



Cambridge
Scholars
Publishing

The Safe Operating Space Treaty

Magalhães, Steffen,
Bosselmann, Aragão
and Soromenho-Marques

It is clear that international law is not yet equipped to handle the ecological needs and services that ever simultaneously within and outside of all states. The global commons have always been understood as geographical spaces that exist only outside the political borders of states. A vital good such as a stable climate exists both within and outside all states, and shows traditional legal approaches to be ecological nonsense. With the recent possibility of measuring and monitoring the state and functioning of the Earth System through the Planetary Boundaries framework, it is now possible to define a 'Safe Operating Space of Humankind' overtopping the biogeophysical state of Earth.

In this sense, the Common Home of Humankind is not a planet with 510 million square kilometres, but is a specific favourable state of the Earth System. Beyond major scientific advances anticipate a legal paradigm shift that could overcome the disconnection between ecological realities and existing legal frameworks. If we perceive this qualitative and non-energetic space as a Common Natural Inalienable Heritage of Humankind, all positive and negative extrajurisdictional and toppling include within a new maintenance system of the Common Home.

Paulo Magalhães is a researcher at the Interdisciplinary Centre of Social Sciences of Universidade Nova Lisboa, Portugal, and received a degree in Law from the Catholic University of Porto and a postgraduate degree in Environmental Law from Columbia University, Portugal.

Will Steffen is a Counsellor on the publicly-funded Climate Council of Australia, and is an Earth System Scientist at the Australian National University, Canberra. He is also an Adjunct Professor at the University of Canberra, working with the Canberra Urban and Regional Futures program, and a member of the ACT Climate Change Council.

Klaus Bosselmann, PhD, is Professor of Law at the University of Applied Arts, Vienna, and is the founding Director of the New Zealand Centre for Environmental Law and has served as a consultant to the OECD, the EU and the governments of Germany and New Zealand, and as a legal advisor to the Earth Charter Drafting Committee.

Alexandra Aragão is Professor of Portuguese Law at the Faculty of Law of the University of Coimbra, Portugal, and has a PhD in Public Environmental Law. She represented Portugal at the European Observatories on Marine, 2000, Nitrate, and Water Framework Directive.

Viriato Soromenho-Marques is a Professor of Political Philosophy, Philosophy of Nature, and Environmental Ethics in the Departments of Philosophy and European Studies of the University of Lisbon. He is a member of the National Council on Environment and Sustainable Development.



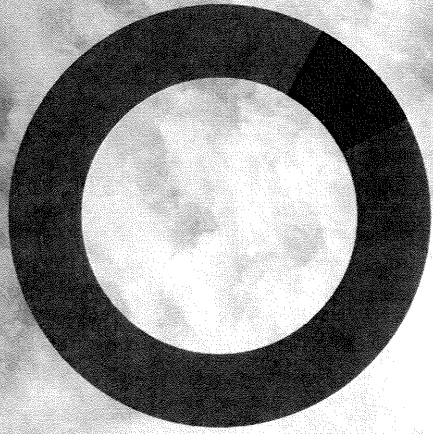
978-1-4438-8903-2

www.cambridge.org/9781443889032

Cover design: *The Earth Treaty*
© Martinus, albert, Ltd., 2016



9 781443 889032



SOS TREATY

THE SAFE OPERATING SPACE TREATY
A NEW APPROACH TO MANAGING OUR USE OF THE EARTH SYSTEM

EDITED BY
PAULO MAGALHÃES, WILL STEFFEN,
KLAUS BOSSELMANN, ALEXANDRA ARAGÃO
AND VIRIATO SOROMENHO-MARQUES

TABLE OF CONTENTS

Acknowledgements	vii
Preface	viii
Nathalie Meusy <i>Head of the Coordination Office on Sustainable Development at the European Space Agency (ESA)</i>	
Chapter One	1
Global Free Riders <i>Paulo Magalhães, Francisco Ferreira</i>	
Chapter Two	23
The Planetary Boundaries Framework: Defining a Safe Operating Space for Humanity <i>Will Steffen</i>	
Chapter Three	47
The Spaceship Earth Condo <i>Clóvis Jacinto de Matos</i>	
Chapter Four	64
Shifting the Legal Paradigm: Earth-centred Law and Governance <i>Klaus Bosselmann</i>	
Chapter Five	83
Legal Tools to Operationalize Anthropocene Environmental Law <i>Alexandra Aragão</i>	
Chapter Six	104
The Common Heritage: Constructive Utopianism <i>Prue Taylor</i>	
Chapter Seven.....	131
A New Object of Law: Attempt for a Legal Construction <i>Paulo Magalhães</i>	

Chapter Eight.....	172
Twelve Legal Arguments in Favour of Considering the Earth System as Natural Intangible Endangered Heritage: In Accordance with the UNESCO Convention on Natural and Cultural Heritage (1972) <i>Alexandra Aragão</i>	
Chapter Nine.....	180
Earth Condominium: A Legal Model for the Anthropocene <i>Paulo Magalhães</i>	
Chapter Ten	213
The Need for an Integrated Assessment Framework to Account for Humanity’s Pressure on the Earth System <i>Federico Maria Pulselli, Sara Moreno Pires, Alessandro Galli</i>	
Chapter Eleven	246
Structural Conditions to Overcome the Dilemma of Collective Action <i>Iva Miranda Pires</i>	
Chapter Twelve	262
Transforming the United Nations Trusteeship Council for Protection of the Earth System <i>Kul Chandra Gautan</i>	
Chapter Thirteen	274
From Mutual Assured Destruction to Compulsory Cooperation <i>Viriato Soromenho-Marques</i>	
Chapter Fourteen	289
Safe Operating Space of Humankind Treaty [SOS Treaty]: A Proposal <i>Paulo Magalhães</i>	
Contributors	303

CHAPTER THIRTEEN

FROM MUTUAL ASSURED DESTRUCTION TO COMPULSORY COOPERATION

VIRIATO SOROMENHO-MARQUES¹

1. Introduction

In 2009, not long before the dramatically announced and long-awaited COP15 was held in Copenhagen, a fiction novel was published. The title was *Ultimatum*; the author hidden behind the pseudonym of Matthew Glass. The plot of what we may call an eco-thriller takes place in the years 2032 and 2033. In a dark and very realistic depiction of international affairs, Glass offers the reader the tragedy of a nuclear war engulfing the USA and China, with its roots precisely in the need to sign a binding agreement able to meet the challenge of a ravaging climate change process, which is the cause of the presence of millions of victims and refugees in some coastal areas of the United States (Glass 2009).

My essay attempts to unfold some of the ideas and problems roughly entangled in the fantasy Glass draws. Indeed what we need to think about is the solution to the following riddle: will we be able, as members of the global community, to stay at the level of the huge challenges posed by the growing environment crisis process? Will the international system of nations and states be in a condition to tackle the Hobbesian nightmare of scarcity, turmoil and conflict that could trigger an endless race to the bottom, a formidable and bloody “war of all against all” on a global scale?

¹ Viriato Soromenho-Marques - University of Lisbon.

2. This Time is Different: The Ontological Crisis

We are fully aware that humans have always faced environmental problems along their history. But this time the nature of the challenge, both in quantity and quality, is rather different.²

The first approach to the uniqueness of the current situation could be based on sheer quantitative data. The acceleration trends of the combined human impact on Earth, from demography to global GDP, not forgetting our ecological footprint, are simply breathtaking if we just consider the last 50 years. But we need to go beyond scale and volume features and focus our attention on qualitative indicators as well. In that sense, the “Anthropocene Era” proposal invites us to consider human action on Earth under a new and bold perspective (Arendt 1993; Crutzen & Stoermer 2000).³ Since the start of the Industrial Revolution, humankind is the strongest driving force modelling the face of our planet, encompassing all the angles of the Earth, from water to land, from ice to air, including the web of life.

Long before Crutzen, some brilliant minds, like the one of Bertrand Russell, were able to see the cloudy future ahead of humankind. He wrote: “Both industry and agriculture to a continually increasing degree are carried on in ways that waste the world’s capital of natural resources” (1949). Russell understood with accuracy the global nature of the environmental problem and, consequently, the need of a response at the same global level. However, almost 70 years after the great British philosopher published his thoughts, we are still far from a strong

² See Chapter 2 of this book, written by Will Steffen.

³ “To assign a more specific date to the onset of the ‘Anthropocene’ seems somewhat arbitrary, but we propose the latter part of the 18th century, although we are aware that alternative proposals can be made (some may even want to include the entire Holocene). However, we choose this date because, during the past two centuries, the global effects of human activities have become clearly noticeable” (Crutzen & Stoermer 2000). A philosophical anticipation of the Anthropocene can be seen in the way Hannah Arendt identified a dangerous qualitative shift in the essence of technology/science with the irruption of Faustian technologies like those connected to the atomic military and energy complex: “The moment we started natural processes of our own – and splitting the atom is precisely such a man-made natural process – we not only increased our power over nature (...) but for the first time have taken nature into the human world as such and obliterated the defensive boundaries between natural elements and the human artifice by which all previous civilizations were hedged in” (Arendt 1993).

consensus on the diagnosis, and even more distant from the adequate dimension and scale needed to produce an effective therapeutic answer.

It would be too simplistic and naïve to blame only the flaws of our political systems, which are very much inclined to the influence of powerful economic factions. We need to acknowledge that some of the main difficulties come from the inner heart of scientific activity itself, understood in its real essence as a complex societal process. Science is in general a difficult activity. It demands long academic preparation and uninterrupted training throughout one's life. Taking into account the personal sacrifices and the degree of dedication and discipline this job demands, it is no accident that science is said to be not just a profession but also a call, rooted in a vocation (the German game of words between *Beruf* and *Berufung* helps to visualize the semantic paradox of vicinity and distance). The Anthropocene, as a synonym for the environmental crisis, is overwhelmed by cross-cutting environmental challenges. Most of the major environmental issues are by nature interdisciplinary; they demand a combined effort from different areas of knowledge. The construction of heuristic approaches to establishing the collection of environmental data, as well as its analysis and interpretation, constitutes a huge epistemological challenge, especially if we consider the vertical structure of the different areas and the actual orientation of universities towards specialisation, at least at a graduate level and for those immediately above. Project leaders faced with the difficulties raised by the epistemological complexity of environmental issues will hesitate between going ahead and carrying out a more comfortable project within their own narrower speciality (Soromenho-Marques 2014).

The epistemic division of scientific teaching and research contributed to a large degree to the epistemic late arrival of the true and complex nature of the environmental crisis. Specialisation of scientific work and research is driven basically by pragmatic and technical goals, which are immediately rewarded in the fiscal language of the marketplace. On the contrary, to study long-term environmental impacts on ecosystems and human health is far from being the best choice if you want a prominent academic career. Many of the environmental problems have a cross-cutting nature, implying strenuous interdisciplinary strategies very hard to assemble and manage, and even harder to finance properly (Hansen & Tickner 2013).⁴

⁴ The interdisciplinary complex nature of environmental research is particularly visible within the realm of the precautionary principle (S. F. Hansen and J. A. Tickner 2013, 17–44).

Besides political resistance, vested economic interests and strong and sometimes savage opposition, the main obstacle to the true understanding of the core characteristics of environmental global crisis originated in the old habit of confining research to the safe areas of individual or team expertise, while the striking evidences of a growing global crisis, from the biosphere to climate, were best seen from a transboundary epistemic angle, very hard to find and above all to maintain in a sustainable manner.

Therefore I maintain two main hermeneutic proposals about the environmental crisis. The first one (see Table 1) suggests that the environmental crisis contains a series of five main predicates that combine the complex and dangerous uniqueness of its critical dimension.

➤ Planetary dimension (e.g., climate change).
➤ Irreversibility and entropy (e.g., massive biodiversity extinction).
➤ Cumulative acceleration (oceans' decline).
➤ Growing political and social unrest (decline of classical state power; risk of international conflict).
➤ Ontological debt (war between generations?).

Table 1. The uniqueness of the global environment crisis

Source: Soromenho-Marques 1994, pp.143–146

My second hermeneutic proposal (see Table 2), also very much developed by other authors in this book under different perspectives, maintains that the driving forces of the environment crisis are not solid and identifiable objects, which we may remit to geographical spaces, but basically complex and dynamic processes. So, we are not speaking about natural resources but about natural sources; not natural services already available but about productive natural cycles, located in between areas, in a kind of no-man's land both for scientific disciplines and regarding the horizon of clear and definite political borders. Therefore, we are not dealing with concrete and strictly quantifiable entities; we are speaking about the "global commons" (such as the atmosphere, the oceans, the carbon cycle among many others) view as meta-values, as the condition *sine qua non* for the good functioning of the fabric of life as a planetary whole.

➤ Meta-values: they are the ontological condition of “useful” things in the realm of benefit-cost analysis.
➤ They are “autonomous and independent ”, before and beyond the economic theory of value (from Locke to Marx): “Sources” are before “(Re) sources” (see Holmes Rolston III). ⁵
➤ They have creative functional powers , contrary to the entropy prevailing in human technology (according to Spinoza’s distinction between <i>natura naturans</i> and <i>natura naturata</i>) (Spinoza 1996).

Table 2. Understanding the three core meta-values of environmental global commons

3. Climax and Decay of the Strategic Rationality

A nuclear war between major powers, such as the one anticipated in Glass’s novel mentioned above, on account of the disarray in a set of global commons and entangled in the dangerous climate change challenge would be a complete failure of the endeavour pursued by the authors in this book. Instead of an Earth Condominium, we would end up in a cataclysm of fire and destruction, probably sentencing human history to a long-lasting doom.⁶

However, environmental disputes have been, almost as a general rule, historically submitted to the logic of competition and conquest, the source of many conflicts and wars. If we want to help shape new models of negotiation among states, against the old habits of empire and warfare, we not only need to suggest new legal patterns but also understand deeply how war rationality works, and try to discern any intrinsic contradictions that could provide us with a glimpse of a hope of a possible peaceful outcome instead of the fatalistic acceptance of the inevitability of a global Armageddon.

Modern war coincides with the modern international system erected with the peace of Westphalia (1648), which brought an end to more than a

⁵ “Forests and soil, sunshine and rain, rivers and sky, the cycling seasons – these are *resources*, but they are also *sources*, the perennial natural givens, that support everything else” (Rolston III, H. 1994,134).

⁶ Climate change as a trigger of conflict is not just a matter of literary fiction. A solid corpus of environmental security research is already showing how and where those conflicts may occur: “If climate protection policy fails and the 2°C guard rail is not adhered to, the international community must prepare itself to deal with climate-induced conflicts” (WBGU 2008, 13; see also Rüttinger et al. 2015).

century of bloody religious wars in Europe. The main operating concept, valid for both peaceful and bellicose international relations thereafter, is the absolute centrality of state sovereignty. This was first a matter of decision for kings and respective councils, but later, with the expansion of republican and democratic ideals and institutions, that same centrality was transferred to the nation and gaining the status of “national interest”. Nevertheless, the most acute conscience of the new paradigm of international relations in the sphere of military and political interconnection within the realm of warfare was reached in the master-work of a Prussian officer, Carl von Clausewitz, *Vom Kriege (On War)* in 1832. A posthumous book organized by the author’s wise wife Marie von Clausewitz, it contains the essential rules that define what we may designate as “strategic rationality”. In my reading, there are three basic rules, and they may be described as follows:

1. Only the organized violence among states can be considered as War. State is understood as an organic actor, or a living community looking for a shared destiny while united with a Nation (Clausewitz 1980, 648).
2. The essence of war belongs to Politics: “War has its own grammar but not its own Logic [which belongs only to the realm of Politics] (*Er hat freilich seine eigene Grammatik, aber nicht seine eigene Logik*)” (ibid, 675).
3. War implies a kind of vibrant “dialogue” in time and space; a skilled management of limited organized violence oriented by the final goal of a “decision by weapons” (*Waffenentscheidung*) (ibid, 48).

In the military literature, there is a large and sometimes confused dispute about Clausewitz’s legacy but what is undeniable is his key contribution to a pattern of rational behaviour in warfare (according to the three rules proposed in my reading above). Although accused many times of advocating extreme violence, the truth is that Clausewitz always considered the goals of war to be entirely of a political nature and to be decided by the political authorities of a country and not by the general staff.

If the two world wars of the 20th century were predominantly waged under the influence of the Clausewitz methodology, we also saw a profound shift in the nature of warfare. New technologies and weapons increased the speed of movement of the military forces and the intensity of firepower, and, above all, increased almost to the infinite degree the

capacity for construction by countries equipped with nuclear weapons after the Hiroshima and Nagasaki bombings in 1945.

Indeed, the crucial factor that transformed the strategic view of warfare directly inspired by Clausewitz was the fact that the new weapons of massive destruction (nuclear, but also biological and chemical – NBC) introduced a *hubris* dimension, an overwhelming killing capacity, that was completely absent in the Napoleonic battlefields where Clausewitz was several times personally engaged. Even before the nuclear bombs and missiles, the strategic air bomber raids launched by the allies against Germany in the Second World War destroyed the Clausewitz notion of the “front” as a specific space where enemy armies collide.

We may, therefore, speak of a progressive destruction of the hardware conditions of warfare, which eroded some of the main methodological concepts developed by Clausewitz. In very brief terms, we may identify the following sharp differences in the bloody experience of war introduced, specifically by new technological skills and tools, in the period stretching from the latter part of the 18th century to the mid-20th century, and thereafter:

1. The erosion of the concept of “front”, brought into the phenomenology of war by the capacity of deploying painful destruction far away from the spot where land armies were clashing. Erosion of the concept started first with the strategic bombing in WW II and continued, after the nuclear attacks against Japan in 1945, to the current capacity of sending nuclear ballistic missiles from land silos (ICBM), aircrafts (ALBM) and submarines (SLBM).
2. The “relativity” in strategic time-space management. Before nuclear weapons, the deployment of armed forces, basically the sole providers of firepower against the enemy, was a long and strenuous process. It implied the recruitment, training and deployment of hundreds of thousands of men against enemy targets. Today, a single nuclear warhead contains more potential destruction than all the combined firepower used in WW II (around 3 megatons). Today, an all-out nuclear conflict, with the “instant mobilization” of ballistic missiles, could erase entire continents, killing billions of people in less than 35 minutes...
3. The eclipse of the “victory” concept by the shadows of “mutual assured destruction” (MAD). The relative “parity” reached in the nuclear arsenals of the USA and the USSR in the 1960s brought with it a deep commotion in the core mantra of strategic rationality.

If a war was able to bring absolute destruction to every belligerent nation involved, the solid rock upon which the institution of war's rationality was grounded – the possibility of obtaining a victory by the “decision of weapons” – was dramatically abolished. It became a contradiction in terms.

Atomic weapons introduced into warfare what we may call the “overkill paradox”. War was forbidden not because of the insufficient firepower to launch it but, on the contrary, because the intensive and extensive destruction capacities amassed by rival states were so immensely huge and disproportionate that they could trigger a cataclysm of violence beyond imagination and purpose. The excess of firepower, the *hubris*, accumulated in novel weapons stripped from the heart of war its most profound rational meaning: the possibility of gaining a victory. In a MAD world, the understanding of war as “the continuation of politics through other means” (a famous motto from Clausewitz) became not only meaningless but deeply absurd.

For the first time in recorded human history, a central collision of major world powers ended without a major and definite all-out conflict. At the end of the day, Clausewitz had the final word. If war was just the grammar and politics the larger logic, the decision of abolishing a war that could bring total collapse and destruction was, indeed, a wise political decision. On the margin of the abyss, sound logic prevailed over a bellicose grammar on the verge of madness.

4. Is There an Environmental Equivalent to MAD?

As we have seen, the reasons why there was no global warfare in the mid-1980s lie more in epistemic and political considerations than in the blunt simplistic arithmetic calculation of weaponry and overall power capacity in the two opposite fields. Both the United States and the Soviet Union leadership were able to fully understand the extreme danger of trying to find a “suitable” battlefield in which even nuclear weapons of smaller sizes and superior accuracy could be released. The “Euro-missile crisis” of the 1979–1985 period was precisely the dramatic process where a consensus was about the reality of the MAD outcome in case a global central war between the two superpowers was actually fought. During those intense years, the Western and Soviet schools of thought that envisioned the possibility of victory in a nuclear war were politically, and I dare say also morally, defeated by those who anticipated not only the phenomenon of mega-death but the complete destruction of human

civilization and its environmental framework (Soromenho-Marques 1985).⁷

It was not easy to overcome Clausewitz's strategic world view in international relations regarding the feasibility of warfare and its core concepts around the idea of a "decision by weapons" depicted above. A war that resulted only in a general and bloody defeat, a war without victory or victor, a war with severe and deep pain but no rewards went directly against the rationality of strategic thought based on the modern concept of national interest and state sovereignty.

In 1985, instead of nuclear warfare in Europe, we saw the arrival to power in the Soviet Union of Mr Gorbachev. The failure of the frantic attempt to reform the Soviet model of government, through *perestroika* and *glasnost*, was a cheap price to pay compared to the infinite burden resulting from the unlimited use of NBC weapons in a global conflict. For the first time in world history, a major opposition between two mighty major alliances, provided with rather different *Weltanschauungen*, ended in a political process of reform and multilateral dialogue. Atomic Armageddon was avoided for epistemological and moral reasons. A war would have been the suicidal and pointless collapse of human endeavour on Earth.

When we turn our eyes to the growing environmental crisis, from the depletion of biological diversity to climate change, what do we really see? Unfortunately, it seems to me that we are still far from adapting a similar understanding of the wisdom contained in the MAD doctrine of nuclear deterrence to environmental diplomacy and environmental international relations. The dominant pattern is still "business as usual". Countries tend to compete in a race to the bottom regarding the access and use of valuable natural resources and non-renewable energy sources. Although a great deal of lip-service has already been offered in the diplomatic arena, the truth is that concern about sustainable use, production and consumption of resources, as well as effective apprehension about the mitigation or avoidance of negative environmental impacts, are still second priorities.

However, if we want to avoid the risk of collapse contained in the overwhelming process known as the "great acceleration" of the last 65 years or so, we need to learn fast and act accordingly. The world is shifting faster than our capacity to cope with every feature of global change (Steffen, et al. 2004). Probably the most striking example of the rapid path

⁷ By the close of the Cold War, I wrote and published a book about the danger of limited nuclear war confined to European soil: *Europa* (Soromenho-Marques 1985).

global transformation is taking may be seen in the field of climate change. Not only is the level of greenhouse gases (GHG) concentration climbing to new heights but there is also a noticeable drift from traditional major economies to emergent ones as the new dominant global emitters. In a few years, China became the major source of CO₂, surpassing the combination of US and EU emissions and going beyond the level of EU per capita emissions.

Country or Region	% of global total
China	29 (7.2 t <i>per capita</i>)
USA	15
EU	10 (6.8t <i>per capita</i>)
India	7.1
Russian Federation	5.3
Japan	3.7
Germany	2.2
Republic of Korea	1.8
Iran	1.8
Saudi Arabia	1.5

Table 3. Top CO₂ emitters in 2013

Source: Global Carbon Project

Therefore, in order to avoid a clash between nations and state alliances on the ground of disputes about scarce strategic resources or on account of unfair distributional impacts caused by the ill- management of global commons, as is the case of the atmosphere and the oceans, we need to deploy a new code of diplomatic behaviour between international actors. If we follow the analogy of nuclear MAD, we will need to go down two tracks simultaneously. The first is expanding into the general public the constant new information regarding the worrying environmental state of the planet. Access to the relevant environmental and climate indicators by the broader public needs to become an intrinsic part of general education and an issue to be discussed in the public sphere in every corner of the planet. The second track deals with the urgent task of developing a common set of values to guide diplomats and political decision-makers in the process of shaping a new international order so they are able to replace *zero-sum* games of competition without boundaries with win-win games of responsible cooperation, including the particular interest of a nation or a private entity within the realm of an international order abiding by strong rules enforced by the strength of a common deliberation.

The principle of common but differentiated responsibilities
The principle of physical constraint and time scarcity
The principle of justice between generations
The principle of compulsory cooperation towards sustainability

Table 4. Four principles to avoid MAECC (Mutual Assured Environmental and Climate Collapse)

An environmental proxy of the nuclear MAD would integrate four main principles (Table 4), which I'll describe as follows:

The principle of common but differentiated responsibilities. This principle, although not universally applauded and already enshrined in the legal wording of some international regimes, particularly in the field of climate change, still faces strong opposition in key countries like the US. The American Congress was always against the Kyoto Protocol, basically because the Washington legislators refused to accept what they considered a positive discrimination status given to countries like China and India. If we consider fairness as a sound metric, however, this principle stands on solid ground. Countries that historically first took advantage from global commons had to acknowledge that there isn't a fair relationship with newcomers (typically the North–South divide). European countries, like Britain, the pioneer of the Industrial Revolution after 1750, and the United States started the driving mechanism of climate change – the chemic shifting of our atmosphere by transferring gigantic quantities of carbon from soil to air – well before major or minor developing countries. China, if we need a critical example, started its economic transformation basically in the last quarter of the 20th century while developed countries performed their modernization over the last two and a half centuries. This principle is not solely a matter of the North–South divide; it is of universal reach as we may see in the burden-sharing negotiations among the European Union countries. Indeed, the EU more than attained its GHG reduction targets within the Kyoto, respecting, however, the inner differences among their member states. European latecomers to the industrial age, with its massive use of fossil fuels, like Portugal, were allowed to increase the overall emission of CO₂ equivalent during the 1990–2012 time frame while the EU as a whole was drastically cutting back its combined emissions.

The principle of physical constraint and time scarcity. This is the first of the three other principles that need to be integrated in the table of a new global environmental diplomacy. This principle gives visibility to the ecological limits of the Earth System. We live on a planet that has

functional boundaries. Humankind works within a finite “ecological space”. The absolute rule in diplomatic negotiations is not given by diplomats or heads of state but by the uncompromising evidence that the Earth System works according to natural laws we may know but cannot persuade or “buy” to act according to our wishes and desires. Therefore, we need to design our institutional arrangements and our funding mechanisms taking into consideration the “despotic character” of factual truth in the realm of nature (Arendt 1993).

The principle of justice between generations. This is a rather classical concept, developed in the last decade of the 18th century by different thinkers and men of action like Thomas Jefferson, James Madison, Edmund Burke, and Immanuel Kant (Soromenho-Marques 2010). The most extensive pioneering contribution on this topic was given to us in the correspondence between Jefferson (while US Ambassador to France) and Madison. For the future third president of the US, no generation was entitled to endanger the freedom of the coming generations. He was thinking essentially of two major obstacles to the freedom of the future inhabitants and citizens of the Earth: a) constitutional gridlock; and b) the burden of public debt. For those two evils he suggested the correct medicine: a) periodic and mandatory constitutional revisions; and b) fiscal prudence and discipline, avoiding the externalisation of the debt burden from the living to the still unborn. We may depart from Jefferson’s keen remarks and expand his wisdom to environmental diplomacy. Isn’t the essence of the global environmental crisis really a matter of injustice between generations? Isn’t climate change truly a new type of global public debt? I mean an *ontological debt*, without haircut or restructuring alleviation devices. Climate change is indeed a debt that must be paid back until the last cent, not by those who made it but by coming generations...

The principle of compulsory cooperation towards sustainability. My fourth principle is also a synthesis of all four I am proposing in a combined and interactive manner, as a kind of new *Organon* for environmental diplomacy, as a bridge for the building of a new and long-lasting international system. This principle enhances the analogy with the nuclear MAD since each major country has the power either to undermine – if no harsh and effective GHG emission mitigation measures are taken – or to protect the atmosphere as a global commons, therefore we need to shift the focus from competition (“race to the bottom”) to a global strategy of TRUST (*Towards Rapid and Responsible Universal Sustainability Transition*). This principle is critical to tackling the challenges of the environmental crisis and, urgently, climate change, also at the institutional level. As happened with nuclear weapons at the closing stage of the Cold

War, when a common understanding about the irrationality of waging a war with no victor prevailed over strategic and military habits with at least four millennia of undisputed dominance, we need today a new culture for diplomacy among nations in a world ravaged by environmental crises and climate change. Only with a strong consensus on the need for compulsory cooperation can we unfold common semantics, new accurate monitoring mechanisms and binding reduction goals or aims for both developed and developing countries in every area of our fragile environment, with an especial urgency for our endangered climate system.

Setting minimal common standards regarding other key areas: adaptation, technology, financing, marketplace mechanisms...
Creating “spill over” dynamics through large regional “functional” communities with developed and developing countries, adding shared convergence sustainability targets to previous binding ones.
Making room for multi-layer and multi-actor climate partnerships (universities, industry sectors, cities...) and increasing efficacy in GHG reduction.

Table 5. Basic requirements of the TRUST evolutionary process in the field of climate change

5. Concluding Remarks

In many ways, contemporary politics has become an exercise of escape. Instead of a candid insight into the trends and challenges that are shaping the future, political discourse, supported in many cases by strong private vested interests, refuses to go beyond a narrow time frame, depriving the search for the global common good of a truly strategic roadmap.

The two basic messages of this chapter, completely harmonised with the wisdom and knowledge mirrored in the pages of all the other chapters of this book, could be summarized as follows:

- The global *necessitas* of environmental crisis and climate change *should be* today the core issue concentrating the attention and creative capacities of public policies in every nation of the world.
- In a world that’s dangerously close to the brink of ecological collapse, the international system is no longer a place for *zero-sum* games. We need a goal-oriented compact approach, guided by the

mobilizing concept of an Earth Condominium, if we want to survive as a civilized species on this wonderful and unique planet.

On the decisions of this generation, our intellectual wisdom, resilience of will, moral courage, and political determination depend not only the shaping of the future but also the rescue of our collective memory and, in short, the possibility of a sequel to the astonishing and breathtaking humankind adventure on Earth.

References

- Arendt, H. [1961] (1993). *Concept of History: Ancient and Modern*. In *Between Past and Future: Eight Exercises in Political Thought* (p. 60). New York: Penguin Books.
- Arendt, H. (1993). *Truth and Politics*. In *Between Past and Future. Eight Exercises in Political Thought* (227–264). New York: Penguin Books.
- Clausewitz, C. v. [1832] (1980). *Vom Kriege*. Frankfurt am Main: Ullstein.
- Crutzen, P. J. & Stoermer, E. F. (2000). The ‘Anthropocene’. In *Global Change Newsletter* 41, 17–18.
- Glass, M. (2009). *Ultimatum*. New York: The Atlantic Monthly Press.
- Hansen, S. F. and J. A. Tickner (2013). *The Precautionary Principles and False Alarms – Lessons Learned*. In EEA Report *Late Lessons from Early Warnings: Science, Precaution, Innovation* (pp.17– 45). Copenhagen: EEA. doi: 10.2800/73322
- Rolston III, H. (1994). *Conserving Natural Value*. New York: Columbia University Press.
- Russell, B. (1949). *Can a Scientific Society be Stable?* *British Medical Journal*, December 10, 1949, 1308.
- Rüttinger, L., Smith, D., Stang, G., Tänzler, D., Vivekananda, J. et al. (2015). *A New Climate for Peace: Taking Action on Climate and Fragility Risks. An Independent Report Commissioned by the G7 Members*. Adelphi, International Alert, Woodrow Wilson International Center for Scholars, European Union Institute for Security Studies.
- Steffen, W. et al. (2004). *Global Change and the Earth System. A Planet under Pressure*. Berlin-Heidelberg-New York: Springer-Verlag.
- Soromenho-Marques, V. (1985). *Europa: O Risco do Futuro*. Lisboa: Publicações Dom Quixote.
- . (1994). *Regressar à Terra. Consciência Ecológica e Política de Ambiente*. Lisboa: Fim-de-Século, 1994, 143–146.

- (2010). Ontological Debt and Intergenerational Justice. The Case of Climate Change. *Intergenerational Justice Review*, 10(1), 30.
 - (2014). Towards a Ptolemaic Revolution in the Anthropocene Era. *Journal of Engineering Studies*, Beijing, 6(2), 140–144. (translated from English to Chinese by Chen Xiaoli).
- Spinoza, B. (1996). *Ethics, Part I, Prop.29, Scholium*. London: Penguin Books (translated from the Latin by Edwin Curley).
- WGBU (German Advisory Council on Global Change) (2008). *Climate Change as a Security Risk*. London and Sterling: Earthscan. Retrieved from http://www.wbgu.de/fileadmin/templates/dateien/veroeffentlichungen/hauptgutachten/jg2007/wbgu_jg2007_engl.pdf