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THE CARBON MARKETS AND THEIR EFFECTS ON CLIMATE JUSTICE

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THE CARBON MARKETS AND THEIR EFFECTS ON CLIMATE JUSTICE

A Master's Thesis

by
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To my grandfather

THE CARBON MARKETS AND THEIR EFFECTS ON
CLIMATE JUSTICE

The Graduate School of Economics and Social Science of
İhsan Doğramacı Bilkent University

by

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By Emirhan Tekin

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in International Relations.

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ABSTRACT

THE CARBON MARKETS AND THEIR EFFECTS ON CLIMATE JUSTICE

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The carbon markets are the most popular climate policy for reducing greenhouse gas emissions. They are the profit-based markets which prioritize cost-efficiency rather than climate justice, and environmental additionality. As an intra-system solution, the carbon markets present all the problems and contradictions of the neoliberal environmental policies. This thesis questions the effects of the carbon markets on climate justice. It argues that the carbon markets have been deepening and increasing climate injustice due to their profit-based neoliberal features. Subsequently, the unequal representation on the international and local climate politics, commodified characteristic of carbon and offsetting mechanisms contribute to increase climate injustice. To analyze and clarify those effects on the carbon markets, this thesis discusses three cases: California Cap and Trade Program, the impacts of the CDM projects in China, and REDD+ projects. Those three cases are the examples of the most applied three mechanisms: Emission Trading System, Clean Development Mechanism, and Voluntary Carbon Mechanism. Those three cases indicate how and why the carbon markets deepen and increase climate injustice. The thesis explores

the limitations and problems of market-driven environmental policies.

Keywords: Carbon Market, Climate justice, Neoliberal Environmentalism, Commodification of Carbon, Offsetting

ÖZET

KARBON PİYASALARI VE İKLİM ADALETİNE ETKİLERİ

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Mart 2024

Karbon piyasaları, sera gazı emisyonlarının azaltılmasına yönelik en popüler iklim politikasıdır. Bunlar, iklim adaleti ve çevresel katkı yerine maliyet verimliliğine öncelik veren kâr temelli pazarlardır. Sistem içi bir çözüm olarak karbon piyasaları, neoliberal çevre politikalarının tüm sorunlarını ve çelişkilerini sunuyor. Bu tez, karbon piyasalarının iklim adaletine etkilerinin neler olduğunu sorgulamaktadır. Bu tez, karbon piyasalarının kâr odaklı neoliberal özellikleri nedeniyle iklim adaletsizliğini derinleştirdiğini ve artırdığını savunmaktadır. Sonuç olarak, uluslararası ve yerel iklim politikalarında eşit olmayan temsil, karbonun metalaşmış özelliği ve dengeleme mekanizmaları iklim adaletsizliğinin artmasına katkıda bulunmaktadır. Karbon piyasalarının bu etkilerini analiz etmek ve açıklığa kavuşturmak için bu tez üç vakayı tartışmaktadır; Kaliforniya Emisyon Üst Sınırı ve Ticaret Programı, Çin'deki CDM projelerinin etkileri ve REDD+ projeleri. Bu üç vaka en çok uygulanan üç mekanizmaya örnektir: Emisyon Ticareti Sistemi, Temiz Kalkınma Mekanizması ve Gönüllü Karbon Mekanizması. Bu üç örnek, karbon piyasalarının nasıl ve neden iklim adaletsizliğini derinleştirdiğini ve artırdığını göstermektedir. Bu tez, piyasa odaklı

evre politikalarının limitlerini ve sorunlarını arařtırmaktadır.

Anahtar Kelimeler: Karbon Piyasası, İklım adaleti, Neoliberal evrecilik, Karbonun Metalařması, Karbon Dengeleme

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CHAPTER 1

INTRODUCTION

Since its emergence, carbon markets have been discussed by several policy-makers, researchers, and institutions. They are the hearts of climate politics and governance because they directly aim to reduce greenhouse gas emissions (GHG) to mitigate the destructive consequences of climate change. Carbon markets are a trading system in which carbon credits are sold and bought (UNDP, 2022). Firms and individuals can apply carbon markets to compensate for their GHG emissions by getting carbon credits from institutions that reduce or remove GHG emissions (UNDP, 2022). One tradable carbon credit is measured by the equivalent amount of different GHG or one tonne of carbon dioxide, which must be decreased, avoided, or sequestered (UNDP, 2022). The credit becomes an offset when generated to decrease, avoid, or sequester emissions and cannot be traded anymore (UNDP, 2022). There are types of carbon markets: compliance and voluntary markets. Compliance markets are established with the results of any national, international, and/or regional policy or organizer requirement (UNDP, 2022). Voluntary carbon markets can be national and/or international, but they sell carbon credits voluntarily to limit carbon emissions (UNDP, 2022). There are three main examples of compliance carbon markets:

Emission Trading System, Clean Development Mechanism, and Joint Implementation, which contribute to the carbon emissions goals of international agreements, mainly Kyoto and Paris. Subsequently, the voluntary carbon markets supply carbon credits mostly from private entities that build carbon projects or governments that develop programs approved by carbon standards, leading to emission removals and/or reductions (UNDP, 2022).

The carbon markets and their effects on climate justice are essential questions because, as the dominant policy, they are the most influential mechanism in Global Environmental Politics. The description of climate injustice is the disproportionate and increased vulnerability to climate-related harm by disadvantaged social groups, who are less responsible and excluded from climate change decision-making (Ciplet et al., 2015: 5). Even though climate justice has a various historical trajectory, it is comprehended either as justice regarding the effects of responses to climate change or as justice in terms of the responsibility for climate change (Newell et al., 2021: 3). Climate justice emphasizes the “triple injustices” of climate change: that people who are the most vulnerable against carbon emissions are the least responsible for them, while are usually disadvantaged by responses to climate change at the same time which may either deepen or increase existing inequalities (Newell et al., 2021: 3). Climate justice or injustice is a key concept and approach for understanding the effects of the carbon markets. Subsequently, climate justice scholarship is quite valid for broadening the spectrums of global environmental studies. Sultana (2021: 118) suggests that climate justice scholarship expresses how climate change is a justice and moral issue, not just a techno-managerial, scientific, or financial issue.

In this thesis, I explore the effects of the carbon markets on climate justice. Even though there are some studies concerning those effects, they are inadequate for combining theory and practice. Newell et al. (2021: 2) emphasize a disconnection between academic and philosophical treatments of climate justice understanding. I argue that this disconnection occurs because very limited studies tie theoretical knowledge with practical experiences. In this thesis, I aim to combine those two to present a more solid and academic approach to climate justice. The carbon markets as an intra-system solution are deepening and increasing the climate injustice because of their market-driven and profit-based features. False market solutions override the rights of poor and marginalized groups (Newell et al., 2021: 4). Furthermore, climate justice scholarship has played a critical role in explaining a rights-based discourse in climate discussions by getting attention to the plight of those most affected by climate change and linking it to the broader neoliberal globalization critique (Newell et al., 2021: 4). Moreover, the "hegemony" and "historical bloc" concepts are quite valid in understanding this climate injustice. Hegemony means the process of a ruling coalition of actors, and the historic bloc means the dominant class who share specific interests prevail over the entire society's world understanding with their agendas and ideas (Ciplet et al., 2015: 27). Those concepts have explanatory value for comprehending why the market mechanisms and profit-driven environmental policies prevail as solutions rather than other alternatives like a carbon tax. Bulkeley and Newell (2023: 113) propose that the commodification of carbon and its circulation in the global markets pursue a neoliberal logic interest in creating profit at the expense of both its consequences for local communities and efficiency in terms of decreasing GHG emissions.

At this juncture, the question of why the carbon markets deepen and increase climate justice becomes quite critical. The governance of climate politics provides valid answers to this question. Bulkeley and Newell (2023: 155) emphasize that "the issue of who governs directly impinges upon the question of who benefits from current governance arrangements." In climate politics, the Global South's representation in International/Global Environmental Politics decision-making is not equal to the Global North's representation. The norms and values of the Global North, coinciding with liberal environmentalism and neoliberalism, dominate International/Global Environmental Politics. Thus, the Global North has constructed consent and legitimacy about the carbon markets, which are considered the most efficient policy. The legitimacy and consent production is essential in which various actors strategically behave and communicate to construct, contest, leverage, and solidify shared ideas of what is socially acceptable (Ciplet et al., 2015: 29). At that point, Ciplet et al. (2015: 30) emphasize that the embraced legitimacy in a political community is always embedded in current material power relations. In the governance process, some actors are always excluded, mostly marginal and weak materially, while materially powerful actors' words and attention are the greatest (Ciplet et al., 2015: 30). Materially powerful actors like the US, Europe, and China have shaped climate governance's values, methods, and norms, which seem to be the legitimate way against climate change. On the other hand, small island countries whose survival depends on climate change mitigation and developing countries' proposals are mostly marginalized even though the total number is representatively higher than the developed countries.

Climate governance mostly seems deliberate, either exploiting structural inequalities to ensure that some are benefit/protected from climate action at the others' expense or blind to the structural inequalities that underpin these climate outcomes (Bulkeley & Newell, 2023: 121). Thus, Gupta (2014: 20) defines climate change as a classic rich-poor issue. The emissions of the rich are extremely higher because of producing and consuming more, and they have more capacity to deal with the destructive impacts of it (Gupta, 2014: 20). However, the emissions of the poor are quite less and, unfortunately, more vulnerable to climate change (Gupta, 2014: 20). Plus, even the emissions of the poor occur, it is due to the rich's consumption by the rich's factories (Gupta, 2014: 20). Thus, the responsibility of the richer or developed countries should be more because they produce and consume not only currently but also historically. Bulkeley and Newell (2023: 3) argue that 1% of the richest population is disproportionately responsible for GHG emissions; subsequently, only the 90 firms in the cement industries and fossil fuel have produced more than two-thirds of emissions since the industrial revolution, with half of these emissions having been generated since 1986. The developed countries frame the institutional and material concessions (Ciplet et al., 2015: 97). The consent in the negotiation between the high-income and low-income states has been profoundly tied to strategic coercion and structural conditioning founded by the broader world order's historical conditions (Ciplet et al., 2015: 97). Moreover, low-income countries or so-called developing countries are harshly dependent on trade with developed countries (Ciplet et al., 2015: 98). They are also more vulnerable to climate change disasters due to economic and geographical issues, which makes them more vulnerable to climate diplomacy in international spheres (Ciplet et al., 2015: 98).

We should also examine how the carbon markets deepen and increase climate injustice to comprehend the carbon markets' effects. Carbon emissions have been experiencing valuation and commodification processes with the carbon markets. Polanyi (1957: 75) defines commodities as "objects produced for sale on the markets." At that point, in the prevailing neoliberal capitalism, it is desired to have markets for everything, not only for goods and services produced by people but also for money, work, and land (Ziółkowski et al., 2020: 284). Land and labor that do not experience a production process are also commodified for the market despite not being actual commodities (Ziółkowski et al., 2020: 284). Polanyi (1957) defines those commodities as "fictitious commodities" because they are fictitiously commodified and defend themselves against full commodification because of their innate character. The carbon emission rights are a "fictitious commodity" because they are not produced for the market to be bought and sold. The abstraction and commodification of carbon emissions contribute to uneven environmental and economic outcomes, which benefits economic elites (Babic and Sharma, 2023). "Bulkeley and Newell (2023: 113) propose that the commodification of carbon and its circulation in the global markets pursue a neoliberal logic interest in creating profit at the expense of both its consequences for local communities and efficiency in terms of decreasing GHG emissions.

The questions which are proposed by Ciple et al. (2015) are illustrative for comprehending the reasons for current climate policies, particularly carbon markets, deepen global inequalities;

"How did it become acceptable to commodify the atmosphere? How did it become a radical and marginal position to attempt to keep global levels of greenhouse gases at

what are known to be truly safe levels? Why was it considered okay to allow the largest polluters to continue to get the largest share of rights to the atmosphere, only making incremental adjustments? Why were more just approaches such as giving equal shares of the atmosphere to every human never given even minimally adequate time in the discussions?" (pp. 29).

Climate injustice is not limited to governance and emissions but has an international level. Thanks to the carbon offsetting schemes CDM, JI, and VCM, the carbon markets have become important issues for international politics and the international economy. A carbon offset means a reduction in GHG emission or an increase in carbon storage, which is applied to compensate for GHG emissions that arise elsewhere (What Is a Carbon Offset? - Carbon Offset Guide, 2020). At this juncture, we should ask what role carbon offsetting has in climate injustice. The developed countries invest in carbon reduction projects in the developing countries to fulfill their emission reduction obligations (Bulkeley & Newell, 2023: 156). These investments, defined as "carbon colonialism" by some scholars, deepen the inequality by maintaining the production and consumption based on carbon emissions in developed countries. The offsetting via CDM and Voluntary Carbon Markets deepen/increase climate injustice and inequality because their neoliberal logic causes the investment of the most profitable regions rather than the most required places. Subsequently, their environmental additionality is very problematic, according to various studies. CDM is proposed to encourage sustainable development in developing countries; however, it is mostly dominated by China and India (almost 70%), which are two of the five biggest economies (Li & Lin, 2021; Muthyanolla & Muthyanolla, 2022). Those CDM projects in China are concentrated in the relatively wealthier parts of China (Li & Lin, 2021). VCM is extremely

problematic in terms of environmental additionality and climate justice (West et al., 2023). We analyze those issues with the cases in Chapter 4.

1.1- Climate Justice

Climate Change policies should not be analyzed without considering the politics behind of climate change. Dolsak and Prakash (2021: 284) suggest that climate adaptation policies are not politics-free because they involve policy trade-offs, which leads to asking how to prioritize goals, who gains, and who loses. At that point, the concept of climate justice occurs to assess the equity issue of climate policies. Sardo (2023: 32) argues that climate justice movements enhance a large comprehension of climate injustice with intersecting related equity, inclusion, participation, and the well-being of marginalized and ecological communities. Sultana (2021) expresses that the climate justice approach examines who gains, who loses out, why, where, and in what ways. In other words, climate justice scholarship indicates “how climate change is a moral and justice issue, not just a science, techno-managerial, or finance issue (Sultana, 2021). Climate justice concerns how climate change affects people differently, disproportionately, and unevenly (Sultana, 2021). It aims to reduce or mitigate those injustices and inequalities of climate change politics and policies by improving equity and justice. At that point, we should define how to assess those equity and justice concerns. Dolsak and Prakash (2021: 285) propose that we should ask two questions: Do those who have led the damage take a bigger responsibility to decrease present and future emissions? Are climate policies increasing or decreasing existing political, economic, environmental, and social inequalities? Thus, we could argue that climate justice scholarship provides a broader understanding of climate

change by contextualizing the policies and their impacts. Climate justice scholarship strives to reveal climate change's root causes to question and criticize these structures and systemic issues (Sultana, 2021). Fossil fuel dependency, infinite capitalist growth desire in a finite world, commodification and exploitation of natural resources, non-inclusive democracy, among other issues (Sultana, 2021).

Even though there is no specific, clear explanation of climate justice, all of the explanations have decent similarities: equity and justice principles in climate change. Newell et al. (2021: 4) express climate justice's four pillars: distributional, intergenerational, recognition, and procedural. Distributional justice concerns the distributional impacts of climate change on economic and environmental risks. Intergenerational justice interests the intergenerational equity between humans, which means not exploiting all the resources on the planet but transmitting them to the next generations. Recognition justice focuses on recognition of marginalized groups like indigenous people experiencing political, social, and cultural discrimination and marginalization (Newell et al., 2021: 6). Lastly, procedural justice concerns the decision-making processes of climate change should be accountable, fair, and transparent for all groups (Newell et al., 2021: 4). Furthermore, Dolsak and Prakash (2021: 285) illustrate some dimensions of climate justice with climate actions and climate inactions. Climate change has a double inequality of the negative correlation between the responsibility for leading the climate change and climate impact incidence (Barrett, 2013). This double inequality occurs both within and across countries. Dolsak and Prakash (2021: 285) suggest that rich countries that have benefitted from fossil fuel-based industrialization contributed to climate change; however, the destructive impacts of climate change have been experienced

more in developing countries both economically and environmentally. Subsequently, this rich-poor issue could also be seen within countries. Wealthy households, which have both gained from the industrial economy and contributed to the increase of GHG emissions by consumption, are more secure from climate impacts compared to poor, marginalized, and discriminated communities (Dolsak & Prakash, 2021: 285). Newell et al. (2021: 4) claim that climate justice movements have described themselves as opposing more mainstream climate movements and the UN processes, which are usually defined as “technocentric, bureaucratic, and co-opted by corporate actors”, forcing false market solutions and invalidating marginalized and poor groups’ rights. At this juncture, the climate justice movement has enormously contributed to a right-based discourse of climate change and linked the equality and justice problems of climate change politics with broader neoliberalism (Newell et al., 2021: 4).

1.2- Methodology and Case Selection

In this research, I apply the case study methodology to explain the effect of the carbon markets on climate justice. A case study is especially applicable to explain how and why the carbon markets affect climate change and what the role of offsetting is. Yin (2003) argues that a researcher should consider case study design when: (a) you want to include contextual conditions because you think they are relevant to the studied phenomenon; (b) the boundaries are not definite between the context and phenomenon; (c) you cannot manipulate the action of those covered in the study; or (d) the objective of the study is to respond “how” and “why” questions. My research question and the related sub-questions are quite proper for conducting

in-depth case studies. Moreover, Bennett and Elman (2007: 171) emphasize that qualitative case study methods have been essential in IR research thanks to significant advantages in examining complex phenomena. In IR research, there are various path dependencies, structural and agent-based variables, and strategic interactions among numerous actors across multiple levels of analysis (Bennett & Elman, 2007: 171). Furthermore, a case study is quite applicable for identifying causal mechanisms and forming causal arguments. Gerring (2004: 348) suggests that to identify causal mechanisms, a researcher must combine general knowledge of the world with empirical knowledge, and case studies have a comparative advantage for that process.

In my research, I have three cases: the California Cap and Trade Program as an example of a cap and trade system, CDM projects in China, and REDD+ as an example of VCM. Therefore, the thesis pursues a multiple case study approach to comprehend the similarities between the cases. The chosen cases should represent a population of cases that is usually much bigger than the cases themselves (Seawright & Gerring, 2008: 294). The cases of this thesis represent a population of similar cases under the carbon markets and Global Environmental Politics. Baxter (2008: 549) argues that a researcher can apply the case study method not only to comprehend a particular situation but also to provide insight into an issue or help refine a theory. In my research, I aim to explain those phenomena and provide the similarities between the cases and my theoretical framework.

I select the cases to demonstrate the effects of the carbon markets on climate justice. All three cases are leading examples of GHG emission reduction mechanisms. While I examine the cases of the cap and trade system, CDM, and VCM, I do not present a discussion of JI because it is not commonly applied in the contemporary global economy. California Cap and Trade Program is an important case because it is the biggest ETS in the US and one of the biggest in the world (Compare ETS, 2024). Even though the ETSs are diverse and have some differences from each other due to their different interests and features, the California Cap and Trade Program is a valid example thanks to its developmental level, covered GHGs, and available data. Secondly, the CDM projects in China are quite essential because China is the leading country in getting CDM project investments. China, India, and Brazil are the top 3 countries hosting 3303, 1795, and 283 CDM projects as of 2021 (Li& Lin, 2021). Therefore, the analysis of China's hosted CDM projects has enormous explanatory value for understanding CDM and climate justice relations. Lastly, REDD+ projects under the VCM are critical because it has developed since its first proposal at COP11 in 2005 and is used a lot by voluntary actors (Shin et al., 2022: 2). The CDM projects in China and REDD+ are presented as the examples of flexible mechanism, showing the problems of them about climate justice. I analyze those cases to provide insight into the broader case, which is the carbon markets.

I analyze those cases with an interpretive approach by collecting reports, articles, and secondary sources. Odell (2001: 163) defines the disciplined interpretative case study as the explanation or interpretation of an event by using an existing theory to the novel areas. I have benefited from the California Air Resources Board's website and factsheets to explain the structures and features of the California Cap and Trade

Program. I explain and interpret those characteristics of the California Cap and Trade program by my theoretical framework. Subsequently, I have benefitted from two USC Equity Research Institute (ERI) reports. Those reports empirically analyze the California Cap and Trade Program's impacts on disadvantaged and marginalized people, which are quite illustrative to understanding the program's effects on climate justice. Haya et al. (2020), and Holliman and Collins (2023) research about offsetting and equity issues of the California Cap and Trade Program are also very helpful for my case study. For the CDM projects in China, I have benefitted from two empirical research, which analyze the distribution of CDM projects at the international level and local climate justice impacts in China (Li& Lin, 2021; Xu& Zhang, 2021). The research of Li and Lin (2021) is quite illustrative in understanding why China is the leading country in hosting CDM projects, and Xu and Zhang's (2021) research is quite valid in comprehending how those projects deepen climate injustice locally. I interpret those research and some subsidiary articles by my theoretical framework for crystalizing climate justice problems of the CDM mechanism. Lastly, I have explained and interpreted the empirical research of West et al. (2023), West et al. (2020), and Guizar-Coutiño et al. (2022) by my theoretical framework. Those are valuable research studies that help comprehend REDD+ climate justice problems, particularly regarding environmental additionality.

1.3- Organization of the Thesis

In Chapter 2, I explain how climate change became an issue in Global/International Environmental Politics. The UNFCCC, Kyoto, and Paris Agreements are the founders of the existing global environmental regime. I describe and explain the

carbon markets, the key concepts, and the work of the carbon market mechanisms. I explain carbon offsets, carbon markets, carbon credits, greenhouse gas emissions, Clean Development Mechanism, Joint Implementation, Voluntary Carbon Markets, Emission Trading Systems, and double counting. Subsequently, I express some basic information about the existing biggest ETSs, the EU's, China's, and the US's.

In Chapter 3, I present the literature review and the theory. Economists, energy specialists, and political scientists have discussed the carbon markets since their emergence. Most studies do not analyze the carbon markets in terms of their effects on climate injustice. I express the mainstream liberal understanding of the carbon markets to strengthen my critical arguments towards them. At this juncture, the commodified characteristic carbon via carbon markets has enormous explanatory value because of the innate contradictions of valorization, commodification, and market mechanism. Subsequently, the commodification of the carbon process is explained to understand how the carbon markets deepen climate injustice. Furthermore, I plan to propose my theory to explain the research question. I greatly benefit from (Eco)Marxists and Green Theorists to explain and answer my research topic.

In Chapter 4, I analyze the California Cap and Trade Program, the impacts of the CDM projects in China, and REDD+ projects to clarify the climate justice problem of the carbon markets. To analyze those cases, I benefit from secondary sources: reports, research, articles, and fact sheets. Those cases and their analysis are quite

illustrative to understanding how and why the carbon markets deepen climate injustice.

In the concluding chapter, I will draw a conclusion about my research. I will combine all of the findings and discussion to summarize and conclude the thesis.

CHAPTER 2

CLIMATE CHANGE POLITICS AND THE CARBON MARKETS

This chapter first explains what climate change is and what its politicization is. Then, I will express the key concepts and some prominent national carbon markets with some discussions. The goal is to familiarize those critical concepts and markets to increase comprehension of the research and contextualize the carbon markets.

2.1- *Climate Change and Its Politicization*

Climate change has been one of the most essential and controversial issues since it began to be discussed in the international arena. The definition of climate change is “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods” (UNFCCC, 1992).

Moreover, climate change includes long-term shifts that might be natural because of massive volcanic explosions or changes in the sun’s movement in weather patterns and temperatures (United Nations, n.d.). However, due to the burning of fossil fuels like oil, gas, and coal, human activities have been the main driver of climate change since the 1800s (United Nations, n.d.).

The United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) founded the Intergovernmental Panel on Climate Change in 1988 to prepare regular reports on the scientific basis of climate change, its future risks and effects, and mitigation and adaptation options (IPCC, n.d.). The IPCC, whose objective is to supply governments at all levels with scientific information that they can apply to prepare climate policies, is quite a valid organization in international climate change negotiations (IPCC, n.d.). Keohane & Oppenheimer (2016: 2) suggest that each IPCC report has strengthened the message: anthropogenic climate change, during which human activity has been the dominant impact on the environment and climate, is enormous, increasing rapidly, and in many respects gaining speed. Subsequently, despite some much more than others, almost all countries will suffer from climate change (Keohane & Oppenheimer, 2016: 2).

The scientific determination of anthropogenic climate change, and becoming a political topic is quite critical for comprehending climate change politics. First of all, Joseph Fourier discovered the greenhouse effect in 1824, and other scientists developed various studies since that time (Bulkeley & Newell, 2023: 56). Nevertheless, there was no attention to human-induced climate change until the 1970s (Bulkeley & Newell, 2023: 56-57). Since getting this attention, climate change has increased its importance in international/politics because the destructive impacts of climate change have grown rapidly. Harris (2021: 15) argues that climate change has evolved from a minor scientific issue in human affairs to national politics and international relations to one of the most high-profile political issues globally since

the 1980s. In the contemporary world, climate change is an enormous concern for almost all governments, major industries, international organizations, numerous NGOs, and millions of people worldwide (Harris, 2021: 15). At that point, the framing problem of climate change provided it a remote character because of its abstract frame as global and future problems (Gupta, 2014: 49). Furthermore, this framing mostly has technocratic nature, concentrating on the sources of emissions and removal of sinks (Gupta, 2014: 49). However, despite this remote and abstract character, climate change influence our everyday. Babic& Sharma (2023: 1) emphasize that there is significant proof and reason to suppose that climate breakdown is not the future but is shaping our day and age.

The development of how climate change became a global political issue occurs step by step. The discussion about climate change in the political arena began in the 1970s. Even though the Stockholm Conference (1972) and the Brundtland Report (1987) discussed and took some actions about environmental destruction, climate change started to be an issue in the political agenda in 1988 with the Toronto Conference on the Changing Atmosphere (Tosun& Peters, 2021: 3-4). The 1992 Rio Earth Summit, also known as The United Nations Conference on Environment and Development (UNCED), was a turning point for climate change politics thanks to the establishment of the United Nations Framework Convention on Climate Change (1992). Although it was quite a narrow, general, and abstract treaty, it was a significant step as the first major multilateral environmental treaty. At this juncture, the end of the Cold War played an enormous role because the bipolar world structure and the war risk of the great powers were removed, and the countries became more receptive to international cooperation. The parties of UNFCCC began to meet every

year in 1995; those meetings were called the Conference of the Parties (COP) to assess development in tackling climate change (Tosun& Peters, 2021: 4). The COP, in which all signatory states represented, is the supreme decision-making body of the Convention (UNFCCC, n.d.). The UNFCCC and the COP are governed by the signature of The Kyoto Protocol (1997) and the Paris Agreement (2015).

The whole process of global environmental politics makes us consider whether there is a global environmental order, including climate change politics. Norrlof et al. (2020: 114) define order as “the interdependence among state and non-state actors, whose behavior cannot be understood without knowledge of the structural context within which they operate, but which is nevertheless structurally sound.”. At that point, we can argue that climate change, as the main part of global environmental politics, has its order because it has particular rules, norms, laws, and institutions. Furthermore, the term “governance” is also essential for understanding the development of the climate change order and its contemporary status. Governance means the many activities valid both in founding international rules and characterizing policy through “on-the-ground” execution, even when some of such activities arise from actors that do not have formal authority (Okereke et al., 2009: 60). This governance perspective is beyond the state-level or structural analysis, which involves international organizations, NGOs, multinational corporations, transnational scientific networks, business organizations, global social movements, and other types of private authority (Okereke et al., 2009: 60). All those actors have played roles in climate change politics and the policies applied either globally or nationally. For example, the COP, Fridays for Future, Shell, IPCC, and various other groups play more or fewer roles in climate change politics proper to the governance

perspective. The offsetting standards, carbon-labeling schemes, and emissions registries prove that climate governance includes various actors and institutions. Jordan et al. (2018: 7) propose that the governance analysis needs to examine the linkages with other regimes governing human rights, inter alia trade, and investment.

The explanation of the characteristics and features of climate governance is essential for understanding how it prevails in climate politics. The liberal mindset in environmentalism, called liberal environmentalism, has constructed global environmental governance, including climate governance. Bernstein (2002: 14) emphasizes the institutional constraints that particular ideas dominate in the social structure; thus, the change, especially at deeper levels, mostly exists evolutionarily and slowly. The results of the institutional constraints of liberal environmentalism are the application of certain policies for global environmental problems consistent with its material and normative principles, such as the dominance of the privatization and market mechanism against global environmental problems (Bernstein, 2002: 14). At that point, liberal climate governance concerns maintaining the prevailing neoliberal economic system by responding to the environmental problems coherent with it. Jordan, Huitema, Van Asselt, et al. (2018: 33) argue that various international economic institutions are highly active in global environmental governance because climate change is considered as much an economic as an environmental problem. Furthermore, economic determinants are critical to dealing with and maintaining multilateral environmental agreements. Besedes et al. (2020: 835) argue that when countries' economic interactions are deep, they might easily coordinate their economic and environmental policies. The leading political institution in environmental policies is the EU, thanks to intense economic interdependency.

Subsequently, the large transaction costs and low transaction costs comparison in the multilateral environmental agreements prove that the MEAs are more successful when they have low transaction costs (Besedes et al., 2020: 837). Even if the parties are numerous with lower commitments, those MEAs are more successful than the larger parties, and commitments include MEAs (Besedes et al., 2020: 837).

2.2- Milestones in the Climate Change Politics

The current climate change politics, including the climate order and governance, has experienced various milestones to become today's structure. The United Nations Framework Convention on Climate Change (1992), the Kyoto Protocol (1997), and the Paris Agreement (2015) are the main milestones that constructed the current climate politics. Those international environmental agreements are essential not only to their articles but also to their internal politics. The politics before, during, and after those agreements are essential for understanding the change and continuity in climate change politics.

For international cooperation, states in the UN signed the United Nations Framework Convention on Climate Change to struggle with climate change by mitigating average global temperature rises, concluding climate change, and dealing with ineluctable impacts by then (History of the Convention, n.d.). The Convention is the first major turning point in climate politics because it was the first international treaty defining climate change systematically and a pioneer in establishing climate change institutions and norms. The Convention defines climate change as a “common concern of humankind”; it adds that the major contemporary and historical

GHG emissions are from developed countries (Gupta, 2014: 62). Subsequently, the Convention emphasizes the necessity of developing countries' growth with respect to their sovereign rights but not causing "damage to the environment of other states" is an essential point to developing climate norms in international politics (Gupta, 2014: 62). Jordan, Huitema, Van Asselt, et al. (2018: 41) claim that the core principle of the UNFCCC is to establish an inclusive set of rules. For instance, the Convention forms "common but differentiated responsibilities and respective capabilities" as a climate norm to the necessity for leadership by those who are more responsible for the climate problem jointly more capable of coping with it (Van Asselt & Zelli, 2018: 41). The Convention also supplies a universal basis, like a forum for negotiating broad decisions, standards for reporting on emissions and instructing technical bodies (e.g., the IPCC) to collect and examine information (Keohane & Victor, 2011: 19).

Establishing UNFCCC and COP accelerates the consideration of climate change in international politics. Since the beginning of COP meetings (1995), the desire to establish an international treaty for climate change has increased. At COP2 in Geneva in 1996, the parties emphasized the need for specific targets and timetables for restricting GHG emissions (Harris, 2021: 42). The Kyoto Protocol emerged at the end of that COP meeting, and the parties negotiated in December 1997 at COP3 in Kyoto (Harris, 2021: 42-43). The Kyoto Protocol is the first legally binding international climate treaty. According to the Protocol, the most developed countries need to reduce their GHG emissions by 5.2 percent below 1990 levels by 2012 (Harris, 2021: 43). Moreover, due to the "common but differentiated principle" (CBRD), developing countries do not need to limit their GHG emissions at all (Harris, 2021: 43). Applying this principle expresses why not all developed countries

did not agree to be bound by the Protocol (Harris, 2021: 43). Even some developed countries agree, they failed to fulfill their premises (Harris, 2021: 43). Due to the pressure from developed countries, mainly the US, The Protocol established flexible mechanisms to fulfill their objectives. There are three market-based mechanisms: emissions trading, joint implementation (JI), and the Clean Development Mechanism (CDM), which I will explain in the next chapter. At this juncture, Bernstein (2002: 10) argues that the Kyoto Protocol was one of the best examples of liberal environmentalism due to its use of market mechanisms and credit-based systems. Those three flexible mechanisms of Kyoto work on the same basic principle: allocating property rights to emissions and establishing a market that permits them to be transferred so that emission reductions can be reached where it is the cheapest and the most efficient way (Bernstein, 2002: 10).

The Kyoto Protocol, adopted on December 11, 1997, entered into force in 2005 with the ratification of 192 states (United Nations, n.d.). The Kyoto Protocol was the first subsidiary agreement to UNFFCC (Leggett, 2020: 2). The signatory parties agreed to reduce 5% of GHG emissions below their 1990 levels with different pledges for each party (Leggett, 2020: 2). However, the success of the Kyoto Protocol is quite controversial due to the non-ratification of the great powers. Only at least 55 countries ratified the Protocol, and those ratifications must have represented at least 55% in 1990 (Gupta, 2014: 84-85). Even though one of the two (the USA with 36.1% of the emissions or Russia with 17.4%) does not ratify, the agreements could prevail by ratifying small countries and other high emissions countries (Gupta, 2014: 84-85). At that point, the non-ratification of the US to the Protocol made it too difficult to apply. Although it prevailed with the ratification by the other parties, the

non-ratification of the hegemon and the most emissions-level state, the US, made the application of the agreement at a snail's pace. Doelle (2015: 1) suggests that the Kyoto Protocol aimed for collective rather than national interest and sought to ensure that other countries would do the same. Nevertheless, due to the non-ratification of the US, the withdrawal of Canada (2011), and most recently, in the Doha Amendments to the Kyoto Protocol, most developed countries outside Europe refused to admit the second commitment period target (Doelle, 2015: 1). Subsequently, many emerging economies like China, India, South Africa, and Brazil, which have continued to extend their emissions enormously, led to Kyoto's efforts being very limited, even if the Kyoto's objectives would have been achieved (Doelle, 2015: 1). Therefore, the Paris Agreement presents a radically different approach involving voluntary commitments, domestic progress, self-imposed, full transparency, and regular review of the collective efforts rather than Kyoto's top-down approach (Doelle, 2015: 1-2).

After the Kyoto Protocol, the Copenhagen Summit (2009) concluded with a failure because it did not produce a legally binding international agreement. Hale (2016: 15) expresses that the failure of the Copenhagen Summit was the turning point that forced a range of actors to consider novel ways to address climate change. After several COP meetings, the Warsaw Conference (2013) was a critical juncture due to parties being requested to prepare and present "intended nationally determined contributions" in 2015 (Rajamani, 2016: 495). After the Warsaw Conference and the request of the INDC, the mentality change in international climate politics emerged, which is a bottom-up rather than a top-down approach like the Kyoto Protocol. Each state can submit INDCs of whatever style they opted for, and not submitting was

considered embarrassing (Keohane& Oppenheimer, 2016: 146). One hundred eighty-seven countries have submitted their INDC, accounting for 95% of total GHG emissions by 2016 (Keohane& Oppenheimer, 2016: 146). Then, the new understanding crystallized with an international agreement by COP21 in Paris (2015). After the Kyoto, the Paris Agreement is the second major subsidiary agreement by the UNFCCC (Leggett, 2020: 2). The Paris Agreement makes all parties participate in common framework with common guidance despite allowing limited flexibility for some parties, which was the first time under the UNFCCC (Leggett, 2020: 2). Subsequently, all parties began to submit their prepared INDC as nonbinding GHG emissions reduction pledges (Leggett, 2020: 2). Doelle (2015: 1) suggest that the Convention reveals the transition from a top-down binding regime focused on mitigation by developed country to a non-binding and bottom-up approach to global climate change cooperation. The novel regime involves all nations and goals to refer to mitigation, adaptation, loss and damage, technology transfer, finance, and capacity building (Doelle, 2015: 4). Falkner (2016: 1107) proposes that the Paris Agreement acknowledges the priority of domestic politics in climate change and permits countries to decide their level of aspiration for climate change mitigation rather than the establishment of mandatory emission reductions. At that point, the Paris Agreement again proves the difficulty of cooperation between parties with different interests. The interests of the US, Europe, emerging economies, oil-producing countries, and small island countries were quite different. For instance, climate change is a survival issue for small island countries, but for oil-producing countries, their economies are oil-based, which is survival for them. On the other hand, the Paris Agreement accepted the divergent positions of the 196 parties and found common ground on less controversial ones (Doelle, 2015: 1). Moreover,

Doelle (2015: 1) claims that the Paris Agreement shows the legally binding structure of the post-2020 climate regime.

The Paris Agreement did not refuse all the tools and mechanisms from the Kyoto regime. The Paris Agreement improved emission trading and offsetting. For instance, parties could implement bilateral government-to-government transfers without linking ETSs or applying a crediting mechanism under the Paris Agreement (Schneider & Theuer, 2019: 390). Furthermore, PA Article 6 suggests that

“Parties recognize that some Parties choose to pursue voluntary cooperation in the implementation of their nationally determined contributions to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity.”

We can interpret this Article as improving global cooperation to reach their INDC goals, which has benefited and improved the Kyoto mechanisms highly. The Agreement set out the general principles of emissions trading, like environmental integrity, avoidance of double counting, transparency, and robust accounting (Doelle, 2015: 8-9). Falkner (2016: 1119) argues that the Paris Agreement did not create a new sense of climate politics but rationalized an already existing system of mainly domestically ruled climate policy.

Furthermore, the commitment to keep the global average temperature “well below” 2 degrees and the ambition to restrict increases to 1.5 degrees was a valid success of the Paris negotiations (Doelle, 2015: 6). The Paris Agreement led to more interdependent and multipolar global climate politics (Oberthur, 2016: 86). Even though global climate politics is already interdependent and multipolar, Paris is likely

to strengthen that by (1) encouraging nationally determined action to restrict and decrease GHG emissions, particularly by major emitters, (2) accurately limiting the further GHG emissions in the atmospheric space, and (3) invigorating the significance of low-emission capacity as a power and influence source (Oberhur, 2016: 86).

2.3- The Foundation of Carbon Markets

Until the 1960s, the general understanding in economics about controlling excessive pollution to policymakers was that each unit of emissions levied a tax on polluters (Calel, 2013: 107-108). Then, the Coase theorem emerged as a new type of intervention: “It can be left to market transactions to bring an optimum utilization of rights” (Calel, 2013: 108). This Coase theorem is considered the pioneer of market-based environmental policies. Even though the global application of market-based environmental policies occurred with the Kyoto Protocol, the US had been using the primitive cap and trade mechanism against environmental pollution in the 1970s and 1980s (Calel, 2013: 109). Bernstein et al. (2010: 164) argue that carbon markets have become a dominant tool in global climate change governance. The OECD promoted the carbon markets as a global emission mechanism in the 1990s, which caused the involvement of three main market mechanisms in the Kyoto Protocol: Emissions Trading, Joint Implementation, and the Clean Development Mechanism (Bernstein et al., 2010: 164). In particular, Emissions Trading and CDM have been developed since their emergence. Subsequently, the Voluntary Offset Markets (VOM) has also been developed and extended by individuals and firms who desire to offset their GHG emissions (Bernstein et al., 2010: 164). At this juncture, discussing which

method is more efficient becomes a valid question for reaching desired goals about cutting carbon emissions. Bernstein et al. (2010: 168) suggest that although regulated state-led carbon markets ultimately dominate non-state-led markets, non-state and public authorities will likely split registration and standard-setting functions. This point is quite critical not only for monitoring, accuracy, reach, and consistency of measurement but also for whose values and standards will eventually prevail (Bernstein et al., 2010: 168).

The market mechanism dominated the climate policies for reducing GHG emissions. Since their emergence, the carbon markets have flourished among global and local policymakers. Bulkeley and Newell (2023: 48) propose that there are 27 jurisdictions that are effectuating 20 Emissions Trading Schemes (ETSs) across scales encompassing 8% of global GHG emissions. At that point, although their success is very controversial, a solid level of material, ideological, and institutional commitment to carbon markets has been maintained as the preferred treatment for climate change (Bulkeley & Newell, 2023: 48). Furthermore, the market mechanisms simultaneously bring the valuation of GHG emissions to create and maintain those mechanisms. Some companies, such as Google, General Electric, and Microsoft, have even begun to apply shadow pricing. They suppose that there are carbon costs in their carbon-related business (Bernstein & Hoffman, 2018: 254). Babic and Sharma (2023: 11) argue that the abstraction of carbon emissions with the carbon markets and financialization contribute to the uneven environmental and economic outcomes profiting economic elites. Moreover, using financial tools in climate change governance deepens the unequal global power relations. Babic and Sharma

(2023: 11) claim that the emancipatory alternatives to environmental destruction are hampered by the financial actors' and structures' power.

2.4- The Carbon Offsetting

Carbon offsetting and carbon credits, which are two interdependent tools, are critical parts of carbon markets. Carbon offsetting means purchasing carbon credits from others through emission trading schemes or reduction projects (UN-REDD, n.d.). Carbon offsets are tradable certificates or rights that are reduction projects of the GHG emissions in the atmosphere (Carbon Offsets | MIT Climate Portal, n.d.). In this way, individuals, firms, or countries can fund decarbonization projects instead of reducing their own carbon emissions. Those rights or certificates “offset” the GHG emissions of the buyers with an equal GHG decrease somewhere else (Carbon Offsets | MIT Climate Portal, n.d.). Subsequently, carbon offsets include reducing and sequestering GHG emissions, which means taking out some GHG and storing it (Carbon Offsets | MIT Climate Portal, n.d.). Building renewable energy, reforestation, waste, landfill management, and carbon-storing agricultural practices are typical examples of carbon offset projects (Carbon Offsets | MIT Climate Portal, n.d.). At that point, measurement and certification play significant roles in assessing the environmental integrity of those projects. The UN holds the primary measurement and certification with Certified Emission Reductions (CERs) (United Nations Online Platform for Voluntary Cancellation of Certified Emission Reductions (CERs), n.d.). In fact, the CERs are used to comply with carbon markets via the Clean Development Mechanism. The offsetting projects, which are invested in developing countries, bring 1 CER for each metric tonne of GHG emissions they

decrease or sequester to the investor-developed countries (United Nations Online Platform for Voluntary Cancellation of Certified Emission Reductions (CERs), n.d.). Organizations, individuals, or corporations offset their own GHG emissions or even make voluntary contributions to the global climate movement by buying and selling those CERs in the carbon markets (United Nations Online Platform for Voluntary Cancellation of Certified Emission Reductions (CERs), n.d.). Carbon credits related to offsetting mean a market-based instrument that allows governments, firms, and other organizations to refer to their GHG emissions by reduction, sequestration, or removal projects of GHG emissions in the atmosphere (Carbon Credit Explained: An Introduction to Carbon Markets, n.d.). Therefore, we can explain CERs as a carbon credit, even one of the most applied ones. At this juncture, I want to clarify the differences between “carbon credits” and “carbon offset” because those terms look similar but different. Carbon offset is the name of the process, which is one type of carbon credit (Carbon Credit Explained: An Introduction to Carbon Markets, n.d.). On the other hand, there are some other types of carbon credits beyond offsetting, such as sustainable aviation fuel (SAF) (Carbon Credit Explained: An Introduction to Carbon Markets, n.d.). Ollendyke (2023) argues that carbon credits are a measurement unit to “cap” emissions, while carbon offsets are measurement units to compensate a business for applying green initiatives and projects.

2.4.1- Clean Development Mechanism

After carbon offsets and credit issues, I want to explain the Clean Development Mechanism, which uses those tools. The Kyoto Protocol, Article 12 defines the CDM and its purpose as,

“to assist Parties not included in Annex I in achieving sustainable development and contributing to the ultimate objective of the Convention, and to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments” (Kyoto Protocol, Article 12).

Moreover, the Protocol also defines the offsetting and CER mechanisms as,

“Under the clean development mechanism:

(a) Parties not included in Annex I will benefit from project activities resulting in certified emission reductions and,

(b) Parties included in Annex I may use the certified emission reductions accruing from such project activities to contribute to compliance with part of their quantified emission limitation and reduction commitments under Article 3, as determined by the Conference of the Parties serving as the meeting of the Parties to this Protocol.” (Kyoto Protocol, Article 12).

Schneider (2009: 242) summarizes the CDM that developed countries are allowed to design abatement projects in developing countries instead of its compulsory reduction of GHG emissions. The industrialized Annex I countries that have to reduce their carbon emissions to comply with the Protocol forced the inclusion of the CDM mechanism. Those CDM projects in developing countries must be “real, measurable, and additional” (Kyoto Protocol, Article 12). The additionality term is quite essential because it emphasizes that the projects must reduce emissions, which would not happen without that project (Schneider, 2009, p. 242). This additionality or environmental integrity is extremely important because if a project does not decrease anthropogenic GHG emissions, it increases the GHG emissions with CERs, which leads the investor countries to emit GHG emissions for quid pro quo (Schneider, 2009, p. 243). At that point, we should emphasize the problematic nature

of the CDM mechanism, which is the problem of MRV (monitoring, reporting, and verification). Subsequently, since its emergence, the CDM has been a controversial tool for reducing carbon emissions because the question of whether a project would also be imposed without the CDM is hypothetical (Schneider, 2009, p. 243). Vlachou and Konstantinidis (2010: 46) argue that the GHG emitter's interests shape and influence flexible mechanisms. The less developed countries, particularly from the perspective of their local communities and working people, have little effect on the flexible mechanisms (Vlachou & Konstantinidis (2010: 46). The CDM projects are rationalized as cost-effective methods for the developed countries to reach their emission targets with assisting the developing countries (Vlachou & Konstantinidis (2010: 46). However, even this rationalization happens as it is desired, it is problematic due to prioritizing the economic interests of the developed countries. Ervine (2013, p. 653) claims that the CDM mechanism displaced the developed North's ecological debt to the South, both materially and financially. With the CDM mechanism, the North, which has been the largest anthropogenic GHG emitter, has not fundamentally changed its carbon-based development habits and has limited the development potential of developing countries. Moreover, the CDM and CERs also involve the financialized feature of global environmental policies. National and international banks have financed the CDM projects, in which the loans are deposited as collateral by using future CERs revenues (Ervine, 2013: 657). Subsequently, derivative markets, brokers, and traders can buy, sell, and profit from the CERs markets (Ervine, 2013: 657). We can easily argue that the CDM is the desired mechanism for the global North to secure both the global economic structure and propose environmental policy.

2.4.2- Joint Implementation

Another offsetting tool is the Joint Implementation (JI), which existed with the Kyoto Protocol and continues to be applied. Like CDM, JI is making projects in other countries to reduce emissions, not in developing countries but in developed ones (Annex B). In other words, the definition of JI is the implementation of projects to decrease or sequester GHG emissions in another Annex B country (Vlachou& Konstantinidis, 2010: 37). The investor country acquires emissions reduction units (JI-ERUs) equal to all or part of the emission attenuation (sink enhancement) succeeded, which can be counted as its national emissions reduction commitment (Vlachou& Konstantinidis, 2010: 37). Similar to the CDM, the JI also applies the additionality concept (Vlachou& Konstantinidis, 2010: 37). The Kyoto Protocol (Article 6) defines the JI as;

“For the purpose of meeting its commitments under Article 3, any Party included in Annex I may transfer to or acquire from any other such Party emission reduction units resulting from projects aimed at reducing anthropogenic emissions by sources or enhancing anthropogenic removals by sinks of greenhouse gases in any sector of the economy”.

Both the host country and all other participants included in the project must approve the related JI project (Joint Implementation, n.d.). JI projects began to be applied in 2000 if they met the requirements; however, ERUs might only be issued for a crediting period beginning after 2008 (Joint Implementation, n.d.). Besides, two-track procedures exist for applying JI projects and receiving ERUs. Track 1 procedure is if a host party fulfills all of the eligibility requirements to receive and/or transfer ERUs, it can affirm emissions decreases or improvements of removals from

a JI project as being additional to any that would otherwise happen (Joint Implementation, n.d.). After the affirmation, the host party can issue the proper level of ERUs (Joint Implementation, n.d.). The track 2 procedure is that if a host party fulfills only a limited set of eligibility requirements, but not all of them, affirmation of emission decreases or improvement of removals as being additional has to be completed through the affirmation procedure under the Joint Implementation Supervisory Committee (JISC) (Joint Implementation, n.d.). In the track 2 procedure, an independent organization with accreditation of the JISC must determine if the desired requirements have been fulfilled before the host party can transfer and issue ERUs (Joint Implementation, n.d.).

2.5- Cap and Trade System

The cap and trade or emission trading system is the most applied and developed tool in environmental policies. Cap and trade mechanism emerged in North America and Europe against the acid rain problems in the 1980s (Betsill& Hoffmann, 2011: 84). However, until the Kyoto Protocol, this mechanism has not been referred for the climate change discussions (Betsill& Hoffmann, 2011: 84). With the other flexible mechanisms (CDM and JI), it was introduced with the insistence of the US and many business groups' interests despite the objections of many developing countries, environmental groups, and the EU in the Kyoto Protocol (Betsill& Hoffmann, 2011, p. 84). Even though the Kyoto Protocol introduced the mechanism, the system, governance mechanism, and rules were not established clearly and specifically (Betsill& Hoffmann, 2011: 86). Therefore, the influence of different interest groups and mutual learning between each ETSs benefited the development of the cap and

trade system since its emergence. The Kyoto Protocol defines the emission trading in Article 17;

“The Conference of the Parties shall define the relevant principles, modalities, rules, and guidelines, in particular for verification, reporting, and accountability for emissions trading. The Parties included in Annex B may participate in emissions trading to fulfill their commitments under Article 3. Any such trading shall be supplemental to domestic actions for the purpose of meeting quantified emission limitation and reduction commitments under that Article.”

Furthermore, according to the Kyoto Protocol, more than the actual emissions unit could be sold and traded under the emissions trading scheme (Emissions Trading, n.d.). Emissions Trading Systems are the biggest and most used emissions reduction and sequestration tools against climate change. ERU generated by the JI, CER generated by CDM, and RMU (removal unit) generated based on land use, land-use change, and forestry (LULUCF) activities like reforestation are the other units that might be transferred under the scheme, each equal to one tonne of CO₂, might be in the form of others (Emissions Trading, n.d.). Black et al. (2022) argue that there are a total of 46 countries that price emissions through ETS or taxes, and others are assessing it. Various national, sub-national, or supra-national characters apply those ETSs and carbon taxes. For example, New Zealand ETS is national, California ETS is sub-national, and the EU ETS is the supra-national cap-trade system. The allowances are distributed by the auction or freely for the cap-trade system. Auctioning works basically the supervisory organizations, which could be state or other actors, put a price on the allowance and sell them to the emitters at auction. Free allowances are distributed by two main methods: grandfathering and benchmarking. In the grandfathering method, the allowances are distributed

concerning the industries' historical emissions over a specified period (ETS in Industry – Implementing Effective Emissions Trading Systems – Analysis - IEA, n.d.). This method has critical problems, awarding the status quo rather than better performers and leaving down the early movers who began to reduce their emissions at earlier stages (ETS in Industry – Implementing Effective Emissions Trading Systems – Analysis - IEA, n.d.). On the other hand, in the benchmarking method, the allowances are allocated on a “benchmark” basis (ETS in Industry – Implementing Effective Emissions Trading Systems – Analysis - IEA, n.d.). In other words, the benchmarking method distributes the free allowances to related companies that perform below a set level of emissions, e.g., emissions intensity and emissions per unit of product (ETS in Industry – Implementing Effective Emissions Trading Systems – Analysis - IEA, n.d.). Clearly, benchmarking supports and awards better environmental performance and early action. Moreover, the data availability and analysis are quite critical for the benchmarking because different benchmarking methodologies would provide a different benchmarking level for a related industry (ETS in Industry – Implementing Effective Emissions Trading Systems – Analysis - IEA, n.d.).

All those flexible mechanisms, such as the Cap and Trade System, CDM, and JI for limiting GHG emissions, have been operationalized since the Kyoto Protocol. Vlachou and Konstantinidis (2010: 36) argue that flexibility provides an enormous amount of freedom over compliance with GHG reductions; thus, the large GHG emitters, who are the industrialized countries and leading global capitalist firms, have steadily advocated those flexible mechanisms. Subsequently, the same flexible mechanism supporters have resisted the implementation of any kinds of direct

measures like a carbon tax or mandated clean technologies (Vlachou& Konstantinidis, 2010: 36). For instance, the International Emissions Trading Association (IETA), which was founded in June 1999, has sought to “achieve climate objectives with minimal economic harm” have played significant roles in global environmental politics particularly GHG emissions issue (IETA - Our History, n.d.). Vlachou and Konstantinidis (2010: 36) claim that global capitalists firms like BP, KPMG, and Mitsubishi lobbied about the Emissions Trading System in IETA to secure and increase their profits (IETA - Our History, n.d.). Besides, from a business perspective, those flexible mechanisms turn the pollution units into units of property (allowances), and trading in the flexible mechanisms allows cost savings for capital (Vlachou& Konstantinidis, 2010, p. 36). At this juncture, Bryant’s (2016: 877) argument is quite essential. The carbon markets have created a new politics of market design; subsequently, carbon markets narrow the alternative methods through depoliticization.

2.6- Double Counting

I should also explain the “double counting” concept, which is more technical and problematic. Basically, double counting means “a single GHG emission reduction or removal, achieved through a mechanism issuing units, is counted more than once towards attaining mitigation pledges” (Schneider et al., 2015, p. 474). Problems with the double counting of units could happen in both allowances and credits, which means it could occur under cap and trade or CDM (Schneider et al., 2015, p. 474). Schneider et al. (2015: 474-5) propose three ways of double counting: (1) double claiming, which exists if an emission unit is counted twice towards acquiring

mitigation goals; (2) double issuance, which exists if more than one unit is issued for the same emission reduction or emission, (3) double use, which occurs the same issued unit is applied twice to acquire a mitigation goal either once each by two different countries or by the same country (Schneider et al., 2015, pp. 474-5). At that point, we should emphasize the importance of double counting because if it cannot be detected, the proper emissions reductions and climate change mitigation cannot succeed. Schneider et al. (2015: 474-5) argue that the real GHG emissions could be higher than the countries' reports if emission reductions are double counted. The mitigation pledges seem to be fulfilled, but the total emissions exceed due to the double counting. Furthermore, Schneider et al. (2017: 181) suggest that double counting is critical because almost half of the Paris Agreement Parties have implied their desire to apply carbon markets, particularly emission reduction sellers. Linking the ETSs, such as the EU and Switzerland, since 2020 means that the agreement on the emission reduction goals under the Paris Agreement tends to lead to double counting. Subsequently, some developed countries that targeted net-zero emissions, like Japan and Switzerland, between 2030 and 2050, began to purchase emissions reductions from other countries, which inclines to double counting, too (Schneider et al., 2017, p. 181).

Lastly, I want to briefly describe some of the largest ETSs to illustrate how the ETS system works and how they have been changed and learned mutually. ETSs are genuinely the most important and active mechanism in the carbon market. Most ETSs accept CDM and JI projects of the firms as equivalent to their mitigation pledges. Therefore, the ETSs or cap and trade mechanism is the heart of the carbon

markets. Understanding their manner of work is extremely valid for comprehending their limits, problems, and roles in deepening global inequalities.

2.7- The Brief Explanation of Some ETSs

Firstly, I want to explain the EU ETS, both the first and supranational ETS. After the Kyoto Protocol and some observations of the US's ETS for decreasing air pollutants emissions, the EU began to prepare the required policies for developing ETS in 1998 (Wettestad & Jevnaker, 2017, p. 30). The EU implemented the first ETS Directive in 2003, which regulated the rules and features of the first trading phase (2005-7, the pilot phase) and the second phase (2008-12), the Kyoto Protocol pledges phase (Wettestad & Jevnaker, 2017, p. 30). After the 2nd phase, in the 3rd phase (2013-2020), the EU changed various rules in its ETS system (Wettestad & Jevnaker, 2017, p. 40). The penalty fee, which must be paid in case of exceeding the cap emissions, was increased from €40 to €100, and the default method of the distribution of allowances was changed from free allocation to auctioning (Development of EU ETS (2005-2020), n.d.-b). Currently, the EU ETS is in the 4th phase (2021-2030) with the target of "an at least 55% net reduction in greenhouse gas emissions by 2030" and "climate neutrality in the EU by 2050" (Revision for Phase 4 (2021-2030), n.d.). EU Emissions Trading System (ETS) Data Viewer (2023) suggests that more than 15,000 stationary installations are reported under the EU ETS by year on the verified emissions, by main activity, surrendered units, and allowances. Eventually, the EU ETS was the first cap and trade system and used to be the largest until the emergence of the Chinese ETS (Wettestad & Jevnaker, 2017:

48). At that point, we should emphasize that thanks to being the first ETS, and the best systemized one, the EU ETS has highly influenced the other ETSs in the world.

Secondly, the Regional Greenhouse Gas Initiative (RGGI) is quite essential as a sub-country ETS. The seven Northeastern and mid-Atlantic US states agreed to create a trading scheme in the electricity sector's CO₂ in 2005 (Lygre & Wettestad, 2017, p. 53). RGGI began to work in January 2009 as the first mandatory, market-based program for decreasing CO₂ emissions in the US (Lygre & Wettestad, 2017, p. 53). Currently, there are a total of 12 states: Delaware, Maine, Connecticut, New Hampshire, New York, Pennsylvania, Vermont, Rhode Island, Massachusetts, New Jersey, Maryland, and Virginia members of RGGI to cap and reduce CO₂ emissions in the power sector (Elements of RGGI | RGGI, Inc., 2023). In RGGI, fossil-fueled-fired electric power generators with a capacity of 25 megawatts or larger ("regulated sources") need to limit allowances equal to their CO₂ emissions over a three-year control period (Elements of RGGI | RGGI, Inc., 2023). RGGI also has a special status because it distributes almost all of its allowances via auctioning. Allowances are provided through regional, quarterly CO₂ allowance auctions (Elements of RGGI | RGGI, Inc., 2023). Income from the auctions is invested to develop energy efficiency and expedite renewable energy technologies by the states (Elements of RGGI | RGGI, Inc., 2023). Furthermore, the parties can apply the secondary markets, either directly via over-the-counter trades or indirectly through futures contracts on the exchange, for the auctioned allowances (Elements of RGGI | RGGI, Inc., 2023). In other words, like almost all other ETSs, the parties could use the financial markets to make profits from RGGI's allowances.

Thirdly, I want to explain the other enormous ETS in the US, the California Cap and Trade Program, due to their unique characteristics. California's ETS is based on the Global Warming Solutions Act (Assembly Bill - AB 32). California's ETS covers 80% of the state's GHG emissions (Cap-and-Trade Program | California Air Resources Board, 2022). Bang et al. (2007: 70) propose that AB 32 is the main building block of legislation establishing and developing California's climate policy. AB 32 develops all the related emissions reduction programs so that California can reach an "overall 15% reduction in greenhouse gas emissions compared to the" business-as-usual" scenario in 2020 if we did nothing at all." California Cap and Trade program was linked with the Quebec program in 2014 (Cap-and-Trade Program | California Air Resources Board, 2022). This linking ETS is quite a unique case because two different sub-national level ETSs are linked with each other. Moreover, covered entities in the California Cap and Trade System turned in offsets and allowances for the previous year's 30% emissions (Cap-and-Trade Program | California Air Resources Board, 2022). Most allowances are distributed as free allocation (Bang et al., 2007, p. 70). Two auctions are held to distribute some specific allowances. The current auction presents the current vintage allowances, and the Advanced Auction separately presents the limited amount of future allowances (Cap-and-Trade Program | California Air Resources Board, 2022).

Lastly, I want to explain China's ETS because, since its emergence in 2021, it has been the largest covered emission ETS as the largest emitting country. Stensdal et al. (2017: 182) suggest that in 2007, China had surpassed the US and became the largest

CO₂ emitting country in total terms. Both international pressures and domestic considerations influenced China to establish ETS (Stensdal et al., 2017, p. 184). The domestic considerations based on ideational diffusion came from the high CDM experience (Stensdal et al., 2017, p. 184). Subsequently, the rapid economic improvement and energy situation triggered the awareness of climate change's negative impacts on China, which affected the decision to establish ETS (Stensdal et al., 2017, p. 184). Accounting for over the country's 40% carbon emissions and estimated to cover more than 4 billion tCO₂e, China's national ETS has been the largest in terms of covered emissions in the world (China National ETS, 2023). The pilot projects in eight regions started to prepare their ETS in 2011 by freely designing their markets as desired (Stensdal et al., 2017, p. 192). The pilot ETS in those regions continued to operate in parallel with the national ETS, including the sectors and entities not involved in the national system (China National ETS, 2023). Similar to Europe's 55% reduction in 2030 and zero carbon emission in 2050 targets, China has its own goals with ETSs. By 2025, China aims to decrease GHG emissions per unit of GDP by 18% compared to 2020 levels; by 2030, lower CO₂ emissions per unit of GDP by over 65% from 2005 levels, peak CO₂ emissions before 2030; and carbon neutrality by 2060 (China National ETS, 2023). At this juncture, the details and procedures of carbon neutrality have not been announced yet. The role of offsetting in this neutrality would be critical because a country could be so-called "carbon neutral" by investing in carbon reduction projects in other countries and could define itself as carbon neutral under this global environment regime. The allocation method in Chinese ETS is mainly output-based benchmarking (China National ETS, 2023). Moreover, the covered entities are distributed through free allocation; however, Draft

Interim Regulations emphasize that auctioning will be introduced and gradually expanded (China National ETS, 2023).

Eventually, we can add Japan's, New Zealand's, Australia's, and South Korea's ETSs as the other major ETSs in the world. The EU ETS, which launched in 2005, is the first and used to be the largest until the emergence of China's ETS in 2021. The EU ETS is unique with its supra-national character, including all 28 EU members plus Liechtenstein, Norway, and Iceland (EEA-EFTA states) (EU Emissions Trading System (EU ETS), n.d.-b). Subsequently, the EU ETS linked with Switzerland's and the UK's ETS (EU Emissions Trading System (EU ETS), n.d.-b). At that point, even though all ETS have been mutually learning from each other, the EU ETS has influenced the others more than the others' influences. Wettestad et al. (2017: 237) argue that emulation and policy dispersal by learning to hold enormous explanatory power to converge ETS designs. Furthermore, Wettestad et al. (2017: 241) also emphasize the importance of expert networks found in governments, environmental NGOs, research institutions, business/industry, and broader "epistemic communities," especially during the initial policy-making process. The lack of top-down international standards encourages learning, policy diffusion, and convergence, forming "not official" international standards (Wettestad et al., 2017, p. 245).

CHAPTER 3

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

I present the literature about global environmental politics, carbon markets, and the related essential studies, as well as the theoretical framework of my research in this chapter. This chapter provides a comprehension of the carbon markets and their effects on climate justice. Subsequently, this chapter presents the theoretical framework for understanding how and why the carbon markets deepen and increase climate injustice. The previous related studies and approaches are beneficial to comprehending the carbon markets regarding their relations with climate justice. Unfortunately, environmental problems and ecological risks are not shared equally and fairly, just like all other societal problems. Ziółkowski et al. (2020: 291) argue that ecological risk strengthens societal divisions: wealthier social groups and richer countries can afford security; on the other hand, the risk is multiplied in the poorest countries and groups. Even though Beck (1992: 36) claimed that “poverty is hierarchic, smog is democratic,” particular groups watch the smog from their houses while others experience it in the street. Similarly, Buller (2022: 76) harshly criticizes the carbon markets’s claim of “equal participation” that the prince is free to go to his palace while the beggar has nowhere else.

Environmental policies for mitigating climate change have a particular place in the debate on environmental degradation and solutions. Climate change and its mitigation policies are the most known and biggest ones in global environmental politics. The carbon markets and cap-and-trade system are the dominant policies for reducing GHG emissions and mitigating climate change. At that point, the approaches toward environmental policies are quite illustrative for understanding and presenting some policy limitations. Bumpus and Liverman (2008: 131) indicate that conventional economics explains the business interests in decreasing emissions by seeking competitive advantage via innovation, internalizing external costs, and satisfying the concerns of investors, consumers, and environmental groups. By contrast, critical political economy claims that environmental degradation, such as global warming, threatens profits and endangers capital accumulation; thus, the capital turns environmental degradation's particular instances into opportunities for sustained profit (Bumpus & Liverman, 2008: 131). Subsequently, the questions of "Usable for what? Usable for who?" are very critical for understanding the politics behind it according to critical political ecology (Goldman et al., 2018: 7).

3.1- The Liberal Understanding of Global Environmental Politics

There are several basic understandings in global environmental politics, including liberal, eco-Marxist, and green approaches. Firstly, I want to express the liberal approach, which is the dominant understanding of global environmental politics. The liberal institutionalist approach mainly concerns the anarchic international system and how actors could cooperate to overcome and mitigate the anarchy. Particularly for the environmental problems, they mainly emphasize establishing a regime for

encouraging cooperative actions (Patterson, 2000: 16). Clapp and Dauvergne (2005: 500) define the current global environmental governance as not only states but also markets, NGOs, international institutions, firms, individuals, and communities play active roles. This description and understanding are based on the liberal assumption about global environmental governance. Clapp and Dauvergne (2005: 500) propose that although states are still at the core of global environmental governance, international regimes/institutions such as UNEP, UNFCCC, UNDP, etc., encompass the international cooperation's rules either through a legal international convention or agreement or through a less formal set of norms and rules with establishing applied practices. Moreover, NGOs and business groups attend global environmental meetings and agreement negotiations, which shows the liberal feature of current global environmental governance. However, these attendance and negotiations do not exist as democratically as they first heard. The Northern states, NGOs, and business groups are more dominant than the Southern groups (Clapp and Dauvergne, 2005: 500). Further, lobbying by those actors is very influential and shapes some characteristics of the global environmental agreements, in which the Southern groups are less powerful than the Northern ones. Clapp and Helleiner (2012: 500) remark on the trends of the liberal global environmental governance, short-termism, which mostly works against environmental sustainability, and the emergence of novel powerful states in the global economy like China and India, whose rapid economic growth causing enormous environmental changes, the volatile and high commodity prices, having numerous essential environmental implications. Besides, those three trends have benefited and influenced each other, which are the prevailing trends of liberal dominant global environmental governance (Clapp and Dauvergne, 2005: 500)

3.2- *The Green Politics and Theory*

Green politics and theory have been increasing their influence in both the political sphere and political science. Green political thinking emerged in the 1960s and 1970s because of experiencing the darker environmental sides of post-war growth (Newell, 2019: 21). The green theory is based on two themes: on the question of limits to growth and on the role of anthropocentric ethics in decreasing the non-human world to being vulgar of instrumental value to humans (Patterson, 2000: 35). Furthermore, the greens are fundamentally “embedded in ecological relationships,” which means there are no ethical separations between humans and non-humans (Patterson, 2000: 36). The green theorists propose ecocentrism rather than anthropocentrism towards the environment. Four ethical characteristics distinguish ecocentrism from other ethical positions: (1) they refuse the full range of human interests in the non-human world, (2) they consider not only today but also the future generations’ interests of humans and non-humans, (3) they consider non-human community’s interests, and (4) they apply a holistic perspective instead of an atomistic one, which means they dignify species, populations, ecosphere, and ecosystems as a whole as well as individual organisms (Patterson, 2000: 37).

The Green theorist argues not in the system but a fundamental change for overcoming the existing and immediate environmental crisis. Patterson (2005: 236) emphasizes that the greens focus on the necessity of global-scale political transformation instead of institutional tinkering. Green politics and theory should be considered critical rather than problem-solving theories, which involve explanatory

and normative characteristics (Patterson, 2005: 255). The Greens aim not only to explain a certain range of problems and phenomena in global politics but also to present a range of normative arguments about the types of global political changes compulsory to answer such problems (Patterson, 2005: 255). They claim that technological solutions cannot solve the crisis but just postpone it (Patterson, 2000: 38). Moreover, the Greens criticize a growth-based economy because they consider that all environmental problems are more or less interrelated with that. Benton (1993: 30) states that nature has been considered an external, constraining, and threatening power that must be overcome during a long-drawn-out collective transformation's historical process. At this juncture, Patterson (2000: 40), who is one of the leading environmental politics scholars, argues that the four main, interrelated, and power logics of world politics: capitalism, the state system, patriarchy, and knowledge help to comprehend the global environmental problems. Newell (2019: 22) also argues that green thinking has a long-established modernity critique, mainly criticizing the domination of non-human nature by material growth and nation-state mentality. Moreover, green theorists also harshly criticize the rationalism based on the scientific revolution because of its understanding of conquering and controlling bountiful nature (Newell, 2019: 22). Green politics and thinking prioritize three basic principles: non-violence, ecology, and grassroots democracy (Newell, 2019: 27). Those three basic principles of green thinking are interrelated with each other. Even though ecology and prevention of the environment could be seen as everyone's profit in the long run, incumbents and elites might profit from environmental destruction, particularly in the short run (Newell, 2019: 27). Above all, as famously Keynes said, in the long run, we are all dead, that mentality hinders to mobilize near-term action (Newell, 2019: 27). I want to also clarify the difference of environmentalism and

ecologism to comprehend the green politics critical sense. Environmentalism considers in-system solutions for contemporary environmental problems; on the other hand, ecologism considers fundamentally systemic change to overcome environmental problems (Newell, 2019, p. 28). Dobson (1991: 4) clarifies that ecologism concerns the causes of those problems by presenting a wide-ranging political analysis.

3.3- The Marxist Understanding of Global Environmental Politics and Eco-Marxism

Marxist approach to environmental problems and politics is also quite valid for comprehending environmental politics and its political and economic limits. First, Karl Marx was not directly concerned with environmental problems in his research. However, even though he did not spend much time studying environmental problems, he sometimes mentioned and analyzed them and their relation to capitalism. Saito (2017: 14) proposes that ecology does not simply arise in Marx's thought; however, ignoring the ecological dimension cannot provide the full scope of his critique of political economy. Moreover, Saito (2017: 14) suggests that Marx's theory of "reification" and "value" are critical to analyzing nature and environmental problems. Furthermore, Ecological Marxism or Eco-Marxism highly benefits from the scholarship of social reproduction, imperialism, settler colonialism, and racial capitalism (Brownhill et al., 2021: 94). Eco-Marxist scholars particularly study the historical and ongoing role of the expropriation of nature and people, which is the interlocking forms of inequalities, and oppression in the occurrence and development of capitalism (Brownhill et al., 2021: 94). Another eco-marxist scholar James

O'Connor is also critical with his valid analysis based on capitalism's contradictions. O'Connor (1992) proposed the second contradiction of capitalism- the first one is the forces and relations of production contradiction examined by Marx- the second contradiction is the forces and conditions of production (workers, nature, urban space) claimed by O'Connor (1992). Besides, O'Connor (1992) emphasizes that those contradictions cannot be overcome in the capitalist system, in which its expansionist dynamic damages or destroys its own existential conditions. Moreover, Andres Malm's (2016) solid study of Fossil Capital provides an extensive historical-materialist analysis of the rise of steam power and how the burning of fossil fuels has transferred capitalism's heart. In his study, Malm (2016) argues that through capitalist development, carbon-based fossil fuels have been applied to sustain endless economic growth, which has caused a "metabolic rift." The metabolic relations between nature and humans were broken due to unsustainable GHG emission levels, the constant burning of fossil fuels, and the commodification of all natural resources (Malm, 2016).

3.3.1- Metabolism and Metabolic Rift

John Bellamy Foster, who is one of the leading Eco-Marxist scholars, proposes the "metabolism" concept (Stoffwechsel), which Marx used as "an irreparable rift in the interdependent process of social metabolism" (Böhm et al., 2012: 1625). We can apply the metabolism concept to another key theory of Karl Marx, "metabolic rift," which is applied to explaining current environmental problems like climate change, ocean acidification, and fertilizer treadmill (Böhm et al., 2012: 1625). The metabolic rift concept is critical for understanding historical and existing environmental

degradation. Brownhill et al. (2022: 135) claim that Marx criticized modern agriculture harshly as an irrational robbery system because the natural law of the soil is violated by taking as many soil nutrients as possible into crops without giving them back to the soil after harvest for short-term profit. This eventually causes the soil to be exhausted by disturbing the metabolic cycle between nature and humans (Brownhill et al., 2022: 138). Marx (1976: 637) explains the metabolic rift that capitalist production damages the metabolic interaction between the earth and man, i.e., it hinders the return to the soil of its constituent elements appropriated by man in the form of food and clothing; thus, it prevents the operation of the eternal natural condition for the lasting fertility of the soil.

3.3.2- Capitalocene

Jason Moore is another essential scholar who studied environmental degradation and climate change using the Marxist framework. Moore argues that capitalism is the matrix of human and extra-human nature, based on endless commodification and socio-ecological analysis (Böhm et al., 2012: 1626/7). At that point, Moore (2016) presents a new concept rather than the famous “Anthropocene,” which is the “Capitalocene.” Moore (2016) argues that irrevocable natural degradation, defined as Anthropecene by the Industrial Revolution, is the wrong definition because the emergence of capitalism and its endless growth desire is the fundamental cause of irrevocable environmental degradation. Moreover, Moore (2016) expresses “Four Cheaps”: food, energy, labor-power, and raw materials, which must be cheap for capitalist development. The cheapness of those four things benefits the consideration

of nature as a free gift, and simultaneously, appropriation and exploitation of nature lead to irrevocable ecological degradation (Moore, 2016).

Subsequently, Moore provides solid arguments about the carbon markets and its description as a new way of commodifying nature. Moore argues that capitalism has been unable to fundamentally revolutionize productivity or enormously extend accession to inexpensive new flows of natural resources in the neoliberal era (Böhm et al., 2012: 1627). In the neoliberal era, immense financialization has existed without intensifying the material base, which leads to regularly increasing costs for food, raw materials, and energy (Böhm et al., 2012: 1627). Therefore, according to Moore, the prevailing neoliberal capitalism desires to appropriate the surplus value with the new forms of commodification of nature, which the carbon market could be understood under that desire (Böhm et al., 2012: 1627). In other words, due to not increasing productivity efficiency hugely under neoliberal capitalism, the financialization and commodification of all services, including air pollution rights, are applied to maintain the accumulation of surplus value for the upper class. Böhm et al. (2012: 1627/8) suggest that capital must constantly expand its powers by searching for new domains, sectors, and territories. Accumulation of dispossession, defined as the centralization of wealth and power in a few people by dispossessing the public and individuals' wealth, land, and power, has been experienced with the privatization and commodification of land and the expulsion of populations forcibly (Harvey, 2003).

3.4- *The Commodification Concept*

The eco-Marxist theory highly benefits from the commodification concept, which could be simply explained as making something a commodity, having value in the market. Smessaert et al. (2020: 5) indicate that the commodification term is related to various phenomena: privatization, monetization, marketization, financialization, itemization, etc. Furthermore, Noel Castree's (2003) definition of commodification is one of the most illustrative about the commodification of nature. Castree (2003) specifies six features of commodification: privatization, individuation, abstraction, alienability, valuation, and displacement. According to Castree (2003: 279), privatization is a precondition for capitalist commodification, giving the exclusive rights of the owner to dispose of a particular individual/s or group/s. Secondly, alienability means the capacity of a given commodity and particular commodities' classes to be morally and physically separated from their sellers (Castree, 2003: 279). Thirdly, individuation, linked to but not the same as privatization and alienability, refers to the physical and representation act of separating a particular entity or thing from its assisting context (Castree, 2003: 279). Imposing material and legal boundaries could be referred to under individuation so that a commodity can be used, bought, and sold by equally "bounded" institutions, groups, or individuals (Castree, 2003: 279). Fourthly, abstraction means a process whereby the qualitative particularity of any atomized thing (a seed, a gene, a person, or what you have) is assimilated to the qualitative homogeneity of an extensive process or type (Castree, 2003: 279). Fifthly, valuation clearly emphasizes that things take on particular types of value (Castree, 2003: 279). Lastly, displacement refers to a parcel and part of the blind process of profit-driven commodity sale and production, which means one set of phenomena manifesting themselves in a way that, paradoxically, occludes them

(Castree, 2003: 279). Castree induces those features of commodification to explain how nature/environment has experienced commodification. At this juncture, we might claim that commodification is like an addictive and diffusive process, which means that when a commodification of a specific thing exists, similar things begin to be perceived as commodities or have the potential to be commodified. Furthermore, Castree (2003: 288) proposes two types of commodification: real and proxy. Real commodification means the physical privatization, individuation, displacement, etc., of an entity in a real market like wetlands, genes, or seeds (Castree, 2003: 288). On the other hand, proxy commodification, which could coexist with real commodification or be a precursor to real commodification, means treating uncommodified entities as commodified by way of produced markets via cost-benefit analysis and other techniques (Castree, 2003: 288). At this juncture, Smessaert et al. (2020: 5) accentuate that the commodification issue is mainly debated in the global North by analyzing the offset projects in the Southern countries, which shows the asymmetry between the objects and actors debate.

3.5- The Commodification of Nature

The commodification of nature is highly related to contemporary ecological problems. Patterson (2013: 53) argues that commodification is essential for ecological politics because it tries to abstract the economy from its socio-ecological contexts. The dynamics of capitalism desire to commodify nature to benefit its value by exploiting, buying, and selling water, land, and underground sources. Patterson (2000: 47) claims that the acceleration of commodification leads “nature” to become “natural resources.” That commodification of nature causes people to consider nature

as a profitable resource for production or even pollution with carbon markets. Besides, the commodification and simultaneous valuation of nature disregard a given commodity's environmental and social costs (Parr, 2016: 447). A clear example should be the usage of fossil fuels, which can be bought, sold, and used without considering their environmental and social costs. Ziółkowski et al. (2020: 296) express that the most essential and, at the same time, exciting issue is the commodification of nature problem, including not only material nature but also the damage caused in nature in recent years. The damage commodification can be in two different forms: first, the perpetrators could pay the ascribed fee to the authorized owners of the area, and second, the artificial market is founded for incidental damage, which receiving rights to cause harm like GHG emission rights or green certificates (Ziółkowski et al., 2020: 296). At that point, even though it begins to assess the environmental costs of using fossil fuels, not putting a tax but creating carbon markets are applied. Carbon has been experiencing a commodification process via the carbon markets; thus, we can explain the commodification of carbon under the commodification of nature debate. At this juncture, Foster et al. (2009) analogize the carbon market schemes to the Greek myth of King Midas, to whom his wish of turning to gold, which he touched, became damnation him later because of eating and drinking nothing. Foster et al. (2009) argue that similar to Midas's damnation, a socioeconomic system that maintains through the expansion of production and the profit-maximization via commodification leads an unintended consequence as "putting price tags on species and ecosystems will only serve in the end to subsume nature to the endless growth of production and profits" (Stuart et al., 2017: 94). The carbon markets carry the fundamental characteristics of the market which prioritize the profit rather than the environment's well being. Moreover,

Patterson (2016: 479) argues that the dependency on the accumulation of profits and capital in environmental policies, either environmental tax or carbon markets, implies that the radical change against those capitals seems very difficult in short-term neoliberalism. The prevailing rationality in environmental politics is not ecological, but capitalist economic rationality, in which social and economic activities support economic imperatives (Stuart et al., 2017: 95). As Stevenson (2017: 62) emphasized, “market rationality is in this way out of kilter with ecological rationality.”

We should examine the commodification and valuation of nature profoundly to understand its impacts on climate injustice. First of all, it is essential to comprehend that the limits of nature under the endless desire for an economic growth-based system do not automatically cause the end of the regime by taking revenge on capitalism (Saito, 2017: 20). On the contrary, it is genuinely potential for capitalism to profit from the ruthless exploitation of natural wealth indefinitely, the natural environment destruction to the point that a large part of the planet becomes unsuitable for human occupation (Saito, 2017: 20). According to metabolism theory of Marx, even though the capital cannot subsume nature arbitrarily for the maximum valorization sake, the attempt to subsuming nature, capital can destroy rather than help the basic material conditions for free human development (Saito, 2017: 20). For instance, the maximum valorization of nature causes the maximum exploitation and appropriation of nature for accumulating the wealth. Even though the economic data show an amelioration of economic wealth and economic growth, the air, water, land qualities, and the climate, the whole of nature could be hugely destructed, which is an enormous decrease or even bankruptcy of human wealth. The people could enjoy

their so-called economic wealth without clean water, air, healthy food, and destructive climate events. The capitalist revolution of production, with its rapid improvement of technology and machines, ruins the metabolic interaction more than ever before so that it now threatens the entire ecosystem and human civilization with global warming, desertification, ozone layers' destruction, nuclear disasters, and species extinction (Saito, 2017: 64). The accumulation of capital, and the desire of endless growth exploit the entire world in search of novel functional and cheap raw materials, new use values, new markets, and new technologies (Saito, 2017: 95). Saito (2017: 107) argues that although the capital tries to ignore it, independent from material characteristics, value is a "purely social" character of a thing existing only under historically particular social relations of commodity production. According to Saito (2017: 107), Marx explains value as "phantom-like objectivity" due to not objectifying abstract labor after the abstraction of all tangible aspects.

3.6- The Commodification of Carbon

We should also express the commodification of carbon step by step to comprehend how that process has developed and why we claim it is problematic to deepen climate injustice and inequality. Descheneau (2012: 604) expresses three specific moments for the commodification of carbon: (1) the tonne of carbon is first invented and abstracted, (2) the monetization is operated to make it sellable, (3) the financialization of carbon is operated to make it a financial standardized product. The carbon became visible, mobile, and calculable through documents, forms, reports, etc., defined as carbon's invention and abstracted (Descheneau, 2012: 606). Descheneau (2012: 606) analyzes the monetization of carbon as having particular

value and saleability in the carbon markets, and financialization, which refers to the ultimate abstraction and disconnection of the commodity from its carbon's features, could be seen in buying, selling, shorting, and forwarding in the financial market without having any direct relations to carbon. Furthermore, Descheneau (2012: 608) even claims that carbon credits like CER could be a form of money because they own several characteristics of money. Even though it is not as fungible as money, it has the main characteristics of money: a medium of exchange and store of value with government assurance (Descheneau, 2012: 608). Moreover, carbon also has units of account and means of payment, which are the other necessary roles of money with multiple national registries, exchange platforms, and some contracts whose payment forms are carbon certificates (Descheneau, 2012: 608). Martineau and Lafontaine (2019: 489) state that nature in carbon systems is assessed with respect to its exchange value, not as an important element in its own right. The commodification of carbon means converting carbon into a fully commensurable and standardized unit, a class of assets like money, gold, and oil (Paterson & Stripple, 2012: 563). Furthermore, Green argues that the economic valuation of nature fails to organize and limit economies around "need" rather than "greed," leading to the alarming situation in contemporary society.

The commodification of carbon via carbon markets is innately problematic, having the self-contradictory problems of the profit-driven market and, more broadly, capitalism. Fraser (2014: 548) asserts that "the structural reading of fictitious commodification foregrounds the inherently self-contradictory character of free-market capitalism." Moreover, Fraser (2014: 548) suggests that Polanyi identified three contradictions of capitalism: the social, the ecological, and the financial. The

commodification of labor, land, and money triggers those contradictions and eventually undermines them, “akin to a tiger that bites its own tail” (Fraser, 2014: 548). The commodification of carbon could be an example of a fictitious commodity due to not experiencing a production process; therefore, the price of carbon is decided fictitiously with the founded carbon markets. Furthermore, Stuart et al. (2017) argue that the carbon markets are contradictory with the growth-based economic system because the capital desires to expand production despite its destructive impacts on the climate system. Since the beginning of capitalism, the whole economic development has maintained the usage of carbon-based fossil fuels. If the existing fossil capitalism accepts the transformation from fossil-dependent to greener capitalism, they will desire to secure their profit, even increase it. At that point, the question of which groups will pay off those environmental costs or ecological debt emerges. Even fossil fuel companies like BP (Getting to Net Zero | Sustainability | Home, n.d.) claim to decarbonize and become carbon neutral around the 2050s. However, their claim on decarbonization is contradictory because, as a fossil fuel company, they make a profit from carbonization. This claim is based on the offsetting in developing countries with flexible mechanisms, which triggers the same question: Who pays off the economic, ecological, and social costs of environmental degradation?

3.7- The Problems of Carbon Markets

The effects of carbon markets on climate change could be analyzed using the conceptual framework that benefits from Green theory and Eco-Marxism. The Greens’ claim of “Anthropecentric ethic,” or Moore’s Capitalocene, suggests clear

alienation from nature, causing reification and valuation of nature for expropriating and exploiting it. The carbon markets are solid examples of alienation, reification, and expropriation of nature. Even though policymakers aim to mitigate the exploitation of nature through environmental policies, due to anthropocentric ethics and neoliberal capitalism, they assume nature as a commodity by putting values of services or damages in nature. This approach crystallizes the contradictions and problems of neoliberalism and neoliberal environmental problems, which increase and deepen both environmental and economic inequalities. At that point, the “metabolic rift” concept is quite illustrative because climate change clearly indicates the metabolic cycle between humans and nature was broken. Endless economic growth desire contradicts the limits of nature. The carbon markets do not question this systemic problem but try to establish an in-system solution while maintaining a prevalent economic approach. There is an obsession with material growth and expropriation towards non-human nature, which is the reason for climate change but applies in the carbon markets. Furthermore, power hierarchy in international politics and economy contributes to the prevalence of neoliberal environmental policies. The materially most powerful countries, like the US and China, have encouraged the carbon markets and their flexible mechanism. This power hierarchy could be seen in the unequal decision-making power of the countries regarding Global Environmental Politics. Materially more powerful countries, the developed North clearly has more decision-making power in Global Environmental Politics comparing the developing and/or underdeveloped South. At that point, I argue that the carbon markets strengthen the existing political, economic, and environmental inequality at the international level. Climate justice understanding has strong explanatory value in crystallizing those inequalities and their impacts on climate-related issues.

Böhm (2009: 20) argues that climate change is a symptom of a much more profound problem related to our fossil fuels addiction and lifestyle. Besides, the carbon markets do not question these root problems; rather, they seek to offset the problem to either future generations or poorer communities (Böhm, 2009: 20). The efforts of presenting the carbon market as the only viable solution against climate change might hinder the political-economic interests behind of the carbon markets. Böhm (2009: 21) indicates that the carbon markets are clearly an effort to maintain the system that caused the current crisis with all rhetoric of cost and benefit analyses and market efficiencies. Moreover, all of the economic and technical ways of explaining carbon markets try to impress people that something is being done about climate change, which is very illusionary (Böhm, 2009: 21). We should not forget that most environmental problems include entrenched political conflicts and technical uncertainties, which means the best solution in all relevant criteria is almost impossible (Brown, 2016: 496). At that point, we must ask which criteria have been chosen for establishing the dominant environmental policies and which groups and criteria are intentionally ignored. In the carbon markets, the prevailing criteria are the maintenance of neoliberal capitalism with the accumulation of wealth and dispossession, commodification, and economic growth, which simultaneously leads to deepening inequalities and climate injustice at both domestic and international levels. Furthermore, it not only consumes our energies to apply effective and fair methods but also delay to impose the compulsory structural changes required to “our way of life” (Böhm, 2009: 21). Eventually, Böhm (2009: 21) expresses the carbon markets as the attempt of providing a novel accumulation and legitimation system, allowing the capitalism’s status-quo to maintain during an era when humankind is

quite concerned about climate change and environmental and social degradation (Böhm, 2009: 21).

With their operation and structural features, we can understand the carbon markets within a broader comprehension of capitalist development, according to Eco-Marxists (Lederer, 2012: 648). Although the alternatives would have been possible, “liberal market environmentalism” has dominated public policy since the 1990s. A solid ideological structure has been constructed about imposing market-based solutions, which have been perceived as the most efficient ones (Lederer, 2012: 648). Newell and Patterson (2010: 27) assert that big business corporations successfully resisted any possible carbon taxes, which cannot even be popular in the public discourse. The industry groups have successfully used the “carbon leakage” argument, meaning a tax would simply affect the most polluting firms or parts of the production to transfer overseas places so no overall emission reduction is achieved (Newell& Patterson, 2010: 27). That argument was lobbied to persuade the states in the international meeting to apply more flexible mechanisms. Consequently, the carbon markets and ETS emerged due to their ideological coherence with the neoliberal logic, business corporations, and financial actors (Newell& Patterson, 2010: 27). When the whole process of carbon markets’ development, the political agents and politics have been more active than it is claimed (Lederer, 2012: 648). For example, the CDM’s development has shaped the political agents since its emergence. Even the emergence of CDM happened due to the US’s reluctance to impose broader and stricter regulations for climate change (Lederer, 2012: 648). Subsequently, Lederer (2012: 648) proposes that the CDM was firstly initiated to be a fund, then became a public-private partnership with the World Bank’s enormous

support, and turned into a market after the European Commission decided to permit credits into the EU ETS (Lederer, 2012: 648). In all those processes, political negotiations, including those between states, business groups, international organizations, NGOs, and civil society, have existed and continue to exist. At this juncture, although the policies against climate change are presented as out of politics and the common good for all people, it is crystal clear that they are formed with politics, and some groups are forced to include their interests rather than others.

3.8- Offsetting

Offsetting is quite a valid issue for understanding the carbon markets' climate justice problems. Buller (2022: 87) indicates that the understanding of the atmosphere is a global common; there is no need for an offset to be located anywhere, which is quite problematic because the global North facilitates their maintaining enclosure of the atmospheric commons. The offsets in the global South lead to the sequestration of its land for the service of the North's atmospheric enclosure by purchasing the offsets by governments, corporations, and individuals (Buller, 2022: 87). The responsible for the current ecological crisis and climate change are the global North countries, corporations, and individuals not only do not pay off their compensation but also make the global South to pay off their compensation. Patterson (2013) argues that the carbon markets are managed as a type of "indulgence" system like the Catholic Church operated in medieval times. Wealthy countries, firms, and individuals can purchase a clean conscience via carbon offsetting, hence obviating the requirement for the structural transformation of their own daily lives and economies (Patterson, 2013).

Besides, the offsetting in the global South is less costly and even more profitable for the global North. The Northern countries have benefited from the offsets in a variety of ways. Firstly, it gives them the flexibility to adapt to the desired green economy without paying off their Anthropocenic or Moore's Capitalocenic GHG emissions. Secondly, they not only maintain or flexibly transform greener production and consumption but also profit from offset projects in the South. Thanks to offset projects, they receive carbon allowances, which can be used for equal carbon emission production in the North. Thirdly, they can buy and sell their offset allowances in the market to make profits from them. Lastly, there are financial markets of those credits, in which the financial sectors and brokers could buy, sell, short, forward, or make future contracts with them and earn some profit. In total, rather than paying off their GHG emissions compensation, the global North established an unfair global carbon regime, including economic and environmental problems due to enormous MRV problems. Buller (2022: 223) asserts that instead of financial debts owed by the South to the North, the developed economies owe an exorbitant ecological and human debt to the places and people that have produced their wealth and absorbed their waste.

3.9- Climate Capitalism

Newell's argument based on Gramsci is critical for understanding the current change (Newell, 2019: 17), in which the new cannot be born before the old dies. Newell (2019: 17) argues that the decades of the fossil fuel era are finishing due to

the environmental destruction of fossil fuels. At that point, this change clearly brings a fundamental change in the means of production and consumption. The new way of production and consumption might trigger a more democratic society and politics; however, it has equal potential to maintain or even exacerbate the existing deeply unequal economy and society. Gilpin (1987: 65) claims that the market force and external factors influence each other, which is valid for comprehending the dynamics of the international political economy. The relations between the (global) market forces, including division of labor, economic model, etc., and external forces like democratization, gender equality, and especially the environment are highly connected with each other. The change in one of those factors affects the other factors, which is crystallized in the contemporary environmental crisis and the proposed solutions.

Even though many environmental movements had called for Rio to restructure the global economy to mitigate inequalities between the Global South and Global North and reconsider the growth mentality of capitalist development, the parties institutionalized the neoliberal approaches to sustainable development (Böhm et al., 2012: 1618). At that point, we can argue that business leaders, political elites, the scientific community, and activists, called “climate capitalism,” share a consensus (Böhm et al., 2012: 1625). Böhm et al. (2012: 1625) suggest that the consensus or so-called regime aims to decarbonize and make a greener economy with minimal setbacks to expand the global economy and patterns of economic growth. In addition, Böhm et al. (2012: 1625) emphasize that carbon trading/markets are the heart of “climate capitalism” as a key politico-economic tool. The extraction and commodification of raw materials under conditions of capitalist expansion lead to

enormous disruptions to natural ecosystems and biogeochemical cycles (Böhm et al., 2012: 1625). Even less than Orthodox Marxism, the Marxist approach to the environment, called Eco-marxism, still benefits from Karl Marx's studies and concepts.

We can explain the novel concept of "climate capitalism" as a model of sustaining capitalism's desire to continue economic growth with a substantial transfer away from carbon-based industrial development (Newell & Patterson, 2010: 1). Parr (2016: 452) explains this model as "green capitalism," which capitalism has profited from the planet's destruction. The increase in natural scarcity is considered an invaluable opportunity for privatizing the world's commons (Parr, 2016: 452; Foster et al., 2009: 70). Under climate or green capitalism, the main target is ensuring the economic growth by providing decarbonized production and consumption models. Böhm et al. (2012: 1620) claim that even if a decarbonized capitalist green economy were achieved, unequal distribution of economic, social, and environmental risks, disparities of income, and uneven growth that global markets produce would occur. Newell and Patterson (2010: 2) suggest that you might have considered that climate change was about sea-level rise, hurricanes, heatwaves, and droughts about scientific uncertainties and controversies, and perhaps about moral responsibility and global inequalities; however, you can be confused when you see that major city banks are trading carbon just like dollars, sub-prime mortgages, oil or grain. Therefore, we can argue that the entire climate capitalism is nothing less than a massive strategy for ecological commodification, financialization, and marketization, which fundamentally deepens and intensifies the exploitation of nature by capital (Smith, 2007: 17). The injustice and inequality problems always prevail in the climate

change politics and particularly climate capitalism. Newell and Patterson (2010: 7) argue that climate change is specifically a tricky issue because the people who are suffering most contributed to the problem the least, which makes the climate change phenomena, first and foremost, a profoundly moral and political issue. Castree (2007: 148) accentuates that the state cannot abstain from taking some responsibility for the relationships between the natural environment, capitalist economy, and civil society because the non-human world provides significant material, aesthetic, and moral resources that maintain economic and social reproduction.

3.10- The Unequal and Unfair Characteristics of Global Environmental Politics

The fundamental problems of Global Environmental Politics are not ephemeral but have been established for a long time. Buller (2022: 225) suggests that the carbon dioxide in the atmosphere stays suspended for more than 1,000 years, warming the earth's surface during its tenure. Therefore, even if the carbon taps were turned off tomorrow in one decisive twist, the climate would continue to change, and the planet would continue to warm (Buller, 2022: 225). The carbon dioxide levels in the atmosphere and the state of climate change are the result of the cumulative history of industrial capitalism (Buller, 2022: 225). At this juncture, the desire for “green capitalism” could be seen as a greener way of capitalism by changing just energy sources. Buller (2022: 238/9) defines this green capitalism as decarbonizing our deeply unequal present while securing, to the best extent possible, the ruling structures, logic, and infrastructure that sustain it.

Parr (2016: 447) suggests that Eco-Marxists perceive environmental damage as an externalized cost of economic growth. Foster et al. (2010: 45) theorize this externalized cost is theorized as the “ecological debt” of economic growth. This economic growth and its ecological debt are not distributed fairly and equally all over the world. For example, the global North has experienced enormous economic growth since the Industrial Revolution, which means that the existing global greenhouse gas emissions and other environmental degradation, such as ocean acidification, belong to the North. Unfortunately, those environmental problems unequally and unfairly affect the South than the North because of their climate and economic weakness. Moreover, the North dominates global environmental governance with market-based environmental solutions like the carbon markets, causing carbon accumulation with offsetting.

Capitalism always desires cheaper and more secure access to natural resources, leading to the brutal exploitation of nature’s free forces (Saito, 2017: 132). The problems related to this access, such as air and water pollution, exhaustion of natural resources, and desertification, are considered externalities and neglected (Saito, 2017: 132). Saito (2017: 132) claims that technological development’s main principle is more efficient exploitation of natural resources and labor power with minimal costs under this system. Moreover, Saito (2017: 134) asserts that nature will be exhausted and cause a crisis for capitalism, even if capital does not pay off its damage. Instead, capital seeks to profit from this damage through intensive and

extensive appropriation of nature to secure its profit from any potential drop (Saito, 2017: 134). Nevertheless, this counteracts only increases the burdens upon nature, which cannot be maintained forever (Saito, 2017: 134). The material limitations of nature cannot endure forever those burdens, which can be easily seen in the recent climate disasters affecting our basic daily lives. At that point, Marx described the dialectic vision of progress and the productive forces towards the natural environment, creating the inherent contradiction (Brownhill et al., 2021: 119). Marx (1867 [1967], 360–361) argues that in every stage of capitalist agricultural development, each advancing short-term fertility destroys the long-term basis of this (Brownhill et al., 2021: 119). Capitalist production develops by concurring to exhaust two springs from which all wealth flows: the labor and the land (Marx, 1867 [1967], 360–361; Brownhill et al., 2021: 119).

Similar to Moore's Capitalocene argument, Patterson (2000: 40) argues that anthropocentrism does not occur in a historical and social vacuum; instead, it has existed as part of an ideological system supporting the emergence of capitalism, modern state, modern science, and modern form of patriarchy. The question is whether economic growth, consumerism, and related environmental degradation are explained by anthropocentric human desire, which comes from human nature, or whether capitalist force creates that type of human. At this juncture, we can argue that a capitalist structural base force shapes some specific actions of covetousness, consumerism, and alienation from nature, which causes humans to perceive themselves as out of nature/environment and desire to dominate and control them. Eco-Marxists problematize this issue as a metabolic rift. At that point, we should not understand the concept of structure as innate patterns or ideas of relationship that

emerge independently of people who are just bearers of the structure (Cox, 1987: 4). Of course, structures are prior to individuals in that children are born into societies full of accepted and established social practices (Cox, 1987: 4). Nonetheless, those practices, whether taking the forms of language, political institutions, production organization, or legal systems are the collective human activity's creation which created by persistent social practices (Cox, 1987: 4). Therefore, we should be careful examining the structural analysis about the environmental degradation and climate change to be not deterministic about it. In addition, Kloppenburg's argument (2004: 4) of "history is not a series of discontinuous events; the future is systematically connected to the past."

CHAPTER 4

THE CASES

In this chapter, I analyze the California Cap and Trade Program and some CDM and VOM projects to clarify inequality and carbon market relations. I benefit from secondary sources, such as related fact sheets, reports, articles, and research. Climate change inherently affects people in unequal and unjust ways because the polluter developed countries, which caused most of the GHG emissions with industrialization, have experienced less destructive consequences than the less polluter countries. At that point, the developed North established the carbon markets and flexible mechanisms to escape fundamental transformation from their production and consumption habits. Those carbon markets and flexible mechanisms bring numerous problems, especially about climate justice and climate equality.

4.1- California Cap and Trade Program

In 2012, The California Cap and Trade System began its operation by introducing its regulations for allocation, trading of compliance instruments, and auction distribution (USA - California Cap-and-Trade Program, 2022). The program implements emissions that cover California's 80% GHG emissions approximately

(Cap-and-Trade Program | California Air Resources Board, 2022). The allowances are distributed by free allocation, “a combination of auction,” and “free allocation with consignment” (USA - California Cap-and-Trade Program, 2022). The auctions’ income is reinvested in projects that decrease emissions, helping the environment, economy, and public health particularly (USA - California Cap-and-Trade Program, 2022). The California Air Resources Board (CARB) administers the program (USA - California Cap-and-Trade Program, 2022). Each year, CARB distributes fewer allowances and reduces the annual cap (Cap-and-Trade Program | California Air Resources Board, 2022).

The Global Warming Solutions Act (Assembly Bill - AB 32) is the founding legislation of California’s ETS. California’s ETS covers 80% of the state’s GHG emissions (Cap-and-Trade Program | California Air Resources Board, 2022). Bang et al. (2007: 70) propose that the establishment and development of California’s climate policy are triggered by AB 32. California Cap and Trade program was linked with the Quebec program in 2014 (Cap-and-Trade Program | California Air Resources Board, 2022). This linking ETS is quite a unique case because two sub-national level ETSs are linked with each other. CARB organizes two auctions to distribute specific allowances. The current auction presents the current vintage allowances, and the Advanced Auction presents the limited amount of future vintage allowances separately (Cap-and-Trade Program | California Air Resources Board, 2022).

Furthermore, since 2008, CARB has published a Scoping Plan to explain and shape its five-year environmental policies. In the latest Scoping Plan, published in

December 2022, CARB defines the scope of California to achieve “carbon neutrality by 2045” or earlier (2022 Scoping Plan for Achieving Carbon Neutrality, 2022). This Scoping Plan extends the previous targets: “a 15% reduction from GHG emissions in 1990 levels by 2020 and a 40% reduction in 1990 levels by 2030”. In the new plan, CARB aims to reduce 85% of GHG emissions below 1990 levels by 2045 and achieve carbon neutrality by 2045 or earlier (2022 Scoping Plan for Achieving Carbon Neutrality, 2022). The program includes the main sectors: industry, power, transportation, and buildings (2022 Scoping Plan for Achieving Carbon Neutrality, 2022). There are 400 facilities, nearly 330 registered capped/opt-in entities, representing 400 registered emitting facilities (USA - California Cap-and-Trade Program, 2022). Therefore, we can argue that California’s carbon market mostly leads to analogous environmental results; however, it is both less predictable and transparent (Cullenward, 2014: 44).

When we examine the distribution of the entities, we notice an increase in auctioning. In 2022, CARB distributed “65% of total California-issued vintage 2022 allowances by auction” (USA - California Cap-and-Trade Program, 2022). This number has been constantly increasing, and in the near future, all of the allowances will be distributed by auction. Since the beginning of the program, 22.25 billion \$ were collected, and 4.03 billion \$ particularly collected in 2022 (USA - California Cap-and-Trade Program, 2022). Most of the incomes are sent to the Greenhouse Gas Reduction Fund, of which at least 35% must contribute to low-income and disadvantaged communities (USA - California Cap-and-Trade Program, 2022). California Climate Investments contributes to projects whose funds are then shared as California Climate Investments, which support projects that present enormous

economic, public health, and environmental well-being in the state (USA - California Cap-and-Trade Program, 2022). In 2023, the auction reserve price equals 22.21\$ per allowance (USA - California Cap-and-Trade Program, 2022).

The offsetting is another critical component of the program. We can define two limitations for applying to offset for the firms who desire to reach their compliances. The qualitative rule limits the offset credits based on the projects carried out one of six mandatory offsets protocols: “US forest projects, livestock projects (methane management), mine methane capture projects, ozone-depleting substances projects, urban forest projects, and rice cultivation projects (USA - California Cap-and-Trade Program, 2022)”. Subsequently, there are also quantitative limits for offsetting. During 2013 to 2020 emissions, entities could meet up to “8% of their compliance by applying for offset credits” (USA - California Cap-and-Trade Program, 2022). The emission entities after 2020 are regulated under a new formation, AB398, which proposes the obligators can apply a share of offsets to fulfill the obligations decreases by “4% per year for 2021-2025 emissions before increasing to 6% for 2026-2030 emissions” (USA - California Cap-and-Trade Program, 2022). Moreover, beginning in 2021, no more than 50% of any entity’s offset usage can come from offset projects that do not provide direct environmental benefits to California (USA - California Cap-and-Trade Program, 2022). The projects in California are automatically assessed as proper; on the other hand, the projects outside of California must benefit California based on project data and scientific proof (USA - California Cap-and-Trade Program, 2022). For instance, a forest project outside California can be proven to benefit California by contributing to the quality of water flowing through the state (USA - California Cap-and-Trade Program, 2022).

The California Cap and Trade program is designed as a market. Covered entities, Voluntarily Associated Entities, and opt-in capped entities can participate in the program (USA - California Cap-and-Trade Program, 2022). Individuals and entities who want to purchase, sell, hold, or retire compliance instruments but are not covered by the program, such as the operation of an offset project registered with CARB, can join Voluntarily Associated Entities. The additionality principles are also mandatory for the individual market participants (USA - California Cap-and-Trade Program, 2022). There are two market types: primary and secondary markets. In the primary market, CARB creates the allowances that are available through a sealed-bid auction, such as consigned and state-owned allowances organized jointly with Quebec (USA - California Cap-and-Trade Program, 2022). In the secondary market, allowances, offsets, and financial derivatives are traded, and any firm qualified to access these platforms can trade directly or through a futures commission merchant (USA - California Cap-and-Trade Program, 2022).

International examples of cap and trade, particularly EU ETS, have influenced California's cap and trade system. However, Bang et al. (2017: 13) suggest no simple international policy diffusion story exists. The idea of cap and trade has spread globally, but many various local political interests play significant roles in its implementation (Bang et al., 2017: 13). At that point, two local issues in California affected the system: the subsequent air pollution problem, and the huge oil and fossil fuel companies in California. Bang et al. (2017: 21) propose that California has a lengthy history of enormous air pollution problems; subsequently, California is quite

vulnerable to destructive consequences of climate change, including water shortages. Thus, Californians are concerned about environmental degradation and climate change, which leads to relatively strong support for climate policy compared to other states in the US (Bang et al., 2017: 21). This path dependency of California has contributed to establishing cap and trade, in which other states except RGGI could not achieve in the US. However, we must emphasize that this path dependency and Californians' concerns do not directly dominate the state's climate policy. The fossil fuel, oil, transportation, industry, energy, and building sectors play critical roles in shaping policy that is coherent with their interests.

4.1.1- The Assessment of California Cap and Trade System

The California Cap and Trade System has been controversial in terms of climate justice. Due to the disproportionate burden on low-income communities of color, California's environmental justice activists have been against the program (KQED, 2021). Cushing et al. (2018: 3) argue that even though the reductions in GHG emissions could bring about enormous health benefits and air quality for California's disadvantaged residents, the cap and trade program would still be problematic, such as localized improvements in environmental equity. Carbon trading is innately problematic because, as a market-based trading mechanism, the firms prioritize not environmental equity but cost efficiency. Cushing et al. (2018: 5) claim that emission trading could possibly accentuate social inequalities in exposure to domestic hazardous co-pollutants because of relatively higher GHG emission activities located disproportionately in marginalized communities. Moreover, the capped sectors that

must reduce their emissions could buy allowances or offsets rather than decrease their emissions in those areas where disadvantaged communities are located.

The USC Equity Research Institute (ERI) (2016) assessed the environmental equity of California's Cap-and-Trade Program. ERI (2016) claims that in the neighborhoods of poor and marginalized communities, most GHG-emitting facilities are regulated (A Preliminary Environmental Equity Assessment of California's Cap-and-Trade Program - USC Equity Research Institute (ERI), 2016). Subsequently, in the highest levels of GHGs emitted facilities, residents of color and residents living in poverty are located mostly (ERI, 2016). We must emphasize that to fulfill their compulsory emission reductions; many high-emitting firms apply for offset projects outside California (ERI, 2016). Statistically, ERI (2016) argues that residents living in poverty and residents of color live in higher GHG-emitted neighborhoods within 2-5 miles, 21% higher for poor people and 22% higher for marginalized people. Besides, although most firms did not apply offset credits to fulfill their compliance obligations, the firms that benefit from offsets are the larger GHG-emitted ones (ERI, 2016). The leading ten beneficiaries of offsets equal 65% of the offsets used and 36% of the total covered emissions (ERI, 2016). In another empirical research in California, ERI (2022) discusses these inequality problems in California. ERI (2022) analyzed 262 facilities from 2011 to 2017 to discuss equity dimensions of the California Cap and Trade System, which represents 95% of the covered GHG in California. ERI (2022) found that "the least developed facilities in terms of the percentage change in covered GHGs tend to have a high share of people living below 200% of the poverty line, people of color, households that are linguistically isolated,

and adults with less than a high school education”. ERI (2022) summarized the results of the research:

“(1) facilities regulated under the program were disproportionately located near communities of color and communities with socioeconomic disadvantages, (2) local emissions of GHG and co-pollutants were correlated, involving changes caused by regulation, likely have impacts for the co-pollutant burdens, and (3) during the initial three years of the program (2013-2015), in-state GHG emissions actually increased relative to the pre-trade period (2011-2012), and average co-pollutant emissions rose most in neighborhoods with higher concentrations of residents with low educational attainment, lower socioeconomic status, people of color, and disadvantaged communities”.

Besides, the deepest GHG and co-pollutant reductions are experienced in higher socioeconomic neighborhoods (ERI, 2022). The market-driven and profit-based characteristics of the carbon market incentivize the most cost-efficient way to mitigate GHG emissions rather than environmentally more required areas. In other words, neoliberal economic rationality prioritizes ecological rationality. The carbon markets do not consider the disadvantaged communities as actors in decision-making. Instead, they work with the economic elites, including financial institutions and manufacturing sectors. This leads the problem to be assessed as an economic problem rather than an ecological and justice issue.

Furthermore, we should examine economic and social equity under the climate equality discussion to comprehend California’s cap and trade system problems. Holliman and Collins (2023: 136) suggest that economic equity is concerned with

improving the total economic welfare of marginalized or poorer people by imposing progressive tax and fee policies as well as creating jobs and economic enhancement of communities. Nevertheless, economically disadvantaged people bear a bigger proportionate share of their budgets because of regressive policies like fees, sales, and other consumer-level taxes (Holliman & Collins, 2023: 136). The cap and trade system is innately regressive in nature because it does not put direct taxes but creates a market to encourage the producers who have been the main contributors of GHG emissions to change their production methods. At this juncture, those producers still desire flexibility with flexible mechanisms to maintain their profits. Air, a common of humanity, is commodified and distributed to the companies firstly for free and then by auctions, which could be bought, sold, and kept for the following year. This system, cap and trade, innately increases societal environmental and economic inequalities. Even though California's policymakers have sought to consider disadvantaged communities in their policies, like rebate programs for vehicles, they cannot provide sufficient solutions to the problems of the cap and trade system. Holliman and Collins (2023: 137) claim that due to the high thresholds of their affordability, the rebate program of California appears insufficient to encourage further low-income communities' demands.

The offset rule of the program is another controversial issue, though the limit might be seen as low compared to the total emissions. Haya et al. (2020: 4) suggest that many regulated firms would prefer to increase offset usage due to the expectation of being cheaper than reductions under the cap. CARB forecasted that the cumulative decrease must be in the compliance sectors through 2020 would be almost 10% of business-as-usual emissions of those sectors (Haya et al., 2020: 4). Therefore, the 8%

offset limit represents almost 80% of the mandatory mitigation in compliance sectors through to 2020 (Haya et al., 2020: 4). The previous regulation, % eight offset limits, was quite problematic because the annual required reduction was %3-%3.5 GHG emissions, which could be fulfilled entirely via offset projects (Cushing et al., 2018: 5). According to the Cushing et al. (2018: 16) research, during the first compliance period (2013-2014), the predominance of the offset credits (75.6%) were formed by out-of-state projects. From 2021 to 2030, more than half of the reductions are expected to be fulfilled by the cap and trade program itself because the lower offset limits are equivalent to 20% of the total expected cumulative state-wide required mitigation (Haya et al., 2020: 4). Consequently, the quality of the carbon offset program will determine the cap and trade program's environmental effectiveness (Haya et al., 2020: 4).

4.2- CDM Projects in China and Their Assessments

Clean Development Mechanism, which is explained in Chapter 2, is the other main component of the carbon markets. CDM is the first and still largest carbon offsetting mechanism and market, which registered 8.100 projects in 111 countries (The Myth Of Carbon Offsets, 2021: 15). More than 2 billion carbon credits, CERs, are generated under the CDM mechanism (The Myth Of Carbon Offsets, 2021: 15). CDM has been controversial since its first emergence after the Kyoto Protocol. According to a 2016 report (Cames et al., 2015) cited by the European Commission, "85% of CDM projects and 73% of 2013 CERs" supply examined likely overestimated their emissions reductions. Newell and Bumpus (2012: 55) argue that the carbon markets are problematic in reproducing the incentive in neoliberalism to

utilize the existing inequalities and, so doing, further deepen them, as new accumulation patterns could be called the name of climate policy. Subsequently, Newell and Bumpus (2012: 55) emphasize that CDM projects are able to be both empowering and disempowering domestically depending on the specific political, economic, ecological, and social contexts in which projects are performed. Furthermore, we must emphasize that CDM is a critical concept for comprehending international politics, particularly with respect to the developed North and the developing South. The carbon markets and CDM explicitly tie emissions reduction compliance of the North to tangible actions in the global South (Newell & Bumpus, 2012: 63). Therefore, with CDMs, the global environment regime touches directly on millions of people's lives. It is also very important that due to their narrow political, economic, and technological capacities, the developing countries, the South, have limited discourse power in international climate negotiations (Xu & Zhang, 2021: 229).

Climate justice concerns the negative impacts of climate change among disadvantaged communities by emphasizing equality (Xu & Zhang, 2021: 222). Climate justice, based on social justice and sustainability principles, has supported a normative ideal reason for international climate policy since its starting in the late 1980s (Xu & Zhang, 2021: 222). Climate justice conceptualization concentrates on distribution, recognition, participation, procedure, responsibilities, etc., among which the most disputed issues mostly concern how the international climate regime can equitably cope with climate change's immediate consequences for disadvantaged countries in the Global South (Xu & Zhang, 2021: 222-223). At this juncture, CDM is a critical mechanism, including both developed and developing countries under the

Kyoto Protocol, Article 12. The CDM has two objectives: (1) to help developed countries in complying their emission reduction targets and (2) to support developing countries in fulfilling sustainable development (Xu& Zhang, 2021: 223).

Nevertheless, the CDM has been criticized for extending the gap between rich and poor, muddling justice principles, and impoverishing local development by enabling irregular participation and unjust distribution of gains in practice (Xu& Zhang, 2021: 223). The CDM mechanism leads CDM buyers to transfer their responsibilities based on the “polluter pays principle” while extracting the host countries’ resources (Xu& Zhang, 2021: 224). Even the developed countries seem to successfully fulfill their quantified emission decrease or limitation liabilities through transferring their mitigation obligation towards developing countries; it would be injudicious to assume that CDM projects have provided SD benefits for developing countries in the lack of a just distribution of responsibilities and liabilities among CDM participants (Xu& Zhang, 2021: 224). Subsequently, procedural justice is another critical procedure of climate justice, which means equal participation by all groups who have a possible risk in the impacts of a mechanism or policy, which includes vulnerable nations’ and marginalized people’s abilities (Xu& Zhang, 2021: 224). The just climate regime not only sets goals and timetables for GHG limitations but, more essentially, has a representation of those disadvantaged groups in policy execution and assessment (Xu& Zhang, 2021: 224).

The local communities’ participation in the decision-making process of CDM projects is essential to establishing equal and fair projects in their locations.

According to Lazaro and De Mello-Thery (2019), the research examines the local stakeholder participation process in CDM in four Latin American countries -

Mexico, Brazil, Peru, and Honduras. They analyzed 625 projects in those countries. In all four countries, Lazara and De Mello-Thery (2019: 254) identify a community involvement deficiency in designing and discussions on the potential benefit of CDM projects, and a deficiency of participatory decision-making mechanisms are identified. Rhetorically, the firms apply stakeholder participation to create consent about their activities, apparently to form value for all involved; however, in practice, they present almost no participation to the local communities (Lazaro& De Mello-Thery, 2019: 254). Moreover, local communities directly influenced by CDM projects have not been decently informed about these projects and their potential consequences (Lazaro& De Mello-Thery, 2019: 255). In some cases, despite solid local opposition, the firms register a project anyway. For instance, local communities criticize Bajo Aguan project in Honduras, the Barro Blanco hydropower project in Panama, and the hydroelectric plants of Santo Antonio and Teles Pires in Brazil for their destructive environmental and social consequences, involving the negative impacts on the indigenous and traditional communities, forced the local population to relocate, harm to biodiversity and fisheries, and operation of enormous carbon emissions (Lazaro& De Mello-Thery, 2019: 262). Lazaro and De Mello-Thery (2019: 262) claim that the CDM projects, specifically in Latin America, prioritize economic issues and CERs rather than the social dimension and participation of the local communities. The research concludes that there are significant social equity problems in those projects due to the lack of local participation in the decision-making of the projects (Lazaro& De Mello-Thery, 2019: 255).

The local impacts of CDM projects are also very problematic, particularly in terms of climate equality. Xu and Zhang (2021) conducted empirical research on 4429

CDM projects hosted in China from 2004 to 2015, together with socioeconomic elements at the provincial level. The research finds that CDM exacerbated the difference among Chinese regions in reaching Sustainable Development goals because of uneven social and economic conditions. (Xu& Zhang, 2021: 222).

According to the research, western and central China attracted the largest number of CDM projects (renewable resources, 62.3%); on the other hand, eastern China had more energy efficiency development projects (4.4%) (Xu& Zhang, 2021: 225). In other words, 60% of CDM projects benefitted from western and central China, which are more intense projects, such as renewable resources, than eastern China, which invested extremely little, and shallow projects, such as energy efficiency development projects. At that point, we should express that the eastern part of China is relatively more industrialized and has a GHG emissions level that needs to be reduced and limited more than the western and central parts of China. Xu and Zhang (2021: 225) emphasize that the significant development difference between the different regions in China indicates the underlying internal exclusion and social domination, which anticipate the hosts of CDM projects will exacerbate regional inequality in China.

Moreover, Xu and Zhang (2021: 229) argue that their findings are coherent with the literature, which argues that the CDM prioritizes cost-effectiveness rather than the fair distribution of responsibilities and burdens. This initial prioritization contributes to deepening the climate inequalities in both international and domestic contexts because of the lack of qualified institutions in some countries and regions; those projects have been implemented in particular areas. Approximately 70% of CDM projects are implemented in China and India (Li & Lin, 2021; Muthyanolla &

Muthyanolla, 2022). Although those are the most populous countries in the world, we should not forget that they are strong developing countries in the world's five biggest economies (Forbes, 2023). This high implementation of CDM projects in China and India could be expressed by their exponential development in their material capabilities (Kıprızlı& Köstem, 2023: 1199). In the beginning, Chinese authorities do not support the flexible mechanism because they consider that mechanism a burden transfer to developing countries (Kıprızlı& Köstem, 2023: 1198). However, China changed its unfavorable views about flexible mechanisms because of their cost mitigation and technological and financial assistance (Kıprızlı& Köstem, 2023: 1198). Due to its rapid industrialization since the Kyoto Protocol, China has become a political and economic superpower in international politics, and it cannot be considered a country that needs assistance from developed countries. Nonetheless, both the developed North and China have profited from that investment because of cost-efficiency in GHG reduction, which indicates the prioritization of neoliberal economic rationality rather than ecological rationality. China and India are clearly capable of implementing their own environmental projects; however, they still seek to collect CDM projects in their countries, issue CERs with those projects, and make a profit from carbon markets. With its own problematic nature, the countries that seriously lack capabilities and require those investments could not receive them because the market-based and profit-driven mentality is not concerned with fair distribution or climate equality but with cost-effectiveness and profit in these global environmental policies. Xu and Zhang (2021: 229) emphasize that climate justice practices and policies remain ineffective due to the socioeconomic marginalization and social differences of vulnerable countries. As Xu and Zhang's (2021) research shows, CDMs do not mitigate the local inequalities in China because the more

economically developed regions embrace the economic benefit and attract more investment.

Another critical part of CDM projects is the marginal abatement costs and investment in CDM project relations. Stahle (2019: 107) proposes that the great hosting of CDM projects and the outcome of greater marginal abatement costs caused developing countries to have lower efforts to mitigate climate change. According to Stahle's (2019: 121) empirical research, there is a positive correlation between the investment capacity and estimated emission intensity's change rate from 2014 to 2030, showing that lots of projects had a negative impact on the quantity of GHG reductions of the hosted countries.

The CDM mechanism has some diverse problems in terms of environmental additionality. Firstly, the project developers' estimation of emission reductions is usually unobservable and thus uncertain, which leads to the use of higher emission baseline scenarios, and concludes an inflation in reduction estimates (Haya et al., 2020: 2). Secondly, the CDM credited numerous "non-additional projects that would have happened on their own, independent of offset credits' income" (Haya et al., 2020: 2). Thirdly, offsetting mechanism formed problematic financial incentives that concluded in harmful or inefficient actions that physically increased emissions (Haya et al., 2020: 2). For instance, profit acquired by offset sales from hydrofluorocarbon (HFC) destruction projects were large enough to lead an incentive for refrigerant producers to augment production and decrease production efficiency in order to

acquire more HFC by-product that could be destroyed to acquire more offset credits (Haya et al., 2020: 2).

4.3- Voluntary Offset Mechanism – REDD+

Voluntary Offset Mechanism or Voluntary Carbon Markets has expanded substantially since its emergence in the 1990s (Dawes et al., 2023). Voluntary carbon markets enable individuals, businesses, NGOs, governments, and universities to offset their emissions outside a regulatory regime (Voluntary Offset Programs - Carbon Offset Guide, 2020). Only voluntary buyers can create demand and trade in the VOM; by contrast, in a compliance market, a regulatory mandate creates demand (Voluntary Offset Programs - Carbon Offset Guide, 2020). Voluntary offsets, which are normally purchased to present a firm or organization as a climate actor, cannot be used in compliance markets (Voluntary Offset Programs - Carbon Offset Guide, 2020). Subsequently, voluntary carbon markets are an essential part of global environmental governance and politics. Andonova and Sun (2019: 101) suggest that VCMs reflected multiple channels of politics, involving frustration of nonstate actors with insufficient state action, the interplay of private incentives and epistemic networks across institutional domains, and an extensive neoliberal turn in regulatory policies toward market instruments. Environmental groups and corporate actors developed voluntary certification schemes whose rules measure emission reductions and their additionality, sustainability, and accounting out of the state regulations's shadow (Andonova& Sun, 2019: 101). Similar to CDM projects, we can easily notice the dominance of China and India in VCMs. According to Verified Carbon Standard data from 2019, India (429 projects) and China (319 projects) are the leading

countries, which are followed by Turkey (110), Brazil (86), and the US (85) (Andonova& Sun, 2019: 102).

Private initiatives, particularly companies, organize and control the VCM to offset their emissions and present themselves as a “good climate company.” Many big business corporations, including the fossil fuel ones, have announced their net-zero emission targets, which are based on offsetting. For instance, Unilever, L’Oreal, Nike, Google, Nestle, Microsoft, Google, and even BP and Shell announced their net-zero emission targets (Owen-Burge, 2023; *The Myth Of Carbon Offsets*, 2021: 12). Although those companies and many other ones who target net-zero emissions can try to limit some emissions, their targets are mainly based on the carbon credits and offsets. The carbon offsets allow companies to keep emitting when they purchase carbon credits that pay for emissions reduction projects somewhere else (*The Myth Of Carbon Offsets*, 2021: 13). The legitimate concern about the VCM is that the carbon-neutrality targets of the companies are too ambitious and thus, companies’ images as “environment friendly” are prioritized to maintain or even improve its profits. Consequently, greenwashing, the practice of encouraging environmentally friendly activities to deflect attention from an organization’s not environmental activities, is a legitimate concern because the carbon neutrality agenda of companies could be reached only through “high-quality” offsets (De Freitas Netto et al., 2020; *The Myth Of Carbon Offsets*, 2021: 26).

Companies and various groups apply the Reducing Emissions From Deforestation and Forest Degradation (REDD+) projects as voluntary offset by various groups.

Those projects target to contribute to climate change mitigation by preserving and improving carbon stocks in tropical forests; however, not having systematic global evaluations of their impact is significant problem (Guizar-Coutiño et al., 2022: 1). The main goal of REDD+ projects is the reduction of forest degradation and deforestation by establishing institutional and financial mechanism to present real emission reductions while contributing biodiversity and local livelihoods (Guizar-Coutiño et al., 2022: 2).

There are various studies that assess the REDD+ projects and their environmental additionality. West et al. (2023) examine 26 REDD+ projects in six countries in terms of their effects. The result is striking that most projects have not reduced deforestation substantially, and the reductions were significantly lower than claimed (West et al., 2023: 1). In 2021, two-thirds of the 227.7 million offsets from a land-use sector (excluding agriculture) are traded in the carbon markets, with a total \$1.3 billion value, originated from REDD+ projects (West et al., 2023: 1). West et al. (2023: 1) express that the carbon offsets from REDD+ projects are generated by the basis of comparison between deforestation baseline scenarios predicted to have been recognized in the absence of REDD+, which are “de facto unobservable and the observed forest cover in the project areas.” Hence, the baseline scenarios are expected through the extrapolation of historical deforestation trends or averages from the many project baselines (West et al., 2023: 1). The profit seekers to maximize the offsets’ volume generated by a project due to the questionable modeling can opportunistically inflate the baselines (West et al., 2023: 1). According to this research, 68% of these offsets have not substantially decreased deforestation and carbon emission, 32% would have originated from the projects probably linked with

some avoided deforestation, but not the project developers predicted extent (West et al., 2023: 3). Subsequently, West et al. (2023: 4) argue that as of November 2021, 18 projects under this research had generated 62 million carbon offset credits, and organizations or individuals around the world have already applied at least 14.6 million (24%) to offset their GHG emissions. West et al. (2023: 4) conclude that these projects have already been applied “to offset almost three times more carbon emissions than their real contributions to climate change mitigation with another 47.4 million carbon offsets available in the carbon market”. Similar to this research, West et al. (2020) conducted another assessment of REDD+ projects certified by the VCS (Verified Carbon Standard), one of the biggest voluntary carbon market operators under VERRA, particularly in the Brazilian Amazon for 20-22 projects. West et al. (2020: 24187) claim that there is no powerful evidence that voluntary REDD+ projects in the Brazilian Amazon have alleviated forest loss. In a very similar research to West et al. (2023), in all REDD+ projects that formed crediting baselines applying historic trends, the crediting baselines substantially overstate deforestation West et al. (2020: 24190).

4.4- Conclusion and Discussion

In this chapter, we discuss the California Cap and Trade Program, the assessment of some CDM projects, and some VOM projects, particularly REDD+. In California, the disadvantaged communities are located in areas with high GHG emissions. The California Cap and Trade Program could not implement mandatory policies to limit the GHG emissions in those areas; thus, the capped sectors apply to offset outside of California. Rather than putting direct taxes on the capped sectors, California

implemented the cap and trade program, in which the companies could escape to reduce their emissions directly but offset their emissions by buying carbon credits. Moreover, the California Compliance Offset Program under the Cap and Trade Program is one of the largest crediting mechanisms with the VCS, CDM, and Gold Standard (The Myth Of Carbon Offsets, 2021: 16). It means that California is very dependent on the offset crediting mechanism. Subsequently, even though the policymakers in California seek to consider the disadvantaged communities in the state, the fossil fuel, industry, transportation, energy, and building sectors play bigger roles in shaping climate policies. Eventually, the research about the disadvantaged communities and GHG emissions indicates that there is a clear correlation between the area of high GHG emissions and the locations of the disadvantaged communities. In addition, there is no significant progress in those areas regarding air pollution and greenhouse gas emissions. California's emission neutrality target is still very dependent on offsetting, which is quite problematic.

Those cases are quite illustrative for understanding how the carbon markets increase climate injustice. The innate anthropocentric ethic of the carbon markets creates an expropriation of nature through CDM and VCM projects. Those projects contribute to the classical problems of neoliberal capitalism and the commodification of nature. The "fictitious" value is assigned to projects like REDD+ to create flexibility to change the North's existing production and consumption methods. However, those processes cause the abstraction of ecological problems and deepen climate injustice because the responsible countries and groups transfer their responsibility to other countries. The prevailing climate policies do not prioritize climate justice and climate equality. Climate justice or environmental justice is

defined as “no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies” and calls for “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” (Learn About Environmental Justice | US EPA, 2023). Subsequently, Banzhaf et al. (2019) argue that income inequality is quite related to environmental justice. Income disparities between countries and within countries simultaneously cause environmental inequality in both domestic and international spheres.

Andonova and Sun (2019: 102) emphasize that developing countries have historically assumed supplier positions both in compliance schemes like the CDM and for voluntary carbon markets. They initially announced their opposition to carbon offsets because the industrialized world should lead the mitigation efforts, and offsets should outsource these responsibilities and exploit the low-cost mitigation projects (Andonova & Sun, 2019: 102). We can argue that the carbon markets and their flexible mechanism became a “hegemonic value” by the historic bloc. Bernstein (2002: 2) explains norms as the shared conceptions of appropriate action or behavior. The significance of norms in policy comes from their institutionalization, which concerns the norms’ perceived legitimacy as embraced in institutions, law, or public discourse. At this juncture, the carbon markets and their flexible mechanism have sought to become a norm in global environmental politics by the encouragement of international organizations, states, and global corporations. Despite some solid opposition by environmental justice groups and indigenous people, the market-

driven, growth-based neoliberal economic model's environmental policies are becoming norms of global environmental politics.

The offsetting market, which is quite problematic about inequality, creates an illusion that the purchaser can maintain to emit now without considering consequences due to someone being paid not to emit somewhere else in the world (The Myth Of Carbon Offsets, 2021: 24). We should emphasize that this “not emitting” has the cost of the economic progress and prosperity, self-determination, and security that the purchaser enjoys (The Myth Of Carbon Offsets, 2021: 24). The reports and research analyzed in this chapters show that the offsetting mechanism has quite problematic about climate equality. The CDM projects in China deepen the existing inequality between regions in China (Xu& Zhang, 2021). Furthermore, the dominance of China and India in both CDM and VOM projects could be considered as double inequality at the international level. Even though those countries are considered as the non-Annex I group of developing countries, which are entitled to be supported by the developed countries, they are two of the five biggest economies in the world. They have enough capabilities to form and implement their climate projects; however, they are the leading countries in getting CDM and VOM projects, and they do not apply those projects to reduce economic, political, environmental, and social inequalities in their countries (Xu& Zhang, 2021). Developed countries prioritize cost-efficiency and profit; similarly, those countries prioritize the same criteria rather than environmental additionality and inequality. Furthermore, Bumpus and Liverman (2008: 148) suggest that whether the offsets allow local people to choose projects that are coherent with their needs and development is a critical question. The CDM projects and their analysis illustrate that there is an enormous

problem with procedural justice, including the local and indigenous groups, regarding the implementation of the projects in developing countries. Eventually, the North's ecological debt is displaced, both financially and materially, on the South's areas and actors (Ervine, 2013: 653).

CHAPTER 5

CONCLUSION

In this thesis, I analyze the effects of the carbon markets on climate justice. The literature on the carbon markets' critiques is inadequate in terms of effects on climate justice, the specific relation between the North and South, and the commodification of carbon. I aim to contribute to that literature with this thesis. I also aim to illustrate the double unequal character of the carbon markets, both at the domestic and international levels. The cases and their analysis clarify that double inequality. At this juncture, we should emphasize that the inequality problems of the carbon markets might not be intentionally constructed, but the contradictory and problematic nature of the market system and neoliberal policies results in unequal and unfair climate policies. Böhm et al. (2012: 1620) claim that even if a decarbonized capitalist "green economy" were achieved, such an economy would be formed by an income gap, uneven growth, and unequal distribution of economic, environmental, and social risks.

The carbon markets are solid examples of how Anthropocentric ethics, which have prevailed since capitalism, dictates alienation and valuation of nature. The

Anthropocentric understanding of nature as out of humans, which needs to be controlled and exploited, caused climate change. However, the carbon markets do not question this problematic approach but support it. Thus, policymakers do not desire to change the responsible system and understanding but ironically put them as solutions to climate change and GHG emissions. The broken metabolic cycle between humans and nature arises because of the desire for endless economic growth. Neoliberal environmental policies like the carbon markets deepen this metabolic rift by proposing an in-system solution rather than fundamental change. The carbon markets maintain the obsession with material growth and the expropriation of nature for the desire for economic growth. At this juncture, the question of who will pay the costs of decarbonization of a neoliberal economy exists. The carbon market as the dominant climate policy indicates that lower-income people and vulnerable and marginalized communities are paying the costs of climate change. In the international sphere, materially more powerful countries dictate their norms and mechanisms as the mitigation solution to climate change. Eventually, the carbon markets are a decent representation of how neoliberal environmental policies increase and deepen climate injustice.

The commodification of carbon is critical because carbon becomes a commodity that could be bought, sold, or even financially invested by the derivative markets. The assetization concept is quite illustrative for understanding the commodification of carbon because capitalist economies need a novel focus on asset-making processes that are innate to capital investment and the extraction of value (Langley et al., 2021: 498). The commodification of carbon causes individuals to have an abstract relationship with nature because the market mechanism has to enable GHG

emissions to be integrated into economic calculations, which favors opportunistic, disengaged, and even fraudulent carbon-related behavior (Martineau & Lafontaine, 2019: 500).

The global North mainstreams and uses the prevailing narrative of climate action; subsequently, it also applies the neoliberal discourse of resilience to normalize the present state of crisis and response. Deetz (1982: 139) argues that organizational members approach their tasks with their perceptions and particular political, economic, and individual interests, which are inscribed in organizational arrangements. The dominance of the global North in international environmental agreements and global environmental politics led them to frame the policies coherent to their interests. Böhm et al. (2012: 1633) argue that the carbon markets are deepening and reproducing the unequal relations between the North and South and perpetuating dispossession of non-elites and uneven development while benefiting the Northern and Southern elites.

In the introduction chapter, how climate change and GHG emissions became an issue in global and international environmental politics are explained. The UNFCCC, Kyoto, and Paris Agreements are the founders of the existing global environmental regime. The prevailing liberal environmentalism dominates the norms, rules, institutions, and policies. The carbon markets, including the cap and trade system and flexible mechanisms, were established with the mindset of liberal environmentalism and the neoliberal economic model. In this chapter, the foundation of the carbon markets and their basic critiques are also expressed.

In Chapter 2, I explain the politicization of climate change and the key concepts: the carbon market, offsetting, carbon credits, Certified Emission Reduction, Clean Development Mechanism, Voluntary Carbon Market, Emission Trading System, double counting, and some leading ETSs in the world. These concepts and mechanisms are the main tools for the operationalization of carbon markets. The explanation of those concepts illustrates how market-based and profit-driven environmental policy and the carbon markets dominate global environmental politics and, subsequently, how the commodification of carbon is formed with those concepts and mechanisms.

In Chapter 3, I present the literature review and theoretical framework to express the main understanding of global environmental politics, the carbon markets, and their relations with climate injustice. I explain the Liberal understanding, the Green theory, and the Marxist approach with its key concepts. Those explanations are quite important to comprehend the trends in global environmental politics, like the carbon markets, and their critiques. Particularly, the commodification of nature, metabolic rift, and climate capitalism concepts of Marxism are illustrative to understand how and why the carbon markets are established and prevailed in the global environmental order. The commodification of carbon with privatization, individuation, abstraction, alienability, valuation, and displacement processes, which are explained by Castree (2003) as the process of the commodification of nature, has been experienced. The literature presents solid arguments and studies for understanding the carbon markets. Although there are several studies examining

climate injustice in relation to the carbon markets, they are not discussed in a broader spectrum, including both domestic and international spheres. In this theoretical framework, I benefit from the critical approaches, particularly Marxist and Green theories. The commodification of carbon brings various inequality problems because the air as a world common is privatized and presented to the related sectors as rights for maintaining their emissions. At that point, we could see the hegemonic values of neoliberal capitalism, which are privatization and financialization with the profit-driven carbon markets. At this juncture, why not use other alternative policies like direct carbon taxes or a ban, which are not used, but the market solution is applied? The question is quite valid. The historic bloc not only holds the material sources but also forms the hegemonic norms to produce consent and legitimacy. “Usable for what? Usable for who?” (Goldman et al., 2018: 7) question is essential for understanding the reasons for applying those policies. The industrialized North, which is responsible for the most emissions, has tried to transfer its responsibility to the developing/under-developed South with the carbon markets. Moreover, the North does not want to change its growth-based economic model; instead, it aims to profit from the planet’s destruction with the carbon markets (Parr, 2016: 452). The offsetting mechanisms, CDM and VCM, are the main tools for deepening the problems of international climate injustice. Developed countries transfer their responsibilities via those mechanisms, which are completely problematic for not only climate justice but also for environmental additionality.

In Chapter 4, I discuss the California Cap and Trade Program, CDM in China, and REDD+ projects to show how the carbon markets deepen climate injustice at domestic and international levels. Firstly, I could summarize the problems of the

California Cap and Trade program as that it cannot provide improvement in mitigating GHG emissions in the areas where disadvantaged communities, unlike the relatively wealthier and not-disadvantaged communities. Subsequently, even though there is an offset limit under the program, that limit could not hinder the application of offsetting because the limit is higher than the compliance GHG reductions.

Secondly, the CDM system and projects in China indicate diverse equality problems. The Chinese and Indian dominance in the CDM is quite problematic because those countries' economic capabilities are sufficient to establish their own climate policies. However, both the developed countries and them have still enjoyed those CDM projects and CERs because investment in those countries is more profitable and cost-efficient. Böhm et al. (2012: 1631) suggest that BRICS countries' elite social groups have an inherent interest in the enlargement of the carbon markets because they can directly profit from them without having to feel any of the pain of climate change mitigation themselves. The profit-driven feature of the CDM hinders investing in less profitable and cost-efficient countries that require those investments. At this juncture, we should not forget that the CDM is a mechanism for transferring the ecological debt of the North to the South. The CDM, which consists of serious environmental additionality problems and an innately unequal approach to climate change, could not sustain even its main promises of assisting developing countries with sustainable development. Lastly, REDD+ projects are discussed as examples under the VCM. The research shows that the REDD+ projects do not mitigate or reduce as they are claimed. This is extremely problematic because the many credits from those projects are presented to the market, leading the buyers of those credits to keep their emissions. Furthermore, the procedural justice problems of both the CDM and REDD+ projects deepen the climate injustice because the local and indigenous

communities do not have almost any rights and power regarding the establishment and operation of those projects.

Experimental studies argue that economic inequality prevents cooperation from decreasing emissions when lower-income people are more vulnerable to the disastrous consequences of climate change (Burton-Chellew, May, and West, 2013). At that point, Downey and Strife's (2010) IDE model is quite essential to understanding why inequality hinders cooperation for environmental degradation. In that model, Downey (2015) claims that economic and political power inequality leads to institutional, organizational, and network-based inequalities. The elites who hold these powers simultaneously construct undemocratic, elite-controlled institutions and networks. Due to having these powers, they could easily cause environmental degradation and cover it with executive power (Knight, Schor & Jorgensen, 2017). Then, they could make environmental policies in which the environmental costs shift to less influential and less affluent (Knight, Schor & Jorgensen, 2017). They also inhibit public environmental concerns and circumscribe pro-environmental behaviors (Knight, Schor & Jorgensen, 2017). According to Knight, Schor, and Jorgensen (2017), inequality might hinder socially responsible behavior and pro-environmental collective action by reducing cooperation, cohesion, and social trust, which can conclude more significant environmental degradation involving expanded emissions, as environmental problems are not efficiently met by alterations in public policy and personal behavior. In addition, the aggregate level of environmental degradation will be more significant when the beneficiaries of environmental degradation are more powerful than those who endure the costs (Knight, Schor & Jorgensen, 2017). Similarly, if wealth inequality is linked to

political inequality, environmental degradation involving carbon emissions will be greater according to the political economy approach (Knight, Schor & Jorgensen, 2017). Hence, ecological rationality should be prioritized rather than economic rationality. Climate change problems are not errors in the system but the consequences of the system; consequently, more fundamental changes should be imposed to mitigate its destructive impacts. Climate justice scholarship presents a strong comprehension of why we should apply fairer, more equal, and ecological policies.

In total, the carbon markets are inherently unfair and unequal mechanisms because a market does not prioritize ecology, environmental additionality, equality, and justice but profit and cost-efficiency. Subsequently, offsetting mechanisms and their organization are also quite problematic in terms of climate justice and procedural justice. Therefore, the carbon markets increase and deepen climate injustice.

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