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The Popular Anthropocene in Global Climate (Dis)Governance[1]

An Analysis of Mitigation Strategies for the Climate Emergency

Paola Huwe de Paoli
Federal University of Santa Catarina (PPGRI/UFSC)
paola.huwedepaoli@gmail.com

Abstract

The climate emergency is posing an existential threat to millions of species on Earth—including humans. Despite advances in climate science and the consolidation of global climate governance—which establishes processes, rules, and agreements that define mitigation strategies—the climate emergency has accelerated in the late twentieth and early twenty-first centuries. At the same time, the popular anthropocentric conception, which presents a standard narrative about the genesis and conditioning factors of the climate emergency, prevails in the dialogues, negotiations, and strategies of global climate governance. Therefore, this article analyzes whether the propositions of global climate governance inspired by the popular Anthropocene are sufficient to define mitigation strategies in the face of approaching tipping points. The intellectual-ideological axioms of the popular Anthropocene, namely the carbon metric, sustainable development, and the green economy, are chosen as research criteria. It should be reiterated that popular anthropocentric propositions are not sufficient to delimit effective mitigation strategies; this is because they contemplate modern rationality and reformist liberalism, and therefore aim for "sustainable capitalism"—an oxymoron, since a balanced metabolic relationship with nature is opposed to the incessant accumulation of capital, the driving force of historical capitalism.

Keywords: Anthropocene, Global Climate Governance, Climate Emergency, Mitigation.

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The climate emergency, the decline in biodiversity, and chemical-industrial pollution are posing an existential threat to millions of species in the Earth System—including humans. Centuries of forest and grassland degradation, progressive greenhouse gas emissions, and the dumping of long-lasting plastic and toxic waste into the oceans have led to the accelerated destruction of a range of possible futures in human history (Marques 2023). State and non-state actors in the modern world-system have consolidated global governance to deal with this triple planetary threat, but in half a century of negotiations and the delimitation of mitigation strategies, these have proved to be insufficient (if not useless).

According to the Intergovernmental Panel on Climate Change (IPCC) (2023), a global average temperature of 1.5°C above pre-industrial levels will be reached between 2021 and 2040—if the current trajectory of forest and grassland degradation, greenhouse gas emissions, and the dumping of long-lasting plastic and toxic waste into the oceans is maintained. As a result, multiple large-scale components/systems that sustain planetary life will lose resilience and reach *tipping points*: (1) in the biosphere, in ecosystems such as tropical rainforests, the Amazon rainforest, coral reefs, savannahs, arid lands, lakes, and fishing grounds; (2) in the cryosphere, in the Greenland and West Antarctic ice sheets, mountain ridge glaciers, and Arctic permafrost; and (3) in the ocean-atmosphere circulations, in the South Atlantic, Southern Ocean, and West African monsoons (Marques 2023, Lenton, et al. 2023).

Points of no return correspond to a large-scale *state shift* in a component/system, which leads to sudden and irreversible changes in the conditions in which life can exist on Earth. To the extent that one component/system reaches its point of no return, there is the possibility that other components/systems will also quickly reach their threshold, like a cascade effect, since they are interrelated (Lenton, et al. 2023). In the 2020s, five components/systems are about to reach their point of no return, and another three are expected to reach their threshold in the 2030s. By way of example, Lenton and their colleagues (2023: 3) point out that "the collapse of the great Atlantic Ocean overturning circulation[2], combined with global warming, could cause half of the global area for wheat and corn to be lost."

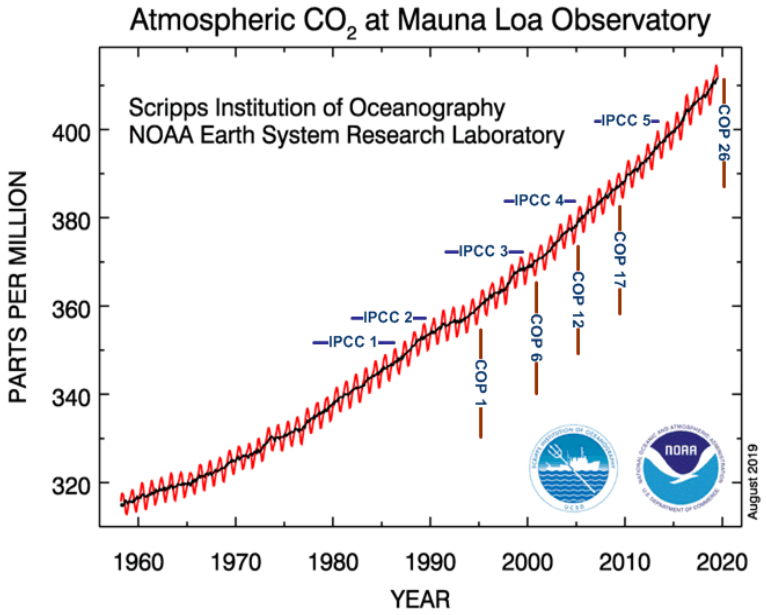
According to the National Oceanic and Atmospheric Administration (NOAA) of the U.S. government, in the pre-industrial period (1750–1800), the concentration of carbon dioxide in the atmosphere corresponded, on average, to 280 parts per million (ppm), while in the last decade (2011–2020), this concentration reached 412 ppm. In view of this, the climate emergency accelerated at the end of the twentieth century and the beginning of the twenty-first despite the advances in climate science—the state of the art of which can be seen in the IPCC Assessment Reports[3]—and the consolidation of global climate governance which establishes processes, rules,

[2] The Great Atlantic Overturning Circulation, also known as the Atlantic Meridional Overturning Circulation, is a large-scale ocean circulation pattern that moves warm waters from the Southern Hemisphere to the Northern Hemisphere and cold waters from the northern hemisphere to the Southern Hemisphere (NOAA 2023b).

[3] Scientific assessment reports that set out the state of the art of climate science, the climate emergency and the environmental and socio-economic impacts of the latter, with the purpose of advising policymakers on decision-making (IPCC 2024).

and agreements that define mitigation strategies—such as the Conference of the Parties (COP) meetings[4]. Graph 1 shows the evolution of the atmospheric concentration of carbon dioxide in line with the year of publication of the IPCC Assessment Reports and COP meetings.

Graph 1. Evolution of atmospheric carbon dioxide concentration (ppm) versus year of publication of IPCC Assessment Reports and Conference of the Parties (COP) meetings (1960–2020).



Source: adapted from NOAA (2023a).

The Anthropocene, as a popular notion (unlike the Anthropocene as a geological conception), considers the genesis and evolution of the triple planetary threat and assumes as a central *proposition* that this threat constitutes a realization of the *Anthropos*, that is, of the entire human species, an abstract humanity. This popular anthropocentric notion prevails in scientific and academic investigations of the "Two Cultures"[5] and spills over into the dialogues, negotiations, and strategies of global climate governance (Moore 2018).

At the same time, Marques (2023: 21, author's translation) assures that "we are living in the last decade in which structural changes in our societies can still significantly mitigate the impacts

[4] The supreme body of the United Nations Framework Convention on Climate Change (UNFCCC) is the Conference of the Parties (COP), responsible for implementing the objectives of the Convention. UNFCCC signatory states meet periodically at the COP to discuss and negotiate strategies for mitigating the climate emergency (UNFCCC 1992).

[5] Epistemological division between the social sciences and the natural sciences that became institutionalized in the nineteenth century. The Political Economy of World Systems (PEWS) section of the American Sociological Association (ASA) argues that the compartmentalization of knowledge in the Two Cultures prevents the scientific world from properly identifying and solving humanity's complex problems. As an alternative, the PEWS section of the ASA proposes unidisciplinarity (Wallerstein 2011).

of the ongoing process of socio-environmental collapse." The research is therefore guided by the following problem question in light of the Political Economy of World-Systems: Are *global climate governance proposals inspired by the popular Anthropocene sufficient to define mitigation strategies in the face of approaching points of no return?*

In order to answer the research's guiding question, three intellectual-ideological axioms of the popular Anthropocene, namely the carbon metric, sustainable development, and the green economy, were chosen as research criteria. The choice of these three axioms is justified by their widespread presence in the dialogues, negotiations, agreements, and rules of global climate governance, which result in strategies that have so far been unsuccessful in mitigating the triple planetary threat, especially the climate emergency.

For data collection, documentary research (primary sources) and bibliographic research (secondary sources) were used. Primary sources include records of dialogues, negotiations, agreements, and rules that make up global climate governance. Books and scientific articles related to the fields of political ecology (Bernstein 2002; Böhm, Misoczky, and Moog 2012; Moreno, Speich, and Führ 2016; Barreto 2021; Marques 2023) and the political economy of world-systems (Wallerstein 2011; Moore 2022) are the main secondary sources of this research.

This article is divided into four sections in addition to this introduction. The first section presents the popular Anthropocene as the hegemonic concept in scientific and academic research that refers to the triple planetary threat, especially the climate emergency. The second section elucidates the propositions of global climate governance and its mitigation strategies. The third section analyzes the relationship between the propositions of global climate governance, the popular anthropocentric conception, and the ineffectiveness of mitigation strategies. Finally, the concluding remarks are presented.

The Anthropocene in the Context of Understanding the Climate Emergency

It was in the 2000s that the notion of the Anthropocene became widespread in the scientific sphere. Initially conceived as an interval of geological time, part of the scientific community advocated that the Anthropocene would succeed the Holocene[6]—a geological epoch characterized by the relative stability of the climate, making it possible for the human species both to practice agriculture and to organize itself in society. The suggestion of a new geological epoch stems from the realization that the human species has become a relevant vector of intervention in ecosystem processes and conditions, to the point of becoming a geological force, that is to say, one that can leave records in the geological strata which can persist for millennia (Angus 2016; Zalasiewicz, et al. n.d.).

In this sense, the Anthropocene as a geological concept assimilates that there has been a considerable change in the balance of forces in the Earth System, so that anthropogenic activities—

[6] A geological epoch that began around 12,000 years before the present and belongs to the Quaternary period of the Cenozoic Era. In the field of stratigraphy, the Anthropocene is not formally included as an interval in the geological time scale, so that the Holocene remains the geological epoch of today (Angus, 2016, Zalasiewicz, et al. n.d.).

from a turning point in human history—are competing with and intervening in natural processes on a spatial scale, unprecedented pace and magnitude, whether through the use of nuclear weapons, chemical-industrial pollution, and the proliferation and dispersion of plastics, or through disturbances in the biogeochemical cycles of carbon and nitrogen and the excessive emission of greenhouse gases (Steffen et al. 2005; Angus 2016; Zalasiewicz, et al. n.d). Along these lines, Steffen and colleagues (2005: 1) point out that

> …human activities are now so widespread and profound in their consequences that they affect the Earth on a global scale in complex, interactive and apparently accelerated ways; humans now have the capacity to alter the Earth System in ways that threaten the very processes and components, both biotic and abiotic, on which the human species depends.

Thus, the Anthropocene presents itself as a *diagnostic concept*: it highlights the climate emergency, the decline in biodiversity, and chemical-industrial pollution; phenomena that threaten planetary life and the way modern civilization is organized. At the same time, the scientific community highlights two "temporal milestones" (sometimes interpreted as two stages) relating to the genesis of this "new" geological epoch[7]: first, the Industrial Revolution at the end of the eighteenth century, with the beginning of the exploitation of fossil fuels and the invention of the steam engine; and second, the Great Acceleration around 1945, when the parameters of anthropogenic intervention in the biosphere rose exponentially (like "field hockey sticks") (Angus 2016; Svampa 2019; Zalasiewicz, et al. n.d).

From another angle, the Anthropocene takes the form of an *analytical category*. In scientific and academic investigations of the Two Cultures that refer to the triple planetary threat, "Green Thinking" prevails[8] with a popular anthropocentric conception, which presents three assertions that make up a standard narrative: firstly, that modernity, the capitalist mode of production and industrial society, rose in Britain between 1760 and 1830; secondly, that the human species (the *Anthropos*) stimulated this epochal change by employing coal, steel, and the steam engine in its production, moving from manufacturing to machinomanufacturing; and thirdly, that the trajectory of society's development that is established from these historical events generates ecological consequences that are revealed in contemporary times (Moore 2017, 2022).

We can immediately see that Green Thinking projects the *Anthropos* as a generic whole, without class, race, gender, nation, culture, etc., cutouts. Furthermore, it is the ecological consequences that determine the historical periodization of the standard narrative, and it is the *Anthropos* that fosters these consequences, thus corresponding to the agent responsible for the climate emergency, the decline in biodiversity, and chemical-industrial pollution (Moore, 2017, 2022).

[7] However, in March 2024, the International Union of Geological Sciences (IUGS) rejected the proposal of the Anthropocene as a formal unit of the geological time scale (IUGS 2024).

[8] Reasoning and reflection around environmental/ecological issues and approaches (Moore 2022).

In this sense, there is a simplification of the history of the capitalist mode of production, which would be limited to the burning of fossil fuels from the Industrial Revolution onwards; thus, Green Thinking ignores the relationship between capital, power, and nature that developed over the long sixteenth century and began with the colonization of the Americas by Europeans (Moore 2017, 2022). As such, Moore (2022: 134, author's translation) points out that the standard Green Thought narrative of popular anthropocentric conception

> does not challenge the naturalized inequalities, alienation and violence inscribed in modernity's strategic relations of power and production. It's an easy story to tell, because it doesn't ask us to think about these relationships *at all*. It reduces the mosaic of human activity in the web of life to an abstract and homogeneous humanity. It removes inequality, commodification, imperialism, patriarchy and so many other things from the problem of humanity-in-nature.

The popular conception of the Anthropocene derives from modern rationality, which underpins the worldviews that prevail in the *geoculture* of the modern world-system. Geoculture refers to the ideological structure of a historical system, that is, a set of widely accepted conceptions, values, and rules that limit social action in a given world-system. In view of this, geoculture results from the attempt to reconcile the contradictions intrinsic to the system, in such a way that this attempt manifests itself as the worldview of the system itself (Mariutti, 2020). In the words of Mariutti (2020: 13, author's translation),

> every consolidated world-system gains a certain self-consciousness and, from then on, develops intellectual or ideological apparatuses that justify it and facilitate its reproduction…. The great peculiarity of the geoculture of the modern world-system is that it is based on a theory of progress—i.e. an appetite for incessant change (at least on a formal level) and for the "new" —which presents itself as universal. And because of this, it mirrors and reinforces the incessant accumulation of capital which, in turn, commands the tendency towards the commodification of the whole of social life.

Modern rationality concerns a form of assimilation of reality that ensures the logic of capital in its relations of exploitation, appropriation, production, and consumption. This rationality structures the reformist liberalism, an ideology that opposes conservatism and radicalism (anarchism and socialism), is based on the logic of progress, and reconciles the working class's imaginary of political change with the maintenance of capitalist power to accumulate capital. In historical capitalism[9], reformist liberalism is revealed as the main reference in the political spectrum for conceiving other ideologies and their implications in the processes of forming

[9] The term is used according to the Braudelian interpretation of capitalism: the top layer of a tripartite structure (composed of material life at the bottom, the market economy in the middle, and capitalism at the top), which represents high profit and is qualified by the anti-market. In this layer, capitalists systematically externalize their production costs (Braudel 1987).

governance institutions, which favors the reproduction of the system (Wallerstein 2004, 2011; Mariutti 2020).

The central philosophical premise of modern rationality corresponds to Cartesian dualism. With the ontological distinction between body and soul, Descartes (1596–1650) personified a scientific and philosophical movement by stating that only the human species was endowed with a soul (a rational soul), while the other species were limited to their physical bodies, devoid of sensitivity and consciousness. Thus, extra-human nature is perceived as a mechanical and measurable force, while man is conceived as a master who dominates it (Marques 2018, Moore 2022).

Cartesian dualism is based on the principle of anthropocentrism as a presumption of superiority and finality (which *is part of* the notion of anthropocentrism as a logical principle of identity). Marques (2018) points out that this principle results from beliefs that originated in the Ancient Age (3500 BC– 476 CE) and that are interrelated, namely: (1) the cosmotheological and teleological presumption of man as the center and purpose of the cosmic order; (2) the biological presumption of man as superior to other species; and (3) the ecological presumption of man as the only species that adapts the habitat to his needs and interests.

The first assumption is that humanity is a kind of microcosm of the macrocosm, the center of a world that is at their service (Marques 2018). Bacon (2002: 78, author's translation) embodies this presumption when he reiterates that "…in fact, the whole world operates in concert at the service of man, and he makes use of and profits from everything…to such an extent that things seem to obey man's needs rather than his own." In turn, the second presumption places humanity at the top of the hierarchy of species and as the raison d'être of extra-human nature (Marques 2018). In line with Aristotle (1913: 14, author's translation; emphasis added),

> …nature provided for their needs after birth; it was for animals in general that she gave birth to plants; it is for men that she destines the animals themselves, the domesticated ones for service and food, the wild ones, at least most of them, for food and for various uses, such as clothing and the other objects that are taken from them. Nature has made nothing imperfect or useless; it has made everything *for us*.

Similarly, Kant (1790, cited in Marques 2018: 632), author's translation, emphasis added), at the end of the eighteenth century, postulated that "without men the whole of creation would become a mere desert, vain and without purpose." In this sequence, the third presumption states that man, because of his rational soul, has an *active* adaptive relationship with his habitat; that is, he is able to modify his surroundings to meet his needs and interests, while extra-human nature has a *passive* adaptive relationship with its habitat. As such, the human species stands out for its unique ability to know and control the laws of nature (Marques, 2018).

There is both the separation between the human species and the "web of life," and the differentiation between humanity, society, capitalism, and "nature" that the popular anthropocentric conception engenders through the dualism "Society/Nature" (written with initial capital letters to indicate the separation), a way of organizing nature from an epistemological angle. Specifically, the "Society/Nature" dualism organizes the reasoning of scientific and academic

investigations of the Two Cultures that are inspired by the popular Anthropocene, so that the natural sciences include social aspects/agents in their research, while the social sciences add natural aspects/agents (Moore 2017; Aráoz and Navarro 2020). For Aráoz and Navarro (2020: 20, author's translation),

> …most experts agree that humanity is indeed part of nature and reject the Cartesian dualism that places Society (without nature) in one compartment and Nature (without human beings) in another. On the other hand, the conceptual vocabularies and analytical frameworks that dominate our empirical investigations remain firmly anchored in the interaction of these two basic hermetic units: Nature and Society.

In view of this, it can be seen that the Two Cultures practice "Green Arithmetic," an assertion that reiterates that "Society" added to "Nature" equals the "Whole." In this process, the relationships between species in the web of life and *humanity-in-nature* become dead abstractions, which express cause and consequence and can be mapped, explored, and measured. In short, in Green Arithmetic we find both the principle of *Anthropos* as a generic whole, and the consequentialist tendency of Green Thinking of the popular anthropocentric conception, which are revealed in the equation that "human activity" added to "ecological consequence" equals the Anthropocene (Moore 2017; Aráoz and Navarro 2020).

Not coincidentally, modern rationality, with its perception that the human species inhabits what is called Society and acts on what is called Nature (or succumbs to its forces), makes possible the incessant accumulation of capital, the driving force behind historic capitalism. This is because a fraction of the human species—depending on gender, race, nation, class, and so on—and the rest of nature transmute into the domain of Nature and become factors of production that work for Society (Moore 2017, 2022; Aráoz and Navarro 2020). In summary, Moore (2022: 130, author's translation) points out that

> …the symbolic, material, and physical violence of this bold separation—Humanity and Nature—performed a special kind of "work" for the modern world. Backed by imperial power and capitalist rationality, it has mobilized the energy and unpaid labor of humans—above all, women, especially enslaved ones—in the service of transforming landscapes for a single purpose: the endless accumulation of capital.

Nature and Society therefore constitute not only dead abstractions, but also real abstractions: they become a material force for capitalists and empires. This is how what Moore (2022) calls "Cheap Nature" is configured, a system of domination, exploitation, and appropriation of human and extra-human nature that sustains historical capitalism. This system ensures both the exploitation of low-cost paid labor and the appropriation of unpaid labor (including the extraction of nature's "free goods" such as rivers, soils and forests) by the bourgeois class (Moore 2017, 2022).

Given that the popular concept of the Anthropocene derives from modern rationality, that is, the very political-epistemic structure that gives rise to the triple planetary threat, and is propagated by reformist liberalism, it becomes clear that this concept not only fails to contribute to the formulation of effective strategies to mitigate the phenomenon but also reinforces the dynamics of

exploitation and appropriation of nature within historical capitalism. Therefore, the following section elucidates the proposals and mitigation strategies of global climate governance.

Global Climate Governance: Proposals and Mitigation Strategies

According to rational institutionalist literature global governance is a type of intentional order in which state or non-state, public or private actors regulate common interests, needs, and problems. Global governance consists of formal and informal processes, institutions, rules, agreements, and mechanisms that establish rights and obligations and foster cooperation between actors on a global scale (Turpin 2008; Benedict 2015).

On the other hand, some have argued that global governance corresponds to institutions, rules, agreements, and mechanisms that govern the relationship between the process of capital valorization and the web of life in the era of neoliberal globalization; with the aim of restricting the intrinsic contradictions of the capitalist mode of production and regulating its reproduction. The widening of social inequalities, inter-imperialist rivalries, and the climate emergency itself are examples of these intrinsic contradictions (Vossole 2013).

In this way, global governance represents the interests and needs of state and non-state actors from the center of historical capitalism (especially multinational corporations). The objectives and plans of action, the criteria for electing members and mandates, as well as the distribution of votes for institutions and agreements that make up the intentional order, are evidence of this (Bernstein 1997; Vossole 2013).

Furthermore, global governance is only effective to the extent that it has legitimacy, a collective acceptance of the power relations that have been established, an identification of the actors' interests with their propositions, and a common (ideological) belief that this kind of intentional order is compatible with the international social structure in force (Bernstein 1997; Vossole 2013).

Global climate governance is defined as the processes, institutions, rules, agreements, and mechanisms—both formal and informal—between state or non-state actors, which define, in particular, strategies for mitigation and adaptation to the climate emergency. Bearing in mind that global governance is multifaceted and includes not only intergovernmental relations but also relations between multinational corporations, non-governmental organizations, civil movements, and capital markets, it should be noted that global climate governance is a historical-institutional evolution of the international regime on climate change[10], which is restricted to intergovernmental relations and was in force in the period preceding the era of neoliberal globalization (Contipelli 2018; Alves, Leite, and Picchi 2020).

Contipelli (2018) as well as Alves, Leite, and Picchi (2020) agree that the United Nations Conference on Environment and Development (1992)—also called Rio 92—and one of its

[10] According to Keohane and Nye (2012: 18), an international regime is equivalent to complexes of governmental agreements, which involve "networks of rules, norms and procedures that regulate behavior and control its effects."

resolutions, the United Nations Framework Convention on Climate Change (1992)—recognized as the Climate Convention—inaugurated the transition from the international climate change regime to global climate governance.

For Bernstein (2002), the United Nations Conference on Environment and Development legitimized the proposition that *economic and financial liberalization is not only compatible with, but also indispensable for ecological sustainability.* In view of this, the main consequence of Rio 92 was the institutionalization of processes, rules, and mechanisms with a (neo)liberal approach that support the concept of sustainable development (Böhm, et al. 2012). The Climate Convention demonstrates this in its second article, which sets out its objective to

> achieve…the stabilization of greenhouse gas concentrations in the atmosphere at a level that prevents dangerous anthropogenic interference with the climate system. This level should be achieved within a sufficient timeframe to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to *allow economic development to proceed in a sustainable manner* (UNFCCC 1992: 9, emphasis added).

In addition, the Climate Convention clarifies in its introduction that

> …measures to tackle climate change must be coordinated, in *an integrated manner, with social and economic development*, so as to avoid negative effects on the latter, taking full account of the legitimate priority needs of developing countries to achieve *sustainable economic growth* and eradicate poverty (UNFCCC 1992: 6, emphasis added).

The Climate Convention assimilates the concept of sustainable development from the Brundtland Report[11] (1987), which reconciles in an unprecedented and convincing way the contradictory problem topics of the capitalist society ("development" and ecological sustainability). According to the World Commission on Environment and Development (WCED 1991: 46), sustainable development "is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Thus, the Brundtland Report (1987) warns that economic growth and the eradication of poverty are strategic imperatives for achieving ecological sustainability. In its words,

> …the satisfaction of essential needs depends in part on achieving full potential growth, and *sustainable development* clearly requires economic growth in regions where such needs are not being met. Where they are already being met, it is compatible with economic growth, provided that this growth reflects the broad principles of sustainability (CMMAD 1991: 47, author's translation, emphasis added).

The proposition of compatibility between "development" and ecological sustainability makes it possible for institutions within the United Nations, such as the World Bank, to include the topic of the climate emergency in their resolutions and political-economic strategies (Bernstein 2002).

[11] Also entitled "Our Common Future" by the World Commission on Environment and Development (WCED).

In this way, we can see that the rise of global climate governance in the late 1980s and early 1990s expresses a reorganization of the modern world-system around a new international paradigm, which aims to decarbonize the world economy without, however, changing the logic of capital (Böhm, et al. 2012).

The Kyoto Protocol (1997), which operationalizes the Climate Convention, proposes that *market-based political-economic strategies are preferable for restricting greenhouse gas emissions efficiently and profitably.* Thus, emissions property rights and a market for transferring emissions permits are conceived (Böhm, et al. 2012). In line with the second article of the provision,

> Each Party…in order to promote sustainable development, shall: (a) implement and/or elaborate policies and measures in accordance with its national circumstances, such as: …(v) progressive reduction or progressive elimination of market imperfections, incentives, tax and duty exemptions and subsidies in all greenhouse gas emitting sectors that run counter to the objective of the Convention and the application of market-based instruments (Kyoto Protocol 1998: 2–3, author's translation).

To this end, the Kyoto Protocol structures various market mechanisms, such as the Clean Development Mechanism (CDM) and international emissions trading ("cap and trade"). The CDM operates in carbon offsetting, enabling states at the center of the modern world-system and multinational corporations to acquire carbon credits from "clean development projects" in peripheral and semi-peripheral territories (Kyoto Protocol 1998; Bolin 2007).

That said, Böhm, Misoczky, and Moog (2012: 5) point out that "given that it is often much cheaper and easier to finance new development projects in the Global South than to reduce emissions in the Global North, the North's participation in the CDM has proved particularly popular," which reveals the central states' preference for offsetting rather than restricting greenhouse gases in their territories.

International emissions trading (cap and trade) makes it possible to buy and sell carbon credits. In this process, anthropogenic greenhouse gas emissions are quantified, especially from the industrial sector; and based on this reference, a maximum emissions budget is set for states to meet at the lowest possible economic cost. States that emit less than their maximum budget will have carbon credits that can be sold, while those that exceed their budget will be able to buy credits (Kyoto Protocol 1998; Bolin 2007; Böhm, et al. 2012,).

In summary, we can see that both the CDM and international emissions trading are flexible mechanisms, as they allow for states at the heart of historic capitalism to meet the Kyoto Protocol's objectives without necessarily altering the industrial and energy sectors of their economies (Böhm, et al. 2012). In addition, the CDM and international emissions trading are underpinned by the "polluter pays" principle, since they amount to concessions to pollute nature on the condition that one pays for the action (Moreno, et al. 2016).

In the 2010s, the United Nations Conference on Sustainable Development (2012)—known as Rio+20—renewed the concept of sustainable development through a key resource, the green

economy, which represents a "new" international paradigm that promotes "green" political-economic strategies with a (neo)liberal approach (UN 2012, Bernstein 2013). According to the final resolution of Rio+20, entitled "The Future We Want,"

> …we affirm that *green economy policies* in the context of sustainable development and poverty eradication should: …(d) promote sustained and inclusive economic *growth*, foster innovation and provide opportunities, benefits and empowerment for all…[and] (o) promote sustainable patterns of consumption and production (UN 2012: 10, emphasis added).

The premises and strategies of Rio+20 are inspired by the "Stern Review: The Economics of Climate Change" (2006), which presents the costs and business opportunities of a "green" transition towards a "low-carbon" economy on a global scale. The report recommends expanding the carbon market, stimulating energy efficiency, and investing in technologies for the production of low-carbon goods (Stern 2006; Moreno 2016). For Moreno (2016), a new stage of accumulation emerged in the 2000s, distinguished by the conversion of nature into natural capital[12]. Thus, the Stern Review emphasizes that

> …reversing the trend towards higher global temperatures requires an urgent, worldwide shift to a *low-carbon economy*. Delay makes the problem much more difficult and action to deal with it much more expensive… we can be *"green"* and grow. In fact, if we are not "green", we will eventually undermine growth, however measured (2006: iv, emphasis added).

We can see that the Stern Report, as well as the Rio+20 resolutions, support the proposition *that the transition from the traditional "fossil-brown" global economy to a "green" and "low-carbon" world economy, through market solutions, will be effective in containing the climate emergency, which will allow for the continued reproduction and expansion of capital society in the era of neoliberal globalization* (Böhm, et al. 2012; Moreno 2016). At the same time, there is a gap in the perception of Rio+20, as the words "green" and "green economy" were not fully clarified in its resolutions (UN 2012; Bernstein 2013).

For its part, the Paris Agreement (2015) upholds the propositions of institutions, rules, and agreements prior to global climate governance and designates as a strategy for mitigating the climate emergency the containment of anthropogenic greenhouse gas emissions through market mechanisms such as the Internationally Transferred Mitigation Outcome (ITMO). This mechanism authorizes the generation of carbon credits that can be sold by states that meet and exceed the greenhouse gas reduction targets of their respective Nationally Determined Contributions (NDCs)—and can be purchased by states that do not meet the targets of their NDCs (Moreno, et al. 2016). In line with the sixth article of the provision,

> …the Parties recognize that some Parties choose to pursue voluntary cooperation in the implementation of their Nationally Determined Contributions to enable

[12] It consists of converting components of extra-human nature into "environmental assets" that can be sold on the financial market (Moreno 2016).

> greater ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity.… The use of *Internationally Transferred Mitigation Outcomes* to achieve the Nationally Determined Contributions under this Agreement shall be voluntary and authorized by the participating Parties. (Paris Agreement, 2015: 7, emphasis added)

In addition, the Paris Agreement requires states to peak greenhouse gas emissions within their territory as quickly as possible, and then to decline their emissions with a view to "balancing" them with removal through sinks and the use of direct carbon extraction technologies ("net zero emissions") in order to limit the rise in global average temperature to 2°C above pre-industrial levels in the second half of this century (Paris Agreement 2015).

In this sense, the Paris Agreement reproduces the proposition *that the climate emergency is practically exclusively a problem of excessive greenhouse gas emissions into the atmosphere* (Moreno, et al. 2016). The relationship between the propositions of global climate governance, the popular anthropocentric conception and the ineffectiveness of mitigation strategies is the focus of the following section.

The Popular Anthropocene in Global Climate (Dis)Governance

According to Wallerstein (2011) and Mariutti (2020), the geoculture of historical capitalism corresponds to a space of social and ideological dispute in which reformist liberalism prevails[13], either because it consents to political change through rational, controlled, and gradual reforms, or because its intellectual-ideological axioms favor the process of capital valorization. Bernstein (1997) and Vossole (2013) allude to geoculture insofar as they reiterate that propositions, principles, and values legitimize and regulate the behavior, interests, and identities of state and non-state actors in the global arena, and that the modification of a "culture" that becomes hegemonic accompanies the evolution of the world economic order.

As a result of the diagnosis of the climate processes underway in the 1960s, as well as the rise of the era of neoliberal globalization in the 1970s, "…a new regime of capitalist organization emerges, whose task is to 'decarbonize' and 'green' the economy with minimal disruption to patterns of economic growth and the expansion of the global economy" (Böhm, et al. 2012: 4). In this historical period, the reformist liberalism that prevails in the geoculture of the modern world-system spills over into the newly constituted global climate governance in such a way that the popular anthropocentric conception begins to inspire its proposals and mitigation strategies.

In order to analyze the relationship between the propositions of global climate governance, the popular anthropocentric conception, and the ineffectiveness of strategies to mitigate the climate emergency, we chose three intellectual-ideological axioms of the popular Anthropocene, namely the carbon metric, sustainable development, and the green economy as criteria for investigation.

[13] However, Wallerstein (2011) and Mariutti (2020) emphasize that the world revolution of 1968 not only inaugurated the terminal crisis of historical capitalism but also shattered the supremacy of reformist liberalism in the geoculture of the modern world-system.

On the one hand, the axioms make it easier to identify the popular anthropocentric inspiration in propositions that express, in the language of global climate governance, modern rationality, reformist liberalism and, ultimately, the *modus operandi* of historic capitalism. On the other hand, the axioms contribute to demonstrating the insufficiency of the strategies that stem from popular Anthropocene propositions for mitigating the climate emergency.

From the outset, we return to the four basic propositions of global climate governance: (1) economic and financial liberalization is not only compatible with, but also indispensable for ecological sustainability; (2) political-economic strategies of a market nature are preferable for restricting greenhouse gas emissions efficiently and profitably; (3) the transition from the traditional "fossil-brown" global economy to a "green" and "low-carbon" world economy, through market solutions, will be effective in containing the climate emergency; and (4) the climate emergency consists of a problem that is practically exclusive to excessive emissions of greenhouse gases into the atmosphere.

With regard to the *carbon metric—the first intellectual-ideological axiom of the popular Anthropocene*—Moreno, Speich, and Führ (2016) report that the quantification, transfer, capture, pricing and commercialization of carbon dioxide, one of the greenhouse gases, express a global abstraction that comes from a specific way of assimilating reality; which emerged in the 1950s and quickly became naturalized in everyday life. The formulation of the Gross Domestic Product (GDP) to measure state economic productivity and the development of the calorie to account for the "nutritional energy" of food are examples of global abstractions that became consolidated in the popular and scientific imagination in the second half of the twentieth century, when political and social issues became quantifiable and economic problem topics (Moreno, Speich, and Führ 2016).

Considering that the way in which a topic-problem is delimited and interpreted predetermines its possible solutions, perceiving the climate processes underway only as an excess of greenhouse gas emissions in the atmosphere makes phenomena such as the loss of biodiversity, the degradation of arable land, chemical-industrial pollution, the loss of fresh water, etc., invisible, all of which are interrelated. In addition, mitigation strategies for the climate emergency converge around carbon and the decarbonization of the global economy, as opposed to containing fossil fuel production and overcoming the logic of capital (for example) (Moreno, et al. 2016). In summary, Moreno, Speich, and Fürh (2016: 11, emphasis added) stress that

> …translating a *multidimensional and complex* ecological and social crisis such as climate change into tons of carbon dioxide equivalent…not only restricts our vision in terms of truly transformative actions, but also allows the actors and interests behind the current system to continue unchallenged.

With regard to the strategy for decarbonizing the global economy, the ambition is for it to operate using the net zero emissions logic, which means that it results from the compensation between greenhouse gas emissions and their removal either through sinks or capture technologies. In this way, the net zero emissions logic allows emissions to continue as long as there are ways of offsetting them. At the end of the day, the question is: would such decarbonization of the world

economy be enough to restore the balance of the multiple ecosystems and natural cycles of the Earth System and dismantle the ecologically destructive logic of capital? (Moreno, et al. 2016; Barreto 2021).

While principles and values of a mercantile nature were perceived as antagonistic to environmental preservation in the mid-twentieth century, with the concept of *sustainable development—the second intellectual-ideological axiom of the popular Anthropocene*—these appear, in discourse, to be both reconcilable and indispensable in such a way that mitigation strategies of a mercantile nature and a (neo)liberal approach prevail in global climate governance at the end of the twentieth century. In this process, the notion of sustainability also takes on a market reference in international climate policy, as it intends to "ensure the supply of raw materials, the flow of goods, the accumulation of wealth, and the return on investment" (Misoczky and Böhm 2012: 551, author's translation).

On the one hand, sustainable development is presented as a response from liberal reformist ideology to the environmentalist anti-systemic movement that emerged at the turn of the 1960s and 1970s; on the other, it derives from the evolution of the *ideology* of development, which conceives development as a utopian horizon (a position to be reached) in which the logic of capital is naturalized in the relations of production and reproduction of life (Prado 2020).

Given that the ideology of development propagates development as a universalizable process, thus classifying national states as "backward" or "advanced" in comparison to a "model country-period" (such as the United States), and that the notion of sustainability contains heterogeneous meanings, the concept of sustainable development proves to be imprecise and vague, which fosters multiple interpretations and allows "development" to be emphasized in opposition to ecological sustainability (Misoczky and Böhm 2012; Prado 2020).

According to Bernstein (2002), institutions such as the Organization for Economic Cooperation and Development (OECD) and the Brundtland Commission were successful in propagating propositions and strategies in international climate policy, to the extent that they aligned ecological issues with market principles and values compatible with the current economic order. In the early 1970s, the polluter pays principle, which establishes the "right to pollute" for those who can afford it, and which conceives of nature as a commodity, introduced a parameter for the development of mitigation strategies for global climate governance (Moreno, et al. 2016). In short, Lander (2011: 3, author's translation) argues that

> …by not questioning the logic of capitalist accumulation and the model of industrial society as the fundamental causes of the conditions that make life possible, [sustainable development] has operated as a legitimizing mechanism for neoliberal globalization, which has thus been presented as sustainable, despite its overwhelming and devastating dynamics.

Misoczky and Böhm (2012) point out that sustainable development represents a stage of moderate and camouflaged advance of capital over extra-human nature. The green economy, on the other hand, portrays a stage of radical and open advance of capital over the commons. In line with the *green economy—the third intellectual-ideological axiom of the popular Anthropocene*—

the climate emergency is not a political issue: it is the result of a market failure, and its correction depends on internalizing the economic costs of environmental externalities (determined by measuring consumption and pollution/degradation in the production process). In other words, a market failure is addressed through market solutions (Misoczky and Böhm 2012, Moreno 2016).

These political-economic strategies of a market-driven nature that constitute the green economy also incorporate carbon metrics and sustainable development. With this diagnosis of the climate emergency, components of extra-human nature such as carbon, water, and biodiversity, which represent common goods, are transmuted into the domain of "environmental assets" so that negotiations surrounding them are supported by international market mechanisms, especially the carbon market (Moreno 2016).

In this direction, the green economy introduces natural capital, that is to say, the valuation of new environmental assets which were invisible to the "brown-fossil" economy. With natural capital, components of extra-human nature are quantified, priced, and traded on the financial market, in a process that converts carbon, water, and biodiversity (for example) into green bonds that carry, through a reference ballast (territories with an abundance of common goods), private property rights that guarantee their value (Moreno 2016). In summary, Moreno (2016: 286, author's translation, emphasis added) explains that

> …the naturalization of *natural capital* as an economic reality—but also as a social, cultural and political one—leads us to a new moment of primitive accumulation, with new *enclosures* of these "environmental assets", creating exclusion (separating indivisible components of biodiversity and ecosystems), ensuring a legal framework that guarantees property rights, and making profound cultural changes so that what was once socially perceived as a common good can be legitimately transformed into private property.

In this way, the green economy legitimizes a new stage of accumulation in the era of neoliberal globalization. In global climate governance, dialogues and negotiations allude to the transition from a brown-fossil economy to a green and low-carbon economy through green economy mechanisms. However, the logic of this green economy is no different from the logic of the brown-fossil economy, which consists of the incessant accumulation of capital; not least because green bonds on the financial markets appreciate in value to the extent that there is scarcity, pollution, or degradation of environmental assets—of the commons. In other words, nobody would pay for water if it were clean and abundant (Moreno 2016).

In general, it can be seen that the four basic propositions of global climate governance are inspired by the popular Anthropocene, as they express modern rationality, reformist liberalism and, ultimately, the *modus operandi* of historic capitalism. Modern rationality (patriarchal, colonial, and capitalist), especially with the epistemological and ontological separation between "Nature" and "Society" that it articulates, obscures the exploitation of human nature and the appropriation of extra-human nature that are indispensable for the reproduction of capital society. In this way, modern rationality assigns blame for the contemporary triple threat to the *Anthropos* (as a generic whole), rather than the expansive and destructive logic of capital.

At the same time, the CDM, the carbon market, and the composition of natural capital (for example) reveal the reformist liberalism of the mitigation strategies that predominate in global climate governance. It turns out that market-based mitigation strategies aimed at reforming capitalist society are *not* effective, as there is an intrinsic contradiction between ecological sustainability and the process of capital valorization which prevents the consolidation of a "sustainable capitalism." Even if political-economic strategies restrict consumption and decrease the appropriation of nature in a specific area, the capital freed from this restriction will necessarily be used in another sphere, given that the modern world-system requires continuous expansion of its economy (Barreto 2021).

Finally, it should be reiterated that the institutions of global climate governance embody principles and values that represent the interests and needs of state and non-state actors from the center of historical capitalism and that mitigation proposals and strategies inspired by popular anthropocentrism—in other words, those that express modern rationality and reformist liberalism—assume prominence and legitimize themselves in dialogues and negotiations regarding the climate emergency. With points of no return approaching due to the acceleration of the triple planetary threat, what is clear is that restricting mitigation strategies to global climate (dis)governance—and ultimately to institutionality—is like seeing a tsunami on the horizon and heading towards the beach.

Final Considerations

The aim of this article was to analyze whether global climate governance propositions inspired by the popular Anthropocene are sufficient to define mitigation strategies in the face of approaching points of no return. It should be noted that popular anthropocentric propositions *are not* sufficient to define effective mitigation strategies. This is because they contemplate modern rationality and reformist liberalism, and therefore aim for sustainable capitalism—an oxymoron, since a balanced metabolic relationship with nature is opposed to the incessant accumulation of capital, the driving force of historical capitalism.

In particular, it can be seen that perceiving the climate processes underway only as an excess of greenhouse gas emissions in the atmosphere makes phenomena such as the loss of biodiversity, the degradation of arable land, pollution, the loss of fresh water, and so on invisible; all of which are interrelated. Similarly, mitigation strategies converge around carbon and the decarbonization of the global economy, as opposed to curbing fossil fuel production and overcoming the logic of capital.

In addition, with the concept of sustainable development, market principles and values appear in the discourse as both reconcilable with and essential to environmental preservation. In this process, the notion of sustainability also takes on a market reference in international climate policy, as it intends to "ensure the supply of raw materials, the flow of goods, the accumulation of wealth, and the return on investment" (Misoczky and Böhm 2012: 551, author's translation). In this way,

the concept is imprecise and vague, which encourages multiple interpretations and allows development to be emphasized in opposition to ecological sustainability.

In this sequence, the climate emergency is seen not as a political issue, but as a market failure, in which its correction depends on the internalization of the economic costs of environmental externalities (determined by measuring consumption and pollution/degradation in the production process). With this diagnosis, components of extra-human nature such as carbon, water, and biodiversity, which represent common goods, are transmuted into the domain of environmental assets and natural capital, so that the negotiations around them are supported by international market mechanisms, especially the carbon market.

Finally, we can see that global climate governance proposals inspired by the popular Anthropocene support the maintenance of the capital valorization process in a new stage of accumulation. The delimitation of mitigation strategies by means of popular anthropocentric propositions proves to be not only insufficient (if not useless) but also accentuates the ecosystemic imbalance and the contemporary triple threat. In this direction, the concept of the Capitalocene[14] (Moore 2017, 2022) operates as an alternative and resistance so that the range of possible futures in human history is not restricted to dystopia and obscurity.

About the Author: Paola Huwe de Paoli is a PhD student in the Postgraduate Program in International Relations at the Federal University of Santa Catarina (PPGRI/UFSC) and a member of the Research Group on Political Economy of World-Systems (GPEPSM/UFSC).

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[14] A conception that assimilates how the relations of power, capital, and nature have evolved in the capitalist World-Ecology, how they have engendered its structural crisis, and conditioned the contemporary triple threat (Moore 2017, 2022).

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