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What Are Carbon Markets and Why Are They Significant?

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by

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Introduction

Climate-proofing the economy is in vogue these days. Climate proofing specifically refers to a process of mainstreaming climate change into development strategies and programmes, i.e., development is viewed through a climate change lens.¹ Carbon markets are one of the ways to climate-proofing the economy. These markets incentivize companies for mitigating greenhouse gas emissions by following a financial framework. It allows industries to purchase carbon emissions, invest in cleaner technologies and utilize sustainable solutions. The carbon markets are an innovative way of helping businesses to pursue environmental goals while achieving their economic growth.

Concept of Carbon Markets

The carbon market refers to the market in which carbon credits, in other words carbon certificates, are obtained and sold within defined standards for the prevention or reduction of GHGs (Greenhouse Gases).²

Understanding Carbon Credit and Emissions Trading

A carbon credit, equivalent to one ton of CO₂ or other greenhouse gases (GHGs), is used as a trading unit in carbon markets. Industries that emit less than the 'cap' set by

¹ "Climate Policy Info Hub." Climate proofing | Climate Policy Info Hub.
<https://climatepolicyinfohub.eu/glossary/climate-proofing#:~:text=Climate%20proofing%20is%20a%20term,used%20in%20the%20development%20context.>

² "Carbon Market." Carbon Market - an overview | ScienceDirect Topics.
[https://www.sciencedirect.com/topics/engineering/carbon-market.](https://www.sciencedirect.com/topics/engineering/carbon-market)

regulatory bodies, can sell their rewarded credits to those that need permission for additional emissions beyond the 'cap'. This incentivizes companies to reduce emissions, as they can earn revenue from selling their credits.

Emergence of Carbon Markets and Developments

Back in the 1980's, a concept of cap-and-trade first emerged in the United States when an Acid Rain Crisis happened. It was caused by sulfur dioxide emissions leading to various environmental issues. In the 1990's, the 'Clean Air Act' introduced a cap-and-trade system that successfully mitigated sulfur emissions from the atmosphere. This act laid the groundwork for future carbon trading models.

Later in 1992, the UN Framework Convention on Climate Change (UNFCCC) was established at the Earth Summit in Rio de Janeiro to address climate change.

The Kyoto Protocol was adopted by UNFCCC in 1997 which marked a significant milestone as it is considered a first international treaty on reducing greenhouse gas emissions through carbon trading. According to this protocol, only the developed countries need to meet specific targets and timetables for emissions reductions.

The European Union Emissions Trading System (EU ETS) was launched in year 2005, becoming the largest and first major international carbon market. It allowed companies to trade emission allowances within the EU, setting a precedent for similar systems globally.

In 2015, Article 6 of the Paris Agreement recognized the use of internationally transferred mitigation outcomes and includes provisions vital to well-functioning markets, including strong language ensuring the avoidance of double-counting of emission reductions — opening the door to countries to use international carbon markets to meet their nationally determined contributions.³

Alongside compliance markets tied to regulatory frameworks, voluntary carbon markets began to emerge.

Types of Carbon Markets

1. The Compliance Carbon Markets

In such markets, countries/states/cities are bound by the international treaty - the Kyoto Protocol to comply with cap-and-trade policy to control their emissions. The current potential of these markets stands at \$100 billion globally. The European Union

³ Three decades of carbon markets success, n.d.

https://www.edf.org/sites/default/files/documents/EDF_Carbon_Market_Timeline.pdf

Emissions Trading System (EU ETS), Western Climate Initiative (WCI), and Regional Greenhouse Gas Initiative (RGGI) are some examples of Compliance Carbon Markets.

2. The Voluntary Carbon Markets

These types of markets are not binding on the industries rather the private companies and other entities trade credits to offset their carbon footprints as part of their CSR, Branding and marketing initiatives. These markets allow companies and individuals to purchase carbon credits voluntarily to offset their emissions. Despite facing challenges regarding the quality and credibility of offsets, these markets have seen substantial growth. Some of the well-known Voluntary Carbon Markets are Verra and Gold Standard. At present, their potential has surpassed \$2 billion.

Critique of The Carbon Markets

Despite being a significant step towards mitigating the GHGs, the Carbon Markets are also scrutinized for their integrity, transparency and accountability. This critique reveals not only the positive aspects but also the negative aspects of Carbon Markets.

1. Dilemma of Carbon Credits

The dilemma of carbon credits is to balance both environmental responsibility and economic growth. Carbon credits require companies to counter their greenhouse gas emissions by funding ecological-friendly projects, like reforestation or renewable energy. However, critics argue that carbon credits can act as a "license to pollute". It can allow corporations to continue emitting high emissions rather than investing in cleaner technologies. Moreover, there are concerns regarding carbon credits' transparency and efficiency, as genuine carbon reduction projects are not pursued. This raises ethical and practical questions and put a big question mark on the authenticity of carbon credits that if they are a valid solution to climate change or merely a temporary fix. The below-mentioned Core Carbon Principles (CCPs), carbon crediting programs and methodologies aim at providing ways to keep the integrity of carbon credits intact.

a. 10 Principles Defining High-Integrity Credits

The Core Carbon Principles (CCPs) are ten fundamental, science-based principles for identifying high-quality carbon credits that create real, verifiable climate impact. Developed with input from hundreds of organizations, they set a global benchmark for high integrity in the voluntary carbon market to raise it to a consistent level of quality and ensure it accelerates progress towards the 1.5°C target.

1. Effective Governance
2. Tracking
3. Transparency
4. Robust Independent third-party validation and verification
5. Additionality
6. Permanence

7. Robust Quantification of Emission Reductions and Removals 8. No Double Counting 9. Sustainable Development Benefits and Safeguards 10. Contribution to Net Zero Transition⁴

b. Carbon Crediting Programs and Methodologies

Numerous carbon crediting programs, such as the Verified Carbon Standard (VCS), The Clean Development Mechanism (CDM), California Carbon Offset Program, Gold Standard and American Carbon Registry (ACR) have emerged to issue credits for carbon reduction projects.

These programs establish their own methodologies and standards for what constitutes a valid carbon credit. Methodologies are essential in verifying that a carbon credit represents a real reduction in emissions, yet many have faced criticism for being overly lenient or lacking in scientific rigor. These are specific procedures to measure, report, and verify emissions reductions accurately. They include guidelines on baseline setting, additionality, leakage, monitoring, and permanence, and are applied directly to individual projects. However, they vary significantly in rigor and focus, which can lead to inconsistencies.

A carbon crediting program should ideally follow science-backed standards that ensure real, measurable impact, but variances in standards and approaches can hinder the overall goal of meaningful emissions reduction.

2. Carbon Tax

A carbon tax is a financial charge, imposed on fossil fuels, to make them expensive for controlling GHGs Emissions. Economists have long argued that a carbon tax is a cost-effective way to reduce greenhouse gas emissions. A common concern with any carbon pricing scheme is that it leads to leakage whereby emission reductions in a country enacting climate policy simply led to increased emissions in another country. The leakage concern here is that if one country, say Germany, enacts a carbon tax, then emission intensive manufacturing moves from Germany to a nearby country that does not have a carbon tax. Leakage is certainly a possibility and we do not explicitly try to control for it.⁵

⁴ "The Core Carbon Principles." ICVCM, August 12, 2024. <https://icvcm.org/core-carbon-principles/>.

⁵ GILBERT E. METCALF, and JAMES H. STOCK. Measuring the Macroeconomic Impact of Carbon Taxes, n.d. https://scholar.harvard.edu/files/stock/files/metcalf_stock_macro_carbon_tax_aerpp_011020.pdf.

a. Global Carbon Tax

A global carbon tax is applied globally on greenhouse gas emissions. It intends to build a unified financial reward for curtailing emissions across the globe. Unlike national or regional carbon taxes, a global carbon tax would standardize the cost of emitting carbon internationally. It would create a transparent system where all industries face the same financial responsibility for their emissions. The main purpose of global tax is to prevent "carbon leakage,". In the context of relocation, the companies move to countries with lower or no carbon taxes. However, implementing a global tax face significant challenge. It includes international governance, varied economic impacts, and aligning different countries' economic and environmental priorities.

3. Plight of Voluntary Markets

The voluntary Carbon Market (VCM) is plagued by significant issues, particularly in forestry projects, which are often criticized as "garbage projects" due to poor implementation and oversight. Two key overhangs add to this problem:

a. Physical Ton Overhang

Where credits represent emissions reductions that may not physically exist. The Voluntary Carbon Credits encourage corporate responsibility, allow flexibility in achieving environmental goals, and promote investments in green projects. However, voluntary credits face criticism due to a lack of standardization and verification, which can lead to "Greenwashing" where companies exaggerate their environmental impact.

b. Confidence Overhang

It stems from a lack of trust in project credibility. With over 90% of the market over-credited and largely unregulated, the sector faces an integrity crisis.

4. Corporate Social Responsibility

The Corporate Social Responsibility (CSR) plays a critical role in shaping how companies engage with carbon markets and address their environmental impact. By committing to emission reductions, investing in sustainable practices, and participating transparently in carbon offsetting activities, businesses can fulfill their social responsibilities while contributing to global climate action.

a. Need for Transparency and Standardization

One of the criticisms of carbon markets, and especially VCM, is the use of net zero pledges that makes corporate greenwashing possible, where non-state actors claiming to be "net zero" continue to invest in fossil fuel supply or other

environmental destructive activity. Carbon markets are often considered fragile because they are influenced by political decisions, which can be perceived by the population as damaging or unfair, and might be rejected someday. Thus, improving corporate accountability and transparency is important for ensuring credibility within carbon markets. This could be achieved through validation of corporate emission reduction targets beyond value chain mitigation (BVCM) by Science-Based Targets initiative (SBTi), and by defining a mitigation hierarchy to ensure carbon offset investments complement and do not substitute decarbonization plans for the company.⁶

5. Global North Vs. Global South: A Debate on Consumption Production Pattern

Fossil fuels continue to play a significant role in the Global North and the Global South. The Global North highlights aggregate quantity of fossil fuel use, particularly coal, in the Global South. This serves the interest of the Global North in redistributing guilt for causing climate change, which in turn enables the Global North to redistribute the cost of addressing climate change. In per person terms, consumption of fossil fuels in most of the Global South is abysmally low, and so is its per person carbon emissions.

Consumption patterns of fossil fuels suggests that strategic and economic significance of the particular fossil fuel takes precedence over its role in emission of carbon for countries in the Global North as well as in the Global South. National interests, rather than science, defend policy to regulate carbon emissions. The narrative on climate change produced and propagated by the Global North conflates normative beliefs with scientific truth. Technocratic elite from the Global North control climate policy-making and council governments of the Global South of supposedly unambiguous facts to push them to act as the Global North desires. If policy-making becomes more democratic to accommodate hopes and desires of the Global South instead of exploiting guilt and fear, climate action may have a chance of success.⁷

6. Greening Capitalism---A Socialist Perspective

Carbon markets might wear 'green' clothes, but the realities on the ground in the Global South suggest that they are anything but 'green' in practice.

⁶ "Carbon Market." Carbon Market - an overview | ScienceDirect Topics. <https://www.sciencedirect.com/topics/engineering/carbon-market>.

⁷ Powell, Lydia. "Fossil Fuel Consumption: Perspectives of the Global South and the North." orfonline.org, August 28, 2024. <https://www.orfonline.org/expert-speak/fossil-fuel-consumption-perspectives-of-the-global-south-and-the-north>.

From a Marxist standpoint, carbon markets can be understood as a successful strategy for the creation of a new environmental commodity, introducing a new mechanism of capitalist legitimation and playing a crucial role in the creation of accumulation opportunities, often through new forms of dispossession. In this respect, it is useful to consider the distinction between real and proxy commodification.

In this way the politico-economic dynamics of carbon markets are not really new. What Marxists have been arguing for a few decades now is that capitalism, as a socio-ecological system, involves unequal forms of global development; these uneven forms of development often constitute creative new ‘neo-colonial’ practices, which dispossess people in so-called developing countries, while elites, especially powerful elites of the Global North, enrich themselves. There is sufficient evidence in the existing literature that shows that the ‘green’ development solutions being financed through carbon markets such as the CDM, which are allegedly being explicitly designed to further sustainable development goals, are, instead, perpetuating this capitalist pathology.

We argue that carbon markets correspond to, and manifest the logic of, capitalism in its historical development, a logic driven by the need for constant expansion of opportunities for capital accumulation. These specific markets indicate both the creativity and continuity of capitalist development. They are creative in the sense that they create new goods to be traded in the new markets which these policy innovations bring to life. The CDM, for example, is an immensely innovative tool, allowing the commodification of carbon emissions and their trade across the globe.⁸

7. Current Situation of Carbon Markets

Carbon markets are currently at a significant crossroads, influenced by both compliance markets (regulated by governments) and voluntary markets, each facing challenges and opportunities. On the compliance side, key negotiations around Article 6 of the Paris Agreement are central to the future of global carbon trading.

On December 21st, 2023, when voluntary carbon standards such as Plan Vivo, Gold Standard, and the Chicago Climate Exchange emerged in the late 1990s and early 2000s, they aimed to create transitional mechanisms to test new concepts and support early action until a global regulatory apparatus emerged.

More than 20 years later, that apparatus is still in limbo, and regulation of International Carbon Credits (ICCs) won’t be operational for at least another year – and probably two – after delegates to the UN climate conference in Dubai (COP 28)

⁸ Böhm, Steffen, and Maria Ceci Misoczky. Greening Capitalism? A Marxist Critique of Carbon Markets (PDF) , November 2012.

https://www.researchgate.net/publication/239735675_Greening_Capitalism_A_Marxist_Critique_of_Carbon_Markets.

failed to find agreement on operationalizing Article 6 of the Paris Climate Agreement. That's good news for the Voluntary Carbon Market (VCM) because it can continue operating without cumbersome and counterproductive corresponding adjustments. It's bad news for the planet because it delays the advent of a global compliance market that could double the climate impact per dollar spent on reducing emissions.⁹

8. Expectations from Paris Agreement & COP29

There are many advancements which could be expected from COP29. The world remains far from limiting temperature increases to 1.5°C above pre-industrial levels, carbon credits and Voluntary markets are losing their validity, and confidence overhang is persistent. Developing countries are getting more vulnerable to the climate-induced-disasters because of increase in the global warming temperature.

The world can expect a great emphasis on accelerating renewable energy adoption, phasing out fossil fuels, and strengthening adaptation plans to protect vulnerable communities and ecosystems.

Martin Hession, Vice-Chair of the Article 6.4 Supervisory Body said: “Some of the highlights of these standards include the alignment of baselines with Paris Goals through downward adjustment, an additionality test that excludes projects that would lead to lock-in of unsustainable levels of emissions, and a shift to cover the risk of reversal for all risks with a buffer pool. We are also exploring alternative methods to compensate for any reversals, as well as potential upper limits to acceptable risk.

It's all about getting the balance right — protecting the integrity of the Paris agreement, driving the necessary climate ambition, while balancing the interests of all market stakeholders and host parties.”¹⁰

⁹ Zwick, Steve. “What Lies Ahead for Carbon Markets after COP28?” Ecosystem Marketplace, December 23, 2023. <https://www.ecosystemmarketplace.com/articles/what-lies-ahead-for-carbon-markets-after-cop28/>.

¹⁰ Unfccc.int, n.d. <https://unfccc.int/news/key-standards-for-un-carbon-market-finalized-ahead-of-cop29>.