Demystifying Carbon Markets

Vivek Shankaranarayanan
Co-founder
Impactree Data Technologies Pvt. Ltd.
Chennai

Ashlesha Kshirsagar
Product lead
Impactree Data Technologies Pvt. Ltd.
Mumbai

Introduction:

Climate change casts a shadow over our present and poses an existential threat to our future. The dependence on fossil fuels, releasing heat-trapping greenhouse gases into the atmosphere, has pushed our planet to the brink of a tipping point. Yet, amidst the dire warnings, a glimmer of hope emerges: the carbon market. This innovative system offers a win-win opportunity– mitigating climate change while fostering economic opportunities.

Carbon Market is a marketplace where polluters are incentivized to reduce their emissions, by putting a price on carbon. It compels companies and individuals to own up to the environmental cost of their actions. This goes a long way in encouraging adoption of clean technologies and renewable energy sources.

But the impact goes beyond mere economics. Every ton of carbon dioxide removed or avoided is a victory for our planet. However, the path forward is not without its challenges. Ensuring the integrity and effectiveness of these markets is crucial, given practices like greenwashing are to be addressed. Carbon markets can become a powerful tool in the fight against climate change. In this essay, we will delve deeper into the intricacies of carbon markets, exploring their potential, limitations, and the crucial role cost and management accountants can play, in operation of carbon markets.

What are carbon markets?

Simply put, carbon markets act like stock exchanges for the sale and purchase of carbon credits. They can be used by entities having high greenhouse gas emissions by purchasing carbon credits - from the ones that avoid or reduce greenhouse gas emissions.

Carbon credits - One carbon credit is equivalent to a tonne of carbon dioxide or a different greenhouse gas reduced or removed. These credits can be used just like currency - and once used, they are no longer available for trading.

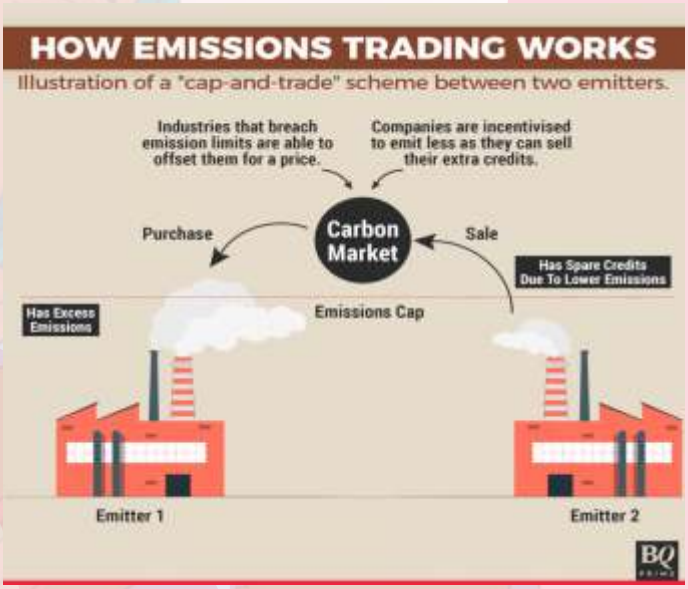

Image 1 - Carbon emissions trading mechanism

Source:- https://media.assettype.com/bloombergquint%2F2022-08%2Fc9892ede-e858-492d-955f-17f91be38894%2FHow_Emissions_Trading_Works.png?auto=format%2Ccompress&format=webp&w=940

Evolution of Carbon Markets:

The current iteration of carbon markets was started with the signing of the Kyoto protocol. As the Kyoto protocol, was COP (Conference of parties) there were specific targets on governments to reduce emissions. This resulted in the creation of carbon accounting and trading mechanisms. Currently there are 2 types of carbon markets:

Currently, there are 2 ways in which carbon credits can be traded

- Mandatory Carbon Market
- Voluntary Carbon Market

As its name suggests, the mandatory carbon market is used by companies and governments that are legally mandated to offset their emissions.

The countries that have joined these markets are those that have accepted and adopted the emission limits established in the Framework of the United Nations Convention on Climate Change (UNFCCC).

On the other hand, the voluntary carbon market operates outside the compliance markets but in parallel, allowing private companies and individuals to purchase carbon credits voluntarily.

Both the markets have been explained in detail below:

- **Mandatory / Compliance Carbon Market (CCM):**

  This market is regulated through international, regional and sub-national carbon reduction schemes, such as the Clean Development Mechanism under the Kyoto Protocol, the European Union Emissions Trading Scheme (EU-ETS) and the California Carbon Market. Each ton of CO2 is measured in carbon credits or CERs (Certified Emission Reductions). These credits are generated in the implementation phase of the project; and are issued once the reduction has been credited.

  This market is now dominated by investments into companies by financial bodies like World Bank which have mandates on investments to be carbon neutral. This market is still under development, but it is expected to be launched in 2026.

- **Voluntary Carbon Market (VCM):**

  The main objective for acquiring Verified Emission Reduction (VER) credits, is to neutralize the carbon footprint, motivated mainly by Corporate Social Responsibility (CSR) and considerations such as certification, reputation and environmental and social benefits.

  Companies and individuals can acquire or buy carbon credits directly from projects, companies or carbon funds. The main difference is that a VER (voluntary market), unlike CERs (mandatory market), cannot be used to achieve obligations under the Kyoto Protocol compliance regime. Developers of projects resulting in the avoidance, decrease or removal of carbon emissions can apply to private entities, called standards, to certify their project and prove the amount of carbon avoided, decreased or removed. Post certification, the developer can obtain voluntary carbon credits (VCCs) with One carbon credit = 1 ton of CO2e emission reduction.

Vaults for storing carbon credits:

Vaults are secure digital repositories where carbon credits are stored and tracked. Companies like Verra and AGS offer vaults that meet specific security and transparency standards, ensuring the integrity of the credits, having various features like fractional ownership, trading, and retirement of credits.

The VCCs are stored in a registry owned or retained by the standard that certified the project. The developer can either retire the credits or sell them to another entity owning an account in the registry. There are various ways in which VCCs can be traded and various institutions involved in the process: brokers, exchanges, retail traders, and advisors.

VCCs issued by a given standard and stored in a registry managed or retained by this standard cannot be transferred to a registry of a different standard. For example, a carbon credit issued by Verra is stored at Verra Registry and cannot be moved to the Impact Registry operated by The Gold Standard.

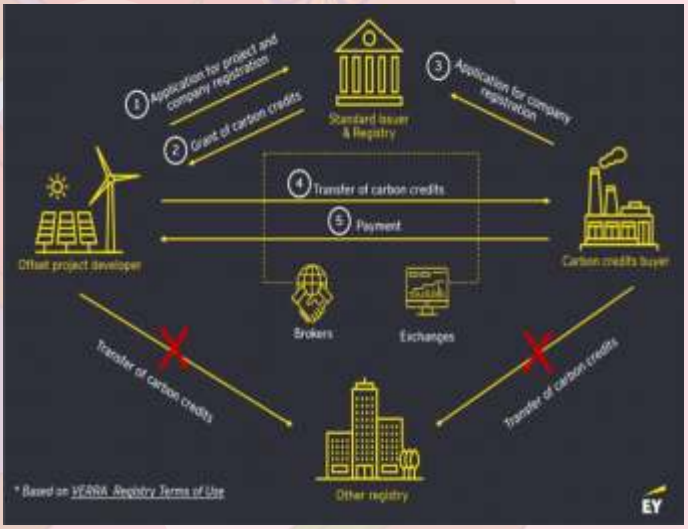

Image 2 - Operation of carbon markets

Source:- https://assets.ey.com/content/dam/ey-sites/ey-com/en_pl/article/ey-vcm-scheme.jpg.rendition.1800.1200.jpg

This market is not regulated by the government and allows entities to offset their emissions by purchasing carbon credits from projects that reduce or remove carbon dioxide from the atmosphere. The VCM in India is growing rapidly, with a valuation exceeding $1.2 billion and over 1,400 registered projects.

The Indian government is currently developing the framework for the CCM, and the draft rules were released in December 2022. The final rules are expected to be released in 2024.

Regulations on Carbon Markets in India

On 26th June, 2023 the Ministry of Environment, Forests, and Climate Change introduced the 'draft Green Credit Programme Implementation Rules, 2023', while a mere two days later, on 28th June, 2023 the Ministry of Power notified the Carbon Credit Trading Scheme, 2023.

The Carbon Trading scheme was introduced to establish an Indian carbon market, this scheme employs a cap-and-trade mechanism. The government sets the limit, or "cap" on emissions permitted across a given industry. It issues a limited number of annual permits that allow companies to emit a certain amount of carbon dioxide and related pollutants.

The eight activities outlined in the draft rules include tree plantation, water conservation, sustainable agriculture, waste management, air pollution reduction, mangrove conservation, ecomark labeling, and building sustainable buildings.

- **Case study - Soilify**

  An initiative of Earth Analytics India, Solidify makes use of the financial markets in agriculture. They link service providers, for example- entities engaged in carbon farming or regenerative agriculture, with potential funders like governments, and companies. They prepare to structure an impact bond that will be distributed through loans, financing the shift in practices. This will take the carbon markets beyond mere betting and capture their true essence.

  The core of the Soilify Partnership is to:

  - Develop, implement and scale remote sensing-based technologies to monitor the effectiveness of soil-enriching strategies.
  - Co-create innovations that reward regenerative practices. By engaging diverse stakeholders with interest in supporting carbon sequestration and regenerative practices, identify the concrete opportunities to test such solutions, and get them underway as pilots.
  - The Soilify Project supports selected NGOs and FPOs (Farmer Producing Organisations) in South Asia in their work on regenerative agriculture.
  - Farmers can monitor soil carbon growth and connect with reward providers & pilot programs using the new tool.

Carbon Markets Globally

Here are some of the key trends in carbon markets globally:

- The number of carbon pricing initiatives is increasing. As of 2023, there are 64 carbon pricing systems in place or under development around the world, covering about 23% of global greenhouse gas emissions.
- The voluntary carbon market is growing rapidly. The value of the voluntary carbon market was estimated to be $2 billion in 2021, and it is expected to grow to $50 billion by 2030.
- There is increasing interest in using carbon markets to achieve international climate goals. The Paris Agreement, which was adopted by 196 countries in 2015, includes provisions for the use of international carbon markets.

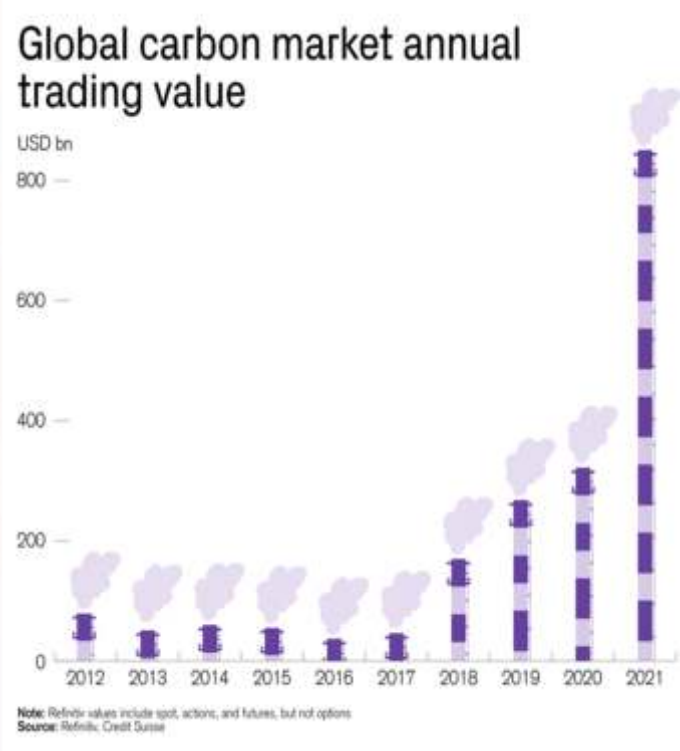

Image 3 - Global Carbon Market Trading Value

Source:- https://www.credit-suisse.com/about-us-news/en/articles/news-and-expertise/carbon-markets-invest-in-greenhouse-gas-emissions-202204/_jcr_content/content/image_1352029245/image.revampimg.876.high.png/global-carbon-market-annual-trading-value.png

What are the key benefits of carbon markets in India?

- Environmental advancement: With the incentives that carbon markets provide, more and more businesses are likely to adopt environment-friendly practices resulting in reduced emissions of harmful gases.

- Use of clean energy: Carbon markets can help to promote clean energy by creating a demand for carbon credits from renewable energy projects.
- Increased investment and job opportunities: The carbon markets can help facilitate investment and job opportunities in the clean energy sector.

What are some challenges that need to be addressed for carbon markets to be successful in India?

- **Data quality:** There is a need for better data on emissions and carbon offsets to ensure the integrity of the market.
- **Access to finance:** Many businesses and individuals in India need access to the finance they need to invest in clean energy and emissions reduction projects.
- **Extreme Price Fluctuation:** The quantity and vintage of emissions drive carbon credit prices. As credits are hard to get, multiple brokers will combine credits for one buyer. Hence, the same carbon credits can get traded at different prices. In addition, carbon credits get a higher price if linked with SDG's. For example, carbon credits have been traded at $ 12-13 / MT as the carbon offset was linked with the elimination of manual scavenging.
- **Poor Techno Commercial viability:** Due to the poor prevailing price of carbon credits, the ROI on VCM mechanisms has increased. The current cost structure includes approx. $ 5000 - $6000 for Consulting and carbon audit, respectively, with an additional $3000 for registration in any carbon marketplace. With a typical commission cost of 0.2/carbon, the payback will require at least 15000 credits sold.
- **Investment Deadlines to get Carbon Credits:** Different programs have different timelines to implement projects to showcase carbon credits. For example, CDM projects cannot have begun more than 6 months ago, while VCM credits will be hard to obtain if the project is more than 2 years old. As a result, the project needs to go for validation and verification no more than 2 years from the start date of the project.
- **Quantity and Quality are important:** Quantity and vintage of carbon emission are 2 key parameters that govern carbon prices. While these reflect the base carbon price, the actual price will also depend on the ability to link with SDG Social goals.
- **No Common VCM market:** Multiple markets are being set up by different organizations. For example, Verra, Gold Standard, Plan Vivo, and American Carbon Registry are common platforms. They have individual standards for inclusion and measurement, with no possibility of transfer or credits among them
- **Poor Market player visibility:** As buyers do not have the bandwidth to validate credits, the market is dominated by brokers. As a result, there is no visibility of the buyer. Hence, poor transparency in understanding the vintage of the credit is a challenge faced in these marketplaces.

Despite these challenges, the carbon market in India has the potential to play a significant role in the country's efforts to reduce greenhouse gas emissions and achieve its climate goals. The government is taking steps to address the challenges, and the market is expected to grow rapidly in the coming years.

Why are Carbon Markets Relevant to Cost Accountants?

Several factors make carbon markets relevant to cost accountants:

- **Cost Management:** Carbon pricing and emissions trading schemes are increasing, making carbon a cost factor for businesses. Major companies are including internal carbon tax while pricing projects. Cost accountants can help companies understand their carbon footprint, identify cost-effective reduction strategies, and evaluate the financial implications of carbon credits.
- **Investment Analysis:** Companies are investing in projects that generate carbon credits, such as renewable energy or forestry. Cost accountants can assess the financial viability of these investments and optimize returns.
- **Reporting and Compliance:** Companies need to report their carbon emissions and track their use of carbon credits. Cost accountants can help develop robust accounting systems and ensure compliance with regulations.
- **Strategic Decision Making:** Carbon reduction and offsetting strategies can impact brand reputation, market access, and investor relations. Cost accountants can provide insights to support informed decision-making.

Scope for Cost Accountants:

Cost accountants can play various roles in the carbon credit market:

- **Carbon Footprint Measurement and Analysis:** Develop methodologies to measure and analyze Scope 1, 2, and 3 emissions across the value chain.
- **Cost Reduction Strategies:** Identify cost-effective ways to reduce emissions through process improvement, technology adoption, and operational changes.
- **Carbon Credit Sourcing and Evaluation:** Evaluate different carbon credit projects, assess their quality and impact, and negotiate fair prices.
- **Carbon Credit Accounting and Reporting:** Develop systems to track and account for carbon credits, ensuring accuracy and compliance with regulations.
- **Financial Modeling and Analysis:** Build financial models to assess the financial viability of carbon reduction projects and investments in carbon credits.
- **Internal Controls and Risk Management:** Develop internal controls to manage the risks associated with carbon credits, such as fraud and quality issues.

Developing the Skillset:

To thrive in this emerging field, cost accountants can:

- **Take Continuing Education Courses:** Enroll in courses on carbon accounting, carbon markets, and sustainability reporting.
- **Network with Industry Experts:** Connect with other professionals working in the carbon credit space.
- **Gain Relevant Certifications:** Consider pursuing certifications like the Certified Carbon Reduction Professional (CCRP) or the Greenhouse Gas Inventory Protocol (GHG Protocol) training.

By embracing the opportunities presented by carbon credits, cost accountants can play a vital role in driving sustainability within organizations and contributing to a more sustainable future. SB

References:

1. https://www.6wresearch.com/industry-report/india-voluntary-carbon-credit-market
2. https://www.edf.org/worlds-carbon-markets
3. https://climatepromise.undp.org/news-and-stories/what-are-carbon-markets-and-why-are-they-important
4. https://snrd-asia.org/innovation-for-agriculture-fund-focuses-on-soil-organic-carbon-monitoring-using-remote-sensing-technology-in-india-and-kenya/
5. https://www.thehindubusinessline.com/multimedia/video/indias-carbon-credit-market-heres-all-you-need-to-know/article67055321.ece
6. https://www.ndtvprofit.com/esg-investing/why-india-wants-to-set-up-its-own-carbon-trading-market-bq-explains
7. https://soilify.earth/
8. https://climatetrade.com/voluntary-market-and-mandatory-carbon-credit-market/
9. https://www.worldbank.org/en/news/press-release/2023/05/23/record-high-revenues-from-global-carbon-pricing-near-100-billion