China. By 2025, it is estimated that 50% of terrestrial ecosystems would have been directly compromised. This figure will rise to 70% by 2060. Most of the remaining natural landscape is already networked with roads (Barnosky et al. 2012).

The impact of land system change on biodiversity and on other ecological components, such as climate change, is larger than that directly related to infrastructural and agricultural land transformations. Local scale changes trigger critical ecosystem transitions over regions larger than areas which are considered to have undergone a sledgehammer state change, such as roads and buildings (Barnosky et al., 2012). Furthermore, 'small-scale regime shifts can propagate across scales and possibly lead to global-level transitions' (Steffen et al., 2015b, p. 1259855-2). For example, deforestation represents a regional weakening of a natural carbon sink, which will speed up Greenland ice sheet melting and set in motion global level changes such as sea level rise. This shows the extent to which the ecological components are interconnected; in this case, land-use change adversely impacts biosphere integrity and worsens climate change – two vital ecological components that are already considered to be at high risk of destabilising the Earth system (Richardson et al., 2023).

Other planetary boundaries and novel entities

There is more to the ecological crisis than climate change, ocean acidification, biosphere integrity, stratospheric ozone depletion, biogeochemical flow imbalance and land-system changes. Rockström et al. (2009a) identify freshwater use, atmospheric aerosol loading and novel entities as being three additional planetary boundaries which need to be monitored. However, these components are not considered to be at high risk on their own. In the case of atmospheric aerosol loading, the scientific evidence is insufficient to establish a safe boundary. Nonetheless the ecological components are very closely interlinked and contribute together towards the stability of the Earth system. For example, Crutzen (2002)

notes that 50% of accessible freshwater is used by humankind. Global freshwater change is considered to lie in a zone of increasing risk (Richardson et al., 2023) and its use is closely related to other ecological components such as land-system changes (e.g., intensive agricultural practices, deforestation) and climate change. With overall intensified resource use, in part related to wasteful consumption, freshwater use is likely to be compromised along with the other planetary boundaries, as fittingly noted by Stubblefield (2018).

‘Novel entities’ refers to ‘new substances, new forms of existing substances, and modified life forms that have the potential for unwanted geophysical and/or biological effects’ (Steffen et al., 2015b, p. 736). One such entity is microplastics, which is increasingly making the headlines as a global ecological concern. Plastics are synthetic compounds which can now be found everywhere on Earth and beyond, ‘from orbiting junk satellites to the bowels of benthic organisms in the deepest trenches of the world’s oceans’ (Ginn et al., 2018). Since the invention of the first fully synthetic plastic (Bakelite) in 1907 by Leo Baekeland (Crespy et al., 2008), the production and commercialisation of plastic grew to 1 million tons in 1950 and 300 million tons in 2015 (Jørgensen, 2017). Like fossil fuels, the invention and the commercialisation of inexpensive plastic products raised the material standard of living of many people around the world. Plastic made possible the invention of certain products which are in widespread use, such as the mobile phone (Science History Institute, 2019). The use of plastics also addressed the issue of scarcity of natural resources, such as ivory and rubber, and was paradoxically initially hailed as a solution to environmental problems (Crespy et al., 2008). With an increasing awareness about the non-biodegradable nature and the omnipresence of microplastics in the environment, plastics are now being increasingly seen as a serious environmental concern. In fact, microplastics will persist in the environment in some form for tens of millions of years (Waters et al., 2016; Ginn et al., 2018). It is known that microplastics constitute a physical as well as a chemical hazard to marine organisms (Rochman, 2015). Marine plastic litter also facilitates the dispersal of marine organisms, including invasive species, which have the capability to colonise floating microplastics. In this manner, microplastics facilitate the spread of invasive species and threaten marine biodiversity (Bergmann et al., 2015). Microplastics are thus an emerging field of study with global-scale

repercussions on ecosystems and on vital ecosystem services, including human health (Vethaak & Leslie, 2016), and are increasingly being recognised as an important component of the ecological crisis (Taylor et al., 2016).

3.2.3 Urgency, uncertainty, and irreversibility

The ecological crisis is unique both in terms of magnitude and complexity, but also because it has characteristics which make it particularly challenging for humanity to address. These include the irreversibility of components of ecological damage, the inertial effects of anthropogenic impacts on the Earth system, the uncertainty of the trajectory of the ecological crisis, the urgency with which it needs to be addressed if catastrophic changes are to be averted, and the implications of reversing the anthropogenic drivers of the ecological crisis on humanity.

Irreversibility

The ecological crisis is characterised by two kinds of irreversibility. The first is the irreversibility of a planetary state shift from Holocene-like conditions to ‘Hothouse Earth’, as described by Steffen et al. (2018). The second is the irreversibility of components of the Earth system even in the absence of a planetary state shift – this is mainly characterised by biodiversity loss and land-use change.

It is widely acknowledged by Earth system scientists, biologists, and chemists that there is a critical threshold of ecological changes beyond which a planetary state shift becomes inevitable and irreversible (Rockström et al., 2009b; Barnosky et al. 2012; Steffen et al., 2018). For example, the progressive disintegration of ice sheets is difficult to reverse after critical levels of global warming have been reached (Steffen et al., 2018). ‘Hothouse Earth’ represents a world which has undergone a planetary state shift, and which is inhospitable or inhabitable to the human species. The tipping point at which this transformation occurs is unknown but the likelihood of reaching the threshold increases above atmospheric global warming temperatures of 1.5 °C (IPCC, 2018) or with the transgression of one or more of the nine planetary boundaries (Rockström et al., 2009b). What ‘Hothouse Earth’ has in store for humanity is unknown but the thought of reaching a tipping point which would set

in motion an irreversible bio-geophysical process towards ‘Hothouse Earth’ with potentially tremendous current and future human hardship, is unsettling.

In any case, even if humanity manages to avert a highly catastrophic planetary state shift, there are nevertheless components of the Earth system which are being irreversibly lost or which might recover after hundreds of thousands or millions of years. For example, it is known that ocean acidification is mostly irreversible as it will take tens of thousands of years to undo anthropogenic changes to ocean chemistry over the past few hundred years (Raven et al., 2005), unless there are technological solutions to it. There are also countless stories of land-use changes which wiped out innumerable species indefinitely (Diamond, 1994). Furthermore, ocean acidification, climate change, biochemical flow imbalances and land-use changes are essentially driving a sixth mass extinction event characterised by the irreversible impoverishment in biodiversity and ecosystem services. This has led Ceballos et al. (2020, p. 13596) to posit that ‘the ongoing sixth mass extinction may be the most serious environmental threat to the persistence of civilization, because it is irreversible’. Biodiversity loss is related to the impact of global human population growth but more so to patterns of production and consumption, and the choice of human enterprise. From a cultural perspective, as noted in the World Heritage Convention, the loss of wildlife also counts as loss of natural heritage and is worthy of protection as a universal value (Kosoy et al., 2012). The irreversible loss of wildlife, species and the erosion of ecosystem services will make life on earth for humanity more challenging and will surrender many fascinating wildlife species to the coffins of museums.

Inertia

Steffen et al. (2007) note that the Earth system operates on a timescale that is mismatched with human decision making. Quoting directly,

‘the long-term momentum built into the Earth system means that by the time humans realize that a business-as-usual approach does not work, the world will be committed to further decades and even centuries of environmental change’ (Steffen et al., 2007, p. 619).

As argued by Rockström et al. (2009a), paradoxically, the complex interconnected system of feedback loops inherent in the Earth system buffers anthropogenic ecological impacts and makes the system more resilient to dramatic change. On the other hand, it lulls humanity into a false sense of security because incremental changes in the Earth system can unexpectedly cross a threshold or a ‘tipping point’ (Lenton et al., 2008, p. 1786), trigger a cascade of Earth system processes and lead to a planetary state which would take humanity by surprise.

This inertial effect manifests itself in several Earth system processes including climate change, ocean acidification, sea level rise, cryosphere stability and ozone depletion. It is known that even if greenhouse gas emissions were halted altogether today, global warming and sea level rise, as well as ocean acidification, will continue deteriorating for the next decades and centuries (Steffen, 2011; IPCC, 2018; 2023). The release of chlorofluorocarbons and related ozone depleting substances continued exerting a damaging ozone depleting effect for decades after their release, mainly because of the long residence time of halocarbons in the atmosphere (Solomon et al., 2016). This is characteristic of the inertial effect of anthropogenic impacts on the Earth system. The case for urgent action to curb emissions and to decrease the ecological footprint is stronger, in the knowledge that these emissions will continue exerting a damaging cumulative ecological effect for centuries to come. As correctly stated by Stubblefield (2018), while pointing at the limitations of the Planetary Boundaries Framework, waiting for science to inform policy to take concrete steps to address the ecological crisis may produce results too little too late.

Uncertainty

The ecological crisis is fraught with uncertainty – uncertainty about projections and implications of ecological change (Gillings and Hagan-Lawson, 2014; Whitmee et al., 2015; Mehta et al., 2025), uncertainty about the inevitability of a planetary state shift, uncertainty about the critical thresholds that would trigger a planetary state transition (Rockström et al., 2009b; Steffen et al., 2015b; Richardson et al., 2023), uncertainty about the would-be conditions on Earth after the transition (Barnosky et al., 2012), and uncertainty about the safe deployment of technology or geo-engineering projects to slow down or reverse anthropogenic ecological changes. As

Lester Brown is famously cited as stating: ‘We are crossing natural thresholds that we cannot see and violating deadlines that we do not recognise. Nature is the time-keeper, but we cannot see the clock.’ (Brown, 2008 as cited in Foster, 2009, p. 56). On these lines, the Club of Rome (2020, p. 3) remarked that ‘the impacts of climate change and ecological destruction are more severe and are manifesting themselves earlier than many scientific predictions in previous decades had foreseen’.

The uncertainty about future trajectories and about the inevitability of a planetary state shift, has already led to two divergent set of narratives in academia. These include eco-pragmatism on one side of the spectrum and eco-catastrophism on the other (Dalby, 2016; Malhi, 2017). Eco-pragmatism is optimistic about the future and underscores the importance of humanity reducing its impact on the environment ‘to make more room for nature’ (Asafu-Adjaye et al., 2015, p. 6). This includes embracing technologically driven decoupling as part of the solution towards ecological stewardship of planet Earth. Eco-catastrophist views are epitomised by the works of Hamilton (2014; 2016) who in the words of Dalby (2016, p. 38), ‘reads the science to indicate that disaster is precisely what is in store for the future of humanity’. However, Hamilton’s (2016; 2017) catastrophist narrative is more of a wake-up call to the danger that humanity is facing. He paints a negative albeit probably realistic picture of the difficult days ahead and calls for a radical paradigm shift in the relationship between humans and nature. For Hamilton (2016), Earth has already crossed ‘a point of no return’ and whatever humans do, conditions of life on Earth will never return to those of the Holocene epoch. These views are also supported by other authors like Barnosky et al. (2012, p. 55) who state that ‘the plausibility of a future planetary state shift seems high, even though considerable uncertainty remains about whether it is inevitable...’ and Steffen et al. (2015a) who observe that there are hopeful, albeit limited, signs that we will avert the ecological crisis.

The uncertainty that is inherent in the ecological crisis and the complexity of the Earth system has led influential authors to call for the application of the precautionary principle (Rockström et al., 2009a; 2009b; Steffen et al., 2015b; Wilson, 2016). Early in the environmental movement, Naess (1973), founder of the deep ecology movement, called for more sensitivity towards our state of ignorance,

acknowledging the complexity and the profound human ignorance of the biosphere. This lack of understanding has remained to this day with biologist Edward Wilson (2016) remarking that the scientific community is not in a position to come up with a reasonable understanding of the complexity of the workings of biomes and is yet to discover and identify numerous unknown species. The precautionary principle is a necessary safeguard against such human ignorance. Rockström et al. (2009b) themselves acknowledge that the Planetary Boundaries Framework is conceptual, the boundaries are fuzzy and critical ecological limits may be overstepped unexpectedly.

Doubts have also been openly expressed about the safe deployment of large technological or geoengineering projects as potential solutions to the ecological crisis, and a precautionary approach is advocated even in this respect. Lessons from the past show that what first appeared to be safe technology, such as that of halocarbons and plastics, was later found to be of serious ecological concern (Crutzen, 2002). This includes the depletion of stratospheric ozone and the hazardous effects of micro-plastics in the food chain and in the ecosystem. Finally, the would-be conditions of 'Hothouse Earth', although reasonably projected to be hostile to human life, are largely unknown.

This uncertainty, a key characteristic of the ecological crisis, may give rise to divergent, potentially emotionally charged, political world views depending on one's beliefs. For example, some may opt for radical social and economic transformation to avert what they believe can be an avoidable ecological catastrophe. Others, faced with the potential inevitability of a planetary state transition, might favour the pursuit of a business-as-usual scenario and adaptation to ecological changes as they happen. Dietz et al. (2003, p. 1907) define the governance of the global ecological commons as a 'struggle' which will involve 'making tough decisions under uncertainty, complexity, and substantial biophysical constraints as well as conflicting human values and interests'. It is plausible for politicians to exploit the 'unknown' in the ecological crisis, and the fear which accompanies it, to gain legitimacy for their political agenda.

Urgency

The irreversibility and potential severity of anthropogenic ecological changes on the Earth system, creates a sense of urgency to address the ecological crisis. This sense of urgency is shared by Earth system scientists (Crutzen & Stoermer, 2000; Crutzen, 2002; Rockström et al., 2009a; Steffen et al., 2015b), biologists (Wilson, 2016), public health researchers (Whitmee et al., 2015), environmental and social scientists (Lynch & Veland, 2018), ecological economists (Spash and Smith, 2019), and intergovernmental organisations (UN, 2021), among others. Literature shows that some planetary boundaries have already been dangerously transgressed and almost all the other boundaries are being driven further into the dangerous zone (Rockström et al., 2009b). The Earth's biological carrying capacity – biologically defined as 'the population level that the resources of a particular environment can sustain over the long term' (Motesharrei et al., 2014, p. 91) – was transgressed around the year 1970, and humans continue to consume resources and produce emissions beyond what Earth can provide or absorb in the long term (Wackernagel et al., 1997 as cited by Meadows et al., 2004; Global Footprint Network, 2021). This makes unexpected catastrophic Earth system changes increasingly perilously probable (Kay et al., 1999; Steffen et al., 2015b). Ceballos et al. (2020, p. 13596) published results underlining 'the extreme urgency of taking massive global actions to save humanity's crucial life-support systems.' Many professionals, including economists, sense the need for an urgent paradigm shift that integrates human development and stable Earth system functioning (Steffen et al., 2015b; Whitmee et al., 2015; Raworth, 2017).

The sense of urgency is also underpinned by the modern pervasive reliance on science to provide solutions, especially in developed countries, and the lack of sufficient scientific detail to inform policy to address the ecological crisis. In fact, as stated by Rockström et al. (2009a, p. 23), 'the knowledge gaps [to identify Earth system thresholds] are disturbing'. This continues to be the case today (Steffen et al., 2015; Steffen et al., 2018). But an obsession with measurement, coined in the famous phrase 'you can't manage what you don't measure' which is attributed to management consultant and author Peter Drucker (McAfee et al., 2012), may turn

out to be a barrier. The nature of the ecological crisis calls for life-changing decisions now, in the absence of precise forecasting and projections.

The challenges accompanying the urgency to address the ecological crisis include first and foremost the communication of this sense of urgency to people worldwide to support measures and changes that are required to avert ecological catastrophe. This includes addressing the most pressing living conditions of common people which is arguably necessary for the cultivation of a cosmopolitan mindset. People worldwide will need to be empowered to look beyond their day-to-day needs and to develop a sense of responsibility that extends beyond the shores of their families, their local communities, and their nations. This calls into question current economic models of production which rely on keeping the common person subservient to contemporary economic imperatives. Affordable labour, which is one of the key ingredients of capitalist production, is guaranteed with low incomes but this is not necessarily conducive to wellbeing and does not empower people to climb Maslow's hierarchy of needs (Maslow, 1968 as cited in Daniels, 1982) to become agentic and take full responsibility of their actions (Sen, 1999).

The second challenge relates to the urgency to empower people around the world to take local and global responsibility in a concerted approach to minimise their ecological impact. This would call for a radical political transformation in the international system such that peoples take political responsibility for their ecological footprint. The application of the principle of subsidiarity would allow peoples worldwide to own the transformation towards ecologically sustainable ways of life of their choice. In the absence of this, Stubblefield (2018, p. 17) alludes to the possibility of the emergence of 'harsh new regulatory regimes' to the detriment of human wellbeing. When faced with the urgent task to address a life-threatening challenge of global proportions, it is not unreasonable to imagine the prospect of leaders around the world coming together, possibly using the mechanisms of established international bodies and platforms, to take expedient top-down decisions at the cost of leaving victims in the trail of their decisions. For those who hold the principles of equal human moral worth and human dignity, the ecological crisis should not be averted at the cost of human lives. The challenge ahead lies in implementing the necessary political, economic, social and legal

changes with the necessary speed such that people around the world are empowered to take local and global responsibility for their ecological impacts, their wellbeing and the wellbeing of others, in solidarity with each other (section 5.2.4). The urgency inherent in effective action to address the ecological crisis should translate into decisive political action by the international community. An expedient political transformation is necessary if humanity is to stand a chance at averting ecological catastrophe and contemporaneously secure the highest possible level of wellbeing for all peoples worldwide.

Implications of reversing ecological crisis

The ecological crisis is, in part, the price that humanity is paying for the large strides it made in human development over the past two centuries, at least in the developed world. The root cause of the ecological crisis is the availability of abundant and cheap fossil fuel energy, which shattered the energy bottleneck in the 1800s and made unimaginable industrial and technological progress possible. The rapid expansion in human enterprise and the enjoyment of steady increases in material standard of living would not have been possible without a readily accessible and mouldable source of energy such as coal and oil. Today, humanity is still reaping the enjoyment of a multitude of goods and services afforded by an industrial, agricultural, and technological sector which runs on affordable energy. Food production has been heavily industrialised with some metaphorically claiming that people are ‘eating fossil fuels’ (Pfeiffer, 2009). Abundant energy heavily increased crop yields and made possible the surge in human population (Steffen et al., 2007) from around 1 billion in the year 1820 to 7.7 billion in 2018. The reason why huge global inequalities persist is not related to a lack of a global abundance of energy or the availability of resources but is directly related to the global distribution of these resources.

Owing to this intimate relationship between energy supply and human development, the implications of addressing the ecological crisis by reducing energy supply would be a lower standard of living and hardship for many peoples worldwide. The global human population has grown dependent on a world order with a high-energy budget, not only to maintain high *per capita* resource use but also to support the sheer number of people on the planet. This makes transition to a

Stabilised Earth pathway, which is the safe trajectory away from a planetary state transition, challenging because human society has become increasingly dependent on the root source of the ecological crisis – cheap energy (Steffen et al., 2018). A transformation to low carbon societies will most likely require a combination of measures which include the development and widespread use of alternative sources of energy, including nuclear and renewable sources (IPCC, 2018), more judicious use of renewable and non-renewable resources (Barnosky et al., 2012), the trimming of excessive *per capita* energy and resource use, fairer distribution of access to finite global ecological commons, and slowing or halting world population growth (Barnosky et al., 2012). Trainer (2017), for example, contends that current renewable energy technology is incapable of serving as a complete substitute to current fossil fuel energy, and thus advocates for the downscaling of production and consumption.

For the record, world population is projected to peak to around 10.4 billion around the year 2086 (UN, 2022). To progress towards a low or zero carbon society and avoid human hardship simultaneously, alternative energy substitutes will need to be rolled out with the speed required to curb fossil fuel use. As a result, new energy systems and energy-related technology will continue to have a critical role to play in the transformation to an ecologically sustainable society (Jørgensen, 2017).

In any case, a Stabilised Earth pathway will still present humanity with challenges, including less benign ecosystem services and harsher climatic conditions. As Steffen et al. (2018, p. 8257) put it:

‘Even if a Stabilized Earth pathway is achieved, humanity will face a turbulent road of rapid and profound changes and uncertainties on route to it – politically, socially, and environmentally – that challenge the resilience of human societies’.

The Earth has already crossed a point of no return and nothing that humans do ‘can turn the geological clock back to the Holocene’ (Hamilton, 2016, p. 100). Human civilisation is entering previously uncharted terrain which calls for globally

coordinated action where the needs of all peoples are catered for within a framework of ecological sustainability.

3.3 Is Limitless Economic Growth Ecologically Sustainable?

3.3.1 Ecological critique of economic growth

Economic growth is ecologically unsustainable

Economic growth has been acknowledged as an ecological concern as far back as 1971 when Romanian mathematician and economist Nicholas Georgescu-Roegen in his *magnus opus The Entropy Law and the Economic Process* warned that, fundamentally, economic growth is constrained by ecological limits (Georgescu-Roegen, 1971). Similarly, in 1972, the Club of Rome published *Limits to Growth; a report for the Club of Rome's project on the predicament of mankind* stating that limitless economic growth is ecologically unsustainable (Meadows et al., 1972), a publication which was met with scepticism and criticised for its 'pessimistic' outlook. Since then, numerous authors have identified economic growth and its ideology as the root causes of the ecological crisis (Schumacher, 2011 [1973]; Daly, 1974; 1991 [1977]; Latouche, 2009; Jackson, 2009a; Kosoy et al., 2012; Gillings and Hagan-Lawson, 2014; Spash & Smith, 2019; Hickel, 2019). This recognition has given rise to several politico-economic or ecological economic movements that are deemed to be more ecologically sustainable and more just. Such movements or schools of thought include steady-state economics (Daly, 1972; 1991 [1977]), agrowth (Van den Bergh, 2010; 2011), post-growth or 'prosperity without growth' (Jackson, 2009b; 2019), and degrowth (Latouche, 2009; 2010; Kallis, 2010; Demaria et al., 2013; D'Alisa et al., 2014). Nonetheless, economic growth remains very high on the national political agendas of most countries worldwide even though economic growth is today also being acknowledged by intergovernmental panels, such as the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), as a 'limited paradigm' which is ecologically unsustainable. In fact, in one of its most recent publications, the IPBES stated that

‘a key component of sustainable pathways is the evolution of global financial and economic systems to build a global

sustainable economy, steering away from the current, limited paradigm of economic growth' (IPBES, 2019, pp. 18-19).

The Covid-19 pandemic brought global economic activity to a standstill, especially in the first half of 2020. As a result, annual greenhouse gas (GHG) emissions in 2020 decreased dramatically and were around 6% lower than 2019 levels: a drop witnessed for the first time since 2009 (IEA, 2021). Although the pandemic might have catalysed the change towards higher ecological efficiency or energy decoupling – for example by the airline industry (Centre for Aviation, 2021) – the positive environmental effects were short-lived. By December 2020, GHG emissions rebounded to levels higher than those recorded in December 2019 (IEA, 2021)

Neoclassical economic theory is blind to 'nature'

To be sure, the neoclassical synthesis of modern economics was consolidated after the second war with Paul Samuelson's publications *Foundations of Economic Analysis* in 1947 and *Economics: An Introductory Analysis* in 1948 (Giraud, 2018; 2019). Indeed, the original title of Samuelson's 1948 publication 'Economics: an introductory analysis' was 'Modern Economics' (Giraud, 2018). This was at a time 'when the environment was considered an infinite source and sink because it was so large relative to the economy' (Daly, 1991, p. 185), which might explain why Samuelson's economic synthesis excludes nature from its scope. Ecological limits and global ecological degradation were not identified as serious concerns at the time. Samuelson's synthesis of neoclassical and Keynesian economics became the standard economics textbook in the United States and globally throughout the second half of the twentieth century seeing itself through eighteen revisions, the latest being in 2009 (Giraud, 2018). The textbook has been widely criticised by ecological economists for economic conceptions that are abstracted from ecology, treating nature as a mere 'externality' or a given. As the global economy grew and expanded rapidly in the early decades of the Great Acceleration post-World War II, the global came under intense pressure. War-time industrial complexes were redirected towards mass production. Industrial production extended beyond Europe and North America (McNeill & Engelke, 2016). Increased global economic activity

transposed into increased natural resource extraction and an increase in waste generation, including elevated greenhouse gas emissions, and pollution.

In early days, the economic growth ideology was already being viewed with suspicion as regards its ecological sustainability a few years after Samuelson's post-war publications. The 1952 President's Materials Policy Commission made this observation: 'whether there may be any unbreakable upper limit to the continuing growth of our economy we do not pretend to know, but it must be a part of our task to examine such limits...' (Ordway, 1953, p. III as cited in Daly, 1991, p. 73). The global ecological unsustainability of pursuing neoclassical economic growth strategies came strongly to the fore in the early 1970s and the 'mechanical analogue' of modern economics abstracted from nature was deemed inadequate by unorthodox economists such as Georgescu-Roegen (1971; 1976 [1970], p. 53), Herman Daly (1991 [1977], p. 281) and David Pearce (1987). As aptly put by Georgescu-Roegen (1976 [1970], p. 53),

'the entire economic history of mankind proves beyond question that nature, too, plays an important role in the economic process as well as in the formation of economic value. It is high time, I believe, that we should accept this fact and consider its consequences for the economic problem of mankind'.

Similarly, in attempting to apply Rawls' theory of justice as fairness, Pearce (1987, p. 17) arrives at the conclusion that 'neoclassical welfare economics will not achieve sustainability' not even if environmental externalities are fully incorporated in the economic model. In other words, in 1987, Pearce (an economist by profession) had already started to observe the inadequacy of the neoclassical economic model and the market as a mechanism to secure sustainable development.

Nonetheless, the neoclassical synthesis continued to be the standard economic approach in economic theory courses in major universities worldwide, creating generations of economists myopic to the ecological implications of this type of economic conception (Raworth, 2017). The persistence with this kind of blinkered teaching also gave rise to a number of student demonstrations in major cities worldwide calling for a change in the manner in which economics was taught (The

Guardian, 2013; New Yorker, 2014; The Conversation, 2019). The reasons behind this persistent but questioned approach to economics teaching, almost five decades since the world-known publications by Georgescu-Roegen (1971) and the Club of Rome (Meadows et al., 1972) on the limitations of such an approach, are unclear. It also becomes questionable whether the economic growth agenda is intrinsically political or politically motivated, or whether it is the result of ‘ill-advice’ by conventionally trained economic advisers to ride countries out of economic recessions and crises. Alternatively, there is also the possibility of a system-lock whereby the design of the political, economic and financial systems today leaves little room for manoeuvre during periods of economic recessions, other than the pursuit of more growth at the cost of depleting the ecological commons. On a positive note, Zamagni (2021) observes that the past twenty years have seen the emergence of several fields of non-conventional economic research such as behavioural economics, neuroeconomics, evolutionary economics, the economics of happiness, and the economics of capabilities, that retrace their foundations to psychology, neurosciences, evolutionary theories, philosophical anthropology and moral philosophy. In this thesis, I will be providing a critique of ecological economics including steady-state, a-growth, post-growth, and degrowth economics (2.5).

Understanding the concept of ‘economic growth’

‘...mankind has, for over 99 percent of its tenure on earth, existed in conditions closely approximating a [steady-state economy] ... the rapid growth of the last 200 years has occurred because man broke the budget constraint of living on solar income and began to live on geological capital’ (Daly, 1991, p. 23).

It is worth noting that historically speaking economic growth is the exception and not the rule. It would be a grave mistake if anyone were to assume that human civilisation thrives exclusively in economic growth environments. The boom-bust cycle that is synonymous with the economic growth trajectory over the past century is not a natural cycle to be accepted without question (Spash & Smith, 2019). Rather it is the result of how societies have organised themselves since the 18th century – the by-product of a collective human invention. Witness to this is the economic

output trajectory which has been beautifully mapped by Piketty (2014, p. 73) in his world-renowned book *Capital in the 21st Century*.

Piketty (2014) shows that between the years 0-1700, the growth in global economic output corresponded roughly to the growth in global population which stood at 0.1% per year. During this period there was no rise in *per capita* output. This indicates that, on average, the *per capita* ecological footprint – understood as ‘the land area that would be required to provide the resources (grain, feed, wood, fish, and urban land) and absorb the emissions (carbon dioxide) of global society’ (Wackernagel et al., 1997 as cited in Meadows et al., 2004, p. xiv) – did not increase for the best part of human history. This does not mean that the standard of living of people did not increase during this period. To the contrary, during the Middle Ages in England there was a rise of commerce, trade, peasant housing and living standards, skill specialisation, manufacturing and markets (Dawson, 1996).

After the year 1700, world economic output started to exceed population growth, meaning that *per capita* output increased, although very modestly at first. Until 1820, global economic growth stood at 0.5% annually, mainly as a result of population growth but with a growth in *per capita* output of 0.1% per year. These figures pale against today’s commonly expected or assumed annual *per capita* growth of around 2-3% (The Economist, 2022b). For the most part of human history, societies organised themselves sustainably. Economic productivity grew in direct proportion to population growth. There is reason to believe that global human society possesses the capabilities to develop norms, values and institutions that can steer human activity to ecologically sustainable levels that are sufficient for people worldwide to thrive and flourish.

The definition of ‘economic growth’ varies according to the context in which it is applied. There are at least three conceptions of economic growth that merit further elaboration: GDP growth, material economic growth, and structural growth.

The most common definition of economic growth is related to an increase in the Gross Domestic Product (GDP). In this case economic growth is used to refer to the measurement of ‘the total goods and services produced in a given year within the borders of a given country’, which is what GDP stands for (Piketty, 2014, p. 43).

Although countries with higher economic growth rates usually enjoy increasingly higher material standards of living, economic growth does not necessarily automatically translate into better standards of living. In fact, economies grow automatically when populations grow – the difference between economic growth rates and population growth rates is what stands for an increase in *per capita* economic output and represents a potential increase in the material standard of living of the reference population (Piketty, 2014).

Furthermore, GDP fails to distinguish between good economic activity and bad economic activity. Any kind of economic activity which involves the circulation of money, including buying groceries, buying medicines, buying fuel, buying cigarettes or paying for services to clean up pollution, is counted as GDP, leading some to advocate for ‘agrowth’ i.e., being agnostic to growth, GDP being deemed as an irrelevant indicator for social development (Van den Bergh, 2011).

In fact, the critique of GDP as a weak indicator of social progress has a long-standing history starting no later than March 1968 with Robert Kennedy’s speech at the University of Kansas stating that GDP ‘measures everything in short, except that which makes life worthwhile’ (Kennedy, 1968 as cited in Jackson, 2018). Since then, the limitations of GDP, as an indicator, and of the GDP growth economy have been widely criticised by scholars such as Italian political scientist Lorenzo Fioramonti who published books such as *Gross Domestic Problem: The politics behind the world’s most powerful number* (Fioramonti, 2013) and *The World After GDP: Politics, business and society in the post growth era* (Fioramonti, 2017). Fioramonti argues that GDP is not only a limitation but an impediment to future social progress. The limitations of GDP as an indicator of progress is also being recognised at a political level. Witness to this is the ‘Beyond GDP’ initiative launched by the European Commission in 2019 and which enjoys the engagement of international institutions such as the United Nations, the Organisation for Economic Cooperation and Development, and the World Bank. Some national governments have also set up post-GDP commissions (Fioramonti et al., 2019).

‘Material economic growth’ or ‘physical growth’ (Van den Bergh, 2011) refers to economic activity that has direct implications to the ecological carrying capacity of the system in which it thrives. The distinction between ‘material growth’ and

‘monetary growth’ has been clearly explained by environmental philosopher Barbara Muraca. Muraca (2016) describes how ‘material growth’ relates to an absolute increase in the use of material and energy flows, including the extraction or importation of resources and the generation of waste. In contrast, ‘monetary growth’ (or economic growth that is epitomised by the GDP) is abstract in nature and does not make a distinction between growth as a result of activity that is materially driven and growth that is not materially driven; ‘material growth’ specifically focuses on the throughput of energy and natural resources through the economic or social system. ‘Material growth’ is of most interest to ecologists because it is this type of growth which is ecologically degrading. Conceptually one may conceive of a theoretical scenario where real GDP grows and material or ecological throughput shrinks. The digital revolution, for example, has the potential to create economic value while reducing material throughput (Fioramonti et al., 2019).

Technological progress generally promotes increased material efficiency in the production of goods and provision of services – a concept also known as ‘decoupling’ (Magnus-Johnston, 2016). Until now, ‘decoupling’ has occurred in relative terms only (Exner, 2014); that is, the increased productivity gains of technological efficiency and innovation are re-invested as productive capital back into the economic system driving productivity growth and increased material and energy throughput to yet higher levels (Jackson, 2021), a concept also known as Jevon’s paradox. The absolute consumption of resources and waste production increases as a result of more efficient production driven by technological progress. The efficiency bestowed by technological progress thus results in the production of ‘ever more’ rather than in the usage of less natural resources. Indeed, according to world-renowned British Marxist economic geographer David Harvey (2018), industrial capital worldwide has been growing at an average annual rate of 2.25% since 1780. Similarly, Dietz and O’Neill (2013) show the continuing exponential increase in the use of biomass, fossil fuels, ores and industrial minerals, and construction minerals since the 1900s. Decoupling growth by increasing efficiency of operation is thus an insufficient condition to limit or reduce natural resource throughput. One such example is the circular economy, which is founded on the principles of a waste hierarchy that favours reuse and recycling over landfilling.

This effectively reduces the reliance on newly extracted resources by promoting the reuse and recycle of materials in an economy. By itself, a circular economy does not however provide a guarantee that overall material throughput will decrease, or that reusing and recycling are less energy and water-intensive processes than traditional methods.

To address the ecological crisis and steer the planet to an ecologically sustainable pathway, ‘material economic growth’ must stop and be returned to levels that respect the ecological carrying capacity of Earth. The distinction between ‘monetary growth’ and ‘material growth’ has also given rise to disagreements between different factions of ecological economists, with some ‘degrowth’ proponents advocating for a reduction in GDP as a way to achieve ecological sustainability (Exner, 2014) whereas ‘agrowth’ proponents arguing that GDP is only an irrelevant distraction from the real issue – the real issue being ecologically unsustainable ‘material growth’ (Van den Bergh, 2011; Fioramonti, 2017).

‘Structural growth’ is the ideological pursuit of economic growth and the structural institutional engineering that accompanies this ideological imperative (Muraca, 2016). It is an economic system underpinned by the economic growth fetish that started in the 1940s (Hagemann, 2009) with growth theorists such as Roy Harrod and Evsey Domar, and which crystallised in the neoclassical growth model known as the Solow-Swan growth model, which was developed by US economists Robert Solow and Trevor Swan in the mid-1950s. According to German economist Hagemann (2009), in his article published by the journal *History of Political Economy*, growth had by then become a universal concern for two reasons. First, there was the fear of stagnation reminiscent of the Great Depression of the 1930s associated with widespread unemployment and social instability. Second, there was a remarkable growth process in the early 1950s in the West which inspired other countries to follow suit. Since then, ‘economic growth’ became an ideology, and is many times unquestionably perceived as an ultimate end. It is a core pillar in the political agenda of virtually all electable political parties of so-called liberal democratic countries worldwide.

Economic growth evokes an image of ‘more’ and is deeply rooted in the social imaginary of the populace. This understanding of ‘economic growth’ as an ideology

or a deeply held belief is important because it offers some insights on potential reasons why socialist and labour political parties, with the support of workers and those on modest means, continue to be elected on an ‘economic growth’ agenda, even though the share of economic growth is increasingly largely claimed by those in the top income percentiles (Piketty, 2014). Taking the US as an example, since 1980, the top 0.001% income percentile enjoyed a year-on-year growth of 6% in post-tax income whereas the bottom 5% witnessed a reduction in their wages. Most working persons in the US saw a measly year-on-year raise in their income of less than 1% (Jackson, 2019). Nonetheless, social democratic parties such as Clinton’s Democrats and Blair’s Labour Party in the UK promoted economic growth (Harvey, 2007a). The same can be said of Malta’s Muscat Labour Party government between 2013 and 2019, during which the country’s GDP growth rates shadowed those of other advanced European economies (Maltatoday, 2019), but were evidently accompanied by an increase in those on the margins of poverty (Borg, 2019). There are other reasons why economic growth is pursued by governments and this will be explored in other sections. The point is, however, that economic growth’s pervasive presence in popular circles, including the agenda of political parties, might very well be traced in part to its ideological lure and the social imaginary that growth evokes.

The end of economic growth

Literature shows that GDP economic growth in advanced economies has been slowing down since the 1980s (Jackson, 2019) and that it is projected to slow down further in the coming decades (Piketty, 2014). It is said that advanced economies have entered a phase of ‘secular stagnation’, a term that was coined in the 1930s, but which has found its place in today’s economic reality (Jackson, 2019). This ‘secular stagnation’ is partly related to inherent natural limits to human ingenuity and technological progress. These views are shared by authors such as Jackson who shows how labour productivity increases have been decreasing since the 1970s (Jackson, 2019; 2021). ‘Secular stagnation’ is also related to an ecological constraint on technological progress, which is ultimately governed by an ecological reality of finite resources and pollutable reservoirs on planet Earth. This has led Jackson (2009b), among others, to argue that the decarbonisation of a growth

economy is an impossibility. Along the same lines, Kosoy et al. (2012, p. 75) states that,

‘we are obliged to carefully assess the conditions for an economy embedded in a flourishing Earth, since subscribing to the unreasonable position of unlimited growth, or blindly believing in technological miracles, are mere illusions that soon vanish when confronted with our ultimate thermodynamic reality’.

Economic growth is thus constrained by a limited availability of natural resources and energy or, as anti-capitalists such as David Harvey (2018) or Jason Moore (2016; 2018; 2019) call it, the dependency of capitalism on ‘Cheap Nature’. The question that logically arises from the observation that limitless economic growth is ecologically unsustainable is: will an end to GDP economic growth be an automatic cure to the ecological crisis?

I contend that an end to GDP growth is insufficient to address the ecological crisis for at least two reasons. First, although economic growth might stop and level out towards a non-growing steady-state economy, the material economic throughput in a steady-state economy might still be ecologically unsustainable, that is, exceeding the ecological carrying capacity of the planet. Second, it is possible that the global economy reaches peak economic output and then starts shrinking – global ‘economic contraction’, if you might call it so. This will evidently and definitely happen once ‘Cheap Nature’ (Moore, 2019) or natural resources are depleted to the bone and pollution in all its forms is rife, at which point the world would have most probably already undergone a planetary state shift to ‘Hothouse Earth’. In the Marxist tradition, this is postulated as ‘the second contradiction of capitalism’ whereby capitalism ‘creates an economic crisis for [itself] based on supply side constraints on production’ (Foster, 2009, p. 48). Rather than translating into ecological sustainability, such a scenario whereby the exhaustion of nature leads to the demise of economic growth is an undesirable one. It is unclear whether the current slow-down in economic growth should be viewed more as a symptom of its ecological unsustainability – economic growth being inevitably constrained by the ecological context in which it thrives – or whether it is slowing down by design due to policies intended to provide sustainable solutions to the ecological crisis. Given

that most nations worldwide are already greatly exceeding the Earth's carrying capacity to a considerable extent (Global Footprint Network, 2021), it is more likely that the current economic slow-down is a serious symptom of its ecological unsustainability.

3.3.2 Social critique of economic growth

The social critique of economic growth might seem to be of secondary importance to ecological sustainability. To the contrary, it is conceivable that global ecological sustainability is attained in a highly unjust manner, directing limited valuable natural resources to the enjoyment of a privileged few while leaving the rest without access to the essentials of the good life. In the next sub-sections I provide a critique of the most widely contested issues related to the pursuit of economic growth. These include income inequalities, material affluence and class interests.

Income and wealth inequalities

Economic growth is widely synonymised with widening income and wealth inequalities (Haines et al., 2012; Durand & Lege, 2013; Ottersen et al., 2014). However, the inequality that is attributed to economic growth is related more directly to the type of economic system which is employed to maximise economic growth than to economic growth itself. Historically, market capitalism has been shown to be the best economic system to deliver high growth rates (Leffler, 1999; Bremmer, 2009; 2010). One reason why market capitalism creates inequalities (refer to section 3.4) is that market capitalism thrives in a highly competitive and inherently unequal environment whereby whoever is part of that system is bound to work and produce more.

The important point being made here is that it is the economic growth *imperative*, rather than economic growth *per se*, which leads to socially undesirable widening income and wealth inequalities. There are at least four arguments to support this assertion. First, there is nothing to preclude governments and societies from distributing additional economic output in an equal or equitable manner. In fact, economic growth is witnessed in countries with a more egalitarian approach to the distribution of income and wealth. International comparisons among OECD

members show the considerable disparity in the level of income inequalities among advanced nations, for example between the United States and Sweden (Rueda & Pontusson, 2000). Similarly, the United States itself, in the first three decades after the end of World War II experienced economic growth which was more broadly distributed across society with the income share of the top 10% income percentiles decreasing progressively until the year 1975 (Jackson, 2019). Second, leading ecological economists of the post-growth tradition, such as Tim Jackson (2009b), argue that economic growth is a necessary condition for the advancement of developing communities to increase their standard of living to acceptable levels. The third argument relates to Piketty's (2014) projections of further widening income and wealth inequalities in developed countries as economic growth rates decrease. If economic growth were directly related to widening income inequalities, one would have expected narrowing income inequalities as economic growth slows down. Although this might sound contradictory, Piketty (2014) projects income inequalities to widen further under a slow growth scenario. In his book *Capital in the 21st century*, Piketty (2014) posits that since economic growth in Western developed countries is projected to decrease, under the current mode of production and with the current set of taxation policies, inequalities in income and wealth are bound to widen further, potentially giving rise to social unrest, instability and ill-health. This shows that there is a dynamic at play in advanced economic nations, independent of growth *per se*, that is itself responsible for high income inequalities. One reason for these widening inequalities is the relatively inelastic demand of the rate of return on capital, which is independent of the rate of economic growth. Fourth, Sen (1999) refers to the practice of suppression of basic civil and political rights to boost economic productivity, also referred to as the 'Lee thesis'. Although he acknowledges that economic growth is a means to expand some freedoms, he argues that economic freedom should be contextualised within a broader framework of freedoms, including political liberty and civil freedom, which he argues are equally important and do not have to be subjugated to the economic imperative. These four arguments show that economic growth, by itself, is not a sufficient condition for the creation of income and wealth inequalities. Rather it is the economic growth imperative that creates fertile ground for wide social inequalities which happens when countries, in the pursuit of growth as an ultimate end, adopt

economic systems and pursue policies that widen inequalities for the maximisation of economic output.

The distinction that is being made here is key – economic growth or economic output as an observation or as an intermediary goal is morally acceptable if it is ecologically sustainable and socially just. In contrast, the economic growth imperative as a domineering political objective for the maximisation of economic output creates the right environment for the devaluation of people and nature to maximise output at all costs (Soriano 2018b). Under the economic growth imperative, also referred to by Daly (1991, p. 99) as ‘growthmania’, economic output becomes an ‘ultimate end’ rather than a means to higher ends such as human freedom and human wellbeing. It subordinates the pursuit of higher goods and nature to the pursuit of material wealth (Martinez-Alier, 2012). In the process people are reduced to ‘labour’ and nature is commodified in an unswerving effort to feed the economic system with the necessary ingredients to maximise economic output. In this sense, I argue that the economic growth imperative is a primary institutional condition for the adoption of economic systems that maximise output by widening income and wealth inequalities.

In response, substantial wealth inequalities have been observed to be determinants of civilizational and ecological collapse. Motesharrei et al. (2014) argue that under conditions of non-moderate inequality, civilizational collapse is difficult to avoid. ‘Economic stratification is one of the elements recurrently found in past collapsed societies’ (Motesharrei et al., 2014). The authors describe how non-moderate inequalities led to the demise of civilisations such as those of Easter Island, the Fertile Crescent and the Mayan civilisation. They hypothesise that in high income inequality societies, ‘Elites’ are protected from the adverse effects being experienced by the ‘Commoners’, and are thus blind to the imminent ecological collapse that is evident to the Commoners. Wealth acts as a buffer, desensitising Elites from impending catastrophe. Income and wealth inequalities are not only outcomes of an economic growth imperative which is ecologically harmful. They are also independent predictors of ecological collapse, numbing the politically and economically influential into inaction against impending ecological catastrophe.

Since the economic growth imperative is arguably a political imperative, the question which direly begs an answer is: Why do countries, or governments, uncompromisingly keep on pursuing economic growth as an almost universal hegemonic goal in the face of its ecological unsustainability and the social inequalities it creates? This question will be explored in subsequent sections in this chapter. Income inequalities have been sometimes posited as inevitable outcomes in societies seeking to increase their wealth and material affluence. This is captured in Reagan's and Thatcher's neoliberal right-wing aphorism 'a rising tide lifts all boats' (Durand, 2019) or in 'trickle-down' growth economics. In the next section I will discuss the influence of material affluence within an economic growth context and its relation to human flourishing.

Material affluence

An important critique of economic growth is related to material affluence. Economic growth, that is, the availability of more goods and services in society is related to higher material standards of living. Some authors observe that economic growth has had a positive impact on the wellbeing of people in societies where this occurred, not least as a result of the material affluence that people in developed countries enjoy (Jorgenson, 2014; Whitmee et al., 2015). To be sure, it is economic growth *per capita* which increases the aggregate standard of living of a community or a country, even though the distribution or access to these goods might be unequal. Thus, economic growth, especially if equitably distributed, has the potential and is a necessary, albeit insufficient, condition to improve the material conditions of people in the community where it occurs. In turn, improved material conditions have a positive impact and are a necessary, albeit insufficient, condition for the attainment of human freedom and development as Sen (1999) aptly describes in his conceptualisation of the 'capability approach'. This obvious link needs to be highlighted in the face of some factions of the ecological movement which demonise economic growth and which advocate for economic contraction.

To be sure, economic growth is especially relevant in communities or countries that are still in the process of developing and where the material conditions of life preclude human 'agency'. Over and above a defined level of income, the effect of economic output on wellbeing decreases progressively (Jackson, 2009b; Masferrer-

Dodas et al., 2012; Van den Bergh & Kallis, 2012; Kubiszewski et al., 2013). This is an important observation which was already envisaged by 19th century classical political economists, most notably John Stuart Mill. In fact, Mill believed that a ‘stationary state of capital and wealth’ represents a ‘very considerable improvement on our present condition’ (Mill, 1936 [1848], p. 748), recognising the need for people to dedicate themselves to the arts once their material needs are met. Indeed, steady-state economics aims for ‘sufficiency’ rather than growth as the ‘proper economic aim’ (Daly, 1991, p. 177) in the understanding that ecological goods are scarce and that material wealth contributes very little to wellbeing once it reaches a certain threshold. Similarly, authors in the psychological literature on wellbeing, describe wellbeing as a multi-dimensional construct. Within Aristotle’s eudaimonic tradition of wellbeing, Ryff (1989) developed a psychological model of wellbeing consisting of a construct of six dimensions: self-acceptance, personal growth, autonomy, relationships, environmental mastery, and purposeful living. It is evident that income, wealth and material affluence can only be partly, directly or indirectly, related to each of the six dimensions required to achieve a state of eudaimonia, which has been associated with ‘growth towards some final realisation’ of one’s ‘true and best nature’ (Ryff and Singer, 2008, p. 17).

Notwithstanding, the advance of technological progress over the past two centuries in developed countries and the availability of ‘more’ to secure human development should not be underestimated. To name one example, many advanced nations today have access to an unrivalled level of healthcare which would have been unthinkable even to the most affluent in the 1700s. Healthcare is an example of an expensive good which has greatly improved quality of life and human life expectancy, and the availability of which was only made possible with technological progress and economic growth (Jakovljevic et al., 2020). The availability of health technology – including highly specialised interventions, medications and vaccination programmes – would not have been possible had there not been economic progress which afforded countries the intellectual space and spare income towards the development and deployment of such technology. For illustrative purposes, in 1994, the healthcare expenditure in countries in Western Europe, Canada, the United States and Japan commanded a considerable proportion of the national budget and had risen to figures ranging between 6.7% and 14.2% of Gross Domestic Product

(Lameire et al., 1999). Healthcare costs increased post-war partly because access to healthcare was progressively widened to include everybody, a ‘luxury’ which was not previously economically possible. Since then, healthcare costs have continued to increase with the development of new and highly specialised health technology.

Theoretically speaking, if ecological sustainability were not an issue and humanity lived on a planet with an infinite availability of natural resources and infinite carrying capacity for economic activity, the social critique around economic growth would have been much weaker. The logic behind this is that the availability of ‘more’, no matter how unequally divided, has the potential to afford every person and community on the planet the means to the essentials of the good life. Indeed, historically, economic growth was evoked by Keynes and post-Keynesians as a buffer against unemployment, social instability, international instability and potentially war (Spash & Schandl, 2009). Unfortunately, natural resources are not infinitely available, and the global reality exposes a decline in the availability of natural resources and an impoverishment of Earth system services. Global and indefinite economic growth is ecologically unsustainable. Under conditions of ecological scarcity, the social dimension becomes critically important since finite natural resources mean that people can only become wealthier at the cost of others becoming poorer, unless there are dramatic and ecologically decoupled technological breakthroughs. Under conditions of ecological and economic scarcity, distributive justice becomes unprecedentedly important to secure access to the essentials of the good life to all. This observation was also noted by D’Alessandro et al. (2020) who argued that climate change and inequality should not be tackled separately in the policy agenda in view of their intertwining implications.

‘Spaceship Earth’, a term and a concept which was first presented by economist and philosopher Kenneth Boulding in 1966, was introduced to evoke a sense that goods and services are ecologically bounded by the carrying capacity of planet Earth. This implies that there is a fixed availability of materially bounded goods and services to go around globally for human enjoyment. Boulding (1966, p. 7) refers to this as the ‘spaceman economy’. In his essay, Boulding (1966, p. 1) expositis how primitive people could have imagined themselves to be living on a ‘virtually illimitable

plane'. He states that the image of 'the frontier' was one of humankind's oldest images. In his words,

'there was always some place else to go when things got too difficult, either by reason of the deterioration of the natural environment or a deterioration of the social structure in places where people happened to live' (Boulding, 1966, p. 1).

Boulding argues that despite the findings of the geographical explorations of the fifteenth and sixteenth centuries, it was not until the development of the 'air age' in the late 1940s, when the first photos of Earth were taken from space (New Atlas, 2017), that the global nature of the planet started entering popular imagination. In 1966, Boulding (1966, pp. 1-2) argued that humanity was 'very far from having made the moral, political, and psychological adjustments which are implied in this transition from the illimitable plane to the closed sphere'. Witnessing from the international political and economic systems in place today, it is also arguably the case that humankind has still not made the necessary psychological adjustments to live on 'spaceship Earth'. In this context, 'techno-optimism' – the belief that technological solutions will overcome ecological limits (Alexander & Rutherford, 2020) – might also represent a state of denial on behalf of those who do not want to face a possibly grim reality.

The implications of a 'closed sphere' or 'spaceship Earth' can be disturbing. People living in countries with predominantly capitalist systems are accustomed to a kind of social imaginary whereby any person living on Earth can possess limitless wealth. Under conditions of ecological scarcity, an increase in the material conditions of living of some would automatically translate into a decrease in the material conditions of the lives of others. Technological progress and social innovation will help to alleviate issues of scarcity by decoupling economic output from its ecological footprint – a phenomenon which is also known in economic jargon as 'dematerialisation' (Magnus-Johnston, 2016, p. 97). However, unless there are radical technological breakthroughs, global population growth and the keen aspiration of many human communities to enjoy Western material standards of living will likely countervail many of the alleviating effects of technology on scarcity.

The implications of ‘spaceship Earth’ are several. Putting one’s faith solely in technological progress of the kind referred to as ‘techno-optimism’ might yield unsatisfactory results. Georgescu-Roegen (1986, p. 11) was already warning against the idolatry of technology in 1986: ‘the much stronger thesis that technological innovations can always do away with scarcity of any item ... has become the first article of economic faith of virtually all economists’. In addition, promoting global distributive justice – to dampen down the ecologically unrealistic aspirations of the Global South leading the kind of wasteful way of life of the Global North, but more importantly to secure every human community’s right to a fair chance at thriving – is a political project which needs to be assumed in its own right independently of any technological progress which might serve as an aid to the project. Global distributive justice needs to be secured both in space (intra-generationally) and in time (inter-generationally) such that future generations might have access to the enjoyment of similar material standards of living currently enjoyed by present generations. Furthermore, since aggregate global human economic activity has already driven some critical Earth components beyond the planetary threshold, living within the bounds of ‘spaceship Earth’ might imply a reduction in the average global standard of living, as also implied by sociologists John Bellamy Foster, Brett Clark and Richard York in the preface to their book *The Ecological Rift: Capitalism’s war on Earth* (2010). Finally, the implications of ‘spaceship Earth’ on the scarcity of available resources raises ethical objections on the existence of ‘the billionaire’ or the right that a person, community or nation on the planet can accumulate boundless wealth. Under conditions of increasing ecological scarcity, Harvey’s theory of ‘accumulation by dispossession’ – that is, the redistribution of ‘existing wealth’ from the ‘mass of the population toward the upper classes or from vulnerable to richer countries’ (Harvey, 2007b, p. 34) – becomes increasingly the rule. This will be explored further under the section on the institution of ‘private property’ (3.3.1) and the legitimate right of people to have exclusive rights to the fruits of their labour, as conceived by the classical political economists of the 19th century.

Class interests

The reason why income and wealth inequalities are projected to increase in a slowing economic growth scenario is partly because people or entities with large amounts of capital are highly politically influential. This is one of the reasons why Piketty's (2014) policy recommendation to introduce a tax on wealth to reverse the worrying trend in widening income and wealth inequalities was met with strong opposition. Influential critics advocated for more (unsustainable) economic growth rather than a tax on the rich (The Economist, 2014). Piketty's recommendation was made in the context that income and wealth inequalities in the developed world today have risen back to levels last seen before World War I and that these create the conditions for the kind of political instability that led to that war. Interestingly, Piketty also showed how the rate of return on capital remains stable at around 4-5% as capital accumulates, even though the economic law of supply and demand would suggest the rate of return to fall as capital accumulates. This relatively inelastic relationship suggests that the terms for the rate of return on capital are dictated by people with capital in a relatively non-negotiable manner.

Class interests have existed for a very long time and were prominently reflected in Marx's writings on the tensions inherent in the capitalist mode of production, not least between the *bourgeoisie* and the *proletariat*, and in his vision of a classless society. The important point is that wealth is powerful and highly influential. Harvey (2007a) argued that the neoliberal project which started in the 1980s in the United States, the United Kingdom and China, was a political project to secure capitalist class interests by strengthening private property rights and free markets, and by withdrawing the state from areas of social provisioning through deregulation and privatisation of services. Similarly, Jessop (2016) describes neoliberalism as a project that promotes profit-oriented, market-mediated accumulation. Freer markets favour the affluent, as highlighted by political philosopher Michael Sandel who argued that the market is a distributive mechanism that favours people with money. Furthermore, Sandel (2012) expressed his convictions that money finds its way into politics and into the exercise of power and voice. In this sense, the ownership of large amounts of wealth may not only be objectionable on ethical grounds because of 'accumulation by dispossession' as described earlier. It also

becomes problematic because of its political nature. Money's political nature implies that launching and running a global project to secure distributive justice is likely to be met with considerable opposition from people and entities with capitalist class interests. The political nature of wealth in the hands of the few may jeopardise global governance approaches that seek to steer global human activity towards ecological sustainability since the affluent, having a disproportionately larger ecological footprint, would need to adjust their wealth expectations and their luxurious living to more modest ways of life. As a political force, the wealthy class is also capable of mobilising itself to secure its own interest rather than the common good. This might jeopardise the development of global governance processes and institutions intended to secure ecological sustainability and distributive ecological justice.

3.3.3 Politics of economic growth

Whereas some authors argue that the economic growth is a capitalist imperative, instigated and perpetuated by capitalism as a necessary condition for capitalism's survival (Harvey, 2007a; Smith, 2010; Liodakis, 2018; Soriano, 2018a; 2018b), other authors argue that there are also political drivers of the economic growth imperative (Daly, 1991; Foster et al., 2010; Liodakis, 2018; Hickel, 2019). This is also witnessed by the fact that economic growth features highly in the political manifestos of national governments and international institutions worldwide. 'Sustained economic growth' has also been adopted by countries as a cross-cutting theme and is one of the main goals of the 2030 Sustainable Development Agenda (UN, 2015, p. 4) making it not only a national or regional goal but also a universally agreed global goal. It would be reductive to assume that the economic growth imperative is solely related to the dynamics of capitalism or to the influence of capitalist class interests.

In this section, I attempt to explore the reasons why governments keep on pursuing economic growth despite its ecological unsustainability and the social inequalities it sometimes creates. This is done by examining the political drivers behind economic growth from an intra-national and inter-national perspective. The case for an *a-priori* political transformation in global governance, as a necessary condition

accompanying changes in economic practices, to secure ecological sustainability, is presented in the concluding section.

Political legitimacy

One rationalisation for the pursuit of economic growth by governments is political legitimacy. This argument particularly holds, but is not uniquely restricted, to advanced democratic countries where the ‘right to rule is created by those who are ruled’ (Peter, 2017, section 3.3, para. 4). In the Lockean tradition, consent by the populace is a necessary condition for political legitimacy. Political authority that fails to secure consent loses the right to rule. As put by Hovi et al. (2009), the survival of any government ultimately rests on its capability to meet the demands and expectations of its constituency. The populace is likely to support an economic growth agenda for several reasons. These include growth’s visionary lure and appeal (the prospect of more and better), higher standard of living, more public services, less income taxation (consumption and corporate taxation generate substantial government revenue in a growth economy) and more employment opportunities.

‘Growth’ sells politically. The concept of ‘growth’, of ‘more’ and possibly, as argued by Muraca (2016), of ‘better’ carries with it a popular lure. This attraction holds even though the benefits of a growth economy later transpire to be unfairly shared or if a growth economy creates negative ecological and social externalities which will need to be borne by society at large. As argued by Daly (1991 [1977]) few people question the desirability of economic growth. Swyngedouw (2014) is also cited by Liodakis (2018) as speaking of a ‘rising de-politicization’ and ‘naturalisation’ of the need for economic growth (and capitalism) amidst a consensus by the populace for it. Politicians ride on the popular lure of ‘growth’ and this is one of the reasons why economic growth features in virtually all the electoral manifestos of political parties contesting elections in democratic countries. Liodakis (2018, p. 50) goes further and states that ‘higher rates of economic growth seem to indicate a more successful public administration and a higher economic performance, which are a precondition for the re-election of political personnel’. Unfortunately, as observed by Jackson (2021, p. 151), limitless economic growth

is a ‘false promise’ conjured on the premise that there will always be more for everyone.

Apart from its visionary lure, economic growth holds the promise of higher standards of living for most people in the form of more choice, more services and better access to products. Higher standards of living achieved through material economic growth, as described in section 2.3, come at an ecological cost and beyond a certain point become ecologically unsustainable (Daly, 1991 [1977]). Two rationalisations for the popular support to economic growth despite its ecological unsustainability are: a failure to link a high material standard of living with ecological unsustainability and an unwillingness to forego a high standard of living despite a knowledge of its ecological unsustainability. On the latter, Jensen and McBay (2011 as cited in Foster et al., 2010) note:

‘when most people in this culture ask, ‘How can we stop global warming?’ that’s not really what they are asking. They’re asking, ‘How can we stop global warming without significantly changing this lifestyle that is causing global warming in the first place?’ The answer is that you can’t. It’s a stupid, absurd, and insane question’.

Likewise, Falk observed that:

‘George Bush, then President of the United States, famously announced prior to Rio that ‘the American standard of living is not negotiable’.’ (2000b, p. 327)

Furthermore, economic growth presents an alternative to redistribution by income taxation. A growth economy generates government revenue (Liodakis, 2018) through consumption and corporate taxation making it possible for governments to provide and to increase public services without having to resort to increasing taxation on income. Since increasing income taxation rates is generally disliked by the populace, governments that refrain from increasing income taxation, or proceed to reducing income taxation, gain popularity and enjoy greater legitimacy. There are at least three rationalisations why people dislike taxation: i) the populace might lack an understanding of the link between taxation and provision of access to essential services. Besides, ii) there might be a general distrust in governments and

on the proper use of funds. Furthermore, iii) the electorate might lack a sense of ownership on the choice of services that are being provided with their money. Over time, many democratic countries have embraced growth economies to reduce income taxation rates. As stated by Daly (1991 [1977], p. 8), growth ‘offers the prospect of more for all with sacrifice by none’. Without going into the merits of the stability of a political system which depends substantially on economic growth to fund its public services, and the consequent lack of immediate funding during economic recessions, the pursuit of economic growth enjoys popularity because it makes it possible for governments to increase public services without increasing income taxation.

Economic growth is also supported by some labour unions because it creates employment opportunities. This assertion holds especially in market capitalist societies where artificial scarcity in the form of a relative lack of employment opportunities is created to keep labour costs low. Alternatively, higher labour productivity achieved through technological advancements and higher automation of processes makes labour increasingly dispensable. In societies with low employment opportunities, the pursuit of economic growth is attractive to workers and labour unions as it creates more job opportunities and higher incomes, especially during the boom phase of the business cycle. As aptly stated by Hickel (2019, p. 16),

‘aware of this dynamic [of the state growing the economy to ease unemployment in manufactured social conditions], workers and unions join in the chorus calling for more growth, and tend to elect politicians who can promise it most credibly’.

Some authors find this to be astonishing, if not paradoxical. Liidakis (2018) maintains that labour unions, out of ignorance, are in effect supporting an economic design which is detrimental to the people they represent i.e., the working classes: ‘Instead of demanding appropriate work ensuring a decent income, workers and unions appear, also, to consent to economic growth’ (Liidakis, 2018, p. 50). Barca (2019, p. 227) also notes that faced with unemployment, labour unions and Leftist political parties support ecologically unsustainable industries, such as mining and

the use of fossil fuels – ‘the opening of new extractive frontiers’ – in a bid to ease unemployment.

Similarly, for the reasons cited above, economic recessions place governments’ legitimacy in question. During economic hardship, employment opportunities decrease, the source of government revenue dries up and public services might need to be curtailed. In these times, the ruling party or regime might fall out of favour. Political parties in democratic countries might be voted out of government. Governments of countries championing the capitalist mode of production under neoliberal policies, come under increasing pressure to steer the economy back to growth (Hickel, 2019), dependent as they are on the private sector for the creation of jobs and on revenue generated in the form of consumption and corporate taxes. This was the case in the post-2008 crisis in Greece which led to less government revenue for services and regulation, intensified capitalist competition, further ecological degradation, and a humanitarian crisis, as exploitation of the working population intensified (Liodakis, 2018). ‘The state, desperate to reduce unemployment and forefend against social and political crisis, must then find ways to grow the economy in order to create new jobs so that people can survive...’ even if this means promoting ‘debt-fueled consumption’ (Hickel, 2019, p. 61).

In conclusion, the political legitimacy derived from an economic growth agenda implies that, as a minimum, the popular cultivation of a cosmopolitan mindset underpinning the ecological unsustainability of limitless economic growth is a precondition for attempts to promote political non-growth agendas. Potential distrust or lack of ownership in the manner that funds are dispensed by governments, reinforces the importance of the application of the principle of subsidiarity in governance, as this would hold back national governments from selling economic growth as a manner to secure their legitimacy. Importantly, contrary to a belief that economic growth is exclusively a capitalist imperative, growth is also driven by the demands and expectations of the populace.

Geopolitical influence

‘Capitalists, communists, fascists, and socialists all want economic growth and strive to maximise it. The system that

grows fastest is considered best. The appeals of growth are that it is the basis of national power...' (Daly, 1991 [1977], p. 8).

Back in 1977, economic growth was already considered 'the most universally accepted goal in the world...' (Daly, 1991 [1977], p. 8). In a world characterised by 'international anarchy' – an international system characterised by the absence of a central governmental authority (Milner, 1991) – Daly's statement aptly highlights the strong links between economic productivity and power. The countries that are the most economically productive are also the most politically influential. These countries can afford to spend big budgets on healthcare, education, research and on the military, among other things. Countries with strong economic productivity can protect their values, their way of living and counter external arbitrary and non-arbitrary interference from competing states and alliances. In this sense, economic growth is therefore tightly coupled with national security. This section explores the links between the pursuit of economic growth and its geopolitical influence, understood as 'the science of state power and security vis-à-vis other states and territories...' (Cowen and Smith, 2009, p. 25).

History shows that a country (or alliance of countries) that grows its economy the fastest stands the best chance at securing its national interests. One classic example is the United States of America and the Soviet Union during the Cold War; a war which was arguably waged substantially in terms of GNP and economic productivity (Collins, 2000; Aziz & Asadullah, 2017). Whether the Soviet Union formally dissolved in 1991 because of the United States' military build-up of the 1980s is still contested (Chernoff, 1991). However, Chernoff (1991) illustrates how the Soviet Union suffered economic damage during the pre-Gorbachev order because it could not carry the burden of its defence budget, which was excessive in relation to its economy. In the 1980s, during Reagan's military and defence build-up, there was no real increase in the Soviet Union's defence budget (Chernoff, 1991). The view that 'economic power underwrites [America's] national security' is shared by McCormick et al. (2020, p. 52) who cite the United States of America's National Security Strategy (2017), which quotes the Trump administration stating that 'promoting American prosperity makes America more secure and advances American influence in the world'. Araral (2014) also argues that there are strategic

and security reasons behind the US's and China's lack of ratification of important international conventions such as the United Nations Convention on the Law of the Sea (UNCLOS).

Similarly, McKinnon (2013, p. 8) compares the Cold War struggle to Sino-American competition in the post-Cold War era, again associating China's restoration of wealth and economic growth with its rise as a geopolitical power, 'giving China the wherewithal to safeguard and advance its interests'. More explicitly, China's key role in the global economy and in world affairs are shaped 'by virtue of its economic clout and the military capability that goes with it' (McKinnon, 2013, p. 9). China's increase in military spending, made possible through its progressive growth in economic productivity, was also observed by David Shambaugh (2013), an international authority on contemporary China, as well as Robertson and Sin (2017). Speaking of military capability and geopolitical influence, had the US global military apparatus been an independent nation, it would rank as the 13th largest economy in the world (Cowen and Smith, 2009). Only a country which is highly productive can afford to have such a large military budget. Since economic productivity is tightly coupled with resource and energy consumption, countries that grow their economies fast are also avid consumers of resources and depletable reservoirs, some of which pertain to the global ecological commons.

The intricate links between economics and geopolitics is being increasingly captured in the term 'geo-economics', a term used extensively by Blackwill and Harris (2016) in their book titled *War by other means: geoeconomics and statecraft* to argue that geo-economics is a tool of statecraft increasingly being used by countries, such as China, to achieve their national security objectives.

To promote their national interests, some countries openly and directly promote economic growth among their allies in their foreign policy. One such example is found in the National Security Strategy of the United States of America where President George W. Bush (2002, p. 18) stated that 'a return to strong economic growth in Europe and Japan is vital to U.S. national security interests'. He makes direct reference to promoting economic growth in the Group of Seven (G7) and stated that he wants the allies of the United States of America to have strong

economies for the sake of ‘global security’, among other things (Bush, 2002). The promotion of economic growth among a country’s allies is thus a foreign policy which is pursued for the protection of a country’s national security interests. Failing to live up to the alliance’s expectations of growth can also lead to the loss of international privilege. This is aptly captured in Tim Jackson’s encounter with the UK Chancellor of the Exchequer, where Jackson recalls the uncomfortable feeling of an ironic question by the special advisor: ‘What would it be like for Treasury officials to turn up at G7 meetings knowing that the UK’s GDP had slipped down the world rankings?’ (Jackson, 2021, p. 150).

Economic growth is thus not only a capitalist imperative, but it is also a geopolitical imperative, equally shared by countries of a capitalist or a non-capitalist creed, both by a predominantly market-driven or a state-driven economy. Liodakis (2018) posits that whereas growth is a necessary condition in capitalist society, it is pursued by choice in planned economies. Czech and Mastini (2020) observe that although the critique of growth has mainly focused on capitalist countries, economic growth is a top priority for social and communist countries as well. In fact, communist regimes sought state-driven, rather than private-based, growth and accumulation (Latouche, 2009 as cited in Kallis, 2011). A strong rationalisation for this is that economic growth underpins geopolitical influence.

Economic growth’s geopolitical dimension is arguably also an obstacle to United-Nations led international agreements to curb greenhouse gas emissions. These agreements have historically been met with opposition from some of the most powerful countries and, as a result, have taken years until they entered into force. One example is the 1997 Kyoto Protocol to the UNFCCC, which took 8 years to enter into force. The Kyoto Protocol aimed at committing industrialised countries and economies in transition (to market economies) to limit or reduce greenhouse gases. The United States of America, a key international player, never ratified the Kyoto Protocol on the premise that ratification would ‘result in serious harm to the economy of the United States’ (US Senate, 1997). Similarly, Canada withdrew from the Kyoto Protocol in 2012 (UNTC, 2021b) just in time to avoid bearing fines to the tune of 14 billion US dollars for failing to meet the 2012 targets (Hartenergy, 2012). At the time, The Guardian (2011) had remarked that the increase in

emissions was a result of Canada's booming oil sands sector, one of the world's largest oil reserves. Around the same time, Japan and the Russian Federation also declared their intention not to be under the obligations of the second commitment period of the Kyoto Protocol (UNTC, 2012); following on this, they did not ratify the 2012 Doha amendment to the Kyoto Protocol (UNTC, 2021a). Again, the 2012 Doha amendment to the Kyoto Protocol took another 8 years to enter into force (UNTC, 2021a), principally because, in the current state of affairs, powerful countries stand to gain more by refraining from ratification. To be sure, states who do not ratify these international agreements are not bound by the commitments of the treaty, even once these documents enter into force, exposing an arguably serious flaw in international agreements by giving a 'free-ride' to non-ratifying states, as discussed in section 4.2.2. It is evident that limiting global warming, a pursuit in the interest of all worldwide, relinquishes the global supremacy of countries which derive geopolitical influence from energy-intensive and resource dependent economies.

Since the global ecological commons are finite and depletable, the unregulated consumption of global resources for national security interests represents a race to the bottom. This is particularly pronounced on a planet with a growing world human population of more than 8 billion and with ways of living that have been on average increasingly resource intensive. The exploitation of the natural environment by states in such a competitive geopolitical context will arguably lead to a 'tragedy of the commons', a state which is reached when the global ecological commons are depleted to an extent where nothing remains for anybody.

3.4 Market Capitalism – A World after its Own Image

In the Communist Manifesto, Marx and Engels (1969 [1848], p. 16) aptly observed that in a sense, capitalism 'creates a world after its own image'. Market capitalism, rather than the pursuit of economic growth, is criticised by some authors as the root cause of the metabolic rift between human beings and nature (Foster, Clark & York, 2010; Smith, 2010; Moore, 2016; 2018; 2019; Soriano, 2018a; 2018b). Its dependence on economic growth as a necessary condition for its survival has

prompted some authors to identify the capitalist mode of production as the principal source of the ecological crisis (Smith, 2010).

3.4.1 Ecological and ethical critique of four principal components of capitalism

According to Neal and Williamson (2014) as cited in Temin (2015), capitalism consists of four necessary elements – private property rights, contracts enforced by third parties, markets with responsive prices, and supportive governments. Much of the criticism levelled at capitalism revolves around private property rights, wage-labour, the profit motive and the free market ideology. In the following sections, I will explore the foundations of each of the components of a capitalist economy to decipher which of these is acceptable and which of these is objectionable from an ethical, social and ecological perspective.

Private property

Private property rights are central to capitalism. Therefore, anti-capitalist stances are usually against the extension of private property over common or collective property rights (Lioudakis, 2010; 2018), especially in relation to land and natural resources. An in-depth analysis of the nature of private property however shows that the issues relevant to the protection of the ecological commons and to distributive justice relate to 1) the extent to which private property rights govern economic affairs versus common and collective property, 2) the conditions under which private property rights are granted, and 3) the distribution of private property among citizens.

Understanding 'private property'

Private property is a social institution whereby exclusive decision-making rights are granted to individuals, families or firms on various contested resources. Whereas resources under a common property system are governed by rules that ensure use and fair access to all, private property rights grant unilateral decision-making authority to private entities (Waldron, 2020). Private property is thus a relationship of ownership between an object and a person. It is an enforceable claim to an object or a possession, and constitutes a right to exclude others (Heywood,

1999). Although private property relates to individual decision-making it is nevertheless an institution which requires political, legal and social recognition.

For Hobbes (1651), private property rights could only be realised with the existence and recognition of the sovereign state; only a sovereign can guarantee peace and afford the necessary protection that private property owners need. Whereas some have reservations about private property rights for scarce and necessary resources, others such as Hume (1896, [1739], pp. 329-338) argue that it is indeed the scarcity of resources which creates the need for them. Indeed, as global population has grown, resources have become scarcer, and towns have become more densely populated. It is likely that the issue of private property rights has become ever more important, as indirectly implied by Hardin (1968) in his essay on 'the tragedy of the commons'. Notwithstanding, it seems that some human communities have existed successfully for millennia without the need for private property rights on major resources such as land (Waldron, 2020) which is the case that Elinor Ostrom, Nobel laureate economist, makes in favour of common property regimes.

Justification of private property

Historically, many writers have defended the ownership of private property on virtuous grounds, as a right to the fruits of one's labour or to promote the common good. Indeed, private property has been seen by political philosophers as an instrument which promotes prudence, responsibility, hard work, personal development, and agency. It has been defended as a right on the principle of original acquisition. Furthermore, private property has been viewed by many thinkers as serving to maintain public order, promote peace, democracy, freedom, and good citizenry.

Aristotle (1988 [c. 330 BC], *Politics*, 2. 1263a) hailed private property ownership as essential for the promotion of virtues like prudence and responsibility. He argued that common ownership of property is likely to be a source of discontent and collision. Rather than questioning the institution itself, Aristotle argued that proprietors of private property have the possibility to exercise ethical and altruistic behaviour, by putting for common use the surplus of their property or produce.

Over the past century, world leaders such as the Roman Catholic church have also been consistently in favour of private property rights, although not exclusive of collective or common property rights. Catholic social teaching is however mostly aligned with the teachings of Aquinas and the late scholastics, that is, that private property rights are justified if they fulfil a social dimension. In Pope John Paul's encyclical *Centesimus Annus* (1991, Art. 6), the pope stresses the subordination of private ownership to the social function of property in addition to affirming 'the right to possess the things necessary for one's personal development and the development of one's family'.

The association of private property rights with democracy, freedom and good citizenry was claimed by Aristotle (1988 [c. 330BC], 3. 1283a), Kant (1991, [1797]), Hegel (2003, [1821]), Hayek (2006 [1960]) and Friedman (1962), among others. The shared vision of many political philosophers was one where everybody owns sufficient wealth to engage politically and responsibly as a free citizen. From this angle, the broad enjoyment of private property rights is essential for responsible political engagement which is required to sustain global efforts towards ecological sustainability.

On the other hand, Marxists and authors who are critical of the capitalist mode of production, term the growing inequality in the distribution of private property, and more specifically in the means of production, as the 'dispossession' of the working class (Lioudakis, 2010). They argue that private property of the capitalist class grows as a result of the dispossession and exploitation of the workers. For this reason, they radically argue for the abolition of private property rights.

In principle, there is a moral case for a private proprietor, say of land or a natural resource, to have both rights and responsibilities. This is because private property is justified on the premise that it promotes personal freedom within a broader sense of responsibility towards the common good. Thus, whereas private property rights give the holder sufficient decision-making authority to freely express oneself (Kant, 1991 [1797]), act responsibly (Aristotle, 1988 [c. 330BC], *Politics*, 2. 1263a) and for self-development, such rights should also be granted with a set of conditions that make its exclusive enjoyment by its proprietor conform to the needs and the benefits of the community at large.

Distributive justice: a cornerstone for the justification of private property

Distributive justice is commonly postulated as the principal condition for the justification of private property rights (Aquinas, 1920 [1272]; Hume, 1896 [1739]; Mill, 1936 [1848]; Pope John Paul II, 1991). Indeed, Plato (2007 [375BC]) favoured collective property over private property on the basis that private property rights give rise to inequality, social unrest and, in the process, undermine the pursuit of the common good. Similarly, Hume (1896, [1739]) argues that those who discuss property without a proper conception of justice are guilty of a gross fallacy.

Mill (1936 [1848], pp. 234-235) defended private property rights but endorsed the principle on condition that 'positive evil to others' would not result from it.

'Private property, in every defence made of it, is supposed to mean the guarantee to individuals of the fruits of their own labour and abstinence. The guarantee to them of the fruits of the labour and abstinence of others, transmitted to them without any merit or exertion of their own, is not of the essence of the institution, but a mere incidental consequence, which, when it reaches a certain height, does not promote, but conflicts with, the ends which render private property legitimate.' (Mill, 1936 [1848], p. 209)

The theoretical foundations of private property rights apply if the distribution of private property is just. Indeed, many argue that the institution of private property should enable agency among the populace and not among a select few. This is in line with the right of people to have access to the essentials of the good life including owning their own home, having the opportunity to work, having access to an education, and having opportunity for political participation, among others.

Government intervention in the form of income taxation and redistribution is arguably viewed as a legitimate tool to control against the excessive ownership of private property. On ethical grounds redistributive taxation should not be restricted to labour income but should apply to all sources of income. To be sure, income can take one of two forms: labour income and capital income. 'Labour income' represents remuneration for one's labour. 'Capital income' is income derived as interest from savings and investments, and takes the form of capital gains, dividend,

interest or rent on company stocks, bonds, bank savings accounts or real estate. In the absence of taxation on capital income, the process whereby the wealthy becoming wealthier is inevitable. Government intervention in the form of taxation is therefore legitimate to control the perpetual growth of capital and 'capital income'.

Collective and common property rights

In every modern society, some resources are governed by private property rights, some are governed by collective property rules and some are governed by common property rules (Waldron, 2020). Private property is not an all or none option. Private property and collective control are thus not exclusive of each other.

Collective property differs from private property in that the use of resources is determined collectively by the community. For the sake of clarity, 'collective property' will be used to denote state property – property owned and administered by the state or one of its agencies. It is decision-making authorities, not persons, that take decisions on the use of resources (Waldron, 2020). This is in distinction to 'common property', a term which will be used in the spirit as denoted by Elinor Ostrom and colleagues to describe common property systems of 'the commons' or 'common-pool resources', such as fisheries and forests, and governed by its users.

In economic terms, private property has indisputable advantages over collective property. Innumerable decisions must be made in a complex society. A market economy featured by strong private property rights ensures higher utility and better efficiency of exchange (Levine, 2005). In contrast, central authorities claiming to act on behalf of community have been shown to be heavily bureaucratic and inefficient in allocating goods (Waldron, 2020).

Furthermore, although private property is sometimes portrayed as if a person has an unconditional enforceable claim on an object and its exclusive use, many times the rights of use and ownership of private property are granted on conditions. For example, there are provisions in the constitution of many countries which allows the state to seize private property, compensate the individual and proceed with a national project in the interest of the common good.

By natural common pool resources, Ostrom was referring to open access environmental resources such as forests, fisheries and pastures. Her research was mostly a reaction to Hardin's (1968) implication that unregulated 'commons' need to be regulated either as private property or by a central authority if a 'tragedy of the commons' is to be averted. Ostrom (2010) shows that there is a third type of property system – 'a common property system' – which can be properly managed by rules, conflict resolution mechanisms and penalties as agreed and regulated by user associations (Dietz et al., 2003).

Drawing on the principle of subsidiarity, Ostrom demonstrates that the role of the state is important but should be limited to supporting locally developed systems of regulation and control. She describes the local cooperation that is required to develop such systems as virtuous and argues that unnecessary top-down state intervention is disruptive of such systems and unwarranted (Dietz et al., 2003; Booth, 2017). Furthermore, whereas extending private property rights has been advocated by some as a solution to counter environmental degradation, Ostrom (2010) shows that common property regimes might provide an alternative to govern scarce natural resources.

With respect to the governance of the global ecological commons – climate, open seas, ocean fisheries, biodiversity, stratosphere – Ostrom (2000) herself acknowledges that governance by a central or 'external authority' might be better suited to a common property regime. Common property systems depend on trust among users, face-to-face interaction, and a relative ease to exclude others from the resource system (Ostrom et al., 1999). They are better suited at managing common pool resources at a more local level, possibly nested within a broader governance structure that spans all the way down from the global to the local level (Dietz et al., 2003).

The value of the critique of private property serves to evaluate its place in contemporary global human society faced with the collective challenge to live sustainably and avoid ecological catastrophe. A global institutional framework that allows for different types of property systems to thrive is arguably required. Internationally, the analogy of private property rights to a state's exclusive right to the management of natural resources in its territorial jurisdiction, is made in section

4.3.2. As with private property rights, I will argue that a state can only exercise its right on the management of natural resources in its territorial jurisdiction while respecting international law that safeguards the global ecological commons for the common good of all worldwide.

Wage-labour

Wage-labour and the commodification of labour are essential attributes of capitalism (Jessop, 2013). In pre-capitalist societies the concept of wage-labour and of a labour market were in general morally objectionable, as was the case in 18th century Britain (Polanyi, 2001 [1944]). Simply put, labour was not meant for sale. With the rise of industry and of products destined to the market, businesses were more likely to pay wages than establish flexible arrangements for compensation in kind, as was before the case with farmers for example. Thus, a capitalist economy became characterised by a bigger proportion of waged earners (Gelderblom and Jonker as cited by Temin, 2015, p. 1006). As Chattopadhyay (2016, p. 97) observes:

‘in the pre-capitalist societies, the products of labour were, for the most part, direct use values, not meant for sale. It is otherwise with capitalism. Here, products of labour, for the most part, are destined for the market to be sold as exchange value with a view to making profit.’

Thus, wage-labour and the labour market developed in tandem with the rise of the business and with the consolidation and extension of a market for goods. This was made possible with the support and the protection of the state.

Echoing the pre-capitalist objections to wage-labour, contemporary authors like André Gorz revived the concept in the 1970s-1980s. Gorz argued against the commodification of labour – ‘work-as-employment’ or ‘work-as-commodity’ – and called for a transformation in the labour movement whereby the ‘proletariat’ ceases to be viewed as the ‘labour class’, and classes are abolished altogether (Gorz, 1982 as cited in Barca, 2019). Indeed, Marxists argue that wage-labour alienates the working class from the process of production (Liodakis, 2010) and is nothing short of a type of slavery. Soriano (2018b) shows how exploitation of labour has historically changed form under different modes of social metabolism. He refers to

ancient production modes wherein slave labour was commonplace through relations of property among people. Under feudalism, labour took the form of ‘bonded labour’ through the property of land. Under capitalism slavery takes the form of ‘wage slavery’, which is slavery under economic or material terms. Jessop (2013) remarks that the commodification of human labour is a defining feature of capitalism.

In contrast, some authors, such as Nozick (1974), justify wage-labour on the principle that it offers people more choice (Mack, 1974). According to Nozick, in a capitalist society, people have a choice between working in exchange for a wage or selling their services on the market; some people opt to work for a wage in return for less market risk, more job security or advantageous working conditions. This argument arguably holds only if people have a real choice. Material poverty and social deprivation leave people of modest means with little choice other than to work for a wage. The reasons for this are multiple but would include insufficient wealth to start a business, inability to secure a bank loan, insufficient savings to weather market risk, and stiff competition from established providers. If the social and economic conditions are such that a person has no real choice but to work for a wage, then the market conditions under which work contracts are agreed cannot be fairly negotiated between employer and employee, unless this relationship is regulated by the state. In other words, faced with the prospects of material poverty a person is willing to take the first job under whatever working conditions to make financial ends meet.

People who face the prospect of material poverty are not in a strong negotiating position to secure fair income for their labour on the market. Worker collectives and trade unions have emerged over the past to strengthen workers’ negotiating potential; however, this was counterbalanced with the emergence of employer organisations and increasingly by the monopolisation of the world market by bigger multi-national companies. Historically, governments have intervened multiple times to protect workers’ rights – examples include the abolition of child labour (Rahikainen, 2017), the introduction of a minimum wage (Baek & Park, 2016; Reeves et al., 2017; Caliendo et al., 2019), the introduction of an eight-hour day (Bauer & Maylander, 1919), the provision of social benefits by the employer, and

more. Some believe that, as a minimum, the state has a vital role in lifting people out of poverty by providing a ‘safety net’ (Grant & O’Hara, 2010). The need for sustained state intervention confirms that, in the market, the waged labourer is at a disadvantage. On this, Huberman (as cited in Temin, 2015) explains how the benefits of capitalism to working people was not the automatic result of capital growth but the outcome of a political and economic struggle between workers and capitalists. Hickel (2019, p. 62) further argues that capitalists have intentionally kept wages low and retained the ‘threat of unemployment in order to discipline labour’ notwithstanding the impressive productivity gains in the twentieth century which, according to Keynes, should have translated into shorter working weeks, guaranteed employment and higher wages for the workers. This is the kind of ‘artificial scarcity’ which supports, in Marxist terms, the development of a ‘reserve army of labour’ for industrial production (Hickel, 2019, p. 54). It might also be a reason why, as pointed out by Jackson (2009a) and Haines et al. (2012), people on low incomes in advanced economies got a reduction in real terms in their wages over time.

Rather than being a criticism of wage labour *per se*, these authors are criticising the wide inequalities in labour remuneration that are characteristic of strong capitalist societies. Wage labour, or remuneration in exchange of hours of work, is not directly criticised on ecological grounds other than part of the wider discourse on capitalism’s commodification of nature and labour. The critique of wage labour in capitalism is mostly social. Among states that choose to embrace strong capitalist and economic growth imperatives, wide inequalities are however likely to be permanent features, as hierarchical inequality facilitates economic organisation and drives productivity. Removing wage labour, that is, remuneration for hours of work, is however unfeasible, especially in contemporary societies characterised by the production of complex goods that require complex organisational structures. In any case, it is difficult to see how the abolition of wage labour will provide solutions to the ecological crisis or help in restoring humanity to work. The question that needs to be addressed is why states embrace the economic growth and neoliberal capitalist imperatives in the first place, which then lead to the dehumanisation of work and the exploitation of human labour.

Some authors have suggested the universal introduction of a ‘living wage’ or a ‘basic income scheme’ on the premise that there is sufficient economic abundance to grant every person access to the essentials of a good life (Kallis, 2011; Demaria et al., 2013; Hickel, 2019). Essentially, a living wage is still a type of wage-labour with the moral implications presented above but has the advantage of securing ‘fair’ remuneration understood as minimum income that would secure decent living. A basic income scheme, on the other hand, is not a form of wage-labour – it is, simply put, a wage for no labour. A basic income scheme provides the possibility of a basic income, to cover the cost of essentials, in return for no work.

The implications of a basic income on the critique of wage-labour are multiple. A basic income scheme provides people with an additional option to waged labour and self-employment, that is, engagements in a ‘formal economy’. It provides people with the choice to engage in ‘non-formal activity’, such as voluntary work and caring for one’s family, in return for a basic income by the state. The first implication is that such a scheme would probably increase the negotiating power of waged labourers on the market because a basic income depletes the ‘reserve army of labour’. It provides the wage-labourer with an ‘exit’ option. Warren (2001, p. 683) describes how ‘exit-based empowerment’ is arguably an important tool in contemporary democratic theory because it provides common people with the possibility to disengage altogether from participating in the labour market. The second implication is that the labour market no longer remains a closed system where people are expected, obliged and to a certain extent coerced to participate and to work. The labour market becomes a permeable system with persons moving in and out of the system according to the conditions of work on offer. These two implications have negative repercussions on the profitability of capitalism and put pressure on economic sectors that do not remunerate decently, including sectors that thrive on worker exploitation. The third implication is that it represents a formal recognition that a person’s contribution to society goes beyond paid work and that, a person who is free to engage voluntarily might actually contribute more to society than if that person were to engage as a paid worker in the formal economy. The fourth implication is ecological. Knight et al. (2013) shows how high-income countries with shorter working hours have significantly less environmental

pressures. Is it possible that a basic income translates into less consumption and less ecological degradation?

In summary, wages represent a convenient manner to remunerate persons for their work. This is probably one of the reasons why capitalist economies are characterised with higher proportions of wage earners. Although there have been moral objections to a labour market in the past when it was first introduced, today, many people including professionals, academics and a wide variety of workers are remunerated monetarily for work on an hourly basis. This is in no way demeaning or undignified. The problems that arise from wage-labour and from the labour market relate more to the terms of engagement which are likely to be unfair for the employee in the open market.

Devoid of adequate and proper intervention from the state, the capitalist will seek to maximise surplus value by keeping wages low and by dictating conditions of work that maximise productivity. The introduction of a living wage or a basic income scheme is a measure that can only be implemented by the state. The extent to which the state is free to implement measures that might compromise its competitiveness in a globalised world order, as argued in section 4.2.3, is debatable. Carroll and Sapinski (2016) describe how the development of global capitalism and the proliferation of transnational capital after the 1970s, facilitated capital flight from regions with investor unfriendly policies. As an example, they cite how ‘investments deserted certain high-wage regions (e.g., ‘rust-belt’ cities like Detroit and Cleveland) in favour of locations in the Global South offering low wages and high productivity (Carroll and Sapinski, 2016, p. 2). Furthermore, governments in countries experiencing capital flight might in the short-medium term lose popularity and the legitimacy to govern.

In an increasingly globalised and competitive world order, far-reaching worker-friendly policies probably necessitate a global approach where states, collectively, dictate fair terms of worker engagement applicable to all worldwide. To be sure, the International Labour Organisation (ILO, 1998) at its General Conference of its 86th session, which was held in June 1998 in Geneva, adopted a universal ‘Declaration on Fundamental Principles and Rights at Work’. This declaration, as amended in 2022, obliges all states that are members to the organisation to respect

and promote five principles and rights: 1) freedom of association and the effective recognition of the right to collective bargaining 2) the elimination of all forms of forced or compulsory labour 3) the effective abolition of child labour 4) the elimination of discrimination in respect of employment and occupation and 5) a safe and healthy working environment (ILO, 2022). States who did not ratify the eight core ILO conventions (ILO, 2020a) are in any case obliged to respect the fundamental principles and rights in the declaration. Another example of a global approach is the introduction of a global corporate minimum tax on large multinational corporations which was initially agreed to by 136 countries in 2021 and is set to take effect as from 2024 (Kamin & Kysar, 2023). These steps partly address the need to have global frameworks that promote fair competition among states. Notwithstanding, twenty years from the adoption of the original ILO declaration (as at 2018), many states have still not ratified the legal instruments mentioned in the declaration (ILO, 2020a; 2020b). Lack of global agreement on worker rights imply that the cost of downshifting global consumption to address the ecological crisis will likely be disproportionately borne by people on modest means. In the next section I proceed to examine the third component of a capitalist system, that is, profit and the profit motive.

The profit motive

Profit and the profit motive are integral to capitalism. The profit motive has been identified by many as being ecologically and socially unsustainable (Lux, 2003; Liodakis, 2010; Moore, 2019; Williams, 2019). Mainstream micro-economic theory hails the profit motive – the maximisation of profit – as being the ultimate goal of business, a key tenet of rational choice theory. Its underpinnings go back to the consequentialist arguments of Adam Smith who asserted that individual self-interest is an economic social good. As we will see, there are moral and ecological objections to the profit motive but not necessarily to profit per se.

There is an important difference between profit-making and the profit motive. Profit is the surplus value that is secured by an individual or a firm for investing capital in the means of production (or the delivery of a service), taking market risk and generating capital income in the form of profit. The expectations on the rate of profit takes into consideration the risk inherent in the investment. Shareholding is a means

to hold a stake in profit-making companies. In contrast, the profit motive is an overarching objective which is pursued by an individual, a firm or society, to maximise profit as an ultimate end, possibly at the expense of other more honourable objectives. Whereas profit-making represents a rate of return on capital and thus falls under the critique of capital income, the profit motive represents an ideal that is pursued at the cost of exploiting others and nature.

Moral objections to the profit motive

Historically speaking, the profit motive has been analogised to the 'love of money' (de Bruin et al., 2020). There are strong moral objections to the 'love of money' being identified in the biblical scriptures as 'a root of all kinds of evil' (1 Timothy 6: 10). Similarly, Aristotle (1988, [c. 330BC], Politics, 1252a – 1260b) considered the desire for money (as an end in itself) to be something unnatural because money's fundamental nature is as a medium of exchange. In line with this, Marx (as cited in Chattopadhyay, 2016, p. 104) describes how money changes function in a capitalist economy from a mere medium of exchange (C-M-C) to a unit of value (M-C-M) where profit is realised in the form of surplus value.

The profit motive is objectionable on Kantian principles where actions are deemed to be truly moral only if they are morally motivated (Bowie, 2002). Thus, the subjugation of others as a means to an end (the profit motive) rather than treating others as end in themselves, is morally objectionable. Although people who live in a capitalist system might not necessarily have a personal 'love of money' and thus are not morally at fault, at a structural level the profit motive is still morally objectionable as it promotes and rewards immoral behaviour and habits, and cultivates a culture of greed.

Those who defend the profit motive argue that the self-interested pursuit of profits promotes the public good, even though this critique is more a justification of profit than of the profit motive, the latter referring to the maximisation of profit at all costs. This is basically Adam Smith's (1981, [1776]) consequentialist argument where the social good (in material terms) possibly outweighs the moral shortcomings in individual virtue – however, it is unlikely that in 1776 Smith envisioned the 'baker' or the 'brewer' to become unscrupulous profit-maximisers in

a capitalist system which eventually turned out to be unforgiving and competitively coercive.

Competition at the root of the profit motive

Competition is at the root of the profit motive. The profit motive thrives exclusively in a competitive environment, existing by design in a market capitalist system in order that only the most profitable firms survive. Firms with lower than average profit – even if that profit is substantial – risk being squeezed out of the market by growing competitor firms. It is against this competitive background of market capitalism that the profit motive should be conceived since this explains why firms can become ruthless, exploiting nature and labour, to maximise profit and ensure their survival (Moore, 2019).

The competitive element was observed by John Stuart Mill (1936 [1848], p. 748) in mid-19th century England who remarked:

'I am not charmed with the ideal of life held out by those who think that the normal state of human beings is that of struggling to get on; that the trampling, crushing, elbowing, and treading on each other's heels, which form the existing type of social life, are the most desirable lot of human kind'.

Similarly, Harvey views the profit motive and attempts at maximising profit as a manifestation of a competitive capitalist system which locks capitalists, as well as labourers, in a system where 'winner takes all'. In a capitalist system, a capitalist has no choice but to reinvest the profit, or 'surplus value', into the means of production and this leads to perpetual capital accumulation (Harvey, 2018), a defining criticism of capitalism (Foster, 2009). In a market capitalist system, capital accumulation is thus not only permitted but also promoted, rewarded and revered. Market capitalism promotes a society where greed becomes legitimate (Murtaza, 2011; Spash & Smith, 2019).

The growth imperative and the profit motive are closely related (van Griethuysen, 2010 as cited in Kallis, 2011) – the profit motive thrives in fierce competition (Kovel, 2002 as cited in Kallis, 2011) which is intentionally introduced in an

economic system to drive companies to maximise production at breakneck speed. Both the economic growth imperative and the profit motive are pursued as ultimate ends in a market capitalist system to the detriment of the pursuit of higher virtues. Countries with faster growing economies enjoy stronger geopolitical influence in a global political system of 'international anarchy' and this is, for example, arguably one of the principal reasons why the United States became a hegemonic power after the Cold War.

This competitive character is built in the system and coercive – both those who believe in competition and those who believe in cooperation are coerced to compete. Sandel (2013) argues that there should be a limit on the extent to which competition should drive production in society. Above a certain threshold, competition becomes unhealthy and leads to unjustified inequalities. Since this competitive element is global and today transcends national borders, such limits need to be deliberated at all political levels. Harmonised progressive taxation systems are one mechanism which could be employed to dampen down competition and undermine the profit motive, by controlling excessive income and the accumulation of wealth.

With globalisation and with the rise of global capitalism, the profit motive has also given rise to an increasing number of TNCs – companies that have grown beyond the borders of the state. Some of these companies are economically powerful and have huge lobbying power, generating annual incomes that vastly outstrip the GDP of several countries worldwide (Bloomberg, 2020; Worldpopulationreview, 2020). Global agreements and treaties would strengthen countries' collective effort to avoid the exploitation of a lack of international harmonisation, by TNCs. One positive development is the introduction of a global minimum corporate taxation rate (Kamin & Kysar, 2023).

Critique of profit as a type of capital income

Profit is a type of capital income, distinguished from labour income – the former is income on investment of capital or savings whereas the latter is income in exchange for labour (Piketty, 2014). Capital income includes interest from loans and profit reaped as dividend pay-outs or capital appreciation. There have been reservations on capital income in the past, however, with time, many have reconciled themselves

with the ethical justification and the societal benefits of allowing interest on capital, albeit under certain conditions.

Aristotle (1988, [c. 330BC], *Politics*, 1258b) was among the first to argue that there was something unnatural with 'money begetting money'. For Aristotle, money is a medium of exchange and has no productive use, therefore loaning money on interest was in his view wrong. Similarly, Aquinas (1920 [1272], *Summa Theologica*, II–II, q. 78, art. 1) argued that money is a good to be consumed on use and should not be loaned out on interest. Fundamentally, there is also Islamic condemnation of interest, this being considered as undeserved income (de Bruin et al., 2020).

There are some who specifically oppose profit-making on the claim that there is no labour justification for profit. Among these are Marx and Marxists who claim that profit is generated from the exploitation of labour and nature (Moore, 2016; 2018). In their view, profit is morally objectionable unless it is owned and shared by the workers (Löwy 2017). The Marxist argument is in part logically flawed because a profit which is equally shared by the workers is not necessarily derived without the exploitation of nature and would in any case be objectionable on ecological grounds.

However, others have justified profit-making as an ethical source of capital income, adequate compensation for foregone pleasure and as a societal good. As contextually placed by Maitland (2002, p. 10),

'to condemn as unethical people who invest their savings in a corporation with a view to building a nest-egg for their retirement or to put their kids through college ... seems extreme'.

This observation brings to the fore the stark distinction between the profit motive and profit. Whereas the former proclaims money as an end in itself, thus rendering it morally objectionable, the latter is morally neutral and can be used as a means to an end.

Profit and capital income have been justified in labour terms. As a form of capital income, profit is justified on the basis that persons need to abstain from the enjoyment of goods of their own labour to make capital available for investment

into improved production for the common good. To be sure, capital represents unconsumed goods; savings put to good use with potential economic returns to be enjoyed by all. For this reason, persons who forego the enjoyment of the fruits of their own labour should be compensated (Mill, 1936 [1848]). This argument is the reason why the West gradually abandoned medieval 'usury laws' in recognition of the societal benefit achieved from increased access to capital (Bentham, 1818 [1787]).

Over time, people investing in profit-making companies tend to enjoy better returns, in the form of dividend pay-outs and capital appreciation, than do lower risk financial instruments (Reinhart & Rogoff, 2009). While this seems unfair, *prima facie*, the risk of default and market risk inherent in investments in profit-making companies needs to be acknowledged. Different financial instruments carry a varying level of risk. Investments with higher risk justifiably enjoy potentially higher returns. This applies to, for example, company shareholding which carries higher average market risk than say bond-holding or fixed account investments.

Capital accumulation and social inequality

The labour justification on profit holds only if the capital invested truly represents the fruits of one's labour. As one's wealth increases, capital income increases. When this income is reinvested, it will generate further capital income which, if unconsumed, will serve to accumulate capital further and increase one's wealth exponentially. This is an example of 'money begetting money' (Aristotle, 1988, [c. 330BC], *Politics*, 1258b) with dubious ethical foundations. The labour justification weakens as one's income becomes increasingly of a capital income type.

The consequentialist argument of capital being made available for economic production is not undermined by capital accumulation. However, capital accumulation by the few becomes objectionable on the basis that it ceases to promote legitimate individual agency and responsibility, and instead becomes a threat to the social good. The extraction of interest by rich countries from poor countries is deemed to be unjust and is cause of outrage for many (Graeber, 2011; Herzog, 2017). The threat to the social good takes the form of increasing wealth and income inequalities (Visser & MacIntosh, 1998; Foster, 2009; Sandberg, 2012)

as rich people get 'undeservingly' wealthier at the expense of the common man's increasing poverty (Hickel, 2019). Under the prevailing set of rules, such inequalities would widen further with the transition from an economic growth to a steady-state economy (Piketty, 2014), which is necessary for ecological sustainability.

Prospective low growth scenarios have led critics of capitalism to argue that shrinking profit rates might lead to two scenarios with respect to the capitalist mode of production. The first scenario is that low growth might lead to a more exploitative form of capitalism where labour and nature are cheapened further to maximise profit. History shows that since the mid-19th century the global rate of profit has followed a declining trend (Carchedi, 2011; Freeman, 2012; Maito, 2014a; 2014b). The second scenario is that low growth will lead to the demise of capitalism, as capitalism faces 'the external limit of an exhausted nature' (Soriano, 2018b, p. 210) on which it depends. This echoes Marx's earlier observations that the rate of profit tends to fall as the value of raw materials increase, not least because of their increasing scarcity (Lioudakis, 2018). Whether low growth will transform capitalism into a more exploitative form or translate into the demise of nature, will arguably depend on two things: capitalists' expectations on the rate of return on their investments which has until now been largely inelastic (Piketty, 2014), and regulatory measures that protect nature and taxation policy that limits the rate of return on capital to ensure a more just distribution of the fruits of production.

The critique of profit and the profit motive leads us to the fourth component of market capitalism which includes the market, the market economy and the free market economy.

The market economy

The market is an 'institution in which individuals or collective agents exchange goods or services' for mutual self-interest (Herzog, 2017). From an ecological and social perspective, the market is mainly criticised for two reasons. It is an insufficient mechanism to address the ecological crisis even though it has been hailed by market liberals as an ultimate end. To the contrary, unless appropriately regulated by the 'state' or an institution vested with regulatory authority, the market

can catalyse ecological devastation. In addition, the market tends to widen income and wealth inequalities (Sandel, 2012; 2013) and thus, unless appropriately complemented by non-market institutions, it works against distributive justice. As will be seen in the sections that follow, many thinkers today argue against the dichotomy of 'market' and 'state' as an all or nothing solution to the socio-ecological ills of our days, and argue in favour of a regulated market. They recognise the benefits of the market as one of the tools to allocate goods efficiently in increasingly complex societies and to provide for economic liberties. They also advocate for a redefinition of the scope of the market and more regulation to protect against the socio-ecological ills of a market left entirely to its own devices.

Characteristics of a 'market economy'

To be sure, a 'market economy' is distinct from a 'market' per se. Polanyi (2001 [1944]; Polanyi, 1977) makes important observations about the role and the place of the market economy, understood as, an economy where 'exchange' or 'instrumental behaviour' is the principal mode of distribution of goods (Temin, 2015). He describes three complementary components of a human economy consisting of reciprocity, redistribution and exchange. Drawing on Polanyi's observations, Temin (2015, p. 1004) defines 'reciprocity' as 'a mode of behavior in which people aim toward a rough balance between the goods and services they receive and that they give to others'. 'Redistribution' is a system whereby goods 'are collected in one hand and distributed by virtue of custom, law, or ad hoc central decision' (Polanyi, 1977, p. 40). 'Exchange' is an 'economic transaction where people voluntarily exchange goods for each other or for money' (Temin, 2015, p. 1004).

Exchange, or 'instrumental behaviour', is only one way in which people engage in the human economy. It is generally favoured by people with high levels of autonomy but its attractiveness depends on contextual change; the lure of market exchange or instrumental behaviour as a principal engagement in the human economy declines when there is either slow or dramatic change e.g., during a famine. Everyone uses the three modes of behaviour at some point (Temin, 2015). Thus reciprocity, redistribution and exchange are complementary to, not exclusive of, each other.

Whether an economy is a customary, command or a market economy depends on which kind of activity dominates the economy (Temin, 2015). After 1848, many of the economies in the US and in Western Europe were dominated by market activity and so can be described as having been market economies. Historically, markets were also abundant in Mesoamerica but, as Salvucci (1987) argues, they did not dominate economic activity enough to be classified as market economies. Although markets are central features of capitalist economies, market economies do not necessarily need to be capitalist. Capitalism is generally viewed as a subset of a market economy.

Historical development of the market economy

In his classic economic exposé, Hungarian-American political economist Karl Polanyi (2001 [1944]) describes in detail how it was only until the beginning of the 19th century in England, and then in Europe, that the concept of a 'market economy' came into existence. It took centuries until all the essential components for industrial production were commodified and available in the market. Polanyi (2001 [1944]) describes how it took England centuries for it to fully liberalise land and finally human labour, with the enactment of the Poor Law Amendment of 1834, to provide industrial production with the essential ingredients, including manpower, for it to work well. A market for human labour, together with other reforms that ensured that the poor had no choice but to participate in this market (such as the Enclosure Acts), ensured a constant flow of available and affordable human labour for industrial production. To be sure, a market economy was a prerequisite for industrial production and is a central feature of capitalism (Heywood, 1999).

With the rise in capitalist production in 19th century Europe, the market took centre stage in economic and social life, bringing into existence a 'market economy' and eventually a 'market society' (Sandel, 2012; 2013). This is where the market started drawing criticism from thinkers such as Marx and Engels on the 'alienation' of the worker, and on the commodification of things that were historically not meant to be for sale including land, labour and money, also referred by Polanyi (2001 [1944]) as 'fictitious commodities'.

By the middle of the 19th century, the market was not only central to the economy but also became an ideological imperative, an ultimate end and 'disembedded' from the political. The concept of a 'free market economy' or market liberalism was born. Polanyi (2001 [1944]) writes about the intellectual movement in favour of market liberalism in the century preceding the First World War (1815-1914), the rigid gold standard system which became increasingly popular after the 1870s to facilitate investment and trade between countries, and the subordination of the political and the social to the market imperative.

Following World War II, the period between 1945 and 1970s witnessed an era of embedded liberalism in the United States and Western Europe. This 'counter-movement' is famously known in Polanyian terminology as 'the double-movement', which is essentially the need for state intervention to step in and restabilise the system once it has been stretched too far by market liberalism and deregulation. After World War II, states regulated markets and there was the rise of the welfare state. During this period, inequalities decreased (UNESCO, 2018) proving Polanyi's hypothesis right, at least from a social perspective.

For some reason, possibly due to shrinking profit margins (Martinez and Garcia, 1997), the Anglo-American countries and China abandoned 'embedded liberalism' and ushered a new era of 'redisembedded liberalism' – 'neoliberalism' – which started in the 1980s following bold political reforms by US President Ronald Reagan, British Prime Minister Margaret Thatcher and China's Premier Deng Xiaoping and which spread internationally in some form or another in the decades that followed (Harvey, 2007a). Neoliberalism involved deregulation of the market both domestically and internationally, the privatisation of property, and the withdrawal of the state from areas of social provisioning (Martinez & Garcia, 1997). Since then, income and wealth inequalities again increased to levels that were last seen before World War I (Piketty, 2014; Benatar et al., 2018).

Markets and ecological degradation

Markets are also criticised for catalysing ecological degradation. Essentially, by themselves, markets are boundless institutions – their boundaries are the rules and regulations that are set by governments. Quoting Daly (1991, p. 89), 'the market

cannot, by itself, keep aggregate throughput below ecological limits ... and will not keep us from running into icebergs.' Indeed,

'the market does not distinguish an ecologically sustainable scale of matter-energy throughput from an unsustainable scale, just as it does not distinguish between ethically just and unjust distributions of income' (Daly, 1991, p. 277).

Likewise, Jackson, 2021 (p. 13) states that 'one of two critical flaws at the heart of capitalism is its inability to know where this point [excess] is'.

Accounting for the negative externalities of the production process on nature is also generally deemed to be insufficient at securing ecological sustainability. For example, Kosoy et al. (2012) argue that the internalisation of negative externalities (e.g., pollution) in the market price of goods, by commodifying and attaching a price tag on the depletion of natural resources and 'depletable reservoirs', might be a beneficial short-term strategy but would nonetheless fail to be a sustainable strategy for the protection of ecological goods because the market is incapable of setting constraints. Striking a Marxist tone, Spash and Smith (2019) argue that the commodification of nature will worsen the ecological crisis because the worth of ecosystems should not be converted into abstract monetary values.

Over the past decades, the market has probably contributed to the speed at which the ecological crisis has unfolded. This is due in part to the market's capability at maximising allocative efficiency and boosting economic growth, against a weak regulatory framework that insufficiently protects the global ecological commons on an increasingly ecologically constrained planet.

The merits of the market

Notwithstanding, the market is a powerful institution which, if properly framed, can be used to yield human and ecological benefits. In fact, some steady-state economists argue that 'it would be a foolish waste of effort and an intolerable imposition of microcontrol to refuse to use the market.' (Daly, 1991, p. 89). Market proponents hail the market as being a platform that maximises allocative efficiency, promotes economic liberties and promotes virtuous behaviour. The Cold War

showed that the market is more efficient at allocating goods in increasingly complex societies than is redistribution by a central authority. This is because the price system can transmit complex information about people's preferences in decentralised manner.

From an ecological, political, and ethical perspective, the market has at least three critical merits. If the ecological commons were to be properly regulated, the market's economic efficiency can be utilised into doing 'more with less' rather than 'more with more'. The market also serves as a platform for political and economic liberty: people freely engage to exchange private property for the benefit of both parties without interference from the state, a concept also termed as 'negative freedom' (Hayek, 2005; Vallier, 2021). Moreover, markets are hailed to promote virtuous (more responsible) behaviour, spark innovation and lead to the emancipation of the individual (Herzog, 2017). Amartya Sen (1999, p. 6) defends the crucial role of the market in the process of development stating that 'freedom of exchange and transaction is itself part and parcel of the basic liberties that people have reason to value'.

The merits of the market however come with provisos. Market economies are most appropriate in societies among relative equals (Daly, 1991) and are generally favoured by people with high levels of autonomy (Temin, 2015). As inequalities increase, the benefits of the market are progressively outweighed by the negative consequences of competitive market distribution. Hardin (2014, p. 202) describes this as 'the central paradox of liberalism: the freedoms of some impose constraints on the freedoms of others'. Furthermore, allocative efficiency, also referred in technical terms as 'Pareto efficiency', might be highly unequal unless there are non-market redistributive institutions to keep inequality in check.

Values in a 'market society'

In addition to the consequentialist effects of markets, markets have been criticised for the values they promote and for the commodification of things that are sacred, such as land, labour and nature, including wildlife and biomes which form part of the global ecological commons.

Communitarian philosopher Michael Sandel (2012) has written influentially about the moral limits of the market illustrating how market values can corrupt civic values. He describes how a market economy can become a 'market society' which is 'a way of life in which market values seep into every aspect of human endeavor' (Sandel, 2012, p. 10). For Sandel, a 'market society' is 'a way of life in which market thinking and market values begin to dominate every aspect of life: personal relations, family life, health, education, politics, law, civic life...'. He shows how 'market values and market reasoning increasingly reach into spheres of life previously governed by nonmarket norms' (Sandel, 2013, p. 121). In his words,

'some of the most corrosive effects of markets on moral and civic practices ... involve the degradation that can occur when we turn all human relationships into transactions and treat all good things in life as if they were commodities.' (Sandel, 2013, pp. 124-125)

Similarly, the concept of land as a commodity, for exchange on the market, has long been resisted by authors such as John Stuart Mill (1936 [1848]), who advocated for the nationalisation of land, and Polanyi (2001 [1944]). In a world with compromised global ecological commons, it is arguable whether land, certain natural resources and access to the ecological commons should be more closely regulated by non-market institutions.

The international market

In a world with dramatic income and wealth inequalities, it is seriously questionable whether the market is appropriate at being the principal tool for the fair allocation of goods at a global level because it has been shown that the market inherently tends to widen income inequalities. This puts into question the legitimacy of global institutions, such as the International Monetary Fund, whose overarching objective is to liberalise international trade and expand the international market as an ultimate end.

There are two opposing lines of argument that relate capitalism to the international market. One is that capitalism is blamed for the development of an international market since it arguably depends on a perpetual supply of cheap and affordable raw materials which can only be sustained by extending market frontiers (Moore, 2019).

The other is that capitalists are locked in a global competitive system where they have little choice but to compete to maximise surplus value to survive (Harvey, 2018), such a process in itself leading to the relentless exploration of previously untapped regions and their integration in the world market. It is therefore appropriate to address the political and economic drivers that reward and compel capitalists to be exploitative. At the same time, the reach of the international market should be regulated such that capitalism, and other forms of economic activity, do not spill outside the bounds of what is ecologically sustainable.

3.4.2 General critique of market capitalism

Artificial scarcity

Market capitalism, or the capitalist mode of production, is criticised for creating and thriving on ‘artificial scarcity’ (McAfee, 2015; Hickel, 2019). ‘Artificial scarcity’ refers to social conditions of deprivation which create the right environment for people to labour more and to consume more. As a result, market capitalism enjoys a constant flow of readily available ‘cheap labour’, and an expanding market for its goods, locking in surplus value for the capitalist which can be reinvested to expand production. More production is therefore not necessarily translated into more abundance for all, as the benefits are skimmed by the wealthiest while the social conditions of the vast majority are maintained in a state of ‘artificial scarcity’ so that production does not halt to a standstill. Citing Hickel (2019, p. 62), a staunch critic of the capitalist mode of production, ‘capitalism transforms even the most spectacular productivity gains not into abundance and human freedom, but into new forms of artificial scarcity’ for its perpetual survival.

‘Artificial scarcity’ is contrasted with existential or ‘real scarcity’. ‘Real scarcity’, also referred to as ‘Malthusian scarcity’, refers to ‘an absolute limit to natural resources, beyond which availability is nil’ (Daly, 1991, p. 40). Ecological scarcity and the shrinking of renewables, non-renewables and pollutable reservoirs, not least because of Earth’s growing human (and farm animal) population, is a real kind of scarcity. Addressing ‘real scarcity’ and living within the ecological boundaries afforded by planet Earth is arguably the principal challenge of the twenty-first century. In contrast, ‘artificial scarcity’ is a social construct; a set of engineered

social conditions that nudge people to work and consume more. People work and consume more to make financial ends meet, move up the social ladder or to satisfy superficial desires which are projected by advertising media as real ‘needs’. In the end, the increase in production serves to lock in additional surplus value for the richest, with little else remaining for the working classes in terms of better social conditions, more wealth, or higher levels of wellbeing.

Hickel (2019) describes five ways by which ‘artificial scarcity’ is created in a capitalist society. Wages are kept intentionally low to serve capitalist production with a ‘reserve army of labour’, thereby securing a source of ‘cheap labour’. Desires are expanded by sophisticated advertising campaigns, manipulating people psychologically and creating new ‘needs’ for products that promise to grant them higher self-esteem and status, among other things. Products are designed to break down quickly – a concept also known as ‘in-built obsolescence’ – or become rapidly obsolete or out-of-fashion, driving people to consume more. As life becomes increasingly busier with longer working hours and more entertainment, time becomes scarce. This creates a demand for new services which were previously provided in-house. Furthermore, social inequality creates unrealistic aspirations for most of the populace, who as a result work more and adopt more expensive ways of living to attempt to mobilise themselves up the social ladder, a view also shared by Kosoy et al. (2012). This ‘artificial scarcity’ of pay, time and self-fulfilment, serves market capitalism in two ways: it provides market capitalism with workers, and it provides capitalism with a market for its products. Consequently, capitalism tends to subjugate the needs of real people to the needs of production. For a capitalist mode of production, people (or ‘human labour’) become a means to an end (production), even though the end (production) should have been set to serve the needs of the people in the first place. The question that arises from this observation is: Whose needs is therefore capitalist production serving?

Hickel (2019, p. 62) rightly points out that there is an issue of distributive justice at play. In his essay ‘Economic possibilities for our grandchildren’, Keynes (1931 [1930]) had famously predicted that by the year 2030, people would only need to work on average a 3-hour shift or a 15-hour week, to satisfy their material needs. Production increased year on year over the past ninety years since Keynes’

statement, however the social conditions of people on modest means did not increase in step with economic growth. Behind market capitalism there is an orchestration of players who conjure ‘artificial scarcity’ in an era of abundance such that people in the lower socioeconomic classes continue to submit themselves to labour and create additional surplus value. There are at least three rationalisations for the pursuit of more productivity in an era of abundance. The first is global capitalism’s system lock, which conditions companies to grow (Hickel, 2019). A second reason is capital class interest as most productivity gains (profit) are gleaned by people with capital, as has been for example the case in the United States since the 1980s (Hope, 2018; Hickel, 2019). A third reason is political – governments have an interest in mobilising people to work more – as was discussed in section 2.6.

Ecological degradation

Further to the social critique, capitalism is also criticized by some authors as being the principal driver behind the ecological crisis, leading Jason Moore to label the current epoch as the ‘Capitalocene’ – ‘the age of capital’ – (Moore, 2016, p. 6) in place of the currently discussed geological epoch ‘Anthropocene’. Moore states that the ecological crisis is ‘capitalogenic’, that global warming is ‘capital’s crowning achievement’ (Moore, 2018, p. 237) and that ‘capitalism is the pivot of today’s biospheric crisis’ (Moore, 2016, p. xi). Others, such as Williams (2019), counter-argue that it would be reductive to attribute the ecological crisis and biodiversity loss solely to the workings of modern capitalism.

Notwithstanding, from an ecological perspective, there is a general feeling that capitalism creates new markets and expands existent markets for the commodification of things, including previously untapped natural resources, to secure cheaper inputs for industrial production and maximise surplus value. It is not uncommon that nature is taken as a given and that the industrial process’s negative environmental externalities are unaccounted for, leaving society to bear the costs of depleted resources and depleted pollutable reservoirs. Jackson (2021, p. 36) remarks that ‘the relentless expansion of material desires at the heart of consumer capitalism is a denial of the reality of material limits’. These attributes are discussed in more detail as follows.

Capitalism is intimately associated with the commodification of nature and is inherently linked to a search for 'cheap nature'. Moore (2018) argues that advancing labour productivity through innovation and technology leads to rising material throughput which in itself places demands on what he refers to as the 'Big Four' inputs or 'Cheap Natures' – labour (human life), food, energy and raw materials. As throughput increases, the cost of the four inputs increases. The search for 'Cheap Natures' commences, leading to the commodification of nature and further environmental degradation. As the sources of cheap nature decrease, the survival of capitalism is at stake. Moore posits that since the 1970s capitalism has only overcome its inherent limitations by widening income inequalities and by shifting costs from the present to the future. As global ecological scarcity increases (whether naturally or through regulation), the social critique of capitalism on material inequalities, both internationally and domestically, are bound to intensify.

It is also not uncommon for negative environmental externalities to be unaccounted in the production process. Nature is taken as a given, for free, or appropriated at a bargain price. When this happens, the price of negative environmental externalities is not borne by industry and is not reflected in the price of the consumer good. Short-sighted policies allow the capitalist pursuit of production in complete disregard of its ecological impact. One such example is capitalist agriculture. Marx (1909 [1867], Volume 1, p. 555) noted that 'capitalistic agriculture is a progress in the art, not only of robbing the labourer, but of robbing the soil' of its long-lasting sources of its fertility. In this sense, capitalist production not only catalyses ecological degradation by commodifying nature for production, but the price of the ecological degradation is frequently not factored in the production process, shifting these 'ecological costs' on society at large.

Capitalism and the concurrent expansion of the market have also been blamed for promoting consumption, including that of material objects, the production of which has an ecological footprint (Fromm, 1976 as cited in Herzog, 2017). This includes all those products and services that rely on the use of natural resources, water, energy, and the emission of greenhouse gases, among others.

Finally, capitalism has been criticized since Marx's time as changing man's relationship with nature. Capitalism leads to a 'metabolic rift' between humans and

nature, an exploitative relationship whereby nature is commodified for capitalist production (Foster, 2000; Löwy, 2017; Hope, 2018), for society to lead a more comfortable life and for the capitalist class to maximise surplus value. One example described by Marx is the industrialisation of agriculture which drains the soil of its nutrients, impoverishes it, and ruins it.

Some authors argue that as the sources of cheap labour and cheap nature contract, as has happened since the 1970s (Harvey, 2018), the end of capitalism is near (Moore, 2016; 2019; Hope, 2018; Soriano, 2018b). Soriano (2018b) argues that there will come a time beyond which exhausted labour and nature cannot be exploited further. Truly, the advent of ‘High Technology’, increased automation, artificial intelligence, and the rise of the robot, will arguably offset the rising cost of human labour by disengaging capitalist production from its dependence on human labour. However, nature is not substitutable and ecological degradation will always represent a limitation on capitalist production. Ultimately, capitalism will need to face ‘the external limit of an exhausted nature’ (Soriano, 2018b, p. 210) as ‘webs of life everywhere... [challenge] capital’s cost-reduction strategies’ (Moore, 2019, p. 54). From this perspective, the future of capitalism is dire as the foundations on which capitalism depends are eaten away by capitalism itself. This does not however represent a solution to the ecological crisis. To the contrary, left to its own devices, capitalism will first deplete nature before this translates into the demise of capitalism itself. Since capitalism is in any case limited by the availability of finite natural resources it is arguably wiser to set safe ecological limits within which capitalism, or other economic arrangements, should thrive to protect Earth from unsustainable ecological degradation.

3.5 Conclusion

This chapter has shown that the ecological crisis is a global, complex, multi-faceted and urgent challenge. Notwithstanding multiple efforts, the international political and scientific community has been insufficiently effective at addressing this challenge. The rate of global greenhouse gas emissions continues increasing and anthropogenic biodiversity loss proceeds at a staggering rate.

Many scholars identify the economic growth imperative as the principal driver of the ecological crisis. The literature shows that the economic growth imperative is a political imperative as much as it is a capitalist one. This political imperative stems from an intra-national as well as an inter-national dynamic. Intra-nationally, governments that promote economic growth are more likely to enjoy government legitimacy and to stay in authority. Inter-nationally, countries that maximise economic growth benefit from stronger geopolitical influence.

Several authors hold the view that the economic growth imperative is principally a capitalist imperative and that solutions to the ecological crisis can only be found by addressing what they argue is the chief concern – market capitalism. An in-depth examination of the critique of capitalism however reveals that the core institutions of capitalism, save for the profit motive, are *per se* not objectionable on ecological, social and ethical grounds. It is the extent to which these four institutions are promoted as ends in themselves that is objectionable on ecological and ethical grounds.

A pure private property system is ethically objectionable because in such a system many people are likely to lack access to the essentials of the good life, as well as because some resources are best administered as common or collective property. An unregulated free labour market is likely to be exploitative of employees as employers can take advantage of the precarious financial position in which people on modest means find themselves. The profit motive is ideologically flawed and, in the Kantian tradition, is ethically objectionable as it subjugates human needs to the maximization of profit. An unregulated free market economy, free from any government or regulatory intervention, is likely to catalyse ecological degradation and widen social inequalities. These objections echo Heidegger's (1977) warnings on the essence of technology where Heidegger posits that technology should serve humanity's aspirations rather than pursued as an end in itself.

There is a strong argument for the market to be embedded in a wider political institutional framework that steers human activity towards ecological sustainability and secures distributive justice. Dis-embedded, a free market tends to widen income and wealth inequalities, and catalyses environmental degradation. At a global level, the market is probably an inappropriate institution for the just allocation of access

to the global ecological commons because there are dramatic wealth inequalities worldwide that limit the usefulness of the market as a preferable means for distribution. Non-market institutions that promote distributive ecological justice – understood as fair access to the global ecological commons – are important institutions to ensure that the economic freedom promoted by the market is complemented by a set of political freedoms and entitlements that truly give peoples worldwide the opportunity for self-determination. State and non-market institutions are however critical to keep each of the four components in check and to circumscribe the ecological space, by setting ecological limits, within which economic systems should operate.

The centrality of the political framing of capitalist, or other economic, systems is aptly captured by Parenti (2016, p. 166) who observed that ‘capital’s world of self-interest and private accumulation depends upon non-capitalist values, non-capitalist institutions, and non-capitalist forms of production and reproduction to survive’. Emphasizing again the centrality of the state as a driver of the ecological crisis, Parenti (2016, p.182) re-affirms that it is the ‘geo-power of the capitalist state [that] makes it possible for capital to treat the surface of the earth as a warehouse of Cheap Nature’. Likewise, Dalby (2016, p. 35) asserts that

‘whether the planet returns to something analogous to the Holocene ... is a matter of politics, because which direction we collectively push the planet in is shaped by human actions ...’.

There is reason to believe that without the necessary transformation in the global political and institutional framework, the urgent social and economic transformation that is required to avert a planetary state shift will not be realised in time. The potential collapse of Earth system functioning calls for better global governance. As advocated by Elinor Ostrom, the institutional framework to governing the global ecological commons must meet the complexity of the Earth’s biological ecosystem. Hailing pure private property-based systems or pure collective property systems as *the* solution to the ecological crisis are both likely to disappoint. To the contrary, a global institutional framework which is sufficiently complex as to allow different types of property systems to thrive

contemporaneously, in a world that values cultural freedom and cultural diversity, is more likely to succeed.

As Earth system functioning and biospheric integrity are critical for ecological sustainability, embedding human activity (capitalist or otherwise) within a global reality of ecological scarcity has become an urgent imperative. Kosoy et al. (2012, p. 78) state that ‘an economy must be judged by its ability to serve human values while respecting and being constrained by the limits of Earth’s life support systems...’. Since capitalism has become a global reality, as have international economic relations and interdependence, a global approach to ecological sustainability is required. Being humankind’s common heritage, and threatened by anthropogenic pressures, the global ecological commons – including the climate, biodiversity and the high seas, among others – should enjoy the protection of an effective global political and institutional architecture designed to protect the common good. In the next two chapters, I present the ecological case for a global guardian as well as four necessary principles of good global governance to effectively address the ecological crisis.

4.0 The Ecological Case for a Global Guardian

4.1 Introduction

This chapter develops the ecological case for a ‘global guardian’ (4.2) – a constitutionally limited legitimate global authority mandated with addressing the ecological crisis – by drawing on a theoretical framework as described in chapter 2. It starts with the presentation of three rationalisations that would justify coercion as a defining feature of the proposed global guardian. In this sense, the global guardian is distinguished from the United Nations, which is a legitimate global institution that has endeavoured to steer the international community towards global ecological sustainability, among other things, but which lacks the coercive capabilities to achieve such an objective.

This chapter then describes the mission of the global guardian (4.3) which will primarily be the protection of the global ecological commons. Global distributive ecological justice and the preservation of international peace and security are discussed as part of the global guardian’s mission to sustain its legitimacy and as important elements of ecological concern. There is a discussion on the definition of a ‘global ecological commons’ and a presentation of the concept of ‘ecological entitlements’ as an instrumental means for the global guardian to apportion ‘ecological space’ fairly among states⁶. Three ethical principles for the application of distributive ecological justice are presented. ‘Ecological entitlements’ with respect to greenhouse gas emissions, primarily as global non-market entitlements, are discussed separately vis-à-vis their protective effects against market-driven widening global inequalities in material standards of living.

This chapter ends with a brief discussion on the global guardian’s role in securing a just transformation to an ecologically sustainable world order, since such a political, social and economic transformation will varyingly impact the way of life,

⁶ The use of the term ‘state’ is used as established in customary international law. ‘The criteria for determining the existence of statehood are ... a defined territory, a permanent population, an effective government, the capacity to enter into relations with other States, and independence.’ (Tasioulas & Verdirame, 2022, Section 3, p. 15).

the material standard of living and potentially the demographic policies of peoples⁷ in advanced and developing nations worldwide.

4.2 The case for a legitimate coercive global authority

The idea of a coercive global authority, a ‘world government’, a ‘world state’ or world governance, is not new and has been expounded since at least medieval times by thinkers such as Dante Alighieri (Lu, 2021). 17th and 18th century thinkers such as Tommaso Campanella (Ernst & De Lucca, 2021), Thomas Hobbes and Jean-Jacques Rousseau. Immanuel Kant also debated the idea of coercion at a global level mostly driven by ‘the ideal of a universal community of humankind living in perpetual peace’ (Lu, 2021, p. 2). In the aftermath of the Second World War, the idea of a world federalist government was revived by atomic scientists, including Albert Einstein, to prevent the misuse of atomic energy and as the ‘only solution’ to ‘eliminate war’ (Caudill, 1991, p. 253). More recently, global coercion has been debated by cosmopolitan liberals (Pogge, 1992; 2009; Satz, 1999; Beitz, 1999; 2001; 2005; Caney, 2006), international relations scholars (Slaughter, 1997; Falk, 2000a; 2000b; Hurrell, 2007; Hurrell & Sengupta, 2012), political philosophers (Tan, 1998; Rawls, 1999; Korab-Karpowicz, 2005), and critical theorists (Young, 2002) in a world which is increasingly characterised by globalisation and interdependence between nations. In this context, a world authority is arguably conceived as a potential instrument to secure universal peace and promote distributive justice, rather than as a facilitator of globalised market forces and values. Importantly, scholars have over the past three decades started to entertain the role of global coercion or transnational mechanisms to secure an ‘ecologically sound future’ (Pogge, 2002; Najam, 2003; Dryzek, 2008; Esty, 2008; 2009; Bosselmann, 2015) or as a tool to prevent environmental catastrophe, destruction or degradation (Slaughter, 1997; Falk, 2000a; 2000b; Young, 2002; Hurrell & Sengupta, 2012; Martin, 2021).

I argue that there is a strong ecological case for a constitutionally limited coercive and legitimate global authority to address the ecological crisis. The case is built on

⁷ The term ‘peoples’ is used as described by Rawls, that is, political organized communities sharing ‘common sympathies’ and an international conception of justice represented by the Law of the Peoples (Rawls, 1999)

the urgency with which the ecological crisis needs to be addressed, the profound political and social transformations that are required worldwide, and the relative inefficacy of multilateral agreements to curb greenhouse gas emissions and protect land and marine biological diversity, among others, as argued by several authors (Murphy, 2000; Weiss, 2000; Charnovitz, 2002, Ruggie, 2003; Held, 2006; Kennedy, 2006; Franda, 2006; Esty, 2008; 2009; Dryzek, 2008; Thérien & Dumontier, 2009; Weiss & Thakur, 2010; Pelletier, 2010; Falkner et al., 2010; Archibugi & Held, 2012; Brousseau et al., 2012; Burch, 2013; Weiss & Wilkinson, 2014; Sussking & Ali, 2015; Kim & Bosselmann, 2015; Bréchet et al., 2016; Biermann and Bauer, 2017 [2005]; Biermann et al., 2017; Biermann, 2021; Stevenson, 2021; Moore and Pubantz, 2022). I argue that ‘international anarchy’ represents an ecologically destructive global system lock which can be addressed by a legitimate post-sovereign multi-layered global structure. Moreover, I expose what I contend are unfounded fears of a global leviathan – understood as a dictatorial coercive global government of sorts. I conceive of a global political architecture which is characterised, in part, by a constitutionally limited coercive legitimate global authority, which I will refer to as ‘global guardian’.

To be sure, the term ‘coercion’ refers to the application of the use of force (or the threat of such use) by an agent (the coercer) to diminish the targeted agent’s freedom (Anderson, 2023). The term will not be used to refer, as is sometimes the case, to emotional manipulation, social pressures or infringement of one’s rights. The term ‘violence’ is used interchangeably with the term ‘coercion’ by some authors (Weber, 1994 [1919]; Wendt, 2003). More specifically, in line with mainstream political and legal philosophy, the term ‘coercion’ will be used to refer to a political authority’s legitimate ability to enforce law (Anderson, 2023).

4.2.1 Urgency to act

For ecological catastrophe to be averted, there needs to be an urgent global political and social transformation, especially among those whose ecological footprint transgresses their fair share of access to the global ecological commons. Social scientists have issued warnings that the ecological situation is ‘desperate’ and ‘stark’ (Büscher & Fletcher, 2019, p. 283) with some biologists proposing

‘emergency solutions’ such as Edward Wilson’s (2016, p. 8) ‘Half-Earth’ proposal. Earth system scientists have also warned of the possibility of a transition to ‘Hothouse Earth’, a planetary state which is uninhabitable or inhospitable to the human species (Steffen et al., 2018). The Club of Rome (2020, p. 3) refers to the current global ecological crisis as a ‘planetary emergency ... requiring immediate action to reduce risk of potentially catastrophic results’. The 6th Assessment report of the Intergovernmental Panel on Climate Change has been described as ‘Code Red for Humanity’ by UN Secretary General Antonio Guterres (UN, 2021), who remarked that the world is on ‘fast track’ to climate disaster (UN News, 2022). This is the magnitude and the urgency which characterises the ecological crisis confronting humanity today.

Fifty years since the United Nations Stockholm Conference on the Human Environment (UN, 1972), the first world conference on the environment, more than 900 multilateral environmental treaties have been adopted and have entered into force (Pattberg & Zelli, 2016). Some treaties, such as the Montreal Protocol on substances that deplete the ozone layer, have been effective in reaching the desired objective. More politically sensitive treaties, such as those relating to climate change and biodiversity loss, have been insufficiently effective (Meadows et al., 2004; Biermann, 2016; Clift et al., 2017). The imminent dangers of contextually inappropriate ‘leisurely incrementalism’ (Porritt, 2020 as cited by Jackson, 2021, p. 149) have been echoed by many authors and institutions from a wide variety of disciplines (Crutzen, 2002; Beitz, 2005; Whitmee et al., 2005; Rockström et al., 2009b; Steffen et al., 2015a, 2015b; Dalby, 2016; Wilson, 2016; Raworth, 2017; Büscher et al., 2017a; Lynch & Veland, 2018; Stubblefield, 2018; Büscher & Fletcher, 2019; Ceballos et al., 2020; Club of Rome, 2020; IPCC, 2022). The feeling of painfully drawn out, if ever effective, multilateral environmental processes is captured in Biermann’s (2016, p. 174) observation that:

‘while thousands of diplomats, activists, business leaders and scientists annually convene for the conferences of the parties to the U.N. Framework Convention on Climate Change, progress at these gatherings is painfully slow, oscillating between outright

failures—such as the 2009 conference in Copenhagen—and rays of hope, such as the conference in December 2015 in Paris’.

Notwithstanding, the international community explicitly recognises the need for urgent climate action and has pledged to work towards Sustainable Development Goal 13 to ‘take urgent action to combat climate change and its impact’.

There is a case for legitimising coercion at a global level in view of the speed with which transformative international action needs to be taken. The case is made on the assumption that resolutions of a binding nature are more effective than non-binding UN-led agreements (Speth, 2008) including treaties related to the attainment of the Sustainable Development Goals (SDGs). The effectiveness⁸ of binding agreements is related in part to the efficiency with which strategic objectives are reached over a shorter time-period. Had the ‘urgency’ characteristic been absent, the ecological case for coercion at a global level would have been weaker in the sense that the desire to achieve ecological sustainability could continue to be attempted through more and better-integrated multilateral environmental agreements, as proposed by a few authors (Biermann et al., 2009; Biermann and Bauer, 2017 [2005]; Kim and Kotzé, 2021). Such agreements are however frequently long-drawn out, unfair and at times ineffective. Furthermore, the integration of multilateral agreements into one centralised institution is viewed by some authors with scepticism (Charnovitz, 2002; Oberthür & Gehring, 2004). Similarly, effective experimental bottom-up approaches – which are highly valuable and which could potentially be scaled up – might arguably fail to spread with the necessary speed globally in the absence of an effective global institutional structure. Indeed, Boonen et al. (2019) shows how proponents of both commons theory and global public goods advocate for a combination of top-down and bottom-up approaches. Likewise, I argue that the ‘urgency to act’ in the face of a serious global threat which requires global transformative action constitutes a sufficient condition for institutionalising constitutionally limited legitimate coercive global authority to address the threat. Such threats include climate change and biodiversity loss. Importantly, a global institutional framework does not

⁸ Effectiveness is not only related to the efficiency of binding agreements but also to the fairness of such agreements, including, among others, the avoidance of a free-rider approach.

exclude but rests on multi-layered governance and feeds on innovation and bottom-up approaches for a desirable and effective transformation towards ecological sustainability. The principle of subsidiarity, a necessary condition for the legitimacy and the agency of this global institutional framework, will be discussed in section 5.2.2.

4.2.2 Effective global governance of the ecological commons

Several authors have observed that there is a governance gap with respect to the management of the global ecological commons notwithstanding the existence of international processes dedicated specifically to ecological sustainability ((Murphy, 2000; Weiss, 2000; Charnovitz, 2002, Ruggie, 2003; Held, 2006; Kennedy, 2006; Franda, 2006; Esty, 2008; 2009; Dryzek, 2008; Thérien & Dumontier, 2009; Weiss & Thakur, 2010; Pelletier, 2010; Falkner et al., 2010; Borg, 2012; Kosoy et al., 2012; Archibugi & Held, 2012; Brousseau et al., 2012; Burch, 2013; Weiss & Wilkinson, 2014; Whitmee et al., 2015; Sussking & Ali, 2015; Kim & Bosselmann, 2015; Falkner, 2016; Folke et al., 2016; Bréchet et al., 2016; Biermann and Bauer, 2017 [2005]; Clift et al., 2017; Biermann et al., 2016; 2017; Biermann, 2021; Martin, 2021; Stevenson, 2021; Moore and Pubantz, 2022). Kosoy et al. (2012, p. 76) remark that there is a ‘significant gap in global governance with respect to environmental common goods’. Borg (2012) asserts that international environmental law has made remarkable achievements towards protecting marine biological diversity (or slowing marine biological degradation), however harmonisation of international law is required too. Clift et al. (2017, p. 4) refer to the absence of ‘bodies’ ‘at the global scale’ to implement measures that respect planetary boundaries. Whitmee et al. (2015, p. 1974) argue that ‘the present systems of governance ... are inadequate to address the threats to planetary health’ and call for improved and integrated governance. Martin (2021) describes the United Nations as a ‘treaty of sovereign nations’ that cannot solve global problems. Falkner (2016) expresses doubt about the effectiveness of multilateral climate negotiations to address the climate threat. Blake (2012) contends that there is still no empirical agreement about international institutions, in contrast to the power of the domestic state and domestic institutions. He reminds the reader that global regimes are ‘agreements between states, and their enforcement depends upon individual states

acting to defend these agreements' (Blake, 2012, p. 125). Consequently, he advocates for a global institution which 'acts independently' of powerful states (Blake, 2012, p. 133) and potentially with 'international executive power' (Blake, 2012, p. 125) for global justice. Beitz (2005, p. 11) observes that the 'nascent global capacity to act' is 'fragmentary and heterogeneous'. This global act consists of, in Beitz's view:

'the foreign policies of states, an eclectic variety of intergovernmental organizations, institutions and regimes that organize global economic relations, and humanitarian and human rights law.'

He remarks that at the global level, there is no analogous structure to the assemblage of coercive institutions of a 'reasonably developed [domestic] state' (Beitz, 2005, p. 24). Folke et al. (2016) call for a local-global institutional transformation to sustain humanity's capacity for stewardship of the Earth system. Biermann et al. (2016, p. 343) propose 'multilevel and polycentric governance approaches' spanning from the global to local with the involvement of multiple sector and multiple actors to effectively manage similarly complex Earth systems.

These authors expose the weak, fragmentary and non-binding nature of the existing global regime, where domestic states remain unbounded decision-making actors in a globalised world order. Many authors, such as Moore (2012, p. 87), point in the direction of 'authoritative (coercive)' bodies at a global scale to fill in an existing governance gap in relation to ecological sustainability.

UN-led international agreements are non-binding and encourage a 'free-rider' approach (Speth, 2008; Hovi et al., 2009) – understood as the enjoyment of a public good produced by the collective action of others, by an actor who makes a disproportionately small or no contribution whatsoever (Kennedy, 2015). The inherent tendency for individuals in large groups to fail to act in their own interest, because of free-riding mainly, is fully documented by Olson (1971 [1965], who terms this the 'collective action problem' (Suffrin, 1966). In the past, some nations decided against ratifying or eventually withdrew from international climate treaties on the basis that ratification would harm their national economies (US Senate, 1997;

Hartenergy, 2012). A free-rider approach is unfair and undermines the effectiveness of collective processes. It is unfair because global ecological commons are a ‘global public good’, a term used by Hovi et al. (2009) in relation to climate change mitigation and by several other authors (Runge, 2001a; 2001b; Kaul, 2003; Esty, 2008; Büscher et al., 2017b; Boonen et al., 2019) in relation to the global ecological commons, and thus demand responsible commitment by all nations worldwide. As Hovi et al. (2009, p. 30) argue:

‘because the benefits of reduced global warming accrue to all countries, not only those that reduce their emissions of greenhouse gases, it will be tempting for each country to leave a disproportionate share of the mitigation burden to others’.

Additionally, free-riding in internationally non-binding agreements renders the political process ineffective, leading the UN Secretary General to remark that there is a ‘yawning gap between climate pledges, and reality’ (UN News, 2022). This is because the ecological crisis calls for a sizeable global transformation that can only be achieved if all nations commit to it. It is unlikely that a few countries, or a group of countries, on their own, can make up for the shortfall of countries who do not seriously commit to global or international environmental agreements. Furthermore, free-riding demotivates ecologically sensitive nations from keeping to their commitments to international environmental processes, if such commitments translate into economic disadvantages, a lower material standard of living, hardship, loss of geopolitical influence or other unjust burdens. Indeed, countries that ratify protocols, amendments and agreements to the UNFCCC are placed at a relative economic disadvantage especially if they have fossil fuel reserves, are highly industrialised or have high energy-dependent economic productivity. At the 2011 Durban conference in South Africa, Canadian minister for environmental affairs Peter Kent was quoted as saying:

‘To meet the targets under Kyoto for 2012 would be the equivalent of either removing every car, truck, ATV, tractor, ambulance, police car and vehicle of every kind from Canadian roads or closing down the entire farming and agriculture sector and cutting

heat to every home, office, hospital, factory and building in Canada’.

Similarly, the United States opted not to ratify Kyoto on the premise that 80% of the world, as cited by President Bush in 2001, was exempted from commitments under the Kyoto Protocol (Hovi et al., 2010). Decisions to withdraw from such agreements had geopolitical considerations and were probably influenced by the lobbying power of the fossil fuel industry. However, in addition, the free-rider effect seriously undermines UN-led agreements by giving non-ratifying countries a free ride to benefits produced by the collective action of others.

A legitimate coercive global institution with the capacity to enforce binding agreements – a global guardian – would arguably be more appropriate at governing the global ecological commons. Binding agreements would be based on a global social contract between states and the global guardian to safeguard what is assumingly a universally shared good – ecological sustainability. The basic idea of social contract theory is

‘that individuals decide to leave the state of nature and voluntarily submit to common laws and the authority to enforce those laws, thereby establishing a state with coercive powers.’ (Kleingeld, 2006, p. 564).

Binding agreements between all contracting states would eliminate free-riding and enhance the effectiveness and the fairness of global efforts to protect the global ecological commons. Indeed, Charles Beitz (2005) alludes that distributive justice in terms of access to the global ecological commons can only be effectively achieved by a legitimate coercive institution. Similarly, English political theorist David Miller (2002, p. 976), a supporter of liberal nationalism⁹, asserts that a cosmopolitan vision of global distributive justice requires at least ‘a strong set of international institutions that can preserve a global regime of distributive justice over time’.

⁹ ‘Liberal nationalism’ has been defined as a ‘symbiotic’ relationship between ‘liberal and nationalist values’. Liberal nationalists ‘hold that liberal goals cannot reliably be achieved except in societies whose members share a common national identity’ (Miller, 2005, p. 113).

4.2.3 International anarchy – ecologically unsustainable?

International anarchy does not denote a lack of order, chaos or disorder, as the more popular meaning of the term 'anarchy' would evoke (Milner, 1991). 'International anarchy' is a world political order characterised by the lack of 'common government' (Axelrod & Keohane, 1985, p. 226), 'the absence of a central authority' (Bull, 1981, p. 736), the 'absence of a central authority to enforce states' adherence to promises or agreements' (Milner, 1991, p. 71), or 'a multiplicity of powers without a government' (Wight, 1978, p. 101). It is used to describe a 'decentralized and anarchic' international system where 'none is entitled to command; none is required to obey' in contrast to domestic systems, which are 'centralized and hierarchic' (Waltz, 1979, p. 88). Alternatively, international anarchy has been described as an international political system where 'nations dwell in perpetual anarchy, for no central authority imposes limits on the pursuit of sovereign interests' (Oye, 1985, p. 1).

International anarchy – a world political order characterised by the absence of common government or a central authority – is arguably ecologically unsustainable because it is inherently competitive. In international anarchy, economic growth is a paramount strategic geopolitical objective that takes precedence over issues of comparatively secondary concern, such as the ecological degradation of the global ecological commons. The limitless and ecologically unsustainable pursuit of economic growth in a competitive system of international anarchy arguably leads to a tragedy of the global ecological commons. Furthermore, maintaining international peace in an international anarchy comes at a high ecological price because an international balance of power can only be maintained by contemporaneous economic and military build-up.

Neorealists tend to describe the international political system as a 'fragmented political system of militarized sovereign nation-states in lethal competition with one another' (Martin, 2021, p. 196) or a system where 'sovereign states' are 'the principal actors ... and retain a near monopoly of armed force' (Bull, 1981, pp. 736-737). As argued by Milner (1991), this view is reductionist. It portrays international relations in the Hobbesian tradition 'as a state of war of all against all' (Bull, 1977, p. 24). Rather, Milner (1991) contends that international relations are characterised

by interdependence just as much as they are characterised by anarchy. The current international system is characterised by bilateral, regional and global agreements as well as 'a common framework of rules and institutions guiding international practices' (Milner, 1991, p. 69). Notwithstanding, the neorealist observation underscores international anarchy's absence of international guarantees for non-domination and self-determination. States are left to fend for themselves to secure their interests by forging alliances with other states, building economic powerhouses and arming themselves militarily. Alliances can take the form of political and economic unions, such as the European Union (EU), or military alliances, such as the North Atlantic Treaty Organisation (NATO). One timely example supporting the claim that the international order lacks the necessary guarantees for non-domination and self-determination is Russia's ongoing invasion of Ukraine which started in 2022, where Ukraine was largely left to its own devices and military capabilities to fend off Russia's threat to its territorial integrity and to the protection of its people. Ukraine's capabilities were supported with substantial military aid and funding from its allies including the US and the EU. In response to the Russian invasion, and in the absence of a globally effective mechanism to guarantee non-domination, Ukraine expedited its application to become a member of the EU and of NATO (France 24, 2023). Awakened to the reality of threats to national security, in 2022, Finland and Sweden also initiated official procedures to become NATO members (Alberque & Schreer, 2022), with Finland becoming the 31st NATO member in 2023 (Ivacic, 2023). Indeed, NATO was forged after World War II by the United States and Western European countries to boost their collective military capabilities and counteract the Soviet empire's international threat to their national security (Leffler, 1999). Arguments in favour of global collective security schemes have been advanced by Ruggie (1992) and Wendt (2003), among others.

Contemporary examples of nations commanding geopolitical influence underscored by their economic and military capabilities include the United States, Russia and China. Robertson and Sin (2017) show how income from China's rapid economic growth is being channelled into military build-up. Referring to this international geopolitical dynamic, Wight (1978, p. 102) evokes the term 'power politics' and argues that:

‘while in domestic politics the struggle for power is governed and circumscribed by the framework of law and institutions, in international politics law and institutions are governed and circumscribed by the struggle for power’.

Waltz (1979, p. 112) observes that internationally, ‘the force of a state is employed for the sake of its own protection and advantage ... internationally, only relations of strength result’. Hoffmann (2003, p. 27) similarly remarks that:

‘the absence of a broad consensus on values or on procedures of conflict resolution, means that international politics has long been, in Rousseau's terms, a "state of war," real or potential. There have been truces, temporary remissions, and zones of peace – but so long as anarchy prevails, there can be no end to the possibility of war.’

The ‘traditional emphasis on military power and armed competition’ were identified as drivers of unsustainable development in 1987 by the Brundtland Commission report (1987, Chapter 11, Article 4). The commission further noted that ‘nations have often fought to assert or resist control over raw materials, energy supplies, land, river basins, sea passages, and other key environmental resources’, noting that such conflicts are bound to increase as resources become scarcer (Brundtland, 1987, Chapter 11, Article 2). In such a competitive system, nations perpetually prioritise national interests over global concerns, such as climate change and biodiversity loss.

From a geopolitical perspective, the economic growth imperative serves to secure national interests; an imperative which stems from perpetual inter-state competition in an international anarchy. From this angle, market capitalism represents none other but an efficient tool at maximising economic growth, even if this is accommodated to the detriment of the global ecological commons, a secondary concern in a ‘state of war’. Witness to this was the extension of the lifetime of coal plants and the re-opening of dormant or new coal plants in 2022, including in the UK (Forbes, 2022), Germany, Austria, Italy, Netherlands, Czech Republic, Poland, Greece (Dorobăţ et al., 2022), Cape Breton in Canada (Global News, 2022),

Dartbrook in Australia (Australian Mining, 2023), and India (Global Energy Monitor, 2022), following the EU's embargo on Russian oil and gas in response to Russia's invasion of Ukraine, which dramatically raised the international price of energy and jeopardised the health and quality of life of millions of people who could no longer afford to heat their homes in winter. I therefore argue that international anarchy, underpinned by the imperative for national security in a world with insufficient security guarantees, explains the pursuit of ecologically unsustainable limitless economic growth, driven by political actors for geopolitical reasons in an economic race to the bottom. I also argue that a global institutional framework that serves to provide security guarantees would reduce a state's incentive to pursue economic growth. Such an assertion is made from a realist analysis of international anarchy and a liberal institutionalist belief that institutional frameworks have an important role to play.

Furthermore, peace in international anarchy is maintained by a balance of power. This balance of power comes at a high ecological price as nations and alliances seek to grow economically and militarily to fend off international threats of domination. This observation was already made by Anacharsis Cloots in the 18th century who felt that 'human rights cannot be fully secure under the threat of war' and that 'peoples would be better off if they did not have to be on the alert against attacks all the time, if they did not have to waste money maintaining an army' (Kleingeld, 2006, p. 565). Leffler (1999) refers to John Gaddis' book *We Now Know: Rethinking Cold War History*, to underscore the expensive military race that eventually ensnared the Soviet Union in its attempt to keep a balance of military power with the United States during the Cold War. International anarchy is thus ecologically wasteful because in such a system, material resources are diverted away from promoting positive instrumental freedoms, such as healthcare and education, into operations intended for national security.

Non-domination in the international context is therefore a necessary condition for the transition towards an ecologically sustainable world order. International peace and security, honourable ends in themselves, are also necessary for a social, economic and cultural transformation towards ecological sustainability. For this reason, as I propose, the global guardian should promote non-domination and self-

determination among states (4.3.2 and 4.3.3). Even Kant (1917 [1795], p. viii) was in favour of a global pacific federation to ‘secure conditions of freedom among the states’. A climate of international peace and security would nurture cultural freedoms and allow for the scaling up of experimental bottom-up approaches that promote ecological sustainability. Kokaz (2005, p. 93) speaks of the need of ‘a global state powerful enough to protect local communities’. In such a scenario, ‘power politics’ would be replaced by a legitimate global framework of laws and institutions that limit the sovereignty of nations not only on issues directly pertaining to the protection of the global ecological commons but also on issues related to the maintenance of international peace and security.

4.2.4 Unfounded fears of a global leviathan

The idea of global coercion raises the fear of a Hobbesian global leviathan, a ‘soulless despotism’ (Kant, 1917 [1795], p. 156) or ‘a totalitarian monster resting on feet of clay’ (Morgenthau, 1956 as cited in Korab-Karpowicz, 2005, pp. 85-86). A dictatorial world state of sorts is diametrically opposed to the idea of a global guardian. A global guardian is a constitutionally limited legitimate coercive global authority embedded in multi-layered and polycentric governance respecting the principles of sufficiency, subsidiarity, democratic governance and solidarity. This section will focus on addressing potentially unfounded fears of institutionalising coercion at a supranational and global level.

First is the realization that the world is already characterised by coercive elements the sources of which extend beyond the borders of the domestic state. Some examples of international institutions with coercive powers include the United Nations (UN) Security Council, the International Monetary Fund (IMF) and the European Union (EU), among others. Without going into the merits of its democratic credentials, UN members confer on the Security Council ‘primary responsibility for the maintenance of international peace and security’ and authority to call upon Members to comply with its decisions (UN Charter, 1945, Article 42). Such authority relates to military action and includes ‘action by air, sea, or land forces...’. The second example is the IMF, a Bretton-Woods institution, which was set up in 1944 with the overarching aim to support the international economic order

after World War II by maintaining exchange rate stability, adjusting external imbalances, and acting as lender of last resort to countries in crises. Over the past 40 years, the IMF has had the authority to impose conditions on countries drawing assistance on the fund's resources. Conditionality was imposed in the form of structural adjustment reform programmes (SAPs) in the 1980s and 1990s, and then as poverty reduction and growth facilities (PRGFs) after 1999 with reforms in the terms of conditionality (Ahmed & Sukar, 2018). Similarly, the European Union, an example of a regional supranational institution, has the authority to start infringement procedures, take legal action and impose financial penalties on member states that violate EU law (European Commission, 2022a), obviously balanced by the benefits of Union membership. Furthermore, powerful nations or alliances with unrivalled military power also command coercion in an international world order (Blake, 2012). More subtly, 'contemporary conditions of capitalist globalization' (Lu, 2021, p. 1) have also been identified in the academic literature as coercive elements. These examples illustrate that people today are exposed to significant coercive elements that originate from outside the state and that have a global or a supranational dimension.

Second, the arbitrary use of power is not unique to global and supranational entities but applies at all levels of governance. Domestic governments can be equally abusive. Indeed, the experience of the World Wars led political thinkers to be suspicious of the extent to which the sovereign state can serve as an agent of moral progress (Fenwick, C.G., 1946 reviewing Emery Reves' *The Anatomy of Peace* (1945)). Citizens of authoritarian states are more likely to suffer human rights abuses (Pettit, 2010). Some national governments fail so dismally in delivering positive political goods to their people that they lose legitimacy and are labelled as 'failed states' (Rotberg, 2002, p. 87). Thus, the republican ideal of non-domination – understood as reducing 'people's vulnerability to alien control or the arbitrary power of others to interfere with their choices and their lives' (Lu, 2021, p. 15) – applies at all levels of governance. Arbitrary power by coercive global institutions is not more objectionable than arbitrary power by institutions at regional, domestic or local levels, and as such deserves to be kept in check in like manner.

Third, there is growing support among cosmopolitan liberal theorists and international relations scholars about the idea of vertical 'dispersion of sovereignty'

(Kok-Chor Tan, 1998, p. 100), multi-layered governance (Pogge, 2009; Biermann, 2016), polycentricity (Ostrom et al., 1961; Ostrom et al., 1999; Ostrom, 2010; Biermann et al., 2016), and federal global governance (Kant, 1917 [1795]; Caudill, 1991; Young, 2002; Deudney, 2019; Lu, 2021). The general implication of this is a coercive global governance structure, possibly federal in nature, which is responsive to the principle of subsidiarity, which strikes a note with Esty's (1996; 2008; 2009) and Bosselmann's (2017) proposals for a Global and World Environment Organisations, respectively, and Wendt's (2003) ideas around a world state. While the idea of 'world government' – a domestic government writ globally – has generally fallen out of favour, cosmopolitan liberal thinkers, such as Thomas Pogge (2009, p. 206) propose,

‘a multi-layered scheme in which ultimate political authority is vertically dispersed’ including ‘a world government with central agencies that fulfil *certain* legislative, executive, and judicial functions’ (*italics mine*).

This view is mirrored in Simon Caney's (2008, p. 514) reminder that people are contemporaneously 'citizens of a state/*polis* and citizens of the world'. Alexander Wendt (2003, p. 491) even speaks of the inevitability of transition towards a 'world state' – understood as a structure that 'can command and enforce a collective response to threats' (2003, p. 506). He speaks of the need for 'universal supranational authority' (2003, p. 505) but qualifies that collectivising violence does not imply collectivising culture, politics or economics. The mandate of a world state in Wendt's view is circumscribed in scope and leaves space for local autonomy and self-determination. These views support the idea of legitimate multi-layered global governance. Importantly, support for coercion at global level by 'dispersion of sovereignty' or 'multi-layered governance' does not imply, and is generally diametrically opposed to, the proposal of a despotic or totalitarian hierarchical world government.

The fourth rationalisation relates in some respects to the second argument. The fear of arbitrary power by an unchecked political entity warrants serious consideration of the necessary and sufficient conditions that would keep the arbitrary power of a global institution in check. This is important to safeguard the freedom of peoples

worldwide. However, rather than shying away from the task to design a system that would keep arbitrary power in check, the task ahead is to ensure that a global guardian is legitimate, geographically representative, constitutional, democratic, transparent in its proceedings, appropriate in size and structure in relation to its mandate, and in possession of sufficient but not excessive coercive authority to fulfil its mandate. These characteristics will be further expounded in section 5.2 on the principles of good global governance and 5.3 on the characteristics of the global guardian.

The fifth argument relates to the plausibility that in the absence of effective and legitimate global governance, the void is filled by illegitimate forms of coercion. Illegitimate forces of coercion can be powerful nations, corporations, wealthy individuals or an alliance of one or more of these types of actors. I would however like to focus on a second, more subtle, illegitimate form of coercion relating to already existing market and economic forces, which have also been identified as global forces that undermine the democratic state (Cox, 1997; Gill, 1995; 2008). Global market capitalism is claimed to have ‘homogenizing tendencies’ (Kokaz, 2005, p. 93). It thrives in a competitive world order, an ‘international anarchy’, whereby nations, including authoritarian governments (Bremmer, 2010), maximise economic productivity for their national security and to promote their geopolitical influence. Unregulated international capitalism represents, not only an illegitimate form of coercion (which is objectionable in its own right), but a type of coercion that locks nations and peoples into ways of life that are not of their choice and that are ecologically destructive. The global guardian would have a vital function in protecting the global ecological commons by regulating, among others, ecologically destructive international forces.

Fears of a global leviathan arguably block rational debates about the merits of coercion at a global level to address the ecological crisis. These five arguments serve to alleviate potential fears of institutionalising legitimate forms of coercion at a global level to secure ecological sustainability, a presumably universally shared value.

Assuming that there is an ecological case for a global guardian to effectively secure ecological sustainability, I will now proceed with describing the mission and the mandate of the global guardian.

4.3 The mission of the global guardian

The mission of the global guardian will be to address the ecological crisis and secure ecological sustainability, being responsive to the critiques and to the critical engagements as presented in the previous chapters. The global guardian's mission will be executed on four levels. First, the global guardian will be mandated with the protection of the global ecological commons – which I define as open access ecological resources that are critical for global ecological stability. Second, the global guardian will need to secure global distributive ecological justice both as an end and as a means to secure its legitimacy and agency to protect the global ecological commons. Third, the global guardian will have a stake in the preservation of international peace and security as an ecological concern. Fourth, the global guardian will need to ensure that the transformation¹⁰ to an ecologically sustainable world order takes place in a just and graduated, but timely, manner allowing sufficient time for policies to take effect and for adjustments in ways of life to be made. This section brings into focus the mission of the global guardian.

4.3.1 Protecting the global ecological commons

Defining the global ecological commons

In describing the mission of the global guardian to protect the global ecological commons, it is important to first describe the nature of the global ecological commons and to determine which goods should be classified as global ecological commons. As reviewed in chapter 1, there are traditional and evolving conceptions of global ecological commons. The traditional conception exclusively refers to resources that reside outside national jurisdiction. This conception is limited because the exploitation of natural resources within national jurisdiction can still

¹⁰ I have decided to use the term 'transformation' *in lieu* of the term 'transition' because the political, social and economic change that is required will likely affect multiple systems – energy systems, mobility, housing materials and design, goods supply chains, material standard of living (including warming and cooling), etc...

have ecological implications globally (Kim, 2007; Pinto et al., 2008; Schrijver, 2016; Stafford-Smith and Metternicht, 2021). In principle, the term ‘global ecological commons’ is used in a political, rather than scientific, sense to identify open access ecological resources that are most appropriately regulated at a global level to safeguard stable ecological conditions on Earth.

By definition, a commons is a good that is open for access or available to all. This was the definition used by Hardin’s (1968, p. 1244) prominent essay on the tragedy of the commons, that is, a resource which is ‘open to all’. Similarly, Elinor Ostrom (Ostrom, 1990; 2000; 2010 Ostrom et al., 1999) defined ‘common-pool resources’ as ‘open access resources’. By extrapolation, a global commons is a good that is open for access to peoples globally and where the benefit accrued from access by one people is often at the expense of another’s, either spatially or temporally. As aptly put by Levin (2006, p. 330):

‘We live in a global commons, in which what we use for our own benefit is often at the expense of what is available to others, both now and in the future.’

An ‘ecological commons’ is an open-access good that is ecological in nature. Indeed, the ‘great commons’ was originally used in 17th century England as a term to refer to forests and open access natural goods on which people could thrive (Hickel, 2019). The characteristic of open access is also a defining feature in the freedom-of-the-seas doctrine which was promoted by Hugo Grotius in the 17th century, although this was exclusively with respect to goods outside national jurisdiction (Vogler, 2012). The ‘commons’ was also loosely used as a term to refer to nature – land and natural resources – in the writings of Henry George (1891 as cited in Obeng-Odoom, 2016). Elinor Ostrom also uses the term ‘common-pool resources’ to refer to natural open access resources such as forests and fisheries.

The term ‘commons’ has contemporaneously evolved in common usage to refer to anything which is openly accessible to all, including for example intellectual property or cultural heritage, and also outer space. For clarity’s sake, the term ‘ecological commons’ will be used to make exclusive reference to open access resources that are ecological in nature, that is, concerned with ‘the relationships between living organisms, including humans, and their physical environment’

(Ecological Society of America, 2022). More specifically, the term ‘global ecological commons’ is used to refer to open access natural resources that are critical for global ecological stability and for the maintenance of Holocene-like conditions on planet Earth. By this definition, outer space and related space missions, would not classify as global ecological commons even though outer space is generally recognised in international relations literature as one of four commons by virtue of the United Nations General Assembly’s (1966a, *italics mine*) recognition of ‘the *common* interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes’. By this definition, outer space would fall outside the scope of the global guardian as it does not fit in the definition of the global ecological commons. Outer space anthropogenic activity can only be regulated by the global guardian if it adversely effects the global ecological commons as defined above and threatens Holocene-like ecological conditions on Earth.

The global ecological commons is thus a political, not a scientific, conception of a good. The political conception of a global ecological commons is derived from a natural good’s instrumental value to humanity – not least as a pollutable reservoir as in the case of the climate, functional biodiversity and the oceans – and the degree to which human beings interfere with and exploit it. An understanding of a commons is not detached from an understanding of its use and access by human beings. The commons are thus goods that are openly accessible to all and that are exploited to varying degrees by some at the expense of others. Indeed, the idea of commons in Ostrom’s writings refers to ‘common pool resources’ that are managed by people. Hardin (1968) refers to commons as natural goods with instrumental value to the people who access them. He uses the example of a pasture open for herders of animals to graze. The concept of scarcity and finitude as a defining feature was already present in the traditional concept of the commons and motivated international debate on the regulation of whaling and the exploitation of ocean seabed manganese nodules (Wijkman, 1982; Vogler, 2012), among others. It remains critically important in contemporary ideas of the commons (Stafford-Smith and Metternicht (2021)). The global ecological commons can thus be conceptually conceived as a finite ecological space to which all have or should have access, the use of which is however bounded by nature’s bioregenerative capacity. This is in

line with Earth system scientists' (Rockström et al., 2009b, p. 1) conceptual proposition of a Planetary Boundaries Framework or a 'safe operating space for humanity'. An ecological good that is infinitely abundant and that has no propensity to become scarce, would not qualify as a commons. The characteristic of scarcity in a commons is important because the political regulation of natural goods with no propensity to become scarce is unwarranted.

I argue that global ecological commons need to possess four characteristics to qualify as such: (i) they are essential for Holocene-like conditions on planet Earth in line with Steffen et al.'s (2018) 'Stabilised Earth' pathway. The commons include among others the climate, the oceans, the cryosphere, land and marine biodiversity, and ecological goods that are critical for the preservation of 'relatively stable and warm planetary conditions' of a "Holocene-like" interglacial state' where 'global environmental functions and life-support systems remain similar to those experienced over the past ~10,000 years' (Richardson et al., 2023, p. 1). This characteristic is also alluded to by Stafford-Smith and Metternicht (2021) in their arguments that drylands should be part of the global commons because they provide vital services to the Earth's life support system. It diverges from proposals for the commons that encompass all types of pollution, water shortage, the electromagnetic spectrum, and ecological goods that are not essential for the maintenance of Holocene-like conditions on Earth such as those by Kim (2007). (ii) global ecological commons are scarce and are limited by nature's regenerative capacity. (iii) global ecological commons have a global dimension which means that access and use by some states affects the availability of such goods to other states. (iv) global ecological commons have instrumental value to humanity.

International treaties identify the deep oceans and seabed, Antarctica, outer space, and the global atmosphere as the four commons (Vogler, 2012; Stafford-Smith and Metternicht, 2021). The identification of these commons was not however driven by a concern for ecological stability and sustainability, as defined above, but was merely incidental to an international political process driven by territorial concerns and the exploitation of goods that happen to fall outside national jurisdiction. For this reason, such a classification is only interesting from a historical perspective but is only marginally useful in its application to address the global ecological crisis. There is some benefit that goods that happen to be important for ecological stability

and sustainability, such as the deep oceans, sea bed and the atmosphere, also happen to enjoy international recognition as a commons. However, a global ecological commons needs to be properly understood in relation to Earth system stability and sustainability, not in relation to territorial jurisdiction. For this reason, the international community needs to move away from the historical evolution of the definition of the commons as based in international treaties and instead embrace an ecological conception which can critically serve as a reference point for discussions and deliberations to address the global ecological crisis.

Two Earth system components that are critical for Earth system stability, and the importance of which is also recognised in international treaties, are the climate system and biodiversity. Irrespective of their international classification as commons or otherwise (biodiversity is not explicitly recognised as a commons), the international community implicitly agrees that the climate system and biodiversity are critical for global ecological sustainability. This is reflected in the existence of the UNFCCC and the United Nations Convention on Biological Diversity (CBD). Indeed, the climate system and biosphere integrity (including marine life and biodiversity) are deemed essential for ecological stability by Earth system scientists (Steffen et al., 2015; Richardson et al., 2013). In what follows, I discuss each of these in turn and examine whether they would fulfil the four characteristics of a global ecological commons that I propose above.

Climate stability, as a pollutable reservoir, in relation to the release of greenhouse gas emissions would be classified as a global ecological commons. This is because (i) climate stability is essential for the maintenance of Holocene-like conditions. (ii) access to the climate in the form of greenhouse gas emissions is constrained by scientifically informed self-imposed emission limits to keep Earth within a presumably ‘safe’ warming trajectory. (iii) greenhouse gas emissions by some states reduce the available space for greenhouse gas emissions to other states worldwide. (iv) greenhouse gas emissions have instrumental value to humanity because they are closely linked with material standard of living.

Biodiversity, another pollutable reservoir, would also be classified as a global ecological commons. (i) the health of global functional biodiversity is essential for Holocene-like conditions on Earth. Conversely, the collapse of vital ecosystems

seriously jeopardises the survival of the human species. (ii) accelerated rates of species extinction show that there is a limit to the tolerable degree of human interference with biodiversity. Incessant biospheric impoverishment will likely yield ecosystem collapse. Human interference takes the form of targeted exploitation of particular species for their instrumental value, land and ocean-use changes (such as urbanisation, conversion to agricultural land, mining, fish-farming, and invasive human practices), chemical pest control, and anthropogenic global warming, among others. (iii) the benefits of functional biodiversity are enjoyed by all worldwide – the preservation of biodiversity by some states is to the benefit of all. Conversely, the erosion of existing functional biodiversity by some states comes at a cost to the global human community. (iv) biodiversity has instrumental value to humanity in that housing, urbanisation, agricultural practice, fish farming, and deforestation are examples of human practices that yield benefits to human societies at the expense of interference with nature. To be sure, certain human practices can be modified such that the benefits are derived at the least possible cost to biodiversity preservation. Conceptually, however, biodiversity remains a pollutable reservoir with instrumental value to humanity. Historically, human civilisation has always thrived in a delicate balance with its surrounding nature and the ecosystem services that nature provided.

To be sure, the discrete description of climate and biodiversity as separate entities making part of the global ecological commons is for illustrative purposes only. Part of the challenge of the ecological crisis is its complexity, and the intricate and convoluted relationship between ecosystem components. It is evident that there are common anthropogenic drivers for different pollutable reservoirs. Greenhouse gas emissions for example are contemporaneous chief concerns for climate change, ocean acidification, and land and marine biodiversity loss. Similarly, deforestation and invasive agricultural practices drive both climate change and biodiversity loss. Notwithstanding, the mandate of the global guardian in regulating such human practices can only be strictly expressed in relation to its mandate to protect the global ecological commons. A thorough understanding of the constitution and characteristics of the global ecological commons is essential to define the scope of the mission of the global guardian and therefore the scope of its limited legitimate coercive authority.

Examples of other ecological goods that might be classified as a global ecological commons include the physical and chemical stability of the oceans, the ozone layer, and an environment free from radioactive ionising radiation. Ambient air pollution, certain essential natural resources such as atmospheric oxygen, outer space, and local ecological conditions are examples of goods that would not classify as global ecological commons. A discussion on each of these follows to determine which of them would merit protection to secure ecological sustainability, and which goods fall outside the scope of global regulation. The four characteristics of a global ecological commons posited above are used as a benchmark.

The oceans would classify as a global ecological commons for the following reasons. (i) the physical and chemical stability of the oceans, as well as the role of the oceans in regulating the climate system, are essential for Holocene-like conditions on Earth. (ii) there is a limit to how much warming and acidification oceans can tolerate before they threaten human civilisation in terms of for example ice sheet melting, sea level rise, change in climate regulating ocean currents, and coral reef bleaching. (iii) degradation in the physical and chemical conditions of the oceans take place worldwide, that is, the impacts of the practices by one nation are borne by all worldwide. (iv) oceans have instrumental value to humanity not least as pollutable reservoirs for example in buffering the effects of greenhouse gas emissions but also as reservoirs of marine life with valuable ecosystem services to humanity.

Using the characteristics suggested above, the ozone layer would arguably classify as a global ecological commons under certain conditions. The integrity of the ozone layer is essential for Holocene-like conditions on Earth. It is global in scope – emissions of fluorocarbons or ozone-depleting substances by one state has global implications. Following universal voluntary ratification by states of international treaties regulating ozone-depleting substances, the ozone layer has begun to heal. However, the ozone layer is scarce, in the sense that there is a theoretical future possibility that human practice can adversely and significantly affect the integrity of the ozone layer. This means that should, for example, some parties decide to exit the Montreal Protocol regulating ozone-depleting substances, the global guardian might need to step in, intervene and regulate international human practice, to protect the ozone layer as part of the global ecological commons.

It is questionable whether a global environment free from radioactive ionising radiation from the use of nuclear power would be classified as a global ecological commons. Accidents from nuclear power plants are unlikely to threaten Holocene-like conditions because they are usually infrequent and geographically located events and therefore there is no justification for the regulation of nuclear power plants within this framework. Conversely, the deliberate use of nuclear weapons might conceivably lead to a nuclear winter and hence be classified as a threat to Holocene-like conditions on the planet. The deliberate use of nuclear weapons would thus warrant intervention by the global guardian.

Conversely, ambient air pollution, from say air-borne nitrogen oxides or fine particulate matter attributable to motor vehicle emissions or fossil fuelled power plants, would not classify as a global ecological commons because even though air pollution satisfies the two criteria related to scarcity and its relation to standard of living, it is not global in scope and does not reasonably threaten Holocene-like conditions.

Essential natural resources such as atmospheric oxygen would also not classify as a global ecological commons because although access to these resources is essential for humans to live, such resources are not scarce and are not reasonably strained by current human practice.

Similarly, space resources, including those related to lunar missions for resource mining (Capper, 2022), fall outside the protection of the global guardian, because such missions arguably do not threaten the Holocene-like conditions on planet Earth. This does not mean that space resources should not be regulated by other international bodies, as is already the case, as common heritage of humankind. It simply means that such a task falls outside the scope of a global guardian set up with the urgent task to protect the global ecological commons for the preservation of human life on Earth by coercive means. Under current conditions, access to natural space resources and missions in outer space do not reasonably constitute an urgent threat to humanity. On the other hand, satellite systems that are essential for scientists to monitor ecological changes and that serve a vital role in the preservation of the global ecological commons, would qualify for protection by the global guardian. Data that is likewise essential for Earth system governance

(Wickberg et al., 2024) would also qualify for similar protection in view of its instrumental value to protecting the commons.

Local or regional ecological issues or goods that lack a global dimension and that do not reasonably jeopardise Earth system functioning would not form part of the global ecological commons. So, whereas the contamination of an isolated enclosed small pool of water would represent a domestic or local ecological issue, deforestation or the destruction of biomes that are critical for biospheric health and climate stability would fall under the protection of the global guardian. Biomes, such as forests and coral reefs, have integral functions for Earth system functioning. The global guardian will need to possess sufficient authority to place restrictions on the exploitation of an ecological good with integral functions that are essential for Holocene-like Earth system functioning. Such restrictions could also be placed on ecologically sensitive geographical regions, such as Antarctica, if the preservation of such areas has critical implications to global ecological stability.

The classification of ecological goods as global ecological commons can change over time and is likely to be a matter of discussion, deliberation and negotiation. This is because the classification of the global ecological commons relates to trends in the type and magnitude of human practices worldwide. Within this understanding, the climate system would not have been classified as a global ecological commons, warranting global governance, in pre-industrial times, when the impact of anthropogenic greenhouse gas emissions on the climate system was negligible and the global population was much smaller. Similarly, biodiversity and ocean life would also not have warranted global governance when they were abundant and anthropogenic interference was insignificant. In this sense, as a concept, the global ecological commons becomes pertinent when the magnitude of human interference strains or is projected to strain Earth's regenerative capacity. This is different from the *rationale* used in international relations over the years whereby a commons started qualifying as such once it held the potential for the exploitation of economically valuable goods (Vogler, 2012).

A common heritage and a common concern for humankind

The global ecological commons is arguably by nature the common heritage of humankind and, as such, should be collectively held by the global human community. This is because the transgression of the commons' regenerative capacity collectively threatens human life on Earth. In principle, the global ecological commons cannot be owned by a state or a group of states, nor can they be exploited disproportionately by some peoples or without due consideration to the ecological needs of future generations. Every state has a right to fair access. Every people has a responsibility to fairly contribute to the protection of the global ecological commons.

The concept of common heritage and common concern is already enshrined in international law. The United Nations acknowledges the ocean seabed, biodiversity, and climate change, as a 'common heritage' or a 'common concern' of humankind. The moon and its resources are also recognised as 'common heritage'. In Resolution 2749 (XXV) of the United Nations General Assembly (UNGA, 1970, Article 1) entitled *Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, beyond the Limits of National Jurisdiction*, the international community recognises that:

‘the sea-bed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction, as well as the resources of the area, are the common heritage of mankind.’

The ‘conservation of biological diversity’ as ‘a common concern of humankind’ is inscribed in the CBD (UN, 1992b, p. 3). Similarly, ‘change in the Earth’s climate and its adverse effects’ are recognised as ‘a common concern of humankind’ in the UNFCCC (UN, 1992a, Preamble, p. 1) reinforcing this idea in international law. ‘Climate change’ was indelibly pronounced again as ‘a common concern of humankind’ in the flagship United Nations Paris Agreement (2015, p. 2). Although not directly related to the ecological crisis, the same concept of common heritage of humankind is also applied by the international community to the moon and its resources (UNGA, 1966a). Thus, the concepts of common heritage and common

concern in relation to Earth's natural resources and pollutable reservoirs have been upheld since at least the 1970s.

The concept that the global ecological commons is a good that is commonly held by humanity is also evoked in the titles of the Brundtland (1987) report *Our Common Future* and of Pope Francis' environmental encyclicals *Laudato si': On Care for our Common Home* (Francis, 2015) and *Fratelli Tutti: On Fraternity and Social Friendship* (Francis, 2020b). As 'natural heritage for humanity', the idea of a 'common home for humanity' sees:

'Earth not as an amalgamation of independent separate States that must protect their sovereign integrity at all costs, but rather as an all-inclusive and accommodative home for all...' (Kim and Kotzé, 2021, p. 9).

The implication of these concepts is, as aptly worded by biologist Edward O. Wilson (2016, p. 164), founder of the E.O. Wilson Biodiversity Foundation and inspiration for the Half Earth project, that 'nature in the wildlands is the birthright of everyone on Earth'. Nineteenth (19th) century American political economist Henry George also wrote extensively on the notion of justice in the governance of the ecological commons rooted in the idea of natural rights. He viewed land and nature as being held in common by all and spoke of the idea that people have 'inalienable' and 'equal' rights to land and natural resources. He also mentioned the role of government in mediating between the private individual and access to land or nature, and warned against conflating the commons with private property (Obeng-Odoom, 2016, p. 387). Similarly, I contend that as common heritage of humankind, all peoples worldwide should have fair access to the global ecological commons. Such access should be independent of use, in the sense that a people might decide not to exploit its legitimate right of access to the commons, but that this access should be protected from use by other peoples in any case. As a common concern to humanity, all peoples worldwide have a stake in the protection of the global ecological commons. Common heritage of humankind implies common heritage of present and future generations of humanity, and thus entails the sustainable use of ecological goods such that the commons are handed down to future generations in a preserved state.

Without going into the dichotomous debate in environmental ethics as to whether the Earth system has intrinsic value or instrumental value to humanity (Brennan & Lo, 2021), it is sufficient to consider that the ecological crisis is first and foremost a crisis for humanity not a crisis to life on Earth. Over the course of its 3.7-billion-year history, the Earth's biosphere naturally and effortlessly underwent several ecological crises or transitions. These include the well-known fifth mass extinction event of the dinosaurs which occurred around 66 million years ago (Steffen et al., 2018). There is also the more recent Adams event, which happened around 42,000 years ago (Cooper et al., 2021). The Adams event was a major magnetic inversion of the Earth's magnetic poles together with prolonged periods of low solar activity. It is thought to have caused substantial changes in the Earth's atmospheric ozone concentration causing major environmental changes and extinction events including, possibly, the extinction of Neanderthals and some megafauna (Cooper et al., 2021). During this 1,000-year event, *Homo sapiens* is thought to have escaped extinction by living in caves and covering itself in red ochre to protect against harmful ultraviolet radiation when roaming outside (McCaffrey, 2021). From this perspective, the ecological crisis represents just another biospheric transformation. The urgency with which the ecological crisis needs to be addressed is evidently more for anthropocentric than ecocentric reasons, and therefore for the instrumental value that Holocene-like conditions on the planet provide to the human species.

The implication of the recognition that the global ecological commons is by nature a common heritage and a common concern of humankind is that states lose exclusive and supreme jurisdictional authority over natural resources within their territories, the use of which relate directly to the preservation of the global ecological commons. This does not necessarily mean that a state will be unable to exploit the ecosystem services of natural resources within its jurisdictional territory. It only means that the exploitation of natural resources by a state within its territory needs to be compatible with the preservation of Holocene-like Earth system functioning and biodiversity preservation, that is, ecological stability and sustainability. It also means that the exploitation of natural resources outside a state's territory, for example in the high seas, will need to respect regulations that protect the integrity of these ecological commons. Such an idea has been touched upon by previous authors. In his paper outlining the process by which states

increasingly claimed jurisdictional authority over the continental sea shelf in the 1950s which led to the subsequent adoption of the UNCLOS in 1982, Vidas (2011, pp. 923-924) argued that, in light of recent alarming events and scientific findings on the global ecological crisis, ‘activities within and beyond ... territorial boundaries ... may become conditional upon respecting certain overall, planetary-scale boundaries’. The idea that state sovereignty should be restricted at a global level by environmental protection law was also recently advanced by Bosselmann (2017).

Since the responsibility for the protection of the global ecological commons would fall within the remit of the global guardian, a global multi-layered approach to the governance of natural resources that fall both within and outside jurisdictional territory but which are nonetheless critical for global ecological sustainability, is essential. For illustrative purposes, if the Amazon rainforest is deemed to have vital functions for the protection of the global ecological commons – climate stability and biospheric life – Brazil, Peru, Colombia and the other South-American countries would lose *exclusive* authority over the use of the Amazon forest, a natural resource within their jurisdictional territory. As jurisdictional authorities, these countries would still make use of the services afforded by the forest but within a framework provided by the global guardian in view of the Amazon basin’s critical role for ecological stability. This multi-layered framework for the management of natural resources is also somewhat echoed by Büscher et al. (2017b, p. 409) who argue that ‘natural resources and ecosystems become global public goods that are at the same time governed in local or bioregional economies...’, although the authors do not describe how such resources are to be managed as ‘global public’ goods and they do not make a distinction between natural resources that are vital for global ecological sustainability and those that are not.

This position contrasts with the position of the international community as represented by the United Nations since at least 1962, when the General Assembly affirmed ‘the free and beneficial exercise of the sovereignty of peoples and nations over their natural resources’ in resolution 1803 (XVII) *Permanent sovereignty over natural resources* on the principle of the sovereign right to self-determination (UNGA, 1962, Article 5). This position was more recently confirmed in the United

Nation's Sustainable Development Agenda *Transforming our world: the 2030 Agenda for Sustainable Development* whereby the General Assembly

‘reaffirm[ed] that every State has, and shall *freely* exercise, *full permanent sovereignty* over all its wealth, natural resources and economic activity’ (UNGA, 2015, Article 18, italics mine).

I argue that there is a contradiction between the principles of common heritage and common concern with respect to global ecological goods as enshrined in international treaties, and the principle of ultimate national sovereignty over all natural resources under a state's jurisdictional territory. In principle, states should lose supreme authority over resources that are critical for the preservation of the global ecological commons. By virtue of their value to global ecological stability, such resources are naturally owned by the global human community. Such a recognition calls for effective governance and representation at the global level whereby nations lose exclusive or ‘full permanent sovereignty’ on natural resources that are internationally deemed to be global ecological commons, that is, part of the common heritage of humankind and thus, by definition, meriting protection by a globally representative authority in the interest of the global common good. This contradiction in international law is of a fundamental nature and goes beyond the critique of international fragmentation and market liberalism as reviewed in chapter 1.

4.3.2 Securing distributive ecological justice

In addition to protecting the global ecological commons, the global guardian will need to ensure that distributive ecological justice is served. To understand the importance of distributive ecological justice in relation to nature's instrumental value to humanity, it is important to conceptualise the ecological crisis as a crisis of limits. The ecological crisis is an anthropogenic crisis, driven by excessive human demands on the Earth's bioregenerative capacity. This has led authors such as Kenneth Boulding (1966, p. 7) to come up with the idea of ‘spaceship Earth’ or a ‘spaceman economy’ (as elaborated in section 3.3.2). Similarly, it is the Earth's limits for bioregeneration that inspired the title *Limits to Growth; a report for the Club of Rome's project on the predicament of mankind* (Meadows et al., 1972); by

limits, Meadows et al. (1972) were referring to Earth's bioregenerative limits to material economic growth and to material human development. It is also the recognition of these limits that led Earth system scientists to propose 'a safe operating space for humanity' (Rockström et al., 2009b, p. 1), inspired Kate Raworth (2017, p. 55) to propose 'doughnut economics', and informed UK based post-growth economist Tim Jackson to conclude that humanity needs to reconcile its 'aspirations for the good life with the limitations and constraints of a finite planet' (Jackson, 2009b, p. 3).

It is also within these bioregenerative limits that the Global Footprint Network (2021) makes its case for an international reduction in the ecological footprint. The case of justice is made on the existence of these limits which came to the fore when the global human ecological footprint overtook Earth's regenerative capacity in the early 1970s (Global Footprint Network, 2021). To be sure, ecological complexity makes it difficult to determine thresholds with scientific precision, which is the basis for adopting a precautionary approach to managing the ecological crisis. Scientific uncertainty does not however change the essence of the ecological crisis, which is basically the result of anthropogenic pressures on Earth's bioregenerative capacities.

The protection of the global ecological commons entails the enforcement of limits on human activity or, specifically, on the safe ecological space within which states will be allowed to operate. Since global ecological space is finite and international claims to it are potentially conflicting, it is an ethical imperative that access to the global ecological commons is apportioned according to principles of distributive justice (Knutti & Rogeli, 2015; Pirgmaier, 2017). The application of principles of distributive justice at a global level constitutes a case for legitimating a global authority, a distributing agent, to deliver such a form of justice (Daly, 1991; de Bres, 2012). Even in the liberal tradition, the curtailment of freedom is legitimated in defense of individual liberty when such freedom impinges on the legitimate freedom of others which, among other, includes legitimate access to the global ecological commons (Courland et al., 2022). In social contract theory, the global guardian would be legitimated in 'oblige[ing] every one ... that being all equal and independent, no one ought to harm another in life, health, liberty, or possessions' (Locke, 1884 [1689], pp. 193-194). Furthermore, distributive ecological justice

needs to be a ‘reasonably broad conception of justice’ that can be appropriately managed by a ‘morally salient form of association at the global level’ (de Bres, 2012, p. 326). I argue that distributive ecological justice is not only a desirable end but also constitutes a necessary condition for the legitimacy and the agency of the global guardian to protect the global ecological commons. It is also a necessary condition for international peace which is a fundamental backdrop for the pursuit of ecological sustainability.

Understanding distributive ecological justice

An oft quoted definition of justice is ‘the constant and perpetual will to render to each his due’, as codified in Roman Law in the sixth century AD (Miller, 2021, p. 2). It relates to what people are entitled to have. Distributive justice entails ‘a distributing agent, and a number of persons who have claims on what is being distributed’ (Miller, 2021, p. 5). In this light, global distributive ecological justice is understood as claims by states on the global distribution of ecological space by the global guardian (the distributing agent). The claims are made on the extent to which states are entitled to access the global ecological commons. Put differently, states will have limits on the amount of pollution¹¹ they are entitled to. These limits will be guided by the bioregenerative limits of ‘pollutable reservoirs’ including the climate system, the oceans and global functional biodiversity. Human practices that are associated with greenhouse gas emissions, land-use change, marine pollution (for example fertiliser runoff), maritime and ocean seabed activity, and practices that adversely impinge on global biological diversity, among others, fall within the scope of global distributive ecological justice.

A distinction needs to be made between distributive ecological justice and distributive justice. I use the term ‘distributive ecological justice’ to explicitly refer to fair access to the global ecological commons. Distributive justice is sometimes used by radical cosmopolitan authors or Left-wing Lockceans (Anderson, 2006) to denote the redistribution of wealth and income worldwide. It is my view that the global guardian has no mandate to coercively transfer wealth or income between

¹¹ The term ‘pollution’ is used in a political sense to denote any human activity that depletes global ‘pollutable reservoirs’ (Boulding, 1966) or the global ecological commons as defined in section 4.3.1.

nations. The global guardian does however have a mandate to secure global distributive ecological justice in terms of access to the global ecological commons. The application of principles of distributive ecological justice, particularly in relation to the non-market distribution of greenhouse gas emission entitlements, are nonetheless expected to reduce wide inequalities in material standard of living worldwide. This will be discussed further in this section under the sub-title ‘the special case of carbon as a non-market good’.

The case for distributive ecological justice

Global interdependence is the strongest case in favour of the application of distributive ecological justice at a global level. Global economic and ecological interdependence, ‘where people throughout the world are causally interdependent and affect and are affected by each other’ (Caney, 2008, p. 497), constitutes a sufficient condition for the application of global distributive ecological justice. More specifically, Caney states that, ‘principles of distributive justice are required ... to regulate the distribution of the opportunity to emit greenhouse gases and the distribution of the burdens of adaptation’, among others. Distributive ecological justice should be pursued for at least three reasons – an ethical one and two consequential reasons – and is a necessary condition for the pursuit of ecological sustainability.

Rightful access to the global ecological commons

As a principle, ecological sustainability is arguably only a worthwhile endeavour if all peoples worldwide benefit from a fair chance at thriving within their *own* ecological means. Put differently, achieving global ecological sustainability is worthwhile if it is pursued with a *collective* spirit of responsibility and burden-sharing. If the global ecological commons are the common heritage of humankind, nations who consume more than their fair share of the global ecological commons represent an ethical concern as they can reasonably jeopardise the livelihoods of peoples worldwide. Global inequality in material standards of living resulting from unequal access to the global ecological commons is a matter of global distributive ecological justice. The idea that ecological commons should be equally distributed as a birthright is found at least since the late 19th century. Henry George, a 19th century political economist posited the commons not only ‘as *the* most important

path to social, economic, and ecological sustainability’ (Obeng-Odoom, 2016, p. 375, *italics original*) but, drawing on Locke, he claimed that ‘the equal right to life involves the equal right to the use of natural materials...’ (George, 1892 as cited in Obeng-Odoom, 2016, p. 395).

Legitimate and lawful coercion at an international level is justified on the basis that national freedom to pollute, veiled as national sovereignty, impinges on the legitimate freedom of other nations to have stable global environmental conditions and to rightly access their fair share of the global ecological commons. Similarly, some authors favour structural changes at the global level on the observation that there currently is ‘a violation of their [the poor’s] negative rights to be free from harm’ (Pogge, 2002). Despite the implicit international recognition that the commons are or should be commonly held, and with certain knowledge that their availability is limited, some countries relentlessly and unilaterally access and consume more ecological space than their fair share (Wackernagel et al., 2018). Witness to this is the wide inter-country discrepancy in the calculated *per capita* ecological footprint¹² by the Global Footprint Network (2021), which shows that whereas the people of 50 countries are living within Earth’s bioregenerative capacity, 138 countries live beyond it, and some high consuming countries overshoot the Earth’s capacity in the first few months of each year. As humanity imposes limits on itself, either by limiting greenhouse gases or by protecting land for biodiversity, there are legitimate concerns that what is scarce will be exploited by the rich, with little remaining for the poor (Büscher et al., 2017b). As a matter of distributive ecological justice, Meadows et al. (2004, p. xv) note that:

‘to reach sustainability, humanity must increase the consumption levels of the world’s poor, while at the same time reducing humanity’s total ecological footprint’.

In the classical liberal and republican traditions, surplus unilateral consumption by some states in a global context of ecological scarcity represents a case of theft and a violation of laws of human society (Cicero, 1913 as cited in Nelson, 2006); a

¹² The ‘ecological footprint’ is ‘a measure of how much biologically productive land and water area an individual, population or activity uses to produce all the resources it consumes, to house all its infrastructure, and to absorb its waste given prevailing technology and resource management practices’ (Wackernagel et al., 2018, p. 2).

claim on resources that are not one's own and to which one is not entitled to. In this context, the exercise of global authority to ensure global distributive ecological justice is 'rightful' (Mill, 2011 [1859], p. 26) and legitimate. In securing international recognition of territorial seas in international law, it was indeed on a principle of justice that,

‘smaller States and those not possessing large, ocean-going navies or merchant fleets favoured a wide territorial sea in order to protect their coastal waters from infringements by those States that did.’ (UN, 1998).

Distributive ecological justice thus calls for appropriate intervention by a global guardian to protect legitimate access to the global ecological commons by individual states.

Legitimacy of the global guardian

In addition, distributive ecological justice is critical for the legitimacy of the global guardian. The mandate of the global guardian to promote distributive ecological justice is desirable not only because justice is a virtuous end but also because distributive ecological justice is arguably a necessary condition for the sustained legitimacy and agency of the global guardian. Being an authority with substantial coercive powers, the effectiveness of the global guardian will depend on the support of states worldwide and is likely to be challenged. This is because the implications of the global guardian's decisions will significantly, albeit varyingly, affect the ways of life and the material standards of living of people worldwide, which might be met with opposition by the populace. The global guardian is more likely to enjoy broad support if it secures fair access to the global ecological commons along universally¹³ shared ethical principles. It is more likely to enjoy legitimacy and to be effective if it delivers, and is perceived as delivering, global distributive ecological justice alongside its primary objective to protect the global ecological

¹³ In chapters 4 and 5, the term 'universal' is used to mean 'involving all states worldwide' and is based on the definition of the Oxford English Dictionary (2019), that is, 'done by or involving all the people in the world...'

commons. This echoes Esty's (2009) assertion that an effective (or successful) organisation is more likely to enjoy legitimacy.

International peace

Finally, distributive ecological justice is a necessary condition for the preservation of international peace and security which, as I argue, is central to the pursuit of ecological sustainability (section 4.3.3). Since international justice is a cornerstone for international peace and security, it comes to represent a critical element in the pursuit of ecological sustainability. As noted by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services:

‘exclusion, scarcities and/or *unequal distributions of nature's contributions to people* may, and in a complex interaction with other factors, fuel social instability and conflict’ (IPBES, 2019, p. 4, italics mine).

Justice includes both corrective and distributive justice, among others. Of note is the reference to corrective justice in international climate negotiations. Developing states such as India make claims for corrective justice when they assert that industrialised nations are historically responsible for emissions which have caused climate change (The Economist, 2021). Indeed, on one hand, some developing states are highly vulnerable to sea level rise, rising atmospheric temperatures and extreme weather events. Affluent countries, on the other hand, are indeed largely responsible for the release of past greenhouse gas emissions on their path to industrialisation. The reference to historical emissions might constitute a case demanding corrective justice. It dominated the talks of the UNFCCC 27th Conference of the Parties (COP27) in Sharm-El-Sheikh, Egypt, in 2022 and led to the establishment of the *Loss and Damage Fund* which was the highlight of COP27 (UNEP, 2022a). Notwithstanding, I argue that corrective justice should not be conflated with distributive justice, and this distinction has held at least since Aristotle's time (Miller, 2021). Whereas distributive justice relates to the distribution of ‘entitlements’ (Moore, 2012, p. 85) or goods and is a prospective undertaking, corrective justice demands remedial action for wrongdoing and is a retrospective exercise. Historical injustice is best settled independently of the process of serving distributive justice and of the process of allocating entitlements

of access to the global ecological commons. Otherwise, as noted by Steffen et al. (2015a, p. 91), ‘historic inequalities embedded in the origin and trajectory of the Great Acceleration’ will ‘continue to plague negotiations to deal with its consequences’. Furthermore, I argue that it is difficult, if possible at all, to serve corrective justice *before* principles of distributive justice governing ecological entitlements have been assigned and are legally recognised by an international body. As things stand, it is highly probable, notwithstanding the establishment of the *Loss and Damage Fund*, that in relation to developing countries many affluent countries will continue to exploit the global ecological commons disproportionately.

I therefore argue that distributive ecological justice is an important cornerstone for the maintenance of international peace and would thus flank the global guardian’s mission in protecting the global ecological commons. It is also an essential step towards instituting proceedings to serve international justice on other fronts. This includes the initiation of proceedings in recognised international courts of justice that are constitutionally mandated with serving corrective justice, among others, for example in relation to the historical emissions of greenhouse gases by industrialised countries and the ecological effects on developing countries, if the case demands so.

Ethical principles of distributive ecological justice

It is one thing to conceptually define distributive ecological justice as the granting of fair access among states to the global ecological commons, and another thing to put the principle of distributive ecological justice into practice within the machinations and procedures of international relations, even if conceived hierarchically with the existing authority of a global guardian. Kim and Kotzé (2021) observe that the architects of the Planetary Boundaries Framework were themselves unable to suggest how ecological space is to be allocated. Authors such as Clift et al. (2017, p. 4) express a need to allocate ‘fair shares’ of the ‘safe operating space’ between nations, among others. At the same time, they observe that ‘there is as yet no agreed mechanism or basis to allocate the space’ (Clift et al., 2017, p. 3). It should be evident by now that for pragmatic reasons I argue that the recipients of distributive ecological justice by the global guardian, the distributing

agent, should be internationally recognised states and not persons. The global guardian would need to apportion ecological space fairly by respecting ethical principles that are universally valued as fair. Apportioned ecological space takes the form of ‘entitlements’ – a term which is preferentially used by authors in their arguments on distributive justice (Caney, 2001; Miller, 2002; Moore 2012) to refer to ‘ecological rights’ (Fernando, 2020, p. 685). Daly (1991) originally used the term ‘depletion quotas’ to refer to the allocations of natural goods that are part of the global commons. This concept is already reasonably well developed in the international fisheries sector in the form of Total Allowable Catches (TACs) (Kampas, 2015; Hoefnagel et al., 2015) and as greenhouse gas inventories or Nationally Determined Contributions (NDCs) in international climate treaties and agreements (UNFCCC, 2023). This apportionment should be discussed, deliberated and negotiated within the democratic institutions of the global guardian along three ethical principles as elaborated in the next sections, considering national circumstances and sensitivities.

To be sure, the process of allocating entitlements is not the only mechanism by which the global ecological commons will be protected. Ecological entitlements will however constitute an important pillar in global environmental protection, especially in relation to climate action. Other measures that need to be taken to protect the ecological commons include cross-cutting restrictions on selected human practices that are seriously detrimental to the global ecological commons. Ecologically-sensitive locations that are vital for ecological stability might also be closed off from human interference. This is like the regulation of fisheries, pesticides and ozone-depleting substances. In the fisheries sector, cross-cutting restrictions apply on human practices that are detrimental to marine life include those related to the use of certain fishing gear (Kampas, 2015) and the practice of deep-sea trawling and bottom-set gillnets (Rabesandratana, 2013). The protection of some species sometimes warrants the closure of a fisheries area during a particular season (Kampas, 2015). These are called marine protected areas (MPAs) and ‘are a primary management tool for mitigating threats to marine biodiversity’ (Bruno et al., 2018, p. 499). Similarly, the European Commission (2022b) places cross-cutting restrictions on the uses of certain pesticides that are deemed to be particularly ecologically harmful. Analogically, on global functional biodiversity

integrity, geographical areas that are rich in biodiversity might need to be protected from human interference and classified as conservation areas. For example, Wilson (2016) advocates for the conservation of large tracts of wilderness to protect half the planet from human interference. Some authors argue that protection should extend to the entire planet and should include ‘other effective area-based conservation measures’ (OECMS) (Dudley et al., 2018; Büscher & Fletcher, 2019). In December 2022, 188 states signed the Kunming-Montreal Global Biodiversity Framework (GBF) at COP15 of the CBD pledging to put ‘30 per cent of the planet and 30 per cent of degraded ecosystems under protection by 2030’ (UNEP, 2022b, para. 2). This means that ecological entitlements will likely need to be accompanied with other protective measures that cannot be addressed by quotas. Importantly, cross-cutting measures will also need to be deliberated and negotiated within the global guardian taking into consideration specific circumstances and the varying implications of these measures on states and communities worldwide.

Apportionment of entitlements or ‘person-years of “developed” living’, as alternatively described by Keyfitz (1972 as cited in Daly, 1991, p. 6), is bound to be particularly politically sensitive. For illustrative purposes, what would be a fair share of the ecological safe operating space for the EU? The answer to this question depends on the ethical, ‘fair-share’ or ‘widely accepted normative principles’ that should be applied in guiding such an allocation (Clift et al., 2017, p. 16). Principles guiding the fair apportionment of ecological space might be conflicting. Whereas a *per capita* or population principle can be reasonably applied to set national ceilings for emissions of greenhouse gas emissions, other principles recognising sensitive human-land relationships might need to be considered when regulating goods contributing to, say, global functional biodiversity. Furthermore, historical emissions and activity are usually taken into consideration to ensure a graduated and politically feasible transition. This section includes a discussion of three ethical principles which I argue should be used as a guide by the global guardian to grant fair access to the global ecological commons to states worldwide. This is relatively uncharted territory because while several authors have indicated that the market is an inappropriate and an unjust mechanism to distribute ecological entitlements to the highest bidder (Corbera et al., 2007; Martinez-Alier, 2009; Okereke and Dooley, 2010; Newell & Paterson, 2010; Purdey, 2010; Kütting, 2011; Fuentes-George,

2013; Ford and Kütting, 2017; Stevenson, 2021) and highlighted the need for moral imperatives to guide distribution (Boyce et al., 2007; Okereke and Dooley, 2010; Ford and Harris, 2024), they have fallen short of proposing concrete ethical principles for distribution other than proposing the use of the international human rights framework to guide such deliberations in global environmental governance (Lewis, 2012).

Given the overarching importance of climate change and biospheric integrity for ecological sustainability (Mace et al., 2014), these two planetary boundaries will be used as examples to illustrate how the application of the following principles will affect access to the global ecological commons.

The first principle relates to the cosmopolitan claim that every person on Earth has equal moral worth. The implication of this principle is that every person on Earth should have equal access to the global ecological commons. States with larger populations should therefore have, by right, proportionately greater access to the global ecological commons than states with smaller populations.

The second principle is the recognition of the sacredness of the human-land or human-environment relationship. This principle evokes Pufendorf's (1991 [1673], p. 84) theory of First Occupancy which states that a person who first lays claim to an object has a right to the use of it over others. Analogically, the territorial jurisdiction of a state should be respected. Pufendorf's idea that 'the actual bodies [corpora] which produced those things should remain available to all' can be applied to the global ecological commons if, as I propose, the global ecological commons are the common heritage of humankind and thus commonly held by all. Thus, whereas natural resources within national territorial jurisdiction remain under the authority and exclusive use of the domestic state, by virtue of their impact on the global ecological commons, their use will be indirectly impacted by restrictions (mainly in the form of ecological entitlements or cross-cutting restrictions) introduced by the global guardian. The use of natural resources that are unrelated to the global ecological commons should remain fully domestically governed without interference from the global guardian.

The third principle relates to the notion of 'relative stability' which takes into consideration historical emissions and deviations from a reference period. For

example, relative stability ‘is the principle by which EU member states are allocated a fixed share of the Total Allowable Catch (TAC) for a given fish stock’ (Hoefnagel et al., 2015, p. 111), ‘determined in accordance with the quantities of fish caught during a reference period’ (Kampas, 2015, p. 172). Although the term is not explicitly evoked, the principle of relative stability is also applied in negotiations and agreements on allocations of Nationally Determined Contributions, which are commitments for reduction of greenhouse gases below the national greenhouse gas inventory of a specific year. Such an approach naturally takes into consideration historical emissions and deviations from a reference period.

First principle – every person has equal moral worth

The first principle relates to the cosmopolitan claim that every person has equal moral worth. Since the global ecological commons are finite and are the common heritage of humankind, such moral worth should translate into equal right of access to the global ecological commons. States with larger populations should have proportionately larger access to the global ecological commons. This principle can be applied with relative ease on greenhouse gases but faces difficulty if it is applied to access of natural resources that fall within the territorial jurisdiction of states, like rainforests or coral reefs. However, on the premise that the climate system is not owned by any state, this principle can be evoked in a relatively straightforward manner to apportion access in the form of greenhouse gas emissions entitlements on a *per capita* basis. On this principle, countries with larger populations would have proportionately larger entitlements for climate access than countries with smaller populations.

Since there are already internationally agreed mechanisms to quantitatively calculate greenhouse gas emissions, the concept of equality of access can easily be translated into quantitative apportionment of entitlements for greenhouse gas emissions. National greenhouse gas emission calculations and the effects that climate mitigation measures quantitatively have on projected emission inventories currently take the form of Nationally Determined Contributions (NDCs), which represent efforts or pledges by countries to reduce national emissions and adapt to climate change (UNFCCC, 2023). However, in contrast to a framework where pledges are largely voluntary and non-binding, within a proposed framework of

global multi-layered governance, greenhouse gas emission allowances or entitlements would be prescribed by the global guardian and will be binding. A state breaching its allowed threshold will therefore face a penalty as prescribed by international law.

The application of the principle of equal moral worth in the international domain introduces an ethical dilemma. States worldwide have diverse fertility rates, demographic compositions, and population growth rates (United Nations, 2022). If every person has equal moral worth and is thus entitled to have equal climate access, states with growing populations would be entitled to claim an increasingly bigger share of the global stock of greenhouse gas emissions or carbon allowances. Since the global stock of carbon allowances is relatively fixed, the claim for a bigger share by one state would effectively diminish the carbon entitlements of states with shrinking, steady-state, or slower growing populations. As a result, countries with lower population growth rates are likely to oppose the award of additional carbon entitlements to countries with higher population growth rates on the premise that demographic policy is principally a domestic responsibility. This dilemma can be resolved in two ways.

The international community might want to identify a retrospective or prospective date – a cut-off point in the historical timeline – when climate change became a formal international concern demanding universal action. I term this cut-off date ‘the moment of realisation’. For illustrative purposes, such a cut-off date could reasonably be the date of entry into force of the Paris Agreement (2015). Steininger et al. (2022) propose this cut-off point to be 1995, the year during which the Intergovernmental Panel on Climate Change published its second assessment report. This cut-off date is however open to negotiation and a matter of deliberation. It can be prospective or retrospective and can differ between one country and another. The ‘moment of realisation’ represents a point in time when countries are expected to have taken domestic responsibility for climate mitigation, including for population policy. Allocation on the principle of equal moral worth would thus apply until the moment of realisation and additional *per capita* allowances cease to be granted after this point in time on this principle. Notwithstanding, the global guardian might grant additional carbon entitlements to states with growing populations after the ‘moment of realisation’ in recognition that domestic policy to

reduce fertility rates takes a long time to affect population demography. Alternatively, additional entitlements might be granted to countries with high fertility rates on condition that these countries take concrete measures to stabilise their population growth trajectory. Some of these measures can include the provision of universal healthcare, mandatory school education, and work opportunities, for both men and women. In any case, there are ways to address the ethical dilemma that emerges following the application of the *per capita* principle.

Second principle – human-land relationship

Principles of justice place additional responsibility on states that have a larger influence on the global ecological commons. This international ethical norm is also posited by Esty (2009) who asserts that in line with the international commitment to ‘common-but-differentiated responsibility’, countries agree to take environmental responsibility in accordance to their national capacity and level of development. The application of this principle is particularly appropriate to the protection of, say, biodiversity where state responsibilities to protect wildlife are directly related to territorial coverage. Rather than having a global distributing agent apportioning entitlements for ‘pollution’, as in the case of greenhouse gas emission, states are required to take responsibility for biodiversity protection in proportion to the command of land and sea coverage.

States that command and make use of natural resources that are vital for ecological stability, such as biomes, will in their territorial jurisdiction be expected to take reasonable measures to protect these natural resources from over-exploitation. Similarly, states with larger territorial jurisdictions, or with larger available managed land areas, will be responsible to ensure that human land and marine use within their territorial authority is compatible with global ecological stability. As a matter of principle, countries with larger territories should shoulder larger ecological responsibilities expressed for example in efforts for rewilding that is in direct proportion to the area of managed land and sea. In line with the same principles governing private property, the ownership and use of national resources within the territorial jurisdiction of a country will be conditioned by a legitimate global concern for ecological sustainability. This global concern for ecological sustainability is expressed in the mandate of the global guardian to ensure that all

states are fairly entitled to the services of the commons and fairly contribute to the preservation of the global ecological commons. The principle of solidarity (5.2.4) calls on the international community to extend aid to states for conservation efforts (e.g., around the protection of biomes and biodiversity hotspots) that disproportionately outstrip the states' financial and technical means for conservation (Büscher et al., 2017a).

The second principle is sensitive to the relationship between a people and the land and waters they inhabit. Greenhouse gas emission allowances can be reasonably apportioned on a *per capita* basis to reflect the principle that every person has equal moral worth as they relate to a natural system, the climate, and no parts thereof can be reasonably claimed to be owned or governed by a people or a state. In contrast, the land and the waters (and access thereof) cannot be apportioned in a similarly calculated manner devoid of any recognition of the historical and cultural ties of a people and their lands. As argued by Moore (2012, p. 93), 'it would be a mistake to think that the only relationship between land and the people is an instrumental one'. According to the author, the non-instrumental value, including symbolic and cultural ties, is 'not confined to small, nomadic or traditional societies: it is extremely widespread' (Moore, 2012, p. 94). This principle should apply to all peoples, at different levels of governance and should include indigenous territorial rights (Lightfoot, 2008; Kosoy et al., 2012; Dhillon, 2018; 2021). In international law, the recognition of the bond between a people and their land implies a recognition of a state's territorial jurisdiction. Such a recognition precludes the invocation of a simplistic *per-capita* principle which might be appropriate for climate access but would be inappropriate for land and sea access. Densely populated countries have no right to claim part of the territorial jurisdiction of countries with low population densities, as this would breach the recognition of a sacred relationship that a people have forged with their lands over the years.

Distributive ecological justice should thus not be evoked as a radical cosmopolitan cry for the equal distribution of *all* natural goods to all people worldwide. Justice should not be used as a vehicle to redefine territorial jurisdictions on simplistic mathematical formulas to match population densities. For example, Moore (2012, p. 89) observes that luck egalitarians deem it unjust if 'one group's land is large, fertile and resource-rich, while another group's land is meager, barren and resource-

poor'. Luck egalitarianism, which holds that 'unchosen and uncourted inequalities ought to be eliminated' (Arneson, 2013, p. 42), breaches the second principle of the sacredness of the human-land relationship if it had to be applied to the redistribution of natural resources, including territorial authority, between states in a bid to secure distributive ecological justice.

Notwithstanding the argument in favour of respecting the integrity of territorial jurisdictions, the global guardian can and should enforce restrictions on the use of natural resources that are known to adversely affect the global ecological commons, on the premise that these are a universal concern. As common heritage, they should thus be protected for the universal enjoyment of all peoples worldwide. The global guardian's protection naturally extends to practices that occur *within* the territorial jurisdiction of states. Apart from prescriptive measures on human practices that are known to be seriously detrimental to ecological sustainability, the global guardian's role however remains mostly circumscriptive, allocating ecological space without interfering in domestic affairs on the manner in which that space should be consumed. As in Rawls' political liberalism, persons or states are viewed as responsible agents, accountable for their own choices, and free to determine themselves as long as they abide by the rules of just institutions, in this case the global guardian.

The global guardian's protection does not apply to practices on the use and exploitation of natural resources that do not reasonably jeopardise the integrity of the global ecological commons. Governance of such goods falls outside the legitimate scope of the global guardian. External intervention on a community for a natural resource or a 'mineral' which is vital to others, as proposed by Moore (2012), is not justified. Similarly, the protection of endangered wildlife species would only fall under the protection of the global guardian if such wildlife species is deemed essential for the stability and sustainability of the global ecological commons. The loss of wildlife heritage, such as the polar bear or the panda, as was the case for the woolly mammoth in the past, might constitute a loss of natural beauty. The global guardian, as conceived in this thesis, is not mandated with authority to preserve beauty. The protection of natural beauty may nonetheless continue to enjoy the protection of multilateral treaties or might, in the future, be extended to the mandate of the global guardian if it enjoys sufficient global

legitimacy to do so. The loss of some selected species may however constitute more of a loss to wildlife heritage than a threat to the global ecological commons, and this distinction should be made.

The principle of the recognition of the human-land relationship also applies to fisheries and to practices in a country's territorial waters and exclusive economic zones. The use of quotas to regulate the exploitation of natural resources already applies, for example, to EU fisheries (which is further explained in section 5.4).

Third principle – relative stability

Relative stability is the notion that entitlements should be generally based on the historical use and access of a common pool resource, taking into consideration particular national characteristics that would potentially justify a relatively larger apportionment, as in the case of the dependence of coastal communities on the fisheries sector for their livelihoods. Indeed, 'relative stability' is the formula that was used 'to allocate fishing rights' among EU member states in 1983 and served as a 'precondition for the establishment of the Common Fisheries Policy' (Lado, 2016, p. 49). In 1983, relative stability was based on three elements:

'1) historical catches by Member States 2) losses of fishing opportunities as a consequence of the establishment of the 200-mile Exclusive Economic Zone by third countries, notably Iceland, and 3) special needs of coastal communities with a strong dependence on the fisheries sector' (Lado, 2016, pp. 49-50).

More recently, with the accession of new EU member states, historical catches were used as the main criterion to establish relative stability keys.

In practice, the principle of relative stability protects the *status quo* whereby states maintain the position of their fishing industry in relation to that of neighbouring states (Symes, 1997). The main objection to the principle of relative stability is that it rewards historical overfishing (Kampas, 2015) and 'punishes previous cessation of fishing' (Serdy, 2011, p. 405). Kampas (2015) argues that the notion of relative stability encouraged overfishing in the period exactly preceding the introduction of a Total Allowable Catch so that states locked in larger allocations based on their preceding fishing quotas. Notwithstanding, the notion of relative stability has held

well in the Common Fisheries Policy of the EU and enjoyed political legitimacy for the past forty years, which is an important consideration, notwithstanding its limitations.

International treaties on the reduction of greenhouse gases also exercise the notion of relative stability. The Kyoto Protocol, for example, established greenhouse gas reduction targets for industrialised countries expressed as a percentage reduction in greenhouse gases over 1990 levels. Similarly, the European Union strives to collectively decarbonise by binding its member states with greenhouse gas reduction targets expressed as percentage reductions over a defined year, say 2005. The fact that less industrialised countries were excluded from decarbonising in the Kyoto Protocol and that, within the EU, member states have different greenhouse gas reduction targets, shows that additional considerations come into play during negotiations. Nonetheless, the manner by which binding targets are expressed, that is as efforts in relation to past historical emissions, shows that weight is given to the principle of relative stability.

The principle of relative stability should however not be evoked to unnecessarily delay a global transformation towards distributive ecological justice. While consideration of historical emissions is most important at the beginning of the transformation, over time *per capita* entitlements to the global ecological commons should increasingly converge. Differences in the national ecological footprint *per capita* should decrease over time in a process also known as ‘contract and converge’ where the ultimate outcome is a common global entitlement to an ecological good per person such as in relation to greenhouse gas emissions (Quiggin, 2010, p. 130; Steininger et al., 2022). The Loss and Damage Fund established during climate negotiations at UNFCCC COP27 shows that historical emissions, in this case of greenhouse gases, are a far cry from being a benchmark of fair and just allocation. It seeks to somewhat redress what is deemed by many climate vulnerable countries as an unfolding historical injustice.

The notion of relative stability is an important principle to ensure that global efforts in the transformation towards an ecologically sustainable world order are done in an orderly and politically legitimate manner. It ensures that the transformation reflects the starting point following which states are expected to have begun to act.

This principle has important implications on affluent nations with large ecological footprints and, to a lesser extent, on developing countries with high fertility rates (5.5). In relation to climate change and in accordance with the first ethical principle of distributive ecological justice, states with large ecological footprints will be called to degrow. Degrowth might mean painful changes to the ways of lives of people who have become accustomed to high material standard of living and who will need, to some extent, to lead more frugal ways of life. Developing states with high fertility rates might need to address demographic policy and population growth rates. Such measures would include, for example, the provision of non-gender discriminative and accessible education, healthcare and employment opportunities to men and women alike. Since the development of robust institutions and the effect of such policies takes years to yield the desired outcomes, the relative starting point of such countries should be taken into consideration in negotiations on carbon and ecological entitlements and responsibilities.

The special case of carbon as a non-market good

Greenhouse gas emissions are very tightly coupled to material standard of living. Every good or product for human consumption and enjoyment – including essential items such as food, clothing, buildings, medicine and health technology – carries a carbon footprint. The right to emit greenhouse gases is closely linked to the human right to a dignified life. This constitutes an ethical imperative to treat carbon as a special case and to ensure that carbon entitlements are assigned wherever the enjoyment of a product or service with a carbon footprint takes place. This would ensure that GHG entitlements are not consumed by a country, simply for production purposes for the eventual enjoyment of products by people in other states but are directly attributed to the people in the state where the enjoyment of the good occurs (Clift et al., 2017). This view is also shared by Büscher et al. (2017b) who argue for more focus on consumption and resource-use as being more just. Coupling entitlements to consumption, rather than to production, would protect against rich countries' tendency to export production facilities outside their territorial jurisdiction or outsource goods extra-territorially to avoid taking responsibility for the carbon footprint of a high material standard of living. Border carbon accounting is possible as witnessed by the EU's carbon border adjustment mechanism which is

a carbon tariff on carbon rich goods, such as cement and electricity, crossing the EU border. This mechanism is already in place or being planned in other places such California, Canada and Japan (European Commission, 2021). To be sure, the concept of attributing footprints to consumption rather than to production can be extended to non-carbon ecological entitlements (e.g., those that have implications on cross-border land-use changes, mining, waste production, eutrophication and biodiversity loss), however the case for carbon is more straightforward. An international system of carbon entitlements which discriminates between production and consumption would serve three purposes. It would serve to reduce global inequalities in material standard of living. Every country would need to respect its carbon entitlement and, if applicable, degrow its material standard of living to respect these limits. Additionally, it would incentivise a global shift towards carbon efficient production and shorter supply chains. Countries and people with money would be willing to pay higher prices for products and services with lower carbon tags to maximise the basket of goods and services which they can legitimately and legally enjoy. Furthermore, companies with cleaner sources of energy are likely to be favoured. Their products will enjoy a price premium on the international market. In a certain sense, ‘let technology devote itself to learning how to live off our solar income rather than our terrestrial capital’ (Daly, 1991, p. 70).

I also argue that carbon entitlements should be non-market goods in global affairs and that there should be no global market for carbon entitlements. I do not share a commonplace view in international relations that a market approach is the most appropriate global mechanism to cut greenhouse gas emissions (Wijkman, 1982; Whalley and Zissimos, 2000; Runge, 2001b; Esty, 2008; 2009; Biermann et al., 2012). I offer three rationalisations for this argument. First, it is well known, and I have documented this extensively in chapter 3, that the market tends to widen inequalities favouring those with the means and the money to exploit it. A global market for greenhouse gas emissions is likely to worsen already wide inequalities in wealth internationally. Once the global guardian imposes global greenhouse gas emission reductions, in line with a ‘safe’ warming trajectory, a carbon entitlement would become a scarce and highly valued good that is likely to command a reasonably high price on an internationally open market. For people in developing countries, with material standards of living that come nowhere close to those of

affluent countries, the sale of their carbon entitlements would be a lucrative opportunity. People in developing countries would be likely constrained by their unfavourable social circumstances to sell their carbon entitlements rendering such market exchanges hardly free. Caution must be exercised in that ‘market mechanisms and environmental regulations ... do not displace responsibility and associated risks for emissions reductions onto the less powerful’ (Newell et al., 2015, p. 539). A global free carbon market would not stem the ‘unjust flow of energy, natural resources, food, cheap labour, and financial resources from the South to the North’ (Foster, 2009, p. 247). As argued by Blake (2012, p. 122), international poverty and radical inequality affects ‘our ability to reason together globally as equals’, and thus goes against the principles of democratic governance and solidarity as discussed in sections 5.2.3 and 5.2.4. A global carbon market would work diametrically against the principle of global distributive ecological justice and would seriously undermine the legitimacy of the global guardian and its mission to secure ecological sustainability. Second, as non-market goods, carbon entitlements might be under-exploited and not fully utilised by all countries. Some countries have a low ecological footprint and are likely to have spare carbon entitlements which remain unutilised. This should not be viewed as wasteful but rather welcomed as an opportunity to sustain a precautionary approach, and create spare capacity to protect against scientific uncertainty on the projections of global warming, which, might not be as accurate as the international scientific and political community might want them to be. Third, if carbon is treated as a non-market good, countries will be (to some extent) disentangled from the global capitalist system which locks nations into perpetual competition for higher standards of living and geopolitical influence. This is because every people will have a protected, and a non-exploitable (non-tradable), carbon space that limits the extent to which states can maximise their material economic endeavours.

The thesis therefore excludes the possibility of market-based approaches such as the cap-and-trade system or the emissions trading scheme for carbon trading at a global level. Such schemes might work well within regional alliances with relatively narrower wealth inequalities, such as the European Union, or within countries. It remains the prerogative of states to develop domestic policies that respect the ecological spaces assigned to them by the global guardian, be it

command-and-control or more market-based. However, in line with the mission of the global guardian to secure distributive ecological justice and its struggle for legitimacy in a world order characterised by wide wealth inequality, it would be best if carbon entitlements remain outside the realm of the global market.

4.3.3 Advocating for international peace

The preservation of international peace and security is fundamental for nations to freely self-determine themselves along values that their people have reason to value without fear of threats, arbitrary interference or domination. As I argued in section 4.2.3, the freedom for self-determination within a context of non-domination is essential for peoples to take full responsibility for ecological sustainability. The term ‘international peace and security’ is used to conceptually refer to the enjoyment of sufficient and credible protection by peoples worldwide for self-determination and non-domination. It is not used to refer to an ideal state of peace or a world free of conflict, but rather to a political condition of international non-domination where conflict is primarily resolved through peaceful means. Within this understanding, international mechanisms would exist for the effective resolution of conflict. International military coercion would be a measure of last resort and would need to be mandated by international law. The term ‘international peace and security’ is used to refer to a negative freedom which is conceptually broader than the freedom for peoples to fairly access their protected share of the global ecological commons, as argued in section 4.3.2.

Since international peace is significantly important for ecological sustainability, the global guardian should have a moral mandate to promote international peace and security. Protection guarantees that secure non-domination and self-determination will provide for the proliferation of cultural freedoms and world diversity, which are positive goods in themselves. Furthermore, I argue that such a protection would unlock nations from the global competitive system lock in which ecologically unsustainable economic growth practices thrive (refer to section 3.3). This freedom would allow nations to reorientate their efforts away from national security issues and possibly towards more ecologically sustainable practices. I also argue that in its pursuit for international peace, the global guardian should promote the protection of fundamental human rights and disarmament by the international community.

Non-domination

National self-determination or ‘collective self-determination’ is a core value in international law. It is understood as the right of ‘all peoples’ to ‘freely determine their political status and freely pursue their economic, social and cultural development’ as laid out in Article 1 of the United Nations’ *International Covenant on Economic, Social and Cultural Rights* (UNGA, 1966b). The principle of ‘self-determination of peoples’ is also enshrined in Article 1 of the UN (1945) charter. Indeed, Rawls (1999) describes a realistic utopian global society as characterised by ‘well-ordered peoples’ (p. 63) – both liberal and decent peoples – being independent and self-determining members of the society of peoples, upon the satisfaction of international and domestic conditions. Similarly, Miller (2008, p. 397) argues that, on principles of global justice, every society should have the opportunity to develop along its chosen path ‘without external interference’. Collective self-determination is viewed by some authors as having ‘moral value’ (Moore, 2012, p. 86).

‘Non-domination’ is a necessary condition for self-determination and is understood as defined by Irish philosopher and political theorist Philip Pettit in his flagship book *Republicanism: A Theory of Freedom and Government*, that is:

‘the position that someone enjoys when they live in the presence of other people and when, by virtue of social design, none of those others dominate them’ (Pettit, 1997, p. 67).

Non-domination should be distinguished from ‘non-interference’¹⁴. Drawing on Pettit’s work, critical theorist Iris Marion Young (2002, p. 257) explains that ‘a non-interference model of self-determination’ implies that:

‘a people or government has the authority to exercise ultimate control over what goes on inside its jurisdiction, and no outside agent has the right to make claims upon or interfere with what the self-determining agent does. Reciprocally, the self-determining

¹⁴ Pettit (2010, p. 74) describes ‘interference’ as ‘intentional obstruction, coercion, deception, and manipulation’. He mentions ‘invigilation’ and ‘intimidation’ as other forms of ‘alien control’ or strategies of domination.

people have no claim on what others do with respect to issues within other jurisdictions, and no right to interfere in the business of the others. Just as it denies rights of interference by outsiders in a jurisdiction, this concept entails that each self-determining entity has no inherent obligations with respect to outsiders.’

It is evident that a theory of non-interference echoes the ‘full permanent sovereignty’ enshrined in international law and reinforces ‘the claim for a right to an independent sovereign state’. To the contrary, a global politics of non-domination supports ‘a vision of local and cultural autonomy in the context of global regulatory regimes’ (Young, 2002, p. 237). Rather than simply ‘independence or non-interference’ (Young, 2002, p. 259),

‘the interpretation of self-determination as non-domination ultimately implies limiting the rights of existing nation-states and setting these into different, more co-operatively regulated relationships’ (Young, 2002, p. 260).

Whereas a model of non-interference sees no place for a global entity interfering in matters presumably of a domestic nature, a theory of non-domination supports the idea of a global political structure where states can self-determine themselves within the non-dominating constraints of a collective global order. In this thesis, these constraints are primarily related to the protection of the global ecological commons, respect for one’s fair share of the ecological space, and a commitment to international peace and security (also as an ecological concern). Importantly, although non-domination is against the actual or potential arbitrary interference of one powerful agent over another, it supports the idea of representative institutions and regulations that non-arbitrarily interfere with the actions of dominative powers (Pettit, 1997; Young, 2002). One embodiment of such an idea is the European Union which has been conceived as a ‘demoicracy’; a ‘union of peoples who govern together’ and who protect the ‘freedom of the different European demoi’ (Ronzoni, 2017, p. 210).

Concepts of non-domination and non-interference have implications to the global guardian’s mission to protect the global ecological commons. Canadian political theorist, Margaret Moore (2012), is supportive and sympathetic to Young’s

application of the theory of non-domination to a global politics of justice. She maintains, however, that ‘self-determination’ generates ‘a right over [natural] resources which others should not interfere with’ (Moore, 2012, p. 84). In other words, states have a right over natural resources within their jurisdictional authority. This has implications to the global guardian’s dual mission to protect the global ecological commons while contemporaneously respecting the basic conditions for national self-determination, which *prima facie* seem to contradict or are in tension with each other. In contrast to non-interference, a theory of non-domination is compatible with the interference of the global guardian in domestic matters relating to the protection of the global ecological commons provided that such interference is non-arbitrary and ‘the interests and voices of affected parties’ is taken into account (Young, 2002, p. 259). Such ‘interference’ includes, for example, restrictions on the domestic use of selected natural resources, and caps on greenhouse gas emissions or the release of pollutants. The guardian’s commitment to the principles of national self-determination and non-domination should not be taken to construe a lack of interference in matters that directly relate to its primary mission to protect the global ecological commons.

A theory of non-domination cautions against the potential dominating influence of the same institutions. For this reason, international peace and security should not be the business of one or a few states. This is partly because a state is unlikely to enjoy legitimate global representation and can become ‘dominating’. Rather than having a United States with ‘unparalleled military strength and great economic and political influence ... to defend the peace by fighting terrorists and tyrants’ (Bush, 2002, p. 3), it would be more desirable to have a representative and legitimate global authority where the same people who submit themselves to coercion have a ‘democratic right to contribute to the decision-making process’ (Caney, 2006, p. 728). In recognition of the instrumental value of international peace to ecological sustainability, the global guardian should promote more democratic practices in global institutions, such as the UN Security Council, that are committed to the maintenance of international peace and security.

Notwithstanding the perils of global coercion for the preservation of international peace and security (Korab-Karpowicz, 2005), some authors argue that under

conditions of globalisation, only a global authority can truly secure conditions of non-domination and self-determination. Lu (2021, p. 17) contends that,

‘paradoxically, it may be that in conditions of globalization, only a world state can provide the essential supporting conditions for all states, including democratic ones, to enjoy effective and legitimate collective self-determination’.

These views are also shared by Habermas (2001) in *The Post-National Constellation* where he argues in favour of new forms of democratic supranational governance mechanisms in a globalised world order. Moreover, drawing on Pettit (2010), Lu (2021, p. 15) remarks that

‘individuals’ enjoyment of freedom as nondomination is not secured unless their states are protected in their external relations from dominating strategies...’.

In other words, individuals are not free if their states are dominated by, for example, other states or by non-domestic private bodies, such as transnational corporations or powerful individuals. In Pettit’s words, ‘the free individual is protected against the domination of others by the undominating and *undominated* state’ (Pettit, 2010, p. 77, italics mine). The global guardian will need to ensure that states are ‘undominated’, in the same way that ‘state coercion’ is needed for persons to achieve ‘autonomy’ (Blake, 2001).

Cultural freedoms

The global capitalist system lock which is partly underpinned by an inter-state economic growth imperative, arguably conditions peoples to adopt capitalist ways of life. However, as argued by Sen (1999), freedom is a necessary condition for responsibility. Non-domination is therefore necessary for people to pursue ways of life of their choice, and complements the guardian’s mission to protect the global ecological commons. Furthermore, it secures the possibility for a world of diversity or ‘cultural freedom’¹⁵ (Sen, 2005, p. 7). Cultural freedom would translate into

¹⁵ Amartya Sen (2005, p. 7) distinguishes between ‘cultural freedom’ and ‘cultural conservatism’. He defines cultural freedom as ‘the freedom to choose how exactly we would like to live’ in contrast to the practice of trying to conserve cultural practices that were inherited from the past.

economic diversity characterised by a mixture of state, common and private property-based regimes. States would be free to choose ‘different property regimes’ (Moore, 2012, p. 87) and would not be obliged to adopt uniform or blanket left-wing policies or values of extreme frugality (Naess, 1973; Sessions & Naess, 1986), ideals that are likely not shared universally. According to Miller (2002, p. 976), communitarians and nationalists have similarly envisioned ‘a world of diversity’, ‘a world that offers each community adequate scope to pursue its own distinctive values’, without any attempt at imposing uniformity. Diversity is also valued in the liberal tradition for supporting individual and collective autonomy (Raz, 1986; Rawls, 1993; Kymlicka, 1995; Gray, 1997; 2007; Galston, 2002; Schlosberg, 2006) and is proposed as a principal in proposals for global environmental governance by authors such as Esty (2008; 2009). Some authors take global diversity as a given and at times as a source of democratic deficit (Dahl, 1999; Stevenson, 2019) and argue that the global architecture needs to be subsidiary and multi-layered if it is to accommodate cultural diversity and global pluralism (Keohane, 2001; Wendt, 2003; Boonen et al., 2019), further arguing for strengthening human rights and the rule of law (Dahl, 1999). It is my view that cultural diversity should not be seen as a stumbling block or a threat to global democracy but rather as good that should be cherished for its intrinsic and instrumental value both to global democracy and ecological sustainability. The complexity of the challenge to address the global ecological crisis requires a similarly complex political architecture that allows for people to pursue diverse and context-specific approaches to living sustainably and adapting to their unique environmental challenges.

Securing non-domination might potentially be a sufficient condition, although such can only be confirmed in retrospect, to steer global human society towards ecological sustainability because the provision of safeguards against non-domination represents a break from the arguably international, political, economic and capitalist system lock. The freedom of peoples to pursue ways of life of their choice might be sufficient to lower human activity and resource throughput, although such an extrapolation is a mere possibility and is only speculative. Notwithstanding, there are examples of communities worldwide who have

attempted to prioritize wellbeing, equity and sustainability over expansion (Trantas, 2021) in a self-directed manner and without being externally coerced. Self-directed initiatives to pursue ecological sustainability are more likely to succeed by actors that are free from external dominating influences that nudge them in the opposite direction. Hickel (2019, pp. 60-61) also recounts how British ‘colonisers discovered to their dismay that Africans were content with their subsistence lifestyles, where they had all the land and livestock they needed to live, and showed no inclination to do back-breaking work in European industries’. A life of simplicity, frugality and dematerialisation, however, leaves those who pursue it vulnerable to external forces, in the absence of an international safeguards for non-domination.

Safeguards for non-domination set people free to adopt less energy and material intensive ways of life, free from the dictates of national security and economic growth imperatives. For this reason, safeguarding international peace by securing non-domination and promoting cultural freedoms is an important moral mandate for the global guardian in its efforts to achieve ecological sustainability.

Human rights

Some authors have identified the international human rights framework as a platform to leverage environmental protection (Lewis, 2012), as a pillar for global democracy (Dahl, 1999) and a benchmark for global deliberation (Grant & Keohane, 2005, p. 35), and as a tool to secure Indigenous territorial rights (Lightfoot, 2008). While supporting these claims, it is my view that the protection of core human rights, especially those related to negative freedoms, should be more importantly a concern for the global guardian in view of their instrumental effect on international peace and security, which in turn also constitutes an ecological concern.

In *The Law of Peoples*, Rawls (1999) proposes a limited list of core human rights, whose violation is serious enough to warrant international intervention. Rawls probably did this for two reasons: first, the core list is acceptable to ‘reasonable states’ or ‘decent peoples’, not only to liberal democracies and second, their violation triggers permissible intervention by other countries (Nickel, 2021, p. 15). For Rawls (1999, p. 36), serious cases of human rights violation may rightly be

subject to international ‘economic sanctions or even military intervention’. Along this line of thought, the global guardian would be politically justified in supporting interventions (economically or militarily) by international institutions in the affairs of a state when there is clear evidence that core human rights are being breached.

The list of core human rights should be a matter of democratic deliberation (in the sense discussed in section 5.2.3) among the members of the international community and is bound to change over time in line with the wishes of the peoples. The list should be morally informed but democratically deliberated by the peoples if it is to be effective and respected. Rawls proposes a list of ‘core human rights’ that ‘decent peoples’ should secure for the people in their territory. This includes ‘right to subsistence, security, personal property, and formal equality before the law, as well as freedoms from slavery, protections of ethnic groups against genocide, and some measure of liberty of conscience’ (Wenar, 2021, section 5.3, p. 47). Some authors believe that this list is incomplete (Kleingeld, 2006). In any case, there is bound to be disagreement on what constitutes a core human right warranting coercive global or international intervention. For this reason, I argue that core or fundamental human rights meriting the coercive protection of the international community should be democratically deliberated and revised from time to time. Democratic deliberations include both formal and informal actors. Formal actors refer to state and state-like institutions while informal actors include transnational civil society organisations as argued by Falk (2000a), among others. The appropriate mechanisms, procedures and scale of global action to address breaches of core human rights should also be deliberated democratically among the members of the international community.

There are various international documents which can aid in this deliberation of the constitution of core human rights and to which many UN member states, albeit with provisos and to varying degrees, have ratified. These include the Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social, and Cultural Rights (Nickel, 2021). Other laws that are more regionally established include the United States Bill of Rights, the African Charter on Human and People’s Rights, and the

European Convention for the Protection of Human Rights and Fundamental Freedoms, just to mention a few.

The global guardian's support for the provision of protection guarantees against the violation of certain core human rights is based on the role that these human rights play in the preservation of international peace and security, and its value for ecological sustainability. From this perspective, the global protection of core human rights, in addition to being a matter of justice (Beitz, 2001; Miller, 2008) and a means to secure effective international engagement in the 'society of peoples' (Rawls, 1999, p. 4), constitutes an important ecological concern demanding the active involvement of the global guardian.

Disarmament

In line with the global guardian's concern for international peace and security, states should be promoted to demilitarise on ecological grounds. The global guardian should support the international promotion of disarmament such as those coordinated by the United Nations Office for Disarmament Affairs established in 1998 (UNODA, 2023). There are three main reasons for this. First, militarisation constitutes a threat to international peace and security – militarisation by a member state is likely to trigger further militarisation by other member states in a race to the bottom. Second, militarisation is ecologically costly and represents an opportunity cost. Even if war is prevented,

‘a state of 'peace' might well entail the diversion into armament production of vast resources that could, at least in part, be used to promote sustainable forms of development.’ (Brundtland, 1987, Chapter 11, Article 3).

Military expenditure accounts for approximately 2.7 percent of global GDP and has been increasing since 1998 (Aziz and Asadullah, 2017). It consumes scarce ecological space which could otherwise be dedicated to human development.

Third, it is not implausible that governments of authoritarian, developing or 'outlaw' states increase military expenditure at the cost of impoverishing their citizens (Aziz and Asadullah, 2017), to gain personal or geopolitical advantage in

a world with strained resources. Notwithstanding, disarmament is a complicated and a sensitive issue to many countries, especially to those who by virtue of their ownership of nuclear weapons (which represent an unrivalled threat to international security) have strong negotiating power in international affairs.

4.3.4 Securing a just transformation

Committing to achieving ecological sustainability will set in motion a political, social, economic and cultural transformation that will varyingly impact affluent and developing states alike. On one hand, distributive ecological justice will demand a reduction in the ecological footprint of affluent nations. This will likely require significant reductions in the material standards of living and considerable adjustments to the way of life of the people. On the other hand, as will be discussed in section 5.5, developing states with high fertility rates will be reasonably expected to transition demographically by putting in place policies that provide, for example, for better and more gender-equal access to education, healthcare and work opportunities. The point being made is that both types of changes are likely to be accompanied with hardship in terms of adjustment in ways of life responsibly in tune with the requirements of ecological sustainability.

Domestic policies to steer human activity back within the bounds of the carrying capacity of the planet or within a nation's ecological footprint will need time to take effect and bring about the desired changes. The implementation of domestic policies to build schools, provide healthcare and education, and raise a new generation of men and women with aspirations that go beyond having a large family, will likely take decades. It is evident that in line with the global guardian's necessary condition to command legitimate authority, it will need to ensure that the transformation to an ecologically sustainable world order takes place in a temporally just, orderly and humane manner.

To be sure, a business-as-usual scenario will still see peoples making considerable adjustments to their ways of life in the wake of increasingly frequent climate-related extreme weather events and other environmental catastrophes. Such social changes are, so to say, environmentally or naturally induced and, by their nature, do not need to command any kind of political legitimacy. In contrast, a global guardian, being

by nature a human-made institution will need to command legitimacy if it needs to be effective. In this sense, it is therefore not the social transformation *per se* that calls for justice, but the delegation of authority to an institution tasked with driving social transformation that calls for the just execution of such authority.

Securing a just transformation means that the assignment of ecological entitlements, among others, needs to be sensitive to the state within which peoples find themselves today – the starting point. This does not preclude a rapid transformation but rather demands that the burden is shared in a manner that is sensitive to this starting point.

4.4 Conclusion

I have presented the case for setting up a global guardian, an institution with the capability to enforce globally-binding agreements to protect the ecological commons and secure ecological sustainability. The justification for a global guardian is supported by the need for an urgent and far-reaching global political and social transformation. Current international and multilateral environmental agreements have been insufficiently successful to address the ecological crisis with the urgency that characterises it. I have also argued that international anarchy is inherently competitive and ecologically unsustainable. An ecologically sustainable global political architecture needs to foster cooperation over competition. I also made the case that the fears of a global leviathan are unfounded partly because the global order is already characterised by various forms of global hegemonic forces, mostly illegitimate, supra- and external to the traditional sovereignty of the political state. This was followed by an exposé of advanced contemporary political thought on refined forms of global governance, vertically dispersed from global to local, which would be preferable to the current global political arrangements to address the ecological crisis.

I then proceeded with providing a critique of the principal mission of the global guardian to secure ecological sustainability and argued that this mission should be executed on four levels. First, the global guardian will have the primary task to set safe ecological limits and define the ecological space within which humankind can thrive. These limits will be scientifically informed but, cognisant of the limitations

of science, the ecological space will need to be defined politically, taking a precautionary approach. Second, the global guardian will need to assume the role of a distributing agent, assigning ecological space in the form of entitlements and therefore acting as an important site of global distributive justice. The case for global distributive ecological justice was presented and three rationalisations were offered to sustain it. I proposed three ethical principles of distributive ecological justice which would inform deliberations and negotiations within the global guardian for the fair allocation of ecological space among peoples. I also argued that, on ethical grounds, carbon (or greenhouse gas emissions) entitlements should be globally allocated using non-market principles. It should also be accounted to peoples on the consumption (not production) side, that is, where the enjoyment of a good occurs. The global guardian will also have the capability to enforce cross-cutting restrictions on ecologically degrading human practices. Third, the global guardian should have a stake in the preservation of international peace and security which, as I argued, is an ecological concern. I drew on republican theory to argue that international guarantees of non-domination will effectively provide nations with the freedom for self-determination along paths of their own choice albeit within the constraints of the global ecological institutional framework. In recognition that international peace is valuable for ecological sustainability, the global guardian should advocate for the protection of core human rights which are democratically deemed to be central to secure international peace. In connection with this, I also argued that the global guardian should support disarmament but remarked that this is a long-standing and sensitive political issue. Finally, the global guardian should ensure that the transformation to ecological sustainability is just and that it will need to carefully balance the expediency with which to manage the transformation with the time required for peoples to make significant adjustments to their ways of lives worldwide.

5.0 Principles, Characteristics, Tools and Concerns of Global Governance

5.1 Introduction

‘International society’ theorists, also known as the ‘English School’ regard the idea of world government as unnecessary and potentially dangerous, ‘since it may serve as a cloak in the struggle for imperial domination between states’ (Lu, 2021, p. 9). A similar sentiment has been expressed in relation to the centralisation of environmental governance (Oberthür & Gehring, 2004) partly stemming from a fear of loss of national sovereignty (Wijkman, 1982; Esty, 1996) although there are mixed reactions to this and several authors have advanced different versions of global environmental organisations (Whalley & Zissimos, 2000; Runge, 2001a; 2001b; Esty & Ivanova, 2001; Charnovitz, 2002; Esty, 2008; 2009; Biermann & Bauer, 2017 [2005]). There is a fear that a global guardian would be either despotic or that, like existing international institutions, it would be exploited by rich nations (Grant & Keohane, 2005; Thérien & Dupontier, 2009; Ehresman & Stevis, 2018). In this chapter, I present principles, characteristics and tools which will need to feature in global ecological governance to avoid the dangers of a global guardian drifting into authoritarianism, illegitimacy and ineffectiveness.

The global guardian will need to adhere to four necessary principles of good governance if it is to enjoy legitimacy and to be effective in addressing the ecological crisis. These are sufficiency, subsidiarity, democratic governance and solidarity (5.2). I expound on the essence of each principle for good global governance in the first part of this chapter.

In the second part, I propose a set of institutional characteristics that embody the principles of good governance (5.3) and which would be essential for the non-arbitrary application of global authority. These include a legal framework, a constitutional mandate, the separation of powers, characteristics of legitimate scientific bodies, the global guardian’s appropriate coercive capability, and the role of membership as one possibility to bring into effect the existence of the global guardian.

In addition to the principles and institutional characteristics of global governance, the concept and characteristics of ecological entitlements are discussed in a separate section (5.4) given their critical application in the distribution of fair access to the global ecological commons and their corollary effects on reducing global material inequality. This is followed by an elaboration of the population problem (5.5), a realistic examination of the Malthusian dilemma on scarce ecological goods, and the implications of differing fertility rates on the distribution of ecological entitlements.

5.2 Principles of good global governance

The global guardian will need to adhere to principles of good global governance if it is to be effective and legitimate in its mandate to protect the global ecological commons. The need to have principles of good global governance is well established (Dahl, 1999; Wendt, 2003; Esty, 2008; 2009; Boonen et al., 2019). I argue that there are four principles of good global governance to which the global guardian must adhere to. These are sufficiency, subsidiarity, democratic governance, and solidarity. These principles have been partly derived from the literature on world federalism which advocates for a democratic federal world order based on the principle of subsidiarity (Steiger, 2003). Democracy, subsidiarity and solidarity are also principles enshrined in the Lisbon Treaty of the European Union (EU, 2007).

The first principle, sufficiency (or appropriateness), relates to the scope of the mandate of the global guardian. The sufficiency principle demands that the global guardian's mandate should be exclusively focused on protecting the global ecological commons or, in other words, securing ecological sustainability. Such protection will be complemented by the global guardian's mission to secure global distributive ecological justice, promote international peace and security as an ecological concern, and to ensure a just ecological transformation.

Subsidiarity, the second principle, demands that, within its scope to exclusively focus on ecological sustainability, the global guardian should operate as part of a global multi-layered governance structure where decision-making authority is shared from global to local and, unless there is reasonable justification for

centralisation, authority should be directed towards the most local level possible (Føllesdal, 1998; Finniss, 2016; Tasioulas & Verdirame, 2022). Importantly, in multi-layered governance, the state retains a vital, but not exclusive, function to secure ecological sustainability. The role of the global guardian is therefore complementary to, and not a substitute of, the work of the state, sub-state actors, inter-governmental organisations, and civil society organisations, in addressing the ecological crisis.

Third, the principle of democratic governance or, more specifically, global democratic governance demands that all states worldwide can equally and meaningfully engage in all the institutions and processes of the global guardian. Such democratic engagement should extend to bodies that are central to the operations of the global guardian. States should therefore have an equal opportunity to meaningfully partake in scientific development, legal drafting, execution of the global guardian's lawful powers, and conflict resolution, in those areas that fall directly within the scope of the global guardian. Such institutions should therefore, as a minimum, enjoy broad geographical representation of states worldwide. Furthermore, public deliberation and argumentation should be formally protected and promoted, among others, by making space for transnational civil society organisations to influence formal decision-making processes.

Finally, solidarity demands that, notwithstanding the best possible legal and institutional framework to protect and fairly distribute access to the ecological commons, states and peoples should act in solidarity with each other. Ecological sustainability is a shared endeavour where the fate of one people is tightly bound to the fate of all peoples. One people's success is reason for celebration for all peoples. This collective element should guide the deliberations of the global guardian. Solidarity demands that, in the collective interest of a sound ecological transformation, the global guardian should ensure and make provisions for humanitarian aid and support to peoples who find themselves in difficulty to keep up with the pace of the ecological transformation.

5.2.1 Sufficiency or appropriateness

Sufficiency, or appropriateness, relates to the scope of the mandate of the global guardian which should be exclusively focused on the protection of the global ecological commons and the pursuit of a globally just social transformation towards ecological sustainability. This includes averting ‘Hothouse Earth’, preventing ecosystem collapse, and avoiding irreversible ecological catastrophes. Importantly, the mandate of the global guardian should not spill into other areas of global moral concern that might also represent worthy ethical goals, unless these relate directly to the pursuit of a just transformation towards ecological sustainability. For illustrative purposes, examples of equally worthy global moral concerns include global poverty, global inequality, and mass population migration. The reason for this narrow focus is that the mandate for global guardianship is upheld by the urgency for global transformative action to avert catastrophe. Whereas this characteristic is arguably relatively unambiguous with respect to ecological sustainability in international relations, it is likely to be contested with respect to other global concerns, thus delaying effective global ecological action. Using the terminology of the English school, the global level is characterised by ‘thin international society’, ‘few common norms’ and ‘cultural diversification ... arranged by a sovereign state system’ (Palmujoki, 2013, p. 187). In other words, as one climbs higher in the global political architecture one is less likely to find common agreement, as strongly argued by Dahl (1999). Agreement on a common set of global rules which would effectively give a global entity legitimate authority to address the ecological crisis is already ambitious, let alone if this mandate is extended to other areas where differences in international norms need to be reconciled. Therefore the mandate of the global guardian should revolve around an apparently universally shared concern – ecological sustainability – demanding an urgent and a far-reaching social transformation at a planetary level.

Sufficiency thus does not support proposals for an Earth Federation with ‘binding authority over *all* global problems that are beyond the capacity of nation-states to address’ (Martin, 2021, p. 214, *italics mine*). It is in discord with proposals for an Earth Federation that is capable of solving all human ills and one that directly secures the attainment of universal healthcare, education, social security and food

security for all worldwide (Martin, 2021). While desirable, such demands on a global entity are excessive and inappropriate.

Importantly, the sufficiency principle holds back the global guardian from entertaining ideas related to the global distribution of entitlements to natural resources that are essential for human development, as argued by authors such as Margaret Moore (2012). Moore (2012, p. 100) argues that ‘people’s lives are more important than their capacity to be fully collectively self-determining’ using this as a premise for justifying external intervention on a community to seize ‘mineral[s]’ that are vital to others. She uses the cure for a vector-borne disease as an illustrative example. On one hand, Moore (2012, p. 95) rejects ‘the luck egalitarian account of global justice as this applies to resources’ on the grounds that ‘it is implausible to suppose that everyone has equal entitlement to control over natural resources’. On the other hand, she asks whether it is ‘so important for the Lakota Sioux or the Bougainvilleans to maintain their traditional way of life that they should be permitted to do so even if this meant that the basic needs of everyone could not be met?’ (Moore, 2012, p. 100). Contrary to Moore’s assertions, the sufficiency principle asserts that it would be inappropriate for the global guardian to interfere in the way of life of the Lakota Sioux or the Bougainvilleans, or of any other people for that matter, to seize natural resources or ‘mineral[s]’ to save people’s lives. This would constitute a precedent for inappropriate interference in domestic affairs on issues that have no bearing on the stability of the global ecological system. To be sure, the absence of a global overriding mechanism does not exclude the possibility that a people might, in any case, voluntarily and willingly reach out to help in an act of solidarity. It is the use of force and coercion by a global authority on the domestic use of natural resources that is withheld by the sufficiency principle, unless there is reasonable justification that the use of such a resource constitutes a meaningful threat to ecological sustainability.

Similarly, the sufficiency principle diametrically opposes the worldwide imposition of a global resource tax – ‘a flat tax on the use of natural resources to fund the eradication of world poverty’ – as proposed by Thomas Pogge (Casal, 2011, p. 307). This would constitute an unjustified breach of a people’s right to self-determination and its territorial integrity because the extraction of natural resources *per se* does

not necessarily threaten ecological sustainability. Moore (2012, p. 95) supports Pogge's arguments in favour of a global resource tax which she defines as 'benefits flowing from resources to people regardless of their membership in the right-holding group'. The proposal is not only ethically objectionable, a case of theft, but represents a moral hazard: the global resource tax (on the extraction of natural resources) would provide a perverse incentive to the global guardian to promote resource extraction (likely accompanied by further surface degradation and pollution), as this would secure a flow of funds to the global guardian in the form of a tax. Sufficiency withholds the global guardian from coercively imposing a global tax, either on natural resource extraction or otherwise, for eventual international redistribution, as this is unrelated to its mandate to protect the global ecological commons and might paradoxically (in the case of a global resource tax) catalyse degradation and pollution. A global tax is only legitimate as long as it is related to the administrative functions of the global guardian and to funds that are administered by it in direct relation to its ecological mandate. The Tobin tax, which is an international flat tax on currency transactions to provide funds for economic and social purposes globally (Patomäki, 2001), is one manner by which to raise funds by introducing a tax on currency exchanges in financial markets. The advantages of this system over, say, a percentage of domestic GDP which is more internationally accepted and would also reflect the 'ability-to-pay' principle, are however unclear.

Therefore, although global poverty and inequality are ethical concerns, the coercive redistribution of wealth falls outside the scope of the global guardian. This is notwithstanding that the world is characterised by unprecedented levels of global inequality where, as Benatar et al. (2018, p. 158) observe, 'eight men' hold 'more wealth than half of the world's population'. Some authors have instead advocated for global redistribution in specific circumstances. For example, Moore (2012, p. 99) argues in favour of 'substantial redistribution from the wealthy to the poorer parts of the world ... sufficient to meet subsistence rights'. Rawls (1999) likewise argues that peoples have a duty to assist 'burdened societies' in order that they can participate fully in global politics. On the other hand, Beitz (2005, p. 22) claims that 'the sources of poverty are largely to be found at the domestic level, so that any enduring improvement must come about through local changes'. Large inter-

country transfer payments taking such forms as ‘foreign-development assistance or as no-strings-attached grants to poor country governments’ is a ‘mistake’ (Beitz, 2005, p. 23). However, Beitz (2005, p. 24) also argues in favour of ‘a theory of global distributive justice’ that concerns itself primarily ‘with the basic structure of international society – that is, the economic, political and legal institutions and practices that influence the global distribution of advantages’.

This represents the tension between the global and the domestic, and the competition between the global and the domestic for spheres of influence according to what is appropriate. Like Beitz, I argue that the global guardian’s mandate should primarily address structural forms of inequality in relation to fair access to the global ecological commons which, as described in section 4.3, would also have a direct bearing on the reduction of material inequality worldwide. Ecological entitlements for the distribution of access to the global ecological commons is arguably more legitimate and more ethical, promotes innovation to do more with less, might be a sufficient condition to reduce global inequality in material standards of living to reasonable levels, and importantly addresses the central issue of this thesis – ecological sustainability. The global guardian does not have the mandate nor the legitimacy to introduce a global tax or to redistribute income internationally to address global inequality. World poverty and global inequality do not constitute sufficient grounds for the coercive redistribution of wealth and income at a global level.

In securing negative freedom – primarily by securing a state’s fair access to the global ecological commons but also in promoting the protection of a people from the potential dominating influence of other states – the global guardian would set the stage for human agency and development. Human agency is a necessary element for creativity, innovation, and experimental learning, all of which are important in the transformation towards doing more with less. However, to be sure, although negative freedom is an essential precondition for human agency, human agency and development require a combination of both negative and positive, ‘instrumental’ or ‘substantive freedoms’ (Sen, 1999). Sen (1999) makes reference to five categories of crucial instrumental or positive freedoms: economic opportunities or economic facilities, political freedoms (including civil rights), social facilities (mainly

education and healthcare), transparency guarantees (including uncensored speech) and protective security (a social safety net for those who suffer great deprivation, unemployment benefits). In line with the sufficiency principle, the global guardian's appropriate role at a global level would primarily be to secure negative freedom as a precondition for human agency. The provision of positive and instrumental freedoms would remain largely a domestic competence. The global guardian can nudge states into promoting positive freedoms domestically, for example by including certain positive freedoms as conditions for membership, among others, or by associating financial incentives with the promotion of selected positive freedoms. The provision of instrumental or positive freedoms remains however principally a domestic prerogative, beyond the mandate of the global guardian.

The global guardian can and should nonetheless be a strong advocate of human and civil rights. Amitai Etzioni (2004) observes that since its inception the United Nations has served as a 'critical moral authority'. It is appropriate for the global guardian to similarly serve as a moral authority that promotes negative and positive freedoms because the enjoyment of these freedoms complements the global guardian's mission to secure ecological sustainability. This authority to influence goes beyond and should thus be kept distinctly separate from the global guardian's coercive authority to secure fair access to the global ecological commons among states. Importantly, the proposed global guardian's normative role to promote a broader set of freedoms should not be construed as weakening the claim that the global guardian should command coercive authority to secure negative ecological freedoms, but is complementary to it.

The sufficiency principle would allow the global guardian to advocate for the regulation of powerful private bodies only in so far as these threaten ecological sustainability. Pettit (2010, p. 73) argues that a legitimate international order is one in which 'effective, representative states avoid domination whether by another state or by a non-state body'. By 'non-domestic private bodies', Pettit includes corporations and powerful individuals. This brings into question the viability of the concentration of tremendous individual wealth in a world characterised by increasing resource scarcity. To be sure, the distribution of ecological entitlements

is likely to restrict the reach of money on carbon and ecologically intensive activities. Although the extent of domestic inequality remains a domestic prerogative, the scarcity of resources (or pollutable reservoirs) – capped by ecological entitlements – will make domestic income inequality an important social issue demanding closer political attention within the domestic sphere. Some authors have called for the establishment of maximum levels of income as a requirement for the social stability of a steady state economy (Daly, 1991). The global guardian might advocate for maximum limits on personal income, in the eventuality that there are reasonable and justified serious concerns for international peace and security. However, the distribution of wealth within a country remains a domestic issue. The global guardian's action in securing global distributive ecological justice might be sufficient to maintain international stability in a global steady state economy.

Finally, sufficiency would restrain the global guardian from involving itself in the international harmonisation of corporate tax agreements and efforts to prevent international corporate monopolies. The global guardian has a stake in the regulation of corporate power only in so far as this threatens ecological sustainability. Where the global guardian deems this to be the case, it should engage with international bodies that can initiate procedures for binding agreements that would reasonably limit and keep in check transnational corporate power. International economic concerns, such as issues related to capital flight and tax evasion, that do not reasonably jeopardise the ecological project should continue to be addressed by multilateral agreements.

5.2.2 Subsidiarity – multi-layered governance

The principle of subsidiarity 'regulates authority within a political order, directing that powers or tasks should rest with the lower-level sub-units of that order unless allocating them to a higher-level central unit would ensure higher comparative efficiency or effectiveness in achieving them' (Føllesdal, 1998, p. 190).

In other words, the subsidiarity principle favours decision-making at more local levels of authority unless there is justification for decision-making to be delegated

to higher political authority. As will be discussed, observance of the principle of subsidiarity ensures that the global guardian exclusively manages issues that can only be appropriately managed at a global level. In this regard, a global guardian would be similar to a GEO as proposed by Esty (2009) – a global organisation that exclusively focuses on environmental issues that are global in character. This will be essential for the global guardian's effectiveness and legitimacy to protect the global ecological commons.

Ecological governance remains a shared multi-layered responsibility. A multitier approach to environmental governance is already well established in literatures concerning WEOs and GEOs (Esty, 1996; 2008; 2009; Biermann and Bauer, 2017 [2005]; Bosselmann, 2017; Sørensen, 2017). The state retains a vital role in ecological governance and, in line with principle of subsidiarity, the state's role is complemented by sub-state and local actors, flanked by the work of civil society organisations (as defined in section 5.2.3). Importantly, the global guardian will provide the institutional framework within which states can take responsibility to address the ecological crisis within their jurisdictional authority. The ecological crisis is a complex challenge and will need to be addressed by a multi-layered, polycentric, global governance structure. Such an approach will support the global guardian's legitimacy and stability. Historically, subsidiarity has also been framed as an ethical principle of justice and order. In his encyclical *Quadragesimo Anno*, Pope Pius XI (1931, Articles 79-80) upholds the principle of subsidiarity or 'subsidiary function', and states that

'it is an injustice and at the same time a grave evil and disturbance of right order to assign to a greater and higher association what lesser and subordinate organizations can do'.

The principle of subsidiarity ensures that the global governance structure is sufficiently complex to address an equally complex ecological reality. Drawing on Elinor Ostrom's work, Pennington (2012, pp. 31-32) argues that 'central regulatory authorities often lack knowledge about the specific character of the assets to be managed and the nature of the incentives facing resource users'. With this observation, the global guardian, being at the top of the hierarchy of global ecological governance, should only ensure that the global ecological commons are

protected and that every state is respecting its ecological entitlements, without going into the merits of *how* resources are managed by the state. Moreover, Pennington (2012, p. 36) argues that central government action has at times undermined local property rights and led to deforestation and pollution. Importantly the author argues that ‘federal or polycentric political structures provide a laboratory for experiments in institutional design which can be spread by a process of trial-and-error learning across jurisdictions’. On these lines, the global guardian should limit itself to ensure that global human activity is on a ‘safe’ ecological trajectory and, critically, create vital spaces for social and ecological innovation within a global multi-layered and ‘polycentric’ political structure. These innovative spaces for local experimentation are necessary to address the complexity that is inherent in the ecological crisis. Bottom-up innovation is not only appropriate to the local context where it is developed, it can also be scaled up and transferred ‘cross-border’ if it is found to be particularly effective. The idea to have complementary top-down and bottom-up approaches is also found in literature on commons theory and the provision of global public goods (Boonen et al., 2019).

The global guardian should mainly adopt a negative conception of freedom by protecting every state’s rightful access to its share of the global ecological space. This includes cross-cutting decisions to restrain freedom on selected ecologically degrading human practices. Notwithstanding, the global guardian’s role is more circumscriptive than prescriptive, leaving state and sub-state actors with decision-making authority to navigate within their designated ecological space. Thomas Pogge (2002) rightly argues that there are structural characteristics at a global level that violate the negative rights of the world poor to be free from harm. I argue that one of these negative rights is a right of access to one’s fair share of the global ecological commons. The global guardian should protect this share without going into the merits of the manner in which this share is used. It is up to the people to decide domestically on the types of human activity that they would like to pursue within their allocated share of access to the global ecological commons. Worded differently, in her critique of the state, Elinor Ostrom argues that the authority should not state what people should do but rather determine how much resources people can use (Pennington, 2012). Similarly, the global guardian will determine how much ‘pollution’ (as defined in section 4.3.2) people can produce, irrespective

of the activities that produce such ‘pollution’. ‘Pollution’ will take the form of greenhouse gas emissions, use of land, exploitation of biomes, and production of toxic waste, among others.

Studies show that action at the local level is important and should thus be protected in global ecological governance. ‘Nested’ (the term used by Elinor Ostrom) within a larger governance structure, local communities are best placed at taking cognisance of their circumstances, culture and institutional characteristics, and at developing tailor-made solutions to address complex ecological challenges that are locally unique (Dietz et al., 2003). Studies show that efforts at conservation and forestry management that ‘explicitly integrated local people as stakeholders’ were more effective (Büscher et al., 2017b, p. 408). Rathwell et al. (2015) likewise argue for bridging local and Indigenous perspectives with Western-style knowledge for more effective ecological governance. Pennington (2012, p. 39), drawing on Ostrom’s work, argues that in the absence of central regulation, local communities can set their own institutions and develop their own set of rules. Decentralisation facilitates experimentation and allows for ‘evolutionary learning’ with a ‘trial-and-error’ approach that minimises the impact of inevitable mistakes. Importantly, the principle of subsidiarity within multi-layered global ecological governance should allow for ‘polycentricity’ where, as defined by Vincent Ostrom et al. (1961, p. 831), ‘polycentric connotes many centers of decision making that are formally independent of each other’. Therefore, within global ecological governance, local communities remain critical sites for ecological action. Within the confines afforded by nature, and assisted or complemented by external or higher (political) level expertise, local communities and authorities have an important role to play in ecological governance.

Subsidiarity is a recognition that people simultaneously belong to different groups, at the different levels of scale, both at the local and the global level. Simon Caney (2008, p. 514) reminds us that,

‘cosmopolitan thinkers from Stoics such as Seneca, Cicero and Epictetus to contemporary cosmopolitan thinkers like Beitz and Pogge have often held that people occupy two roles. They can be citizens of a state/*polis* and citizens of the world’.

As a community, people have a claim and a responsibility towards the land they inhabit but also have a claim and a shared responsibility towards the planet. Addressing the global ecological crisis and the forces leading to it, calls for a cosmopolitan mindset by peoples with diverse world views, cultures and characteristics. Subsidiarity ensures that, while addressing the global, the global guardian does not devour the local, but rather strengthens identification with and action at the level of the local within a cosmopolitan¹⁶ reality.

There are already examples of supranational and regional coercive governance structures where the principle of subsidiarity is enshrined in law. One example is the European Union which is cited as a model where transparency and subsidiarity counter supranational democratic deficit (Esty, 2008). As enshrined in the Lisbon Treaty of the European Union (2007, Article 3b),

‘under the principle of subsidiarity, in areas which do not fall within its exclusive competence, the Union shall act only if and insofar as the objectives of the proposed action cannot be sufficiently achieved by the member states, either at central level or at regional and local level, but can rather, by reason of the scale or effects of the proposed action, be better achieved at Union level’.

The principle of subsidiarity is particularly important within coercive hierarchical governance structures. Slaughter (2004a; 2004b) emphasises the importance of having transgovernmental global networks that are responsive to the principle of subsidiarity. Lu (2021, p. 11) summarises Slaughter’s position as an advocate of ‘global governance ... without coercion’, ‘a world of governments’ but against ‘a world government in which a set of global institutions perched above nation-states enforced global rules’. If, according to Slaughter, the principle of subsidiarity should apply to non-coercive structures, the case is even stronger for the application of subsidiarity within global coercive hierarchical structures such as those embodied by the global guardian.

¹⁶ The word ‘cosmopolitan’ is used to refer to the idea that all human beings are members of a single global political community, without prejudice to memberships in other bodies or at other levels (e.g. to the political state). (Adapted from Kleingeld & Brown, 2019)

Under the principle of subsidiarity, domestic affairs remain largely the responsibility of the state. The existence of a global guardian will not substitute or abolish the state in favour of a universal republic of individuals as advocated by eighteenth century radical cosmopolitans of the like of Anacharsis Cloots (Kleingeld, 2006). In her historical review on ‘world government’, Lu (2021, p. 1) aptly observes that ‘modern proponents of world government generally have not advocated a wholesale dismantling of the sovereign states system’. If there is disagreement, it is largely about the extent to which state powers should be modified within a global order. For example, Pettit (2010) builds his arguments for a republican international order on the premise that states are likely to endure. He asks: ‘Assuming that states will remain a permanent feature of our world, what is the ideal that we should hold out for the international order?’ (Pettit, 2010, p. 70). Liberal international scholars, like Falk,

‘envision the need for authoritative international and global institutions that modify significantly the powers and prerogatives traditionally attributed to the sovereign state’ (Lu, 2021, p. 10).

Rawls (1999) holds that peoples or states¹⁷ are the basic agents in the global normative order. Cosmopolitans recognise the ‘instrumental importance of political institutions, including the state’ (Caney, 2008, p. 510). David Held (1995, p. 137) likewise asserts that national sovereignty has a place in the contemporary world arguing however that ‘interconnected authority structures ... displace notions of sovereignty as an illimitable, indivisible and exclusive form of public power’. Similarly, Young (2002, p. 238) speaks of ‘a post-sovereign alternative to the existing states system’ entailing a ‘decentred diverse democratic federalism’ (2000, p. 253). On these lines, a global framework of ecological governance should not annihilate the powers of the state, but rather empower it to take ecological responsibility for actions within its jurisdictional authority. This will naturally modify the essence of the state from a political unit with presumably unlimited

¹⁷ In the *Law of Peoples*, Rawls (1999) distinguishes the term ‘people’ from the term ‘state’ to distance himself from the traditional idea of ‘state’ as a sovereign and autonomous power in its external (foreign) and internal (domestic) affairs, giving it ‘rights to war and unrestricted internal autonomy’ (p. 27). I use the term ‘state’ in terms of ‘statehood’ as understood in customary international law and thus as the formal international recognition of a ‘people’ in the Rawlsian sense.

sovereign power to one whose powers (in the domain of ecological sustainability) are circumscribed by a global ecological legal and institutional framework. These views are also shared by several authors who while recognising the centrality of the state in global politics, feel that the state needs to adapt in an era of globalisation and global ecological challenges (Habermas, 2001; Gilpin, 2002; Pinto et al., 2008; Bell and Hindmoor, 2009; Weiss & Wilkinson, 2014; Bosselmann, 2017). With the presence of the global guardian, the state will nonetheless continue to hold tremendous political significance and yield significant political power.

The idea of multi-layered global ecological governance therefore challenges the notion of absolute state sovereignty and modifies the traditional powers of the state on issues that directly affect the global ecological commons. If state sovereignty implies 1) ‘rights to exercise jurisdiction ... over those within the territory’, 2) ‘rights to reasonably full control over land and resources within the territory ... [and] to tax and regulate uses of that which is privately owned...’, and 3) ‘rights to control or prohibit movement across the borders of the territory’ (Simmons, 2001, p. 306), then the state will retain most of its traditional powers. First, in multi-layered global governance, the state will retain rights to jurisdictional authority and will ‘effectively enforce its rules within its territory’ (Blake, 2012, p. 125). The state will however lose its ‘monopoly of legitimate physical violence’ within its territory as its defining feature (Weber, 1994 [1919], pp. 310-311). Instead, the legitimate application of coercion will be extended to the global and will span from global to local, according to what is appropriate, sufficient, and subsidiary. Appropriateness holds that with global guardianship, coercion can only be legitimately applied at a global level to secure ecological sustainability. This echoes Bosselmann’s (2017) proposal for environmental trusteeship where global environmental protection sets limits to state sovereignty. Second, the state will retain an overall right to manage resources within its territory, although such a right should be devolved to sub-state and local levels in line with the principle of subsidiarity. On resources that are related to the viability of the global ecological commons, the state’s management will be conditioned by the global guardian’s legitimate authority to protect the global ecological commons. Third, the state will retain general control over the entry and exit of goods and people, although I would argue that people should have an internationally recognised core human right to exit a state’s territory without

undue interference from the state. The role of the global guardian vis-à-vis agreement on and the protection of core human rights is discussed in section 4.3.3.

The idea of multi-layered global governance has been discussed by prominent political philosophers for over two hundred years. It is effectively the ‘vertical dispersion’ of ‘ultimate political authority’ from global to local (Pogge, 2009, p. 206), where, as I propose, the global guardian would be one of the players embedded in this multi-layered political architecture. In *Perpetual Peace* and *The Metaphysics of Morals*, Kant opposed the idea of a ‘universal monarchy’ or a ‘universal republic’, arguing instead for a global federation of states (Kleingeld, 2006). He envisaged the development of a ‘universal monarchy’ lapsing into an illegitimate, ineffective and powerless authority which is then followed by anarchy, chaos and disorder. In his words,

‘the wider the sphere of their jurisdiction, the more laws lose in force; and soulless despotism, when it has choked the seeds of good, at last sinks into anarchy’ (Kant, 1917 [1795], p. 156)

Kant’s view on the potential remoteness of international law explicitly evokes the principle of subsidiarity in global multi-layered governance. Similarly, Satz (1999, p. 77) argues that ‘the contrast between a system of sovereign states and a centralized world-state is too crude’ and poses a false dilemma. According to Kok-Chor Tan (1998, p. 100), liberals have argued consistently for restrictions on the traditional powers of sovereignty, as well as for the vertical dispersion of sovereignty, ‘upwards towards supranational bodies, and also downwards toward particular communities within states’. de Bres (2012, p. 316) also presents a multi-layered global political framework where principles of distributive justice can be applied. She terms these layers ‘sites’. In line with the idea of multi-layered governance, Deudney (2019) also envisions the development of a non-totalitarian republican federalist world order. Multi-layered global governance is strongly supported by many contemporary authors.

The principle of subsidiarity also calls for freedom among peoples on their preferred choice of economic systems and on their level of urbanisation. Contrary to what is advocated by left-leaning movements such as degrowth, eco-socialism,

green anarchy and deep ecology, choice of economic systems should remain a domestic prerogative. Whether economies are in growth or in decline is politically irrelevant as long as states respect the ecological space they have been assigned by the global guardian. Likewise, whether economic systems are centrally planned, market-based, socialist or capitalist, is domestically informed as long as states respect their ecological entitlements. Economic freedom is important not least because growth in poorer countries might be required and should be defended for decent material standards of living (Jackson, 2009b; Raworth, 2017). Similarly, the extent of urbanisation, also reflected in the choice of whether people would want to live in cities, in villages or in rural areas, remains a domestic prerogative. The assumption that cities are particularly energy and resource intensive (Trainer, 2019b) is disputable (Moran et al., 2018) and, importantly, it would be inappropriate for the global guardian to interfere in domestic affairs of this kind. It is envisaged that, once limits are placed on the throughput of resources and pollution, nations will organise themselves innovatively, positioning themselves to maximise the benefit they can possibly derive from a limited amount of natural goods. Social innovation will be as, if not more, important as technological breakthroughs in the organisation of ecologically sustainable transport, supply chains, and the organisation of settlements into smaller or larger units.

It is important to distinguish between self-determination and self-sufficiency. A degree of self-sufficiency might arguably increase community resilience. Trainer (2019a, p. 89) envisions an anarchist society made up of

‘mostly small, highly self-sufficient local economies, largely independent of the (remnant) global economy, devoting local resources to meeting local needs, with little regional, let alone intranational or international, trade’.

Likewise, degrowth proponents also advocate for ‘re-localization and self-reliance’ (Asara et al., 2015, p. 381). Multi-layered global ecological governance does not presuppose the severance of market ties and long-distance trade. To the contrary, subsidiarity supports state self-determination on whether a people choose to be self-sufficient or whether they decide to maintain international trade and interdependence with other partners, and the extent thereof. A global economics of

resource scarcity (together with the allocation of ecological entitlements) will naturally put pressure on long-distance trade, if this remains carbon intensive, and people will generally favour shorter-distance trade. Alternatively, a people might retain long-distance trade in selected items that are particularly valuable or cannot be ‘home-grown’. In any case, with the institution of a carbon cap, the number of consumer products with high carbon will likely decrease and there will be a careful selection among carbon intensive consumer products according to the values and preferences of peoples. In any case, self-sufficiency is not a necessary condition for ecological sustainability. The proposal for multi-layered global ecological governance does not presuppose *a priori* that states will tend towards more self-sufficiency. Rather, each state will be free to determine the degree to which it nurtures self-sufficiency or cultivates interdependence.

5.2.3 Democratic governance

Democracy generally refers to ‘a political practice in which individuals govern themselves through some form of equitable decision-making process’ (Kuyper, 2016, section 1.1, p. 3). Etymologically, *demos* means ‘people’ and *kratos* means ‘rule’. The key question on global democratic governance is about who constitutes ‘the people’ and who will establish the ‘rules’. Kuyper (2016) expounds on the generally held notion of ‘global democratic deficit’ – the gap between the rule-takers and transnational rule-makers in a globalised world.

It is evident from the outset that global democratic governance is likely to differ from the practices of domestic democracy given the size of the global polis and the plurality of states, as expressed by several authors (Dahl, 1999; Charnovitz, 2002; Zürn, 2004; Grant & Keohane, 2005; Esty, 2008; Hüller, 2012). There are significant inter-country variations in principles, practices and procedures of so-called democratic states. Importantly, non-democratic states comprise around 50 per cent of states worldwide (Kuyper, 2016). In view of the need for urgent and collective global action, realistic utopian democratic governance (which arguably resides in the domain of what is possible) differs from the ideal Kantian notion of global democracy as a federation of ‘republican’ or representative democratic states.

The global guardian's legitimacy and effectiveness, however, will arguably rest on its democratic mandate. In her critique of international governing institutions, American political scientist Helen Milner (1991, p. 74) argues that 'it is not just laws or governing institutions that international politics may lack, but most importantly a sense of legitimacy'. In John Dewey's tradition, democratic participation is needed to generate compliance to international rules (Bray, 2013). Valentini (2012) claims that there can be no justice without democracy. John Dryzek (2000, p. vi) likewise argues that democracy, and specifically 'discursive democracy', likely yields the correct decision. Without democratic participation it is unlikely that the global guardian will provide for an effective framework with the necessary spaces for sufficiently granular and locally unique solutions to the ecological crisis. Some form of global democratic governance, where states deliberate and politically engage on a platform which is universally accepted as fair, is thus needed for the global guardian's stability and legitimacy in its mission to secure ecological sustainability. Furthermore, such legitimacy depends on the global guardian's responsiveness to deliberations in the informal sphere, the 'lifeworld' as termed by Habermas (1990; 1996). Moreover, the global guardian has a duty to protect and promote spaces for informal deliberation and argumentation.

The key question is who would constitute 'the people' in global democracy. Who will the global guardian represent and who will be subject to the rules of the global guardian? Cosmopolitans, including Pogge (1992) and Beitz (2005), claim that individuals or human beings are the ultimate unit of concern and that this status should apply to all humans equally. Caney (2006, p. 728) also argues that once people are submitted to coercion, they have a 'democratic right to contribute to the decision-making process'. This cosmopolitan assertion does not however exclude the involvement of 'national communities' or states in global democratic politics (Kuyper, 2016). Three examples where states have direct involvement in federal or supranational governance are the European Union (EU), the United States of America, and the United Nations.

Indeed, the European Union (2023) is one classic international example where states are directly involved in its governance, democracy also being a founding

pillar of the EU. The Council of the EU, sometimes referred to as the ‘Council of Ministers’ or just ‘the Council’, gives governments of the 27 EU member states collective authority to reject or approve laws proposed by the European Commission. The Council is the main decision and law-making body together with the European Parliament, the latter being composed of representatives directly elected by EU citizens. Council decisions require a ‘qualified majority’ to be approved. ‘Qualified majority’ requires not only a majority (55%) of member states but also member states representing at least 65% of the EU citizenry (European Union, 2023). In this case, the cosmopolitan principle that individuals are the ultimate unit of moral concern is partly reflected in a correspondingly larger law-making authority by member states representing larger populations.

The second example is the legislative branch of the US Federal government which, although different, is also two-tiered: law-making requires approval both by the House of Representatives and the Senate. This ensures that laws not only have the support of the majority of the US electorate but also of the majority of US states¹⁸ (Schiller et al., 2013). The third example where states have a central governance role is the United Nations. The UN is composed of 193 official members who have equal power (one voting right per state) and representation in the United Nations General Assembly (UN, 2023b). There are therefore several examples of democratic governance where governments have a central standing in decision-making. This form of governance follows a delegation (vs participatory) model of democracy where those delegating power (states) hold power-wielders accountable (Grant & Keohane, 2005).

The design of institutions embodying the principle of global democratic governance should consider the reality of the existence of both democratic and non-democratic states on the world stage. Globally, it is difficult to conceive of a world parliament directly elected by the people. This is primarily because only half of the world is made of democratic states. The Earth Constitution’s proposal of a global democratic

¹⁸ Members to the House of Representatives and the Senate are today directly elected by US citizens. This was different before the passing of the 17th amendment in the US Constitution in 1913 when senators – two from each of the 50 states – were indirectly elected; chosen by a majority vote among the state’s legislature (Schiller et al., 2013).

process with weighted representation of all people worldwide is therefore problematic (Martin, 2021).

The direct representation of governments in institutions of the global guardian is vital. State representation would guarantee participation by democratic and non-democratic countries alike. This is important in view of the need for urgent global action to address the ecological crisis, where universal representation is fundamental. Evidently, if global democratic governance has to embrace representation of both democratic and non-democratic states, the principles of global democratic governance differ substantively from those of domestic democracy. Indeed, Kant and Rawls had also observed that there are substantive differences between the global and the domestic basic structure. Fundamentally, the global basic structure is characterised by a plurality of political systems, values and cultures. It would be naïve to assume that the world will approach a universal state of democratic states any time soon, which can then transform into a ‘federal union of democratic states ... the genesis of a free world government’ as was advocated by the Atlantic Union Committee in 1949 (Lu, 2021, section 1, p. 16). This view is shared by Hoffman (2003, p. 35) who observes that although global governance would benefit from further domestic democratization ‘states whose regimes erect political walls ... will not welcome the democratization that I propose’. Notwithstanding, it would be incorrect to assume that non-democratic states are necessarily illegitimate. History shows that governments of non-democratic countries might still enjoy legitimacy. The global guardian will therefore need to work effectively and legitimately with the effective representation of democratic and non-democratic states alike.

Within this understanding of global democratic governance, peoples (not persons) would be the unit of moral concern. This is not different from current international law which is a state-based legal system applicable to countries and not to individuals. The state has a stake in decision-making authority – voting authority – and is the unit which will be subject to the global guardian’s rules, laws and regulations, even though ultimately it is the people, their families and persons worldwide who will be affected by the decisions of the global guardian. The people will only be indirectly represented in the global guardian through their

governments, as is currently the case in the United Nations, for example. For this reason, given that a world parliament of directly elected representatives from democratic and non-democratic countries is unfeasible and undesirable, it is even more important that the scope of the global guardian is constitutionally limited, focused, sufficient and subsidiary. As argued by Dahl (1999), notwithstanding the global democratic deficit that is inherent in international organisations, these organisations still have value and need to be scrutinised against an agreed set of objective criteria and standards.

The global guardian, as a democratic global institution, will therefore not provide for recognition and procedure as is commonly expected of ‘democratic institutions in liberal societies’ (Beitz, 2005, p. 26). It will ‘recognise the equal public status of citizens’ and might provide selected ‘procedural opportunities for individuals to protect their important interests’ (Beitz, 2005, p. 26). It will also need to establish a political environment conducive to informed and effective deliberation by citizens about the political choices they face. More fundamentally, however, the global guardian will recognise the equal status of all states and of all peoples. This is something which should not be overlooked. Many international organisations are criticised for being mostly representative of rich and powerful countries, and for failing to be sufficiently geographically representative (Grant & Keohane, 2005; Ehresman & Stevis, 2018). Such organisations include the UN Security Council, the World Bank and the IMF. The global guardian’s representation will follow Rawls’ (1999, p. 70) line of thinking that ‘equal peoples, or their representatives, are equal parties at the level of the Law of the Peoples’. The global guardian will provide procedural opportunities for states to protect their interests, including the freedom for states to apply or to withdraw their membership in the global guardian, and the freedom to legally challenge the authority of the global guardian. The global guardian will establish a political environment conducive to informed and effective deliberation among peoples, being transparent in all matters with states and citizens worldwide, and providing deliberative spaces for non-state actors and, in particular, global civil society organisations, to make their case in formal decision-making fora.

Democratic global governance therefore does not replace, but complements, participatory democracy at a state or sub-state level. Although participatory deliberation ‘regarding the design, development and running of their local productive and social systems’ is desirable (Trainer, 2019a, p. 96), this remains principally a domestic prerogative and would be outside the democratic scope of the global guardian. Sen (1999, p. 16) praises the workings of democracy because governments are more sensitive to the needs of the public and can thus take timely action to respond. In an earlier book, Sen (1982) shows how famines never occurred in functioning democracies. No matter how praiseworthy domestic democratic practices may be, they remain *domestic* responsibilities. The global guardian will only be concerned with global democratic governance; ensuring that all peoples – including, but not restricted to, liberal democratic societies and ‘decent hierarchical societies’ (Rawls, 1999, p. 70) – have an equal opportunity to meaningfully partake in the decision-making institutions of the global guardian. Whereas the unit of moral concern in domestic democracy is the individual, the unit of moral concern for global democratic governance is principally, and structurally speaking, the state.

Democratic global governance diametrically dissonates with the endowment of veto power to selected countries or to heavily asymmetric decision-making power between countries. The perceived lack of legitimacy in some global institutions is undoubtedly related to the permanent representation and veto power of selected states in the UN’s most powerful institution – the UN Security Council. These countries are endowed with veto power on historical, obsolete, post-World War II pretexts. The same can be said of the IMF where, on its own principle, a country’s vote should be directly proportionate to the size of its economy, but where affluent countries engineer the voting quota system, buy decision-making power and dictate the conditions of IMF lending and policy. As a result, developing countries complain of a ‘democratic deficit’ in the IMF and the shares of votes of emerging-market countries have not kept pace with these countries’ rising share in global output and trade (Broz et al., 2020). Democratic governance demands equal participation by member states. The veto power in global authoritative institutions is an undemocratic privilege which undermines the legitimacy of the same institutions.

For the global guardian, democracy demands that every state is equally represented. International relations scholar Andrew Hurrell (2007, p. 146) argues that ‘the claim of different regions to be represented more fully and more equally is likely to play a central role in the coming struggle for global political legitimacy’. Mechanisms, such as the ones related to ‘qualified majority’ in EU institutions, might be incorporated in the decision-making authority of the global guardian to add weight to the vote of countries with larger populations. In democratic governance, these ‘privileges’ can only apply under a set of rules that apply equally to all states and that are designed democratically and fairly, with the full participation of peoples worldwide.

All deliberations and decisions in the global guardian should be transparent with member states, non-member states, civil society organisations, inter-governmental organisations (such as the United Nations and its agencies), and citizens. If citizens cannot be directly represented in a ‘world parliament’, they can only hold their governments accountable by being kept fully informed of discussions and decisions taken by their governments and the governments of other states.

International civil society organisations, although non-voting partners, enhance the democratic credentials of the global guardian’s deliberations and should have the space to participate meaningfully in discussions. Civil society organisations¹⁹ have a dual role. They keep the global public tuned to important developments in the global ecological agenda and voice public opinion in consultations held by governmental bodies. One example where the involvement of civil society organisations is legally recognised is in Article 11 of the Treaty of the European Union (2007) which states that the European Union should hold open, transparent and regular consultations with civil society organisations ‘to compensate for the shortcomings of representative democracy’ and to reduce the democratic deficit (Persson & Edholm, 2018, p. 559). Global civil society organisations should not however take control of global ecological governance and subordinate the formal decision-making structure to their will, on the basis that states are insufficiently

¹⁹ A ‘civil society organisation’ is hereby defined in terms of EU law, that is, as an ‘organisational structure whose members serve the general interest through a democratic process and which plays the role of mediator between public authorities and citizens’. Civil society refers to all forms of social action carried out by individuals or groups who are neither connected to nor managed by state authorities. (European Union, 2022)

transnational, as advocated by radical Habermasians (Scheuerman, 2006). The proposal for global guardianship shares commonalities with the ideas of Falk (2000a; 2005), Weiss (2000), Cronin (2002) and Kim (2007) who retain that state-like institutions should remain central in global ecological governance but that governance should encompass the influence of global civil society organisations and non-state actors. Some authors further highlight the uneven representation, biases, agendas, and sometimes undemocratic characteristics of civil society organisations (Falk, 2000a; Thérien & Dumontier, 2009).

Global democratic governance needs to tangibly translate into wellbeing for peoples worldwide because the legitimacy of the global guardian rests on the support of the peoples. The importance of an organisation's success to its legitimacy was also echoed by Esty (2009). Moreover, the universal cultivation of a cosmopolitan mindset is also essential to sustain the global guardian's legitimacy. As aptly observed by Ecker-Ehrhardt (2016, p. 99), 'global public support for UN authority largely depends on a cosmopolitan understanding of global interdependence and moral universalism'. The legitimacy of global guardian is likely to be challenged once people of affluent countries are compelled to reduce their ecological footprint and, correspondingly, reduce their material standard of living. Literacy on the need for global urgent ecological action will serve to alleviate this tension. In liberal democratic states, widespread human ignorance is likely to be exploited by populist political parties to scapegoat global institutions for shortfalls in domestic governance (Richardson, 2018). Korab-Karpowicz (2005) refers to the indispensable work of the United Nations which, since its inception, notwithstanding its limitations, has cultivated a 'universal consciousness of humankind', a necessary condition for the legitimacy of a global political order. Communication and education efforts about the mission and the work of the global guardian, will be important to sustain the democratic mandate of the global guardian. While the global guardian can contribute to the cultivation of a cosmopolitan mindset, education initiatives in this regard are mostly likely to be effective through bottom-up approaches. Since such initiatives are likely to be undertaken by actors who see value in global guardianship, their existence is witness to and further consolidates the legitimacy of the global guardian in its mission to protect the global ecological commons.

Naturally, the institutions and procedures that embody global democracy are set to change over time. Since democracy implies rule according to the will of the peoples, and since the peoples and their will is bound to change over time, the institutions and the procedures that embody democratic principles will need to reflect this change of will.

5.2.4 Solidarity

International relations literature and proponents of world or global environmental organisations are conspicuously silent on the principle of solidarity. Several authors in this field of inquiry have expounded on Habermas' work to advance ideas related to deliberative democracy in the global sphere but have not followed on his call for democratic renewal and political reform rooted in greater solidarity and mutual understanding (Habermas, 1973). In addition to sufficiency, subsidiarity and democratic governance, I propose solidarity as a fourth necessary principle for effective global guardianship of the commons.

The root of the notion of 'solidarity' is derived from a Roman legal concept of 'an obligation *in solidum* – a joint contractual obligation in which each signatory declared himself liable for the debts of all together'. Over the past two hundred years, solidarity has been evoked to describe 'a special relationship of unity and mutual indebtedness' (Sangiovanni & Viehoff, 2023, Introduction, p. 1). Importantly, as a social and a political concept, solidarity is used to describe a sense of shared purpose and common good.

Sangiovanni and Viehoff (2023, Section 1, p. 2) observe that there are two main understandings of solidarity: 'solidarity among' and 'solidarity with'. 'Solidarity among' demands 'rough symmetry in the attitudes and dispositions of its members'. In this case, the 'rough symmetry' would be the common goal to address the ecological crisis effectively and fairly, among member states who enjoy equal and official recognition in the global guardian. On the other hand, 'solidarity with' is equated to humanitarian aid, charity and benevolence. It is unilateral and asymmetric (Kolers, 2016). Unilateral acts of solidarity are arguably meaningful only when undertaken within a notion of solidarity understood as being part of a whole; *solidus* in Latin meaning 'whole' or 'integrated' (Sangiovanni & Viehoff,

2023). Within this understanding, the global guardian would need to embrace both ‘solidarity among’ – unity among the members of the global polis – and ‘solidarity with’ – reaching to each other’s aid when needed.

Solidarity is important to the workings of the global guardian on ecological sustainability for two main reasons. Effective solutions to the ecological crisis demand global action and the collective contribution of all states and peoples together. Hopefully, as argued by Kosoy et al. (2012, p. 76), the awareness that the ecological crisis has implications to all peoples worldwide ‘will make urgently needed collaborative efforts possible’. In addition, the ecological trajectory is uncertain and unpredictable. Extreme weather events, such as floods and forest fires, might impact different parts of the world unevenly and unpredictably. A people that is doing well might suddenly find itself in difficulty and need the assistance of other peoples. Solidarity provides a structural guarantee that states will reach out to each other’s aid when they find themselves in difficulty.

Solidarity increases the likelihood for effective global action to address the ecological crisis. As Shelby (2005, p. 246) argues, solidarity improves collective and ‘joint commitments to ... values or goals’. Solidarity galvanises collective action to address the ecological crisis. Indeed, solidarity is embraced in Catholic social teaching and referred to by Pope John Paul II (1987, section V, Art. 38) as ‘a firm and persevering determination to commit oneself to the common good’. ‘A brother that is helped by his brother is like a strong city’ (Leo XIII, 1891, Art. 50). Solidarity has also been related to the principles of subsidiarity and democracy by Pope Francis (2020a, para. 9) where he claims that ‘there is no true solidarity without social participation, without the contribution of intermediary bodies’. This underscores the notion that the principles of good governance mutually reinforce each other.

Some authors claim that solidarity has intrinsic value in ‘joint agency’; the feeling that all peoples are together in the same boat, collectively striving to overcome ‘shared adversity’. As argued by Sangiovanni & Viehoff (2023, section 3, p. 13):

‘We take pleasure in the exercise of those reciprocal, mutually adjusted, and mutually reinforcing capabilities that have enabled

us to overcome forms of adversity that would have been impossible to overcome alone. The collective activity of overcoming ... comes to have non-instrumental value.'

Solidarity injects hope and adds value to collective action in uncertain times when addressing a challenge with uncertain outcomes, such as the ecological crisis. This principle will support coherent and sustained action towards agreed outcomes, thus increasing the chances of success of global ecological action.

Solidarity calls for affluent or privileged states to be sensitive to the reality of less affluent or less privileged states. This sensitivity relates to epistemic limitations by privileged groups on the lived experience and the struggle of less privileged groups (Kolars, 2016).

Humanitarian aid is a moral duty but so is global justice. There is a distinction to be made here. Humanitarian aid and unilateral acts of solidarity should not be confounded or substituted for justice. Actions promoted as 'humanitarian aid' can serve to perpetuate an unjust structure. Interestingly, Rawls (1999, p. 106) includes a 'duty of assistance' among peoples as a matter of justice rather than of humanitarianism. Naturally, the global guardian will need to evoke the principle of unilateral solidarity in deliberative spaces that fall outside the executive reach of the global guardian as a distributing agent, for example when ecological disaster strikes. Other authors call for acts of solidarity as a moral duty, independent of whether they are a matter of justice or a matter of humanitarian aid (Blake, 2012; de Bres, 2012). Pogge (2002; 2005) also argues that charity is a weak moral notion when compared to the need for global structural changes intended to protect the negative freedom of the poor. Therefore, a distinction needs to be maintained between unilateral solidarity and global distributive justice, first because humanitarian aid can serve to mask deeper forms of injustice and second because humanitarian aid can at best serve to provide partial redress to ongoing and long-standing forms of injustice.

The principle of solidarity should guide discussions, deliberations and negotiations at a global level and inform the institutions and procedures of the global guardian. One illustrative example is the financing of the global guardian which could be

based on an ability to pay principle, where affluent countries finance a larger proportion of the global guardian's budget than less affluent countries. Another example could be the setting up of a fund to sustain countries that have difficulties in transitioning to low carbon and ecologically sustainable societies. Funds might be made available to developing low-income countries, such as those in the 'biodiversity-rich tropics' (Büscher et al., 2017b, p. 408), where conservation of hotspots of biodiversity is particularly important. Furthermore, a fund might be set up to aid countries to develop climate and ecological resilience in the face of an increase in the frequency and intensity of extreme weather events, and to assist countries that are struck by ecological disaster.

Solidarity should not stifle liberty or world diversity (Sangiovanni & Viehoff, 2023). Along the principle of national self-determination (as discussed under the sub-title Non-domination in section 4.3.3), international aid should be used to empower and not to make peoples in difficult situations dependent on the wealth of affluent states. Caution should thus be exercised to avoid over-reliance on external aid. Such dependencies are avoided if solidarity is exercised within a robust framework of justice. This includes the global guardian's universal protection of peoples' negative freedom in terms of fair share of access to the global ecological commons, and its promotion of the principles of self-determination and non-domination. Moreover, solidarity also takes non-financial forms in the exchange of knowledge, technology and experience.

The principles of good global governance are interrelated and mutually reinforcing. For example, solidarity loses its meaning if it is not applied alongside the principle of subsidiarity where decisions are taken at political levels that are closest to the places where people live, work and play. Individually, the four principles are arguably necessary for the legitimacy and effectiveness of the global guardian. Together, the four principles arguably represent a sufficient starting point for good global ecological governance. The principles would ensure that i) the global guardian retains its exclusive focus on ecological sustainability, ii) its operations are embedded in the operations of a global-local multi-layered basic structure, iii) states retain democratic control of the institutions and processes of the global guardian and iv) leadership within all the chambers of the global guardian embraces

the principle of solidarity where, rather than being in competition, peoples work collectively towards a shared goal that is of benefit to all.

5.3 Characteristics of the global guardian

The institutional and organisational framework of the global guardian is bound to change over time. So will its relation to players that form part of the global institutional political framework. Some characteristics are however likely to be permanent features of the global guardian because they are the institutional embodiment of the necessary principles of good global governance that were laid out in section 5.2. Exner (2014) argues that it is contestable whether a fundamental transformation of society that goes beyond its current basic structures will be needed or whether we can retain the basic structures and modify their functions. The global guardian will be an addition to the current basic global structure and will not substitute the role of IGOs or of the state. It is a state-like institution that will modify the functions of players with which it interacts, including those of the state to which it will be hierarchically related. The institutionalisation of the global guardian can nonetheless initiate a far reaching political, socio-economic, anthropological and technological transformation worldwide.

5.3.1 Legal framework

A global effective legal framework that extends beyond the nation-state and existing regional structures is required. This will not mean ‘the loss of liberty but rather its protection’ as argued by Fenwick (1946) in his review of Emery Reves’ *The Anatomy of Peace* (1945). Law is by nature ‘a regulatory tool specifically designed for social organization’ and ‘offers an ideal opportunity to determine and set enforceable limits on human behaviour within the broader environmental governance effort’ (Kim and Kotzé, 2021, p. 12).

Although Rawls was fundamentally against a supranational constitutional regime on the fear of despotism, Kleingeld (2006, p. 575) remarks that she would have expected Rawls to state that ‘it is a fundamental interest of peoples to join a common legal system ... a normative ideal assuming full compliance and favorable conditions’. Kleingeld (2006, p. 571) argues that

‘the existence of peoples (in the political sense, constituted as states with internal legal constitutions) puts normative constraints on the way that states exit the international state of nature’,

specifically mentioning the need for a common legal system to regulate international affairs.

The non-negotiability of ecological sustainability would be enshrined in a constitution that defines the mandate and the mission of the global guardian. This goes against Slaughter’s (2004) position in favour of a networked world order which is based on generalisable principles on the basis that principles and norms can operate independently of formal codification. While recognising the independent value of principles and norms, I argue that a formal constitution which lays down the mandate of the global guardian on the basis of ecological sustainability as a non-negotiable global value should be undertaken. This would protect against a potential drift by the global guardian to encroach on areas outside its constitutional mandate (and against the principle of sufficiency), unless there is an explicit and deep commitment by the states for this to happen. The need for a constitution and rule of law is also posited by several authors as a fundamental democratic element (Low & Gleeson, 1999; Koeni-Archibugi, 2011). It is a critical component in constitutional contractarianism. The proposal for constitutionalising the mandate, the principles and the procedures of the global guardian, is also in line with Chapron et al.’s (2017) principle of non-regression in environmental law, implying that certain norms – in this case relating to the pursuit of ecologically sustainability – should be fundamental, non-negotiable and legally enshrined. The application of the principle of non-regression in environmental law will not however imply non-negotiation on the distribution of available ecological space within established planetary boundaries. Rather, the distribution of available ecological space will remain a matter of distributive ecological justice and should be negotiated within the democratically represented chambers of the global guardian along ethical principles. The idea of constitutionalising international environmental law is also not completely new (Einstein, 1946 as cited in Lu, 2021; Gupta & Sanchez, 2012; Kotzé & Muzangaza, 2018; Kim & Kotzé, 2021). Kant (1784) had also envisaged a federation of states characterised by a republican

constitution, rule of law and representative political institutions as one of the necessary conditions for perpetual peace. Kim and Bosselmann (2015) also propose ecological integrity as a *grundnorm* in international law.

By definition, the global guardian will be a constitutionally limited authority. The constitution will represent the agreement of the peoples on the global guardian's mandate, scope of authority, coercive capability and principles of governance, among others. The constitution should be agreeable to all peoples as they stand together in solidarity against shared adversity – the ecological crisis.

Along democratic principles, states and other parties should have the possibility to legally challenge the global guardian if they deem the global guardian's actions to be illegal or unconstitutional. Since legal disputes can only be settled in a court of law, an appropriate institution will need to be identified and vested with constitutional powers to settle such legal challenges. This is discussed in the next section on the separation of powers.

5.3.2 Separation of powers

Since the early seventeenth century, government has been broadly understood as the composition of 'formally organized structures of societies ... that make laws, implement them, and resolve conflicts arising under them' (Milner, 1991, p. 73). The institutional or organisational framework of global guardianship needs to feature separate legislative, executive and judiciary authority (Bok, 2018). Some powers, such as the judiciary, can be delegated to existing institutions which enjoy legitimacy in the eyes of the states. Furthermore, since the mandate of the global guardian to set and enforce limits on ecologically sensitive global activity is explicitly scientifically informed, independent scientific bodies should form an integral part of this global framework. Such scientific bodies can be set up by the global guardian but, under the separation of powers principle, should operate independently from the legislative and the executive branches of the global guardian. Alternatively, established scientific bodies (such as the Intergovernmental Panel on Climate Change) can also be recognised as legitimate and reliable sources of information.

The global guardian will need to possess the ability to make laws and enforce them within its mandate to steer the global community towards ecological sustainability. Both law-making (the legislative) and enforcement (the executive) will need to be democratically governed and should be separated within the organisational structure of the global guardian. There is no room for privileges, such as veto-holding, as this would undermine the legitimacy and effectiveness of the global guardian. Legislation should enjoy both the support of a qualified majority of the governed (in terms of human population) as well as the support of a qualified majority of states. Bicameral systems such as those of the United States and the European Union can serve as examples for a law-making system that is designed to satisfy both global pluralism and population proportionality. These two-tiered systems ensure that legislation enjoys the support of the peoples, including peoples with smaller population sizes, in their diversity.

Under the ‘separation of powers’ principle (Bok, 2018), the judiciary should be independent of the law-making or the executive branch of the global guardian. One possibility could be to vest existing international courts and tribunals, such as the International Court of Justice, which is the principal judiciary organ of the United Nations, and the International Tribunal for the Law of the Sea, with powers to settle legal disputes concerning the scope of action of the global guardian.

5.3.3 Scientific bodies

Good ecological governance depends on good science (Dietz et al., 2003; Malhi, 2017; Olsson et al., 2017). As aptly stated by Dietz et al. (2003, p. 1908),

‘environmental governance depends on good, trustworthy information about stocks, flows, and processes within the resource systems being governed as well as about the human-environment interactions affecting those systems’.

The global guardian can only function effectively if it is scientifically well informed. No efforts should be spared to developing a deeper understanding of the human-environment interaction which, according to Olsson et al. (2017, p. 1), is necessary for ‘large-scale change and transformations to global sustainability’.

Taking into consideration the complexity of the human-environment interaction and the urgency for action, the global guardian should resort to taking a precautionary approach when the scientific evidence is insufficient. The requirement to have the most up-to date science on the bioregenerative capacity and the planetary state of Earth, should not stall political action in areas that are insufficiently scientifically informed (Rockström et al., 2009b). Political action should be guided by the latest science and adapted according to unfolding developments in the scientific field. This is, for example, already the case with the Common Fisheries Policy of the European Union, which *de facto* determines the Total Allowable Catches (TACs) at 30% of the unexploited stock size for fish species on which scientific information is unavailable. This reference point is termed the ‘precautionary biomass’ (Kampas, 2015, p. 171). Indeed Daly (1991, p. 51), cognizant of the ecological complexity and the ‘unknown’ inherent in such complex systems, advocated for an institutional design principle which maintained ‘considerable slack between the actual environmental load and the maximum carrying capacity’.

Scientific bodies need to enjoy legitimacy and be perceived as trustworthy. The same principles of democratic governance should also apply to scientific institutions which, as a minimum, should be geographically representative – that is, represented by scientists from a diverse set of countries worldwide. The Planetary Boundaries Framework, for example, might be perceived to lack global legitimacy because the boundaries were developed through an expert review process involving 29 scientists from the Global North (Kim and Kotzé, 2021). Similar concerns were expressed on the Earth Commission, a group of leading scientists also from the Global North. In contrast, the Intergovernmental Panel on Climate Change (IPCC), being a global intergovernmental process enjoying universal governmental representation, enjoys more legitimacy. Structured dialogue between scientists, policymakers, resource users and interested publics, as proposed by Dietz et al. (2003), can improve the effectiveness of the science. Importantly,

‘if scientific frameworks such as the planetary boundaries are not perceived by people to be legitimate, they will have little value,

if any, beyond the pure scientific confines of the discourse that invented them in the first place’ (Kim and Kotzé, 2021, p. 7).

Once the global guardian starts functioning as a decision-making body with executive and enforceable authority, the recommendations proposed by the scientific bodies will bear directly on global policy. The science will become as politically relevant as the policy it informs. On the IPCC for example, *The Economist* (2022a, para. 2) remarked that the 195 governments who ‘must sign off on the report ... have a say and a clear interest in how the science is framed’ which ‘goes on to inform policymaking and forms the background against which countries will negotiate on climate issues for years to come.’

Care should be taken to ensure that scientific bodies remain impartial. Importantly, effective and expedite legal mechanisms must be in place to challenge the methods and the democratic credentials of the scientific bodies informing the global guardian.

5.3.4 Coercive capability

The idea that a superior federal body provides protection to large and small states alike is not new. Rousseau (1756 as cited in Lu, 2021, p. 4) had thought of the possibility of ‘the princes of Europe’ agreeing to relinquish their sovereign rights to a superior, federal body in exchange for ‘guaranteed protection’, even though at the time he thought it was unlikely that the sovereigns would agree voluntarily to form such a federation. The North Atlantic Treaty Organisation and the European Union are in a sense the embodiment of such an idea. Members of both entities bind themselves to mutually assist each other, including militarily, against external threats (North Atlantic Treaty, 1949, Articles 3-5; European Union, 2007, Article 42). Kant (1784, p. 10) also speaks of

‘a federation of peoples ... [in which] every state, even the smallest, could expect its security and its rights not by virtue of its own power or as a consequence of its own legal judgement, but rather solely by virtue of this great federation of peoples

(Foedus Amphictyonum), from a united power and from the decision based on laws of the united will’.

The state’s use of coercion is generally morally justified:

‘for the sake of preventing private acts of violence or coercion, as well as for punishing the failure to keep agreements. These public uses of coercion are thought justified because they make possible private cooperation and peaceable coexistence among people not linked by ties of affection or blood’ (Anderson, 2023, section 1, p. 3).

It is within this understanding of coercion that the global guardian should exercise its functions as a constitutionally limited legitimate coercive authority; an authority with sufficient but limited powers to enforce global agreements with the overarching aim to secure ecological sustainability.

In line with agreed international practice, the use of coercion should be ‘calibrated in a precise, proportionate and appropriate manner, within the principle of the minimum force necessary to achieve the desired effect...’ (UN, 2023a, Section: Principles of Peacekeeping). This graduated approach is well established in the literature (Ruggie, 1992; Rawls, 1999). The global guardian would be based on more than coercion, such as on dialogue, diplomacy, negotiations, deliberations and globally agreed norms (Milner, 1991). Sanctions must be progressive in nature and escalated when there are repetitive and unjustified breaches.

In recognition of the ecological value of international peace and security, the global guardian should support the UN’s ‘peacekeeping’ and ‘peace enforcement’ missions (UN, 2023a) as legitimated in international law (UN Charter, Articles 39, 41). Whereas peacekeeping operations require the consent of the main parties to the conflict (Hultman et al., 2013; Johnstone, 2011), peace enforcement is authorised by the UN Security Council without the consent of the parties to the conflict (Jetschke & Schlipphak, 2020). Shortcomings in the Security Council’s effectiveness to enforce peace relate more to its undemocratic structure than to its legal mandate. If international peace is valued as an instrumental means for ecological sustainability, the global guardian should strongly push for democratic

and representational reforms in the UN Security Council to improve its international legitimacy and effectiveness. The global guardian might also call on the services of international entities if it has evidence and justified reason to believe that the actions of a people (for example of a non-member state, as discussed in the next section) constitute a serious jeopardy to ecological stability and sustainability. Furthermore, democratic decision-making within the organs of the global guardian should be the basis for the legitimacy of its sanctions. The global guardian's coercive powers should be limited and only sufficient to fulfil its mission to secure ecological sustainability.

5.3.5 Membership

The process of bringing into existence the global guardian should arguably be by way of state membership in the same way that the United Nations, the European Union and the North Atlantic Treaty Organisation came about. Indeed, the European Union is cited by several authors as a valuable experimental model for a legitimate and democratic global organisation (Habermas, 2001; Esty, 2008; 2009; Bosselmann, 2017). Membership should thus be voluntary and candidate members should satisfy a basic set of conditions including, as a minimum, a commitment to acknowledge and share in the burden of addressing the global ecological crisis. These conditions may change and be refined over time according to the deliberations of members of the global guardian.

Countries who fail to meet the basic conditions of application or who refrain from applying to becoming members of the global guardian will be classified as non-members but will still need to fulfil basic obligations. These include the obligation to refrain from constituting a threat to ecological sustainability. The global guardian should therefore possess the capability to intervene (either singularly or in collaboration with other international organisations) in the affairs of a non-member state if there is justified and reasonable suspicion that a non-member constitutes a threat to ecological sustainability.

The rational justification for obliging non-members to honour international law is provided by Kleingeld (2006):

‘In the hypothetical original state of nature, according to Kant, individuals should either submit to the common laws of a state or leave each other alone. If someone refuses to join me in entering into a state but does not leave me alone, I am, in Kant's view, entitled to coerce that person into a state with me, in order to establish a situation in which my freedom and that of others can be secured and protected.’ (Kleingeld, 2006, p. 568)

It is within Kleingeld's interpretation of Kant that the global guardian should be ‘entitled to coerce’ non-members to respect the law of the global guardian. It is because in a globalised world of interdependent states with limited ecological space, the actions of a state (including non-members) will significantly affect the freedom of other states. The global guardian thus has a responsibility to ‘coerce’ non-members into a state with member states to establish a situation whereby the freedom of all states is secured and protected. In this sense, non-members will still be bound to respect their ecological entitlements and will be subject to scrutiny, monitoring and interference if they transgress the conditions of non-members. These conditions include, among others, the requirement to honour a state's fair share of the global ecological space. Non-members will not have a voting right but can have observer status on law-making and decision-making bodies of the global guardian, since these decisions should be transparent and will affect them as well. In line with the principle of solidarity, funds that have been made available to members of the global guardian who find themselves in difficulty should also be made available to non-members, although such a decision should remain the prerogative of the members of the global guardian.

Even though membership is open to all, the political transformation is most likely to be successful if it is initiated with the backing of the most powerful countries in the world who, in recognition of the urgency for sweeping global political, social and economic changes, come together to start the process of setting up global institutions that can guarantee and enforce globally-binding decisions to address the ecological crisis. Powerful countries have the responsibility but also the capability to lead this transformation. Citing Jackson (2021, p. 147),

‘without confronting the art of power, our yearning for quick solutions will at best be impotent and at worst a distraction from the need for more fundamental change’.

This realisation is also a critical limitation to the setting up of a global guardian because it is not a given that powerful countries will necessarily favour a global political architecture where they would need to relinquish some of their sovereign powers or, worse still, their geopolitical superiority (Wijkman, 1982; Esty, 1996).

International relations scholars debate on the form that a global environmental organisation should take. Whereas some propose that a global environmental organisation should be modelled on a global organisation outside the UN system such as the ILO (Charnovitz, 2002), others propose a reformed UN entity such as UNEP (Biermann & Bauer, 2017 [2005]). Still others call for a new international organisation (Esty, 2008; 2009). It is my view that the global guardian would benefit from being set up as a new global organisation outside the UN system with its own constitution and membership. The principal reason to this is that accommodating the global guardian as part of the UN system would require surgical modifications to the UN Charter, particularly on Articles related to state sovereignty. This is likely to have deep implications to the operations of the UN system as a whole. For this reason, a global guardian would be closer to a GEO, a new organisation, as conceived by Esty (2008; 2009).

Finally, political transformation takes time. One illustrative example is the lengthy process ‘to complete the transformation of the European Union from a complex mechanism of inter-state cooperation into ... a federation of nation-states’ (Hoffmann, 2003, p. 24). Notwithstanding the urgency for effective action, it is only reasonable to speculate that the coming into being of an institution such as the global guardian will take years. This would still be a considerable improvement on the current global basic structure. It might also be in time to avert ecological catastrophe, considering current actions and technological advances that serve as intermediary solutions. An increase in the intensity and frequency of worldwide manifestations of the ecological crisis (including flooding events, forest fires, storms, heatwaves and sea level rises), its implications to food security, and the hardship that these imply, might also catalyse support for collective action on

ecological sustainability and the instrumental institutional means to protect the global ecological commons.

5.4 Ecological entitlements

Ecological entitlements or ‘quota rights’ (Daly, 1991) are the principal tool with which the global guardian will distribute access to the global ecological commons, such as in the form of greenhouse gas emission entitlements, among states. For this reason, a description of the characteristics and proper use of ecological entitlements is provided. Restrictions on human practices that are particularly degrading to the global ecological commons or ‘pollutable reservoirs’ (Boulding, 1966), especially when substitutes to these harmful practices exist, are also a way by which the global ecological commons will be protected. These measures would be complementary to the distribution of ecological entitlements. They are related, in the sense that cross-cutting restrictions on ecologically degrading human practice will potentially unlock additional ecological capacity which can then be distributed in the form of ecological entitlements.

Importantly, as explained in the following paragraphs, ecological entitlements that significantly affect the material means for the enjoyment of a dignified life should be non-market goods at a global level. This includes, for example, greenhouse gas emission entitlements, the release of which is tightly coupled with energy use, industrial production, and the enjoyment of goods and services (refer to section 4.3.2 under sub-title ‘The special case of carbon as a non-market good’). The non-market characteristic of such ecological entitlements would ensure both sustainable and ‘equitable patterns of consumption’ (Whitmee et al., 2015, p. 1974) also because the non-monetary valuation of such ecological entitlements assists in the ontological re-imagination of alternative valuations of climate and nature (Moore, 2016).

Global equity is a critical social ingredient for sustainability. In Motesharrei et al.’s (2014) examination of historical civilisational collapses, highly unequal societies where characterised by ‘Elites’ – the decision-makers – who by virtue of their privileges were protected from the early effects of ecological degradation commonly experienced by the ‘Commoners’ (the general population). Insulated

from the adverse effects of ecological degradation, the ‘Elites’ drove their civilisation into ecological collapse. Analogically, in a dramatically unequal world, the most affluent (and most influential) states worldwide might apathetically and with grave ecological consequences keep humankind on a business-as-usual pathway, mostly unaffected (in the earlier stages) by ecological changes to which they have the financial means to adapt. The use of ecological entitlements as non-market goods to partly reduce global inequality in material standards of living should therefore also aid ecological sustainability.

Non-market carbon entitlements will hopefully address Büscher et al.’s (2017a) concerns that ecological scarcity will widen social inequality worldwide. In their counterargument to Edward Wilson’s *Half-Earth* proposal, Büscher et al. (2017a, p. 401) expressed doubts that free market capitalism will correct ‘social and environmental problems’ and called for mechanisms that ‘redress an inherently unsustainable political economy’. In a global society that is still highly reliant on fossil fuels, non-market carbon capping will hopefully slow down the ‘powerful engines of resource extraction and consumption’ (Büscher et al., 2017b, p. 408) – fossil fuel energy being tightly coupled with resource extraction, industrial production, human and freight transport, and waste management. It will provide the global guardian with a window of opportunity (until fossil fuels are substituted with other forms of energy generation) to introduce limits on the depletion of other pollutable reservoirs, including biodiversity from land use changes and emerging ones, that are also integral to the global ecological commons. Non-market carbon capping will also partially address the capitalist system lock which conditions people on the periphery (including Indigenous people) to adopt exploitative and ecologically degrading practices to keep up with the pace of global capitalism, and who would otherwise live harmoniously and sustainably with their surroundings.

Complex accounting would need to be undertaken to debit states who consume, rather than produce, carbon-rich goods. The development of complex carbon accounting (taking the form of ‘nationally determined contributions’) on commonly agreed criteria at a political level is possible and has already been undertaken by the European Union and the UNFCCC. Ecological entitlements that are broadly allocated on a *per capita* or population size basis need to consider cross-border

population movements including short-term travel (tourists) and longer-term migration. The accounting of the distribution of ecological entitlements will therefore need to be discussed, negotiated, and calibrated by the global guardian on a predefined set of principles and criteria.

Ecological entitlements are a means to promote a negative conception of freedom: states can freely enjoy and make use of their rightful access to their assigned portion of the global ecological commons, without undue interference from others, under the protective and prudent watch of the global guardian. This is similar to the application of fishing quotas, also known as Total Allowable Catches (TACs) or fishing opportunities, in the European Union (EU). TACs apply to specific fishing species, such as mackerel or anchovy, over a period of time and are assigned to countries within the EU and neighbouring countries. Fishing vessels of EU countries are furthermore bound by landing obligations and provisions for by-catch. These include restrictions on undersized fish and obligations on the management of prohibited species in the catch. Importantly, a fishery needs to close once the TAC is reached (European Commission, 2023). So, in a certain sense, the regulation of fisheries takes a circumscriptive form, allocating space (TACs) within which states can operate. The TACs are accompanied by cross-cutting prescriptive measures on human practices that are known to be seriously detrimental to the commons, in this case, the fisheries. The global guardian will operate in the same way that fisheries are regulated in the EU, although on a global scale and on a larger array of global commons pertaining to global ecology.

The framing of global ecological biocapacity – setting the ecological space within which the global human community will need to navigate – and its subsequent assignment in the form of ecological entitlements protects against Jevon's paradox. As stated by Kosoy et al. (2012, p. 78), '...technological efficiency must be coupled with demand reduction if it were to avoid stimulating further consumption'. Once it is appropriately framed within a scientifically informed and politically designed ecological framework, technology catalyses the transformation towards energy and resource efficiency. This view is shared by Meadows et al. (2004, p. xv), the pioneers of the global call to place ecological limits on growth, who argue that 'technological advances' must be coupled with 'personal change and longer

planning horizons', that is, the ecological framing of global biocapacity. It is only within this ecological framing that innovation will be channelled into doing 'more with less', rather than 'more with more', better known as Jevon's paradox.

5.5 The population problem

Population concerns within the debate on ecological sustainability have been expressed at least since the late eighteenth century when Thomas Malthus, in his famous 'Essay on the principle of population' of 1798, speculated that food availability will not keep up with population growth (Brander, 2007). These concerns were raised again more recently by authors such as Paul Ehrlich in his 1968 book *Population Control or Race to Oblivion: The Population Bomb*. Less alarmist voices underscoring the ecological need for global population stability and control and reduction in fertility rates have also been expressed by ecologists (Hardin, 1968), environmental scientists (Meadows et al., 1972; 2004), deep ecology philosophers (Sessions and Naess, 1986), ecological economists (Daly, 1991; Van den Bergh, 2011), physicists (Motesharrei et al., 2014), and biologists (Whitmee et al., 2015). The 'overpopulation school' retains global overpopulation as the underlying cause of ecological degradation (Brander, 2007, p. 5). For this reason, authors such as Brander (2007, p. 1) suggest that 'continued demographic transition to lower fertility is the primary requirement for achieving sustainable development'. In this section, the extent to which global population growth (in comparison to affluence) contributes to the ecological crisis is examined. The implications of varying fertility rates to the works of the global guardian are also discussed.

The ecological crisis is driven both by population growth as well as by increasing affluence which is unequally shared globally. As aptly stated by Büscher et al. (2017a), population growth

'is an important issue, but one that cannot be treated separately from the question of unequal levels of environmental impact. To do so provides a convenient rationale for focusing attention on the reproductive habits of the poor rather than the more

environmentally damaging consumption habits of the rich' (p. 401)

The differences in material consumption patterns between the Global North and the Global South have already been well articulated in the degrowth literature (Trainer, 1995; Schneider et al., 2010; Demaria et al., 2013). There are also warnings in the social literature against using the 'Anthropocene' as a blanket concept to homogenise humankind's responsibility for global ecological degradation (Malm & Hornborg, 2014; Biermann et al., 2016; Moore, 2016; 2019; Stubblefield, 2018). The Global Footprint Network (2021) also brings out the dramatic discrepancies in the *per capita* ecological footprint between advanced economies and developing countries.

At the same time, the latest United Nations (2022) population projections show that the world fertility rate has been steadily decreasing from around 5.0 in the 1950s and is projected to drop to 'replacement level fertility'²⁰ by the year 2055. Even though the world's population is growing, the pace of growth is slowing down. The world population is projected to peak at 10.4 billion around the year 2086 and then start to decline. These projections show that it is just a matter of time before population growth will stabilise and global population size starts to decline. The Economist (2023) further observes that given the latent effect of socio-cultural conditions on fertility, which is not captured in these UN models, it is also plausible that the world population will peak sooner than is currently projected.

The main ethical implications for the global guardian relate more to varying population growth rates between countries than concerns related to global population overshoot or to the 'population bomb'. For example, countries in sub-Saharan Africa and South Asia have among the highest fertility rates (United Nations, 2022) in the world. There are also regional differences within countries (e.g., Kenya), but these fall outside the scope of the global guardian where the unit of political recognition is the state. Differing inter-state population growth rates,

²⁰ Replacement level fertility is 'the level of fertility at which a population would – other things being equal – exactly be replacing itself'. In developed countries 'replacement level fertility can be taken as requiring an average of 2.1 children per woman. However in countries with high infant and child mortality rates the average number of births may need to be much higher.' (Craig, 1994, p. 20).

fertility rates and demographic compositions have implications on the *per capita* principle (the first ethical principle) of distributive ecological justice. Along this principle, population size positively determines the size of the ecological entitlements awarded by the global guardian, for example on greenhouse gas emission allowances. Since the total ecological entitlements are relatively fixed (analogised to a metaphorical ecological pie), according to this principle, states with slower population growth rates would see their overall entitlements progressively shrink and eaten away by states with faster population growth rates over time. On this basis, states with slower population growth rates would have ethical justification to oppose larger entitlements to the global ecological commons to countries with faster population growth rates, if they deem population policy to be domestic matter for which national governments should take primary responsibility. Authoritarian governments might also have a perverse incentive to stimulate population fertility to claim more extensive ecological entitlements which they can then attempt to direct into military defense and capacity build-up. For these reasons, states should be held responsible for ecological degradation resulting from population growth policies within their territories lest the introduction of ecological entitlements becomes a perverse incentive for irresponsible demographic policy.

The ethical implications of varying population growth rates globally can be resolved with the introduction of a ‘moment of realisation’ (as described in section 4.3.2 under the first ethical principle of distributive ecological justice) which effectively demarcates a point in time following which states are expected to have taken responsibility for climate action, both in terms of population and ecological footprint (including greenhouse gas emissions) *per capita*. States would need to provide reasonable and additional justifications to claim additional allowances for population growth after the ‘moment of realisation’. To be sure, the ethical principles on the distribution of ecological entitlements are not cast in stone and are intended to guide the deliberations of the members of the global guardian. Along the principle of solidarity, members will need to take into consideration country circumstances and particularities, some of which naturally place some states at a disadvantage, such as peripherality, smallness or conflict. The principle of relative stability, as discussed in section 4.3.2, will also need to be accounted for. Notwithstanding, allowances are relatively fixed at the ‘moment of realisation’.

After this point in time, countries with high population growth rates would have an additional incentive to reduce fertility because the ecological bounty (ecological space) will otherwise need to be divided by higher population numbers. Besides the discussion of population growth, the ‘moment of realisation’ would also apply in negotiations about states who comparatively increased their ecological footprint and their *per capita* greenhouse gas emissions after the moment of realisation. The principle would allow for a degree of convergence in ecological footprint *per capita* across states over time such that at some point in time, most states should have similar *per capita* global ecological footprints.

Importantly, demographic policy remains the responsibility of the state. In line with the principle of subsidiarity, the global guardian has no role in interfering in domestic policy on issues such as birth control as proposed, for example, in steady-state economics (Daly, 1991). Population policy is sensitive and culturally specific, and there may be different policies at sub-state levels. States should be free to self-determine themselves within their respective ecological space. It is conceivable that whereas some peoples would choose to lead more affluent lifestyles with smaller families and low fertility, other peoples might choose to have larger families, more frugality and higher fertility rates. Both choices can reasonably respect bioregenerative capacity. National self-determination and cultural freedom are two valued concepts which the global guardian should support; the global guardian is only justified in interfering when there is reason to believe that a state is breaching its ecological entitlements or is an ecological threat to the global polis. Of note, many governments in sub-Saharan Africa are aware of the social benefits of lower fertility rates (e.g., Zimbabwe, Ethiopia, Kenya, Zambia, Malawi, Rwanda) and have been unilaterally pushing for family planning programmes, including the use of contraception, in their domestic policy (Bongaarts & Hardee, 2019).

The availability of accessible gender-non-discriminatory education, employment and healthcare have been shown, among others, to reduce fertility rates and speed up the demographic transition (McDonald, 2000; Sheikh & Loney, 2018; Pande et al., 2020; Pourreza et al., 2021). The eighteenth century French rationalist Condorcet had rightly envisioned that

‘fertility rates would come down with “the progress of reason”, so that greater security, more education and more freedom of reflected decisions would restrain population growth’ (Sen, 1999, p. 9).

Promoting healthcare, education and work for their intrinsic value has the corollary benefit of catalysing the demographic transition among countries with high fertility rates. The global guardian might include the provision, albeit with caution, of satisfactory levels of healthcare and education services as criteria for applications for membership. Alternatively, along the principle of solidarity, the global guardian might preferentially opt to support governments of developing countries to invest in healthcare and education.

Population growth stabilisation is a necessary but insufficient condition to address the global ecological crisis. Concerns about population growth outstripping the ecological means to sustain it might have been more justified in the past. However, recent developments show that the global human population will peak and start to decline towards the second half of the twenty-first century. The population issue relates more to varying fertility and population growth rates across countries and their implication to the distribution of ecological entitlements. The introduction of the concept of the ‘moment of realisation’, a cut-off date following which states are expected to have started to take responsibility for their ecological impact, should partly resolve negotiations around the just distribution of ecological entitlements. The application of the concept of the ‘moment of realisation’ would also support domestic policy in favour of a demographic transition in developing countries. In line with the principles of subsidiarity and solidarity, population policy should remain a domestic prerogative and the global guardian should flank domestic population policy (for example by supporting investments in healthcare and education) with consenting states.

5.6 Conclusion

In this chapter, I have argued in favour of four necessary principles of good global governance and described the institutional characteristics that should embody these principles. I have also described the characteristics of ecological entitlements as the

principle tool with which the global guardian will assign ecological space among states, and addressed a perpetual ecological concern in relation to world population growth.

The application of the principle of sufficiency or appropriateness seeks to keep the mandate of the global guardian exclusively focused on ecological sustainability and to restrain the global guardian's coercive powers from spilling into domains outside its mandate. The principle of subsidiarity has been proposed in the knowledge that, by itself, the global guardian will be unable to address the complexity of the ecological crisis and that therefore its appropriate place should be as part of a global political architecture of multi-layered governance where decisions are taken at the lowest hierarchical level possible. Drawing on established literature, I have also shown that the application of the principle of democracy at a global level differs from its application at domestic level, not least because of the lower levels of 'common sympathies' at a global level, also referred to as 'thin society' by the English school, and the variety of democratic and non-democratic political systems worldwide. For this reason, I have argued that the unit of moral concern to the global guardian as a distributing agent should primarily be peoples (as represented by their governments) and not persons. For pragmatic purposes, the global guardian should be democratically represented by formally internationally recognised states and that due consideration is given to certain characteristics, such as population size, in procedural deliberations and decision-making. Notwithstanding, I have suggested mechanisms by which the global democratic deficit can be reduced, among other ways by embracing the important role of global civil society organisations. Finally, I have proposed solidarity as a cross-cutting principle in the deliberations and negotiations of the global guardian. This principle is more novel in the literature on global environmental governance. I have argued that the ecological crisis is a case of shared adversity requiring collective effort, and where the fate of one people depends on the collective ability of the whole to overcome this challenge. With respect to ecological sustainability, the success of one people (to develop sustainably) should be a celebration for all peoples and thus the principle of solidarity will ensure that, in working together, states stand their best chance of successfully addressing the crisis.

I have also proposed five institutional characteristics that embody the principles I have just described. The legal framework and the constitution would be the bedrock of all the operations of the global guardian. Like other institutions observing the rule of law, the global guardian would be subject to legal challenge. Since there will be legal, executive and judiciary functions, I argued that it is best to follow institutional best practice on the separation of powers to keep arbitrary power in check. The global guardian's mandate will depend on the science that is presented to it and, as such, the science is likely to become politicised. For this reason, I argued that the bodies providing scientific advice should be kept separate from the other organs of the global guardian, potentially also making use of existing intergovernmental panels that already enjoy legitimacy. It must be ascertained that the science enjoys the same high levels of legitimacy as the other organs of the global guardian, and that as a minimum it should be developed by bodies with a broad geographical representation. I also described the appropriate coercive capabilities of the global guardian, arguing that, as is the case already with other Treaty Organisations, the global guardian should take a graduated approach in the application of coercion. Finally, I proposed that the most appropriate manner to set up the global guardian would be by virtue of membership although I also argued that, at some point, non-member states will nonetheless be subject to international law.

Finally, I presented a section on ecological entitlements and argued that those which seriously affect the material standard of living of peoples worldwide should be global non-market goods. I also described how such a mechanism will reduce global inequalities in material standards of living. I then proceeded to present the most recent literature on world population growth, showing that concerns relating to a 'population bomb' are unfounded and population growth trajectories will level out in the foreseeable future. Notwithstanding, I showed how varying levels of demographic population trajectories have implications on the allocation of ecological entitlements along the ethical principles presented in chapter 4.

6.0 Presuppositions, Limitations and Terminology

The thesis for a global guardian naturally depends on several assumptions and has its own limitations. For this reason, I will present the main presuppositions of the thesis (6.1) and a brief description of the limitations of the global guardian (6.2). I will also present the *rationale* behind the choice of the term ‘global guardian’ (6.3) for a constitutionally limited legitimate coercive global authority to address the ecological crisis, and other terms.

6.1 Presuppositions of the thesis

The presuppositions of the thesis are several and include the following. Human life is sacred and carries equal moral weight globally. Nations and peoples worldwide deserve equal respect, irrespective of the size of the nation. The global ecological commons are the common heritage of humankind and cannot be owned or possessed. Being commonly held, peoples should have fair access to the global ecological commons based on ethical principles of fair distribution. There should be recognition of the intimate relationship between a people and the land and waters they inhabit. Territorial jurisdictions should not be rewritten based solely on judgements related to the fair distribution of access to the global ecological commons. Rather, human activity within territorial jurisdictions, including on the use of natural resources, should respect the bioregenerative capacity of the Earth system, that is, of the global ecological commons.

It is also assumed that, in most cases, communities have an innate capability for self-determination. If left to their own devices and non-dominated by external influences, it is presupposed that communities possess the ability to organise themselves politically, socially, and economically. The global guardian’s role to focus primarily on securing negative freedom, rather than positive freedoms, assumes that, as a rule, peoples have a capability for self-determination.

The transformation towards an international political order, characterised by the existence of a global guardian – a constitutionally limited coercive global authority – can only succeed if ecological sustainability is a universally shared goal. Universal support for ecological sustainability should not be assumed, and tends to

fluctuate over time. As argued by Hurrell (2007, p. 137), ‘actual consensus on fundamental values is limited’ in global politics. Likewise, Wilson (2016, p. 211) states that ‘only a major shift in moral reasoning, with greater commitment given to the rest of life, can meet the greatest challenge of the century’, that is, the preservation of the wildlands and of biodiversity.

It is also assumed that the world still has time to avoid a planetary state transition or ecological catastrophe. Kim and Kotzé (2021) underscore the fundamental, possibly false, assumption that the planetary boundaries have not yet passed critical tipping points. Considering the uncertainty surrounding the scientific projections of the ecological crisis, it can only be hoped that such a political transformation, if it ever occurs, will be in time to avert a planetary state transition to inhospitable Earth.

6.2 Limitations of the global guardian

The existence of a global guardian will not and is not designed to solve all the human ills of the twenty first century. The global guardian would exclusively focus on steering humankind on an ecologically sustainable pathway primarily by securing selected negative freedoms at a global level. Within this conceptualisation, instrumental or positive freedoms remain principally the responsibility of the state and sub-state actors. The global guardian can only seek to secure equality of access among states to the global ecological commons. The fruitful exploitation of that space for human development remains the prerogative of the state. It would thus be inappropriate for the global guardian to address global poverty by, say, coercively redistributing wealth and income worldwide. Notwithstanding, the global guardian would still be expected to exercise its moral authority in decision-making spaces that although outside the guardian’s jurisdictional authority, still have significant bearing on the pursuit and maintenance of ecological sustainability.

The global guardian’s administration might be burdensome, entailing complex accounting for carbon transfers and the computation of ecological entitlements, but the administration of global affairs is indeed becoming increasingly complex.

Additionally, the global guardian is not intended to be an unattainable ideal form of government. It takes a realistic utopian form of global authority, imagined in the

realm of the possible, taking the *status quo* as the starting point for this imagined reality. The realisation of the global guardian is intended to present the international community with an improved set of possibilities to address the ecological crisis. This realisation will allow for sustainable, self-directed and culturally sensitive human development within the bioregenerative capacity of planet Earth.

The global guardian does not and cannot guarantee the enjoyment of human freedom at the domestic level. Its appropriate role is only in securing such a possibility. The full enjoyment of human freedom can be fully realised within the realm of the state, and at the sub-state and the community levels. By promoting the protection of a peoples' right to pursue ways of lives of their choice, undominated by the choices of other states, and safeguarding a state's legitimate access to its fair share of the global ecological commons, the global guardian unlocks the potential for peoples to pursue domestic policies that promote positive, substantive and instrumental freedoms. In line with the principle of sufficiency, the global guardian's appropriate role is to exclusively focus on ecological sustainability. Only multi-layered governance can suitably address the complexity of the ecological crisis with the global guardian focusing on issues that can be uniquely and exclusively addressed at a global level.

Global inequality in income and wealth is not expected to change dramatically overnight with the coming into existence of the global guardian. In any case, it is not the mandate of the global guardian to redistribute income and wealth globally. The global guardian's fair distribution of ecological entitlements will reduce global discrepancies in material standard of living. The frontier for cheap resources and cheap nature will be closed indefinitely. States that currently overshoot their per capita ecological footprint, will need to resize their material economy to fit in their ecological allowance. Peoples that are already living within their ecological means can continue leading same material standards of living. Prospectively, states are likely to tax and penalise activities with high ecological footprints, most of which are material-based, to avoid the initiation of infringement procedures with the global guardian. This will reduce material throughput but will not wipe out all the advantages that capital, money and finance bring with them. It is highly likely that money will be channelled into the service sector (such as hospitality, housekeeping,

nursing, caring, and recreation) and this might, over the long term, reduce wealth inequality globally through workers' or migrant remittances.

Domestic inequality, on the other hand, would naturally fall within the scope of the state and would not be in the mandate of the global guardian. The extent of income and wealth inequality would be politically determined at state or sub-state level and is likely to vary geographically and temporally. Motesharrei et al. (2014) show that strong economic stratification has resulted in historical societal collapses and that high inequality might be associated with increased environmental degradation. If such degradation does not affect the global ecological commons, and remains confined at state, sub-state and local levels, it will be unregulated by the global guardian. However, in line with the principle of subsidiarity, low domestic inequality, no matter how desirable it might be from a societal or ecological perspective (Daly, 1991), should be primarily fought on the domestic front if deemed domestically desirable.

The global guardian will work against the capitalist system lock which is partly maintained by the international imperative for states to grow economically to secure national security. This is because the global guardian will promote non-domination in the international sphere. It will also regulate access to the global ecological commons for their protection, which will undermine the restrict the availability of ecological resources for capital exploitation. If this realisation manifests itself, peoples will be free to determine themselves and are likely to divert their efforts away from the development of military capability and possibly more into ecologically sustainable human development. Addressing inter-state political and economic imperatives for global capitalism is however separate from addressing issues such as capital flight. Whereas the former is a race for political dominance, and can be subdued with securing non-domination in international affairs, the latter relates to the negotiating power that capital has in an international system with unharmonized taxation policies.

Capital flight from high tax to low tax states (or tax havens) will not be addressed by the global guardian because this is an issue that is not directly related to the global ecological crisis or to ecological sustainability. It primarily involves the exploitation by large corporations of an international taxation system that has until

recently been exclusively determined nationally, with little harmonisation globally. States are competitively driven to reduce corporate taxation to attract capital, industry and employment. As stated by Janet Yellen, the Chief of the United States Federal Reserve, this is effectively a global race to the bottom (BBC, 2021). An unharmonised corporate taxation system rewards multinationals with tax avoidance.

International tax harmonisation, which would reduce capital flight, can be adequately and effectively dealt with the use of multilateral agreements. One such example is the establishment of a global minimum tax on large multinational corporations, the idea of which was initiated by the United States and agreed to by 140 countries (Kamin & Kysar, 2023). Importantly, multilateral agreements will still have a place on a range of issues including, for example, international taxation and minimum conditions of work. It would be inappropriate for the global guardian to take on such a role. Being a coercive and a hierarchical entity, the global guardian's legitimacy delicately rests on its narrow mandate to address the ecological crisis which, as argued, demands an urgent, global, social and economic transformation, soliciting the need to have a governance structure that can effectively enforce internationally binding decisions.

6.3 Terminology

6.3.1 'Guardian' vs 'steward'

There are several reasons why the term 'global guardian' was chosen to refer to a constitutionally limited legitimate coercive global authority mandated with addressing the ecological crisis. Terms such as 'world government' or 'global steward' could have been used instead. Indeed, the most recent literature refers to the need for Earth stewardship and makes the case for humanity taking the role of 'steward' (Daly, 1991; Steffen et al., 2007, 2015a, 2018; Folke et al., 2016; Wilson, 2016; Malhi, 2017; Stubblefield, 2018). Since the role of the global guardian is primarily to protect the global ecological commons, rather than steer positive change (denoting positive freedoms) at state or sub-state level, the term 'guardian' was preferred to the more popular use of the term 'steward'.

The use of the term ‘global guardian’ is related to the role which is normatively attributed to a guardian, that is, a person or entity who is responsible for protecting something valuable. The role of the global guardian is only related to previous uses of the same term in its capacity to protect. Otherwise, the role and the mandate of the ‘global guardian’ is unrelated to the previous usage of the same term referring to central banks guarding the world economy from economic recession (Curran & Miller, 2018) or to world great powers being global guardians of the global political order (Kupchan, 2012). The role is related to the definition of ‘guardian’ in the Oxford English Dictionary of Law, that is, ‘one who is formally appointed to look after a child’s interests on the death of the child’s parents’ (Law, 2015). The object of protection in Plato’s *The Republic* (2007 [375BC]) was the state; the Guardians or Philosopher-Kings were to be protectors of the republic from external or internal threats. The ‘global guardian’ shares this attribute with previous uses of the term only insofar as it is set up to protect.

Guardianship is distinctly different from stewardship. Whereas guardianship protects something of value without interfering in matters outside its delegated scope, stewardship evokes a sense of ‘*deliberate* management of humanity’s relationship with the rest of the Earth system’ (Steffen et al., 2018, italics mine). This is not the understanding with which the global guardian should act. To the contrary, in line with the principles of sufficiency and subsidiarity, Earth guardianship remains a collective global multi-layered and polycentric responsibility.

Hence, the appropriate term for a global institution mandated with safeguarding the global ecological commons in an otherwise non-intrusive manner is more in line with the meaning evoked by the term ‘global guardian’ rather than ‘global steward’. In *Laudato si’*, Pope Francis (2015, p. 1) also calls on ‘humanity to be a responsible steward rather than a dominator of creation’. The term global guardian was instead chosen over the term steward to underscore the importance of subsidiarity and multi-layered global governance.

To be sure, the global guardian will be a protector of conceptual spaces. One space is the global ecological commons which needs to be safeguarded from human overexploitation and allow the Earth system to bioregenerate within its carrying

capacity. The global ecological space is a scientifically informed space with ‘fuzzy’ boundaries and degrees of uncertainty, warranting the need for precaution as a necessary safeguard against human ignorance (Rockström et al., 2009b). The second space is a state’s freedom for self-determination and realisation within a political republican understanding of non-domination. The global guardian will protect a state’s fair share of access to the global ecological commons and promote the provision of protection guarantees by international institutions for self-determination and non-domination. It seeks to protect both spaces in recognition that a state’s capacity for self-determination, undominated by external influences that reduce its capacity for true self-determination, is equally an ecological concern. In this sense, the global guardian can be understood as the protector of ‘an ecologically safe and socially just space for humanity’ (Raworth, 2017, p. 45). The global guardian will be protecting the necessary space for Earth bioregeneration as well as the necessary space for people and communities to self-determine and realise themselves.

6.3.2 ‘Guardian’ vs ‘guardianship’

The thesis employs the terms ‘guardian’ and ‘guardianship’ for different purposes. The term ‘guardian’ is employed to refer to a global state-like institution or institutions that embody the concept of a constitutionally limited, legitimate, coercive, global authority mandated with the functions to protect the global ecological commons and to distribute ecological entitlements. This is similar to the use of the term ‘guardian’ by Kim (2007) which is used to refer to the public functions of state-like institutions vis-à-vis the protection of the commons.

Guardianship, in contrast, is employed in recognition that effective protection of the global ecological commons entails the involvement of other state and non-state actors, at global, regional, national and local levels. Guardianship is more synonymous with the concept of governance. In the same manner that governance goes beyond government (Weiss & Wilkinson, 2014), guardianship goes beyond guardian.

Furthermore, the ‘global guardian’ is a concept and not an organisation. The guardian takes the form of a state-like institution which is constitutionally invested

with executive powers, and which is endowed with selected characteristics. However, the thesis does not engage in a detailed argumentation about whether the functions of a global guardian should be vested within one organisation or multiple organisations, whether such a concept is subsumed by one or many environmental UN and/or non-UN organisations, the degree of centralisation of operation, the extent of desired polycentricity, the degree of fragmentation and overlap between entities forming the ‘global guardian’, the manner by which regional entities feed into global entities, so on and so forth. Such a discussion is typically undertaken within the field of international relations (Charnovitz, 2002) but is not characteristic of a thesis in normative political philosophy. The thesis employs a theoretical framework firmly grounded in normative political philosophy to develop an ecological case for legitimate coercion at a global level and to conceptualise the idea of global ecological guardianship, based on principles of ecological sustainability, global distributive justice, global pluralism, subsidiarity, democratic world governance, and solidarity, among others.

6.3.3 ‘Ecological’ vs ‘environmental’

The thesis preferentially employs the term ‘ecological’ over the term ‘environmental’ (e.g. global ecological commons or ecological sustainability) in the conceptualisation of global guardianship. However, when referring to literature in academic disciplines that traditionally employ the term ‘environmental’ (e.g. global environmental governance), the text retains the term ‘environmental’.

The reasons are as follows: i) the principal issue being addressed in the thesis is the ‘global ecological crisis’, where the term ‘ecological crisis’ conceptually refers to irreversible disruptions in the natural environment that threaten ecosystem health and stability and the species, including humans, that thrive upon them. Ecological crisis refers to a situation where the natural environment is under severe stress from human overexploitation of natural resources, leading to unprecedented rates of biodiversity loss and degradation of essential ecosystem components (e.g. biomes) at a planetary level, and where it poses threats to human survival and security (Tian et al., 2018). ii) the solutions that are sought in the thesis are exclusively at a planetary scale, that is, the preservation of a Holocene-like state on Earth. The thesis

does not deal with environmental problems at regional, domestic or local scales, such as regional air pollution, noise pollution, or local river contamination, etc..., even though there might be associations in the drivers of environmental problems across different hierarchical scales. It specifically deals with ecological transgressions at a planetary scale that manifest themselves as climate change, ocean acidification and global biodiversity loss, among others. This is in keeping with the Greek understanding of Earth as a household; the Greek root of the word ecology being *oikos*, the ‘study of the household’ (Odum, 1993, p. xiii). iii) ecological sustainability relates to the complex interaction between living organisms (in this case, humans) and their environment, which is the reason why ‘ecological economics’ employ the term ‘ecological’ and not ‘environmental’. The use of the term ‘ecological’ over environmental is also preferred to overcome the human-environment dichotomy and instead conceptualise humans as part of and in a continuum with ecosystem processes and the natural environment. This is in line with Ricklefs and Miller’s (2000) emphasis in their book *Ecology* where the authors underscore the human-environment continuum and humans as agents of environmental change at a planetary level:

‘All living things are both dependent on the natural world for their fundamental energy needs and agents of change in the natural systems in which they live. The rapid expansion of the human population – and with it the globalization of economic, social, and political systems – represents the strongest force of change in the natural world today.’ (Ricklefs & Miller, 2000, p. 2).

Similarly, Krebs (2009, p. 5) defines ecology ‘as the total relations of the animal to both its organic and its inorganic environment’ underscoring the human-environment continuum.

6.3.4 ‘Legally binding treaty’

The thesis distinguishes between legally binding treaties in the language of the United Nations and the case for a globally-binding legal framework to secure ecological sustainability as advanced in the thesis. The former refers to treaties that have entered into force after a period of time upon accession by a number of

countries and that are legally binding on ratifying countries only. This arrangement also holds the possibility for countries to exit treaties, which would, *de facto*, lift any legal obligations emanating from the aforementioned treaty on these countries. The case for global guardianship advances the idea of a globally-binding legal framework that is binding on both members and non-members alike. The term ‘binding’ is used in the sense that non-compliance carries enforceable legal consequences. It excludes the possibility of countries unilaterally refraining from taking ecological responsibility within a globally-binding legal framework.

6.3.5 ‘Global’ vs ‘international’

Some authors have shifted from using the term ‘international’ to using the term ‘global’, as in, from ‘international governance’ to ‘global governance’ (Young, 1994; 1997). The thesis employs the term ‘global’ interchangeably with the term ‘international’ when referring to issues of worldwide concern. The term ‘global’ is not used to refer to a world republic or in protest to the use of the term ‘international’ denoting a state-based political order. In my view global guardianship would still retain state-based architecture. The terms are not used to draw out theoretical differences as they appear, for example, in the literature on ‘international justice’ and ‘global justice’ where in the former ‘the nation or state is taken as the central entity of concern’ and in the latter authors ‘inquire about what justice requires among human beings.’ (Brock & Hassoun, 2023, Section 1.1, para. 1, p. 4). Nonetheless, the thesis preferentially employs the term ‘global’ over ‘international’ (e.g. global guardianship and global ecological commons) when referring to issues of worldwide concern and global in character because whereas ‘global’ is unambiguously global, as the term denotes, ‘international’ might misleadingly be understood as referring to issues between two states or more.

Conclusion

In this thesis, I have argued that there is a case for instituting a global guardian to protect the global ecological commons. The case is built on the urgency of a profound political, social, economic and cultural transformation worldwide that is required to avert ecological catastrophe with serious anthropocentric implications. It is also built on the observation that intergovernmental environmental treaties have been insufficiently effective at addressing the ecological crisis. The case is built with a methodology that is grounded in normative political philosophy and within a theoretical framework that draws on contractarianism and contractualism, liberal theory, republicanism and deliberative democracy.

The literature review shows how the conceptualisation of the global ecological commons has evolved over time. The meaning has changed from its traditional definition in international relations as areas beyond national jurisdiction, to capture a fundamental characteristic of ecological commons as vital to Earth system stability. It is argued that the focus on national jurisdiction rather than ecological significance can actually undermine ecological protection, as demonstrated by issues like rainforest and coral reef conservation. A more comprehensive approach, which considers key global characteristics like scarcity and access while recognising the critical role of the exploitation of national resources to global ecological stability, may better serve global ecological governance. Effective ecological protection may require governance frameworks that prioritise ecological significance over traditional jurisdictional boundaries, while carefully balancing national sovereignty with global ecological responsibilities. The review also shows that proposals for a Global Environment Organisation have offered potential pathways for reform, however considerable debate remains about its optimal structure and scope. Of note, there has been a notable shift away from purely market-based approaches to environmental governance and increasing emphasis on environmental justice, human rights, and ethical considerations. This suggests the need for governance models that go beyond market mechanisms to incorporate broader moral and ethical principles, meaningful participation from all communities worldwide, and recognition of diverse ways of valuing nature. Finally, the review considers the debate on global democracy in environmental governance.

There are inherent limitations to achieving democratic standards at the global level comparable to national democracies. However, standards can be introduced to scrutinise global organisations. Deliberative democracy, particularly through the growing influence of international civil society organisations, provides important channels for public participation and accountability. The integration of multiple governance scales and diverse knowledge systems appears crucial for effective environmental governance. Furthermore, while globalisation presents challenges to democratic governance, it also creates opportunities for new forms of participation and accountability.

Drawing on Earth system science, I have described how the global ecological crisis is characterised by complexity, urgency, irreversibility and uncertainty. The absence of credible and safe technological solutions to address such complexity with the necessary urgency, strongly indicate the need for a fundamental organisational transformation. A socio-ecological and political critique of economic growth exposed irrefutable evidence that limitless material economic growth is ecologically unsustainable. A philosophical examination of the fundamental components of market capitalism led me to argue that private property, wage labour, profit, and a market economy, are not ethically or ecologically objectionable on the condition that they are appropriately framed by the political state and complemented with non-market institutions. Non-market institutions include the regulation of private property, the administration of certain resources as collective and common property, and environmental regulation. It is however contentious whether the political state is truly free to circumscribe the power of capitalism or whether it is locked in a global capitalist system driven by the geopolitical advantages conferred by economic growth. From a global geopolitical perspective, I have argued that capitalism is an efficient tool at maximizing economic growth in a competitive international political system. In turn, the global political architecture is an independent driver of the economic growth imperative, of market capitalism and of the ecological crisis. The absence of a central authority in global affairs is defined in political philosophy as an 'international anarchy'. The lack of sufficiently effective international coordination on global issues of an urgent nature with tremendous potential adverse repercussions to all nations worldwide

led me to argue in favour of a ‘global guardian’ as a critical component in global multi-layered governance to secure ecological sustainability.

The global guardian ought to be a constitutionally limited legitimate coercive global authority and ought to possess the capability to enforce binding decisions on states. The relationship between the global guardian and the states would be contractarian – states leave the ‘state of nature’ and submit themselves to the rules and regulations of the global guardian to collectively protect the global ecological commons. The social contract implies that the global guardian will be constitutionally bound to distribute access to the global ecological commons fairly along an agreed set of ethical principles. In light of global pluralism and divergent world views, I have argued that the concept of the global ecological commons should exclusively apply to the human exploitation of natural systems that might reasonably jeopardise Holocene-like conditions on planet Earth. I have also argued that ecological sustainability requires guarantees of non-domination from other states, supra-state institutions (including the global guardian) and private actors in international relations such that states are truly free to self-determine themselves. This would liberate states from geopolitical tensions that drive the collective pursuit of economic growth for national security. A globally legally binding framework that provides safeguards and peace of mind would ensure that states can take domestic responsibility, while respecting the negative freedom of other states, to determine themselves within their delimited but protected safe ecological space. The global guardian will complement the existing global basic structure. Its hierarchical nature will however change the nature of the state from one which is fully ‘sovereign’ (at least in concept) to one which is conditioned by the rules and regulations of the global guardian.

Sufficiency, subsidiarity, democracy and solidarity are four necessary principles of good global governance that should be observed by the global guardian. The principle of sufficiency demands that the global guardian should exclusively focus on protecting the global ecological commons and securing ecological sustainability – understood as the preservation of Holocene-like conditions on planet Earth – and that this mandate is constitutionally defined. Such protection will be complemented by the global guardian’s mission to secure global distributive ecological justice,

promote international security as an ecological concern, and ensure a just ecological transformation. The principle of subsidiarity calls on the global guardian to address issues that can be exclusively and appropriately managed at a global level. Ecological governance will remain a shared multi-layered responsibility. State and sub-state actors will retain a central role and bear major responsibility for social innovation, context-specific and bottom-up proposals, within the ecological bounds prescribed by the global guardian. Global democratic governance demands that there is broad and equal state representation in the global guardian, that affairs are conducted transparently with all partners, and that global civil society organisations play an active role to reduce the global democratic deficit. The principle of solidarity finds expression in the international recognition that, with respect to ecological sustainability, all peoples are in the same boat and share a similar fate. The success of one people is cause for celebration for all. Solidarity demands that states work together towards a shared goal and support each other so that no people fall behind.

The case in favour of and the conceptualisation of global guardianship is a realistic utopia. The observed reality of the global political, social and economic dynamics of our times, as examined through a theoretical framework that is firmly rooted in normative political philosophy and that shares significant commonalities with contractarian thought, liberal theory, republicanism and deliberative democracy, has led me to argue that humanity stands a better chance at averting ecological catastrophe if it contracts the services of a legally-mandated coercive global authority to protect what is presumably a universally shared good – ecological sustainability. I acknowledge that such a proposal is ambitious and needs to satisfy a number of preconditions. Among others, it requires the backing of the most powerful states worldwide. It is also being made in ignorance of future major events that might completely change the current global ecological trajectory and the political, economic and social dynamics which currently underpin it. Responsibility however demands that, faced with ecological scarcity and potential ecological catastrophe, humankind should employ the available means to protect the foundations on which its livelihood and that of future generations depend. Evidently, such a responsibility cannot be relegated to wishful thinking or to pure chance. The global guardian conceptually represents the available means for

humanity to protect the global ecological commons for the enjoyment of current and future human generations. In this thesis, I have argued that there is a strong case for developing a globally-binding legal framework that mandates a global guardian with sufficient and legal coercive authority to steer humanity towards ecological sustainability.

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