



Deciphering Carbon Sequencing: Navigating the Complexities of Carbon Credit Trading and Climate Impact

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By 2024, India finds itself at a crucial juncture in its efforts to combat carbon emissions in the face of increasing economic expansion. Businesses worldwide have adopted sustainability practices in response to the urgent global need to decrease carbon footprints. Comprehending the notion of a 'Carbon Footprint'- the whole amount of greenhouse gas emissions produced by persons, organisations, events, or products-is essential as we progress towards a more environmentally friendly future in light of increasing worries about climate change.

What Is Carbon Sequencing?

Carbon sequencing is the methodical process of monitoring and quantifying the release of greenhouse gas emissions (GHGs) at every stage of their life cycle, starting with production and ending with consumption. The process includes the identification of emission sources, the quantification of their effect, and the establishment of a chronological record of emissions. Carbon sequencing is an advanced scientific technique used to determine and measure the quantity of carbon stored in a certain environment. Understanding the carbon cycle is highly dependent on this process, which involves the conversion of carbon compounds in the environment. The carbon cycle is essential for accurately forecasting and minimising the effects of climate change. Carbon sequencing offers comprehensive understanding of carbon flow throughout ecosystems, its storage dynamics, and the influence of human activities on these phenomena. Carbon sequencing often utilises sophisticated techniques such as remote sensing and DNA sequencing. Remote sensing employs sensor technology on satellites or aeroplanes to identify and categorise items on Earth, such as assessing ecosystems and estimating the amount of carbon stored in biomass. Conversely, DNA sequencing is used to examine the genetic material of species participating in the carbon cycle. For instance, it may aid in the identification of tree species in a forest that exhibit exceptional efficiency in carbon sequestration. It may provide valuable information to forest and natural resource managers to optimise their ability to store carbon. Additionally, it may provide guidance for the formulation of programmes aimed at mitigating greenhouse gas emissions.

Carbon Trading: The Market Dynamics

Carbon trade refers to the commercial exchange of credits that provide a firm or organisation the right to release a certain quantity of carbon dioxide or other greenhouse gases. Carbon credits and carbon trading are government-sanctioned mechanisms aimed at progressively lowering total carbon emissions and alleviating their impact on climate change. Carbon

trading, or emissions trading, is a market-driven method of managing pollution by offering financial rewards for decreasing the release of harmful substances. These are the fundamental dynamics of the carbon trading market:

Cap-and-Trade Principle: The fundamental premise behind carbon trading is the 'cap-and-trade' mechanism. Authorities or regulatory agencies establish a limit on the quantity of carbon dioxide and other greenhouse gases that firms are allowed to release. Companies that produce emissions below their allocated limit may trade their excess permits as carbon credits.

Valuation of Carbon Credits: The valuation of carbon credits may significantly fluctuate based on variables such as the nature of the project, its geographical location, and the certification criteria for the credits. This may complicate the process of purchasing and selling carbon credits.

Regulatory Differences: A global carbon market does not exist in a coherent form. However, there are several regional and national marketplaces, each governed by its own set of laws and regulations. It might be difficult to navigate through these many marketplaces.

Verification of Carbon Offsets: It is essential to verify the authenticity and validity of carbon offsets. Effective monitoring, reporting, and verification mechanisms are necessary to guarantee the authenticity, durability, and additional nature of the emission reductions.

Price Volatility: Carbon credits may experience significant price fluctuations due to variables such as supply and demand dynamics, policy discussions, and other influences.

Types of Carbon Markets

Carbon markets may be categorised into two main types: compliance markets and voluntary markets.

Compliance markets are created by governmental or multi-governmental entities to oversee the distribution of credits and regulate their exchange. Typically, they are talking to emissions trading programmes, in which governments or regulatory agencies establish a limit on the quantity of carbon dioxide and other greenhouse gases that firms are allowed to release. Companies that produce emissions below their allocated limit may trade their excess permits as carbon credits. These markets are sometimes referred to as compliance or required markets.

Voluntary markets refer to the trading of carbon credits on a voluntary basis. Within these markets, various entities such as businesses and private people purchase carbon credits in order to compensate for the release of one metric tonne of CO₂ or other greenhouse gases. Their aim might be to counterbalance their carbon emissions, fulfil a business commitment to environmental assistance, or engage in carbon credit speculation similar to trading cotton or wheat futures.

The Role of Carbon Credit Trading

Carbon credit trading is a market-oriented strategy for controlling greenhouse gas (GHG) emissions. The objective is to provide financial rewards for the purpose of decreasing the release of greenhouse gas emissions. The notion is founded on the principle of 'cap and trade'. This approach establishes a restriction or 'limit' on the permissible greenhouse gas (GHG) emissions. Companies or nations that release greenhouse gases (GHGs) below their predetermined limit may trade their excess permits as carbon credits. Carbon credit trading is crucial in worldwide efforts to mitigate climate change. It operates based on the concept of 'cap and trade'. Authorities or regulatory agencies establish a limit on the quantity of carbon dioxide and other greenhouse gases that corporations are allowed to release. Companies that produce emissions below their allocated limit may trade their excess permits as carbon credits. However, enterprises who above their emission limit are required to purchase carbon credits in order to compensate for their additional greenhouse gas emissions.

The role of carbon credit trading is multifaceted:

1. **Economic Incentive:** By putting a price on carbon emissions, carbon credit trading encourages companies to innovate and find cost-effective ways to reduce their carbon footprint. Companies that can reduce their emissions below the cap stand to make a profit by selling their excess allowances.
2. **Funding for Green Projects:** The sale of carbon credits can generate funds for renewable energy projects, reforestation efforts, and other initiatives aimed at reducing GHG emissions.
3. **Global Impact:** Carbon credit trading is not restricted by national boundaries. This means that a company in a developed country can offset its emissions by buying carbon credits from a green project in a developing country. This not only helps reduce global GHG emissions but also supports sustainable development in less developed regions.
4. **Regulatory Compliance:** In regions where regulatory caps on GHG emissions are in place, carbon credit trading allows companies to meet their regulatory obligations in a flexible manner.

Navigating the Complexities of Carbon Credit Trading

Carbon credit trading is a powerful tool in the fight against climate change, but it comes with its own set of complexities:

1. **Valuation of Carbon Credits:** The value of carbon credits can vary greatly depending on factors such as the type of project, its location, and the standard under which the credits are certified. This can make the process of buying and selling carbon credits complex.
2. **Regulatory Differences:** There is no unified global carbon market. Instead, there are multiple regional and national markets, each with its own rules and regulations. Navigating these different markets can be challenging.
3. **Verification of Carbon Offsets:** Ensuring that carbon offsets are real and verifiable is crucial. This requires robust monitoring, reporting, and verification systems. However, implementing these systems can be complex and resource-intensive.
4. **Permanence and Additionality:** Carbon credits should represent emission reductions that are permanent and additional, meaning they would not have occurred without the carbon credit project. Proving permanence and additionality can be complex.
5. **Risk of Greenwashing:** There is a risk that companies may use carbon credits to appear more environmentally friendly without making significant reductions in their own emissions. Avoiding this 'greenwashing' is a major challenge.

Carbon credit trading has the potential to significantly reduce greenhouse gas emissions. Navigating these complexities requires a deep understanding of the carbon market and a commitment to transparency and integrity. With these, carbon credit trading can be a powerful tool in our fight against climate change.

Carbon Credit Trading and Climate Impact

Carbon credit trading is an economic system created to reduce the negative effects of greenhouse gases (GHGs) on the environment. The system functions based on the premise of 'cap and trade', which involves establishing a specific limit on the quantity of greenhouse gases (GHGs) that corporations or nations are allowed to release. Individuals or entities who release fewer greenhouse gases than their allocated limit may sell their excess permits as carbon credits, which provides a financial incentive to decrease emissions.

Carbon credit trading may have a substantial influence on climate change. Implementing a carbon pricing mechanism incentivizes enterprises to engage in innovation and seek out economically viable methods to decrease their carbon emissions. The proceeds derived from the sale of carbon credits may finance initiatives in renewable energy, energy efficiency, and reforestation, therefore enhancing efforts to mitigate climate change.

Furthermore, carbon credit trading has the potential to have a worldwide influence. Due to the absence of limitations imposed by national borders, a corporation situated in a developed nation has the ability to compensate for its greenhouse gas emissions by purchasing carbon credits from an environmentally friendly initiative in a developing nation. This not only aids in decreasing global greenhouse gas emissions but also promotes sustainable development in underdeveloped places.

The efficacy of carbon credit trading in addressing climate change is contingent upon the integrity of the carbon credits and the equitable nature of the trading mechanism. Effective monitoring, reporting, and verification mechanisms are necessary to confirm the authenticity, durability, and additional nature of the emission reductions.

Conclusion

Carbon sequencing and trading play a crucial role in our efforts to combat climate change. In order to successfully traverse this intricate terrain, it is imperative that there be cooperation among governments, corporations, and people. Through comprehending the trajectory of carbon, starting from its origin to its recognition as a credit, we may collaboratively construct a future that is more environmentally sustainable. Understanding carbon sequencing and managing the intricacies of carbon credit trading is a challenging task. Nevertheless, by gaining a more profound comprehension of these principles, we may effectively use the capacity of carbon credit trading to diminish greenhouse gas emissions and alleviate the impacts of climate change. As we go towards a more sustainable future, the significance of carbon credit trading will definitely grow. Carbon credit trading is essential in the worldwide endeavor to reduce the impact of climate change. Through the use of market forces, it aims to minimize greenhouse gas (GHG) emissions in the most economically efficient manner. Nevertheless, the effectiveness of this strategy relies on strong monitoring and verification procedures to guarantee the authenticity of the carbon credits and the impartiality of the trading system.

References

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