



CARBON OFFSETTING: THE BENEFITS AND DRAWBACKS FOR BUSINESSES

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Abstract

Carbon offsetting has emerged as a strategy for businesses to address their carbon emissions. This abstract highlights the advantages and disadvantages of carbon offsetting in the business context. The benefits include immediate progress toward carbon neutrality, positive brand image enhancement, and fostering innovation. However, concerns such as greenwashing, variable project efficacy, and financial burdens pose challenges. To maximize benefits, businesses should adopt a holistic approach that combines offsetting with direct emission reduction efforts. Collaboration between industry, governments, and NGOs is pivotal to establish effective carbon offsetting frameworks. Ultimately, while offering a path to emissions mitigation, carbon offsetting requires careful implementation to ensure meaningful environmental impact and sustainable business practices. The study's goal is to weigh the benefits and drawbacks of utilizing CO₂ credits in the manufacturing sector in India.

Keyword: CO₂ Credit Buying & Selling, Kyoto Protocol, Clean Development Mechanism (CDM), Emerging Market.

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Introduction

Emerging Concept: CO2 Credit

In an era characterized by escalating environmental concerns and mounting pressure for corporate sustainability, the concept of carbon offsetting has emerged as a pivotal strategy for businesses aiming to balance their carbon emissions with ecological preservation. Carbon offsetting involves investing in projects that counteract an organization's carbon footprint, thus enabling it to move closer to the coveted state of carbon neutrality. This introduction provides a comprehensive overview of the benefits and drawbacks associated with carbon offsetting in the realm of businesses, offering insights into its potential to revolutionize sustainability practices while also delving into the challenges and criticisms it confronts.

Rising Urgency and the Carbon Conundrum:

With the world experiencing the tangible repercussions of climate change, governments, businesses, and individuals are grappling with the imperative to curtail greenhouse gas emissions. Businesses, in particular, have found themselves at the nexus of this challenge, facing growing expectations to adopt environmentally responsible practices and contribute to global efforts to mitigate climate change. The realization that conventional business operations are contributing significantly to carbon emissions has spurred a quest for innovative solutions. Carbon offsetting has emerged as a compelling strategy that not only facilitates emissions reduction but also holds the promise of reputational enhancement and progress toward carbon neutrality.

Benefits of Carbon Offsetting for Businesses:

At the heart of the carbon offsetting paradigm lies a series of substantial benefits that resonate strongly with contemporary business objectives. One primary advantage is the potential for businesses to make immediate strides toward achieving carbon neutrality. By investing in projects that capture or eliminate carbon dioxide from the atmosphere—such as reforestation, renewable energy, and carbon capture initiatives—companies can effectively compensate for their emissions, thereby aligning with sustainability goals and reducing their ecological footprint.

Furthermore, carbon offsetting extends beyond the mere act of emissions compensation. It serves as a potent tool for enhancing brand reputation and customer loyalty. In an era where environmentally conscious consumers are increasingly favoring brands that demonstrate commitment to

sustainability, businesses engaged in credible carbon offsetting initiatives can differentiate themselves and foster a positive corporate image. The act of investing in carbon offset projects not only mitigates environmental impact but also establishes an authentic narrative of corporate responsibility.

Innovation is yet another dimension where carbon offsetting exerts influence. To successfully offset their emissions, businesses must explore innovative technologies and practices that minimize their carbon footprint. This drive toward innovation can catalyze internal transformation, leading to more sustainable operational practices and creating a competitive advantage in a changing business landscape.

Navigating Drawbacks and Pitfalls:

However, the landscape of carbon offsetting is not devoid of challenges. Foremost among these is the specter of "greenwashing," wherein companies employ carbon offsetting as a superficial strategy to deflect attention from their actual carbon-emitting practices. The practice of investing in offset projects can sometimes provide a guise of environmental responsibility, masking insufficient efforts to reduce direct emissions.

Moreover, the effectiveness of carbon offset projects is not uniform across the spectrum. Variability in the methodologies employed, the legitimacy of offset projects, and the measurement of their actual carbon reduction impact have raised questions about the genuine contribution of some offset initiatives. This variability underscores the importance of rigorous standards and transparent verification mechanisms to ensure that offset projects indeed deliver on their promised emissions reductions.

Financial considerations also come into play. Robust carbon offset programs can entail substantial costs, which may pose challenges for small and medium-sized businesses with limited resources. The allocation of resources to offsetting initiatives might divert investments that could have been channeled toward direct emissions reduction strategies, potentially limiting the overall impact on the carbon footprint.

Strategy for Purchasing and Selling CO2 Credits
Developing a strategy for purchasing and selling CO2 credits requires a thorough understanding of carbon markets, emissions reduction goals, and the regulatory landscape. Here's a step-by-step approach to crafting an effective strategy:

1. Assess Emissions and Reduction Targets:

Begin by assessing your organization's carbon emissions profile. Calculate your current emissions and set reduction targets in line with your sustainability goals. This will help determine the amount of CO₂ credits needed for offsetting.

****2. Identify Offset Opportunities:****

Research various carbon offset projects that align with your industry and values. These could include renewable energy installations, reforestation initiatives, methane capture projects, and more. Choose projects that have clear methodologies, transparent reporting, and proven emission reduction outcomes.

****3. Understand Regulatory Requirements:**

Familiarize yourself with the regulations governing carbon markets in your region or industry. Understand the compliance obligations, verification procedures, and market mechanisms that impact the buying and selling of CO₂ credits.

****4. Calculate Costs and Benefits:**

Estimate the costs of purchasing CO₂ credits versus implementing direct emissions reduction measures. Consider the potential benefits, such as enhanced brand reputation, customer loyalty, and stakeholder engagement that can result from offsetting.

****5. Internal Emission Reduction Measures:**

Before considering offsetting, prioritize internal emission reduction measures. Energy efficiency improvements, process optimization, and technology upgrades can significantly decrease your carbon footprint and reduce the number of credits needed.

****6. Offset Credit Purchases:**

Once you've exhausted internal reduction options, purchase CO₂ credits from reputable sources. Ensure these credits are certified by recognized standards, such as the Verified Carbon Standard (VCS) or the Gold Standard. Transparent documentation and verification of the credits' origin are crucial.

****7. Diversify Offset Projects:**

Spread your purchased credits across different offset projects to minimize risk. Investing in a diverse range of projects ensures that your offsetting efforts have a broader impact and reduces

exposure to potential fluctuations in project performance.

****8. Selling CO₂ Credits:**

If your organization has implemented emission reduction measures that surpass your targets, you might have excess CO₂ credits. Consider selling these surplus credits on carbon markets. To do this, you'll need to follow the established procedures for registration, verification, and trading within your relevant market.

****9. Maintain Documentation and Transparency:**

Keep detailed records of all offset transactions, verifications, and certifications. Transparency in your offsetting practices is crucial for demonstrating your commitment to sustainability and ensuring accountability to stakeholders.

****10. Monitor and Report:**

Continuously monitor the progress of your emissions reduction initiatives and offset projects. Regularly report on your efforts, emissions reductions, and carbon credit transactions in sustainability reports or other communications to stakeholders.

****11. Stay Informed:**

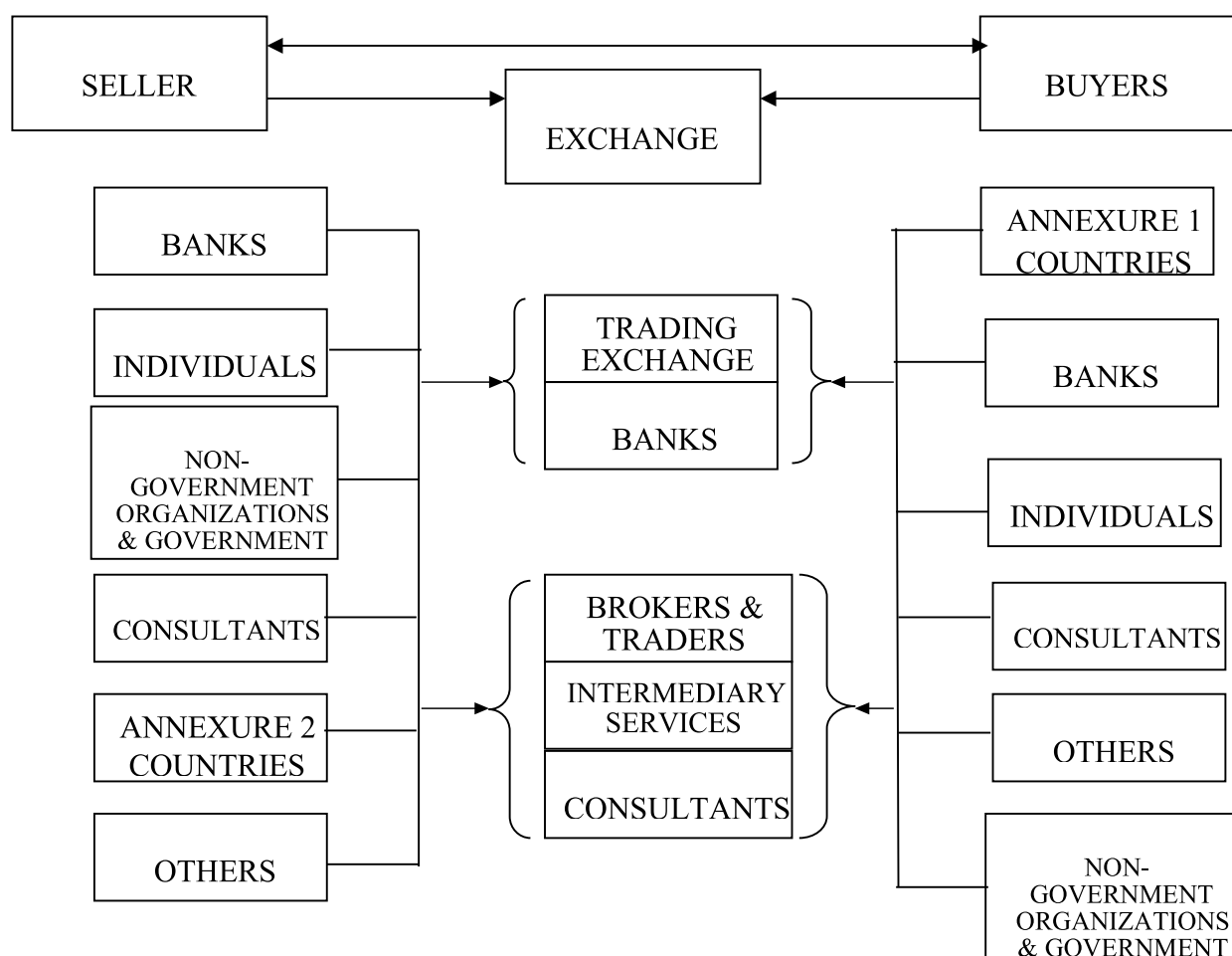
Stay up-to-date with evolving carbon market regulations, methodologies, and best practices. The carbon market landscape is dynamic, and staying informed will help you adapt your strategy to changing circumstances.

****12. Engage Stakeholders:**

Involve internal and external stakeholders in your offsetting strategy. Engage employees, customers, investors, and partners to showcase your commitment to sustainability and gather insights that can refine your strategy over time.

Incorporating a well-rounded strategy for purchasing and selling CO₂ credits can play a crucial role in achieving carbon neutrality and aligning your organization with broader environmental objectives. By combining offsetting with direct emissions reduction efforts, you can maximize your impact on the path to a more sustainable future.

Fig. 1 Procedure of CO2 Credit Buying & Selling



In what ways can purchasing CO2 credits help reduce emissions?

Purchasing CO2 credits, also known as carbon offsets, can play a significant role in reducing emissions by supporting projects that remove or reduce greenhouse gases from the atmosphere. Here's how purchasing CO2 credits can contribute to emissions reduction:

1. Supporting Emission Reduction Projects:

When you purchase CO2 credits, you are essentially investing in projects that are designed to reduce or remove greenhouse gas emissions. These projects can include initiatives such as reforestation, afforestation, renewable energy projects, methane capture from landfills or livestock operations, and energy efficiency programs. By financially supporting these projects, you contribute to their implementation, which leads to the reduction of emissions that would otherwise have occurred.

**2. Compensating for Hard-to-Reduce

Emissions:**

Certain industries or specific emissions sources may have challenges in reducing their emissions through traditional methods due to technological limitations or economic constraints. Purchasing CO2 credits offers these entities an avenue to compensate for emissions they cannot easily eliminate by supporting emissions reduction efforts elsewhere.

3. Accelerating Technological Innovation:

Investing in carbon offset projects often supports the development and deployment of new and innovative technologies for emissions reduction. For example, by purchasing credits from a renewable energy project, you indirectly contribute to the growth of the renewable energy sector, which drives innovation and makes cleaner technologies more accessible.

4. Creating Financial Incentives for Sustainable Practices:

The demand for carbon credits creates a financial incentive for organizations and projects to adopt

more sustainable practices and technologies. As the market for carbon offsets grows, more projects will be motivated to initiate emission reduction efforts, fostering a cycle of positive change.

****5. Balancing Operational Emissions:****

While organizations strive to reduce their carbon footprint through internal measures, some emissions may still remain unavoidable.

Purchasing carbon credits provides a means to offset these residual emissions, allowing companies to achieve or maintain carbon neutrality.

****6. Fostering Global Emission Reduction:****

Carbon offset projects can often be implemented in regions or countries where emissions reduction efforts might be more cost-effective. By purchasing credits from such projects, you contribute to global emissions reduction efforts rather than focusing solely on local reductions.

****7. Expanding Carbon Markets and Awareness:****

The act of purchasing CO₂ credits also contributes to the growth of carbon markets and increases awareness about the importance of emissions reduction. This, in turn, can lead to policy changes, increased investment in emissions reduction projects, and a broader adoption of sustainable practices.

****8. Providing an Immediate Impact:****

Some emissions reduction initiatives take time to implement and yield results. Purchasing CO₂ credits offers a more immediate way to contribute to emissions reduction while long-term strategies are being developed and deployed.

It's important to note that while purchasing CO₂ credits can be a valuable strategy for emissions reduction, it should not replace efforts to reduce emissions directly within an organization's operations. Carbon offsetting is most effective when used in conjunction with internal emissions reduction measures, creating a holistic approach to sustainability and environmental responsibility.

Sectors in which CO₂ Credits can work

I apologize for any confusion, but I'm a text-based AI and I'm unable to create or display visual elements like graphs. However, I can certainly describe the sectors in which CO₂ credits can work effectively. Here are some key sectors where CO₂ credits can play a crucial role in emissions reduction:

1. ****Renewable Energy:**** CO₂ credits can be used to support renewable energy projects such as wind farms, solar installations, hydropower

plants, and geothermal projects. These projects replace fossil fuel-based energy sources, reducing carbon emissions.

2. ****Forestry and Land Use:**** Reforestation and afforestation projects involve planting trees and restoring forests, which act as carbon sinks by absorbing CO₂ from the atmosphere. These projects can generate carbon credits based on the amount of carbon sequestered.
3. ****Energy Efficiency:**** Credits can be earned by businesses and industries that implement energy-efficient technologies and processes, leading to reduced energy consumption and lower emissions.
4. ****Waste Management:**** Projects that capture and utilize methane emissions from landfills or wastewater treatment facilities can generate CO₂ credits. Methane is a potent greenhouse gas, and capturing it prevents its release into the atmosphere.
5. ****Transportation:**** Carbon credits can be earned by initiatives that promote sustainable transportation modes like public transit, cycling, or electric vehicles, which result in lower emissions compared to traditional vehicles.
6. ****Agriculture:**** Agricultural practices can be optimized to reduce emissions and increase carbon sequestration. These practices may include improved crop management, reduced tillage, and agroforestry.
7. ****Carbon Capture and Storage (CCS):**** CCS projects involve capturing CO₂ emissions from industrial processes or power plants and storing them underground. These projects can earn carbon credits by preventing emissions from entering the atmosphere.
8. ****Community-Based Projects:**** Many carbon offset projects have social and community benefits. These projects often provide local communities with improved access to clean energy, sustainable livelihoods, and environmental protection.
9. ****Industrial Processes:**** Industries that emit substantial amounts of CO₂ during production processes can implement technologies to reduce emissions. Carbon credits can be earned based on the amount of CO₂ saved.
10. ****Aviation and Shipping:**** These sectors, which are challenging to decarbonize directly, can use carbon credits to offset emissions until more sustainable technologies are developed.
11. ****Building and Construction:**** Carbon credits can be earned by constructing energyefficient buildings, utilizing green

building materials, and adopting sustainable construction practices.

12. ****Innovation and Technology:****

Some projects focus on developing and implementing innovative technologies that directly or indirectly lead to emissions reduction. These projects can earn credits for their contribution to sustainability.

The effectiveness of CO2 credits in each sector depends on factors such as project quality, measurement accuracy, and the ability to demonstrate real emissions reductions. It's important for carbon credit projects to adhere to recognized standards and verification processes to ensure the credibility and impact of the emissions reductions they claim.

- **Energy Supply** The energy sector is particularly reliant on CO2 credits because it is also one of the most at risk. Due to the widespread use of fossil fuels, the energy sector is a major contributor to greenhouse gas emissions that could be mitigated with the help of CO2 credits. According to the data, this constitutes nearly a quarter of all relevant sectors.
- **Transport** Transport companies can also benefit from purchasing CO2 credits. According to the aforementioned study, travel costs the country 13.10% of its GDP annually.
- **Residential and Commercial Buildings** CO2 dioxide is released inside these buildings due to the use of electricity, various household items, etc. Thus, CO2 credit participation is likely. According to the report of the evaluation, this criterion accounts for 7.90% of the total grade.
- **Industry** According to the findings, businesses only rank second. Recent efforts have been made by a number of industries to begin buying & Selling CO2 credits. As a percentage, this sector represents 19.4% of the economy as a whole.
- **Agriculture** The agricultural sector receives significant support from many national governments. The Indian government offers a number of incentives to businesses. According to the results, this factor should account for 13.50% of the total.
- **Forestry** Our forests are responsible for producing the vast majority of Earth's plant life. The government's top priority should be reforestation. Another way to reduce your impact on the environment is to plant trees and shrubs. An estimated 17.4 percent of the land area is covered by trees.
- **Waste management** Industry leaders in waste management are increasingly important to the global movement to reduce CO2 emissions. Consequently, the market for CO2 credits is relatively open in this sector. Emissions credits can be acquired through the reuse of waste and wastewater. The data indicates that this rate is 2.8%.

People who are new to the CO2 market are the ones who reap the rewards.

There are a number of new businesses in India that are benefiting from the sale of CO2 credits. Some instances are listed below.

- **Gujarat Fluoro-chemicals Limited (GFL)**
Gujarat Fluoro-chemicals Limited (GFL), a subsidiary of the INOX Group of Companies, is worth more than \$2 billion on its own. The INOX Group is an international conglomerate that operates in a wide variety of sectors, including industrial gases and refrigerants, chemicals, cryogenic engineering, renewable energy, and the entertainment industry. In India, GFL was an early adopter of CO2 credits. It was the first project of its kind to register with the CDM Executive Board, a branch of the UN Framework on Climate Change. GFL dominated the CDM market in India and was among the top 5 companies in the world. As time has progressed, Gujarat Fluorochemicals Limited, an Indian firm, has relied increasingly on revenue from CO2 credits (GFL). In terms of money, GFL made about Rs 2,830 crore in 2012-2013, with about Rs 876 crore coming from CO2 credit sales (31 per cent). The company's revenue from CO2 credits has been diminishing over time.

- **SRF Limited**
SRF is a multinational corporation that generates annual revenue of \$675 million (Rs. 4000 crore) through its production of chemical-based industrial intermediates. It offers a variety of products, including engineering plastics, packaging films, specialty chemicals, fluorochemicals, and technical textiles.

SRF has received a substantial amount of CO2 credits.

So far, SRF has been awarded roughly 7,725,000 CO2 credit units by the United Nations Framework Convention on Climate Change (UNFCCC). The total number of CERs approved for this endeavour is close to 86.5. Those CERs went for 22 Euro from SRF. According to the company's 2011 annual

report, it made Rs 64.17 crore from the sale of CO2 credits.

□ Delhi Metro Rail Corporation (DMRC)

The UN has given 32 million CO2 credit points to the Directional Change Proposal for the Metro Rail. The UN has said that the Delhi Metro Rail Corporation is the country's 1st public transport rail and infrastructure system that can get CO2 credits for reducing Green House Gas Emissions.

This is because it has helped cut pollution throughout the city by 6.3 lakh tonnes every year.

□ Jindal Vijaynagar Steel

The company will be able to generate nearly \$225,000,000 in CO2 credit sales once these changes are implemented. This is only possible thanks to the availability of blast furnace and corex furnace technology. Thanks to this technological advancement, we can prevent the release of 15 million tons of CO2 into the atmosphere annually.

□ Kalpatru Power Transmission Ltd.

ustard crop waste is converted into energy as part of Kalpatru Power Transmission Ltd's (KPTL) Rajasthan project. As far as we know, this is the first project of its kind in India and only the third in the world to receive CO2 credits under the Kyoto Protocol. In accordance with the Kyoto Protocol, the Clean Development Mechanism (CDM) Executive Board issued the first CO2 credits (CERs) ever. These funding lines were given to two different hydroelectric projects in Honduras. Sustainable development initiatives in low-income countries that benefit the environment can earn CERs.

Analyzing Existing Research

S. Trivedi talked about the CO2 market, also known as the market for greenhouse gases (2016). There is a rising demand for CO2 dioxide and related greenhouse gases. The research shows that this market is expanding in a wide variety of international contexts, regional settings, and institutional arrangements. With emission caps, there are good opportunities for businesses and their funders in cutting emissions and clean development mechanism projects, as well as good ways for a wide range of businesses to manage their risks. As part of his research, he also gave a short summary of the Kyoto Protocol, the buying and selling of CO2 credits, the climate system, and the growing green - house industry. He also talked about just how emerging economies handle there

own sources of energy or take advantage of opportunities.

In an essay published in 2016, Kumar K.S.K. discusses CO2 taxes and CO2 buying & Selling. CO2 tariff and CO2 buying & Selling, he says, are both market-based instruments, but they are different in a number of ways. These include their effects on the environment, the ease of implementation, the level of political support, the amount of money brought in, and the degree of volatility. Establishing a Discernible Objective through Emissions Caps, Determining Accountability through the Distribution of Permits, and Promoting Efficient Reductions in CO2 Output He specifies the steps involved in CO2 buying & Selling: buying & Selling, confirming answerability through observing and broadcasting, and reconciling to ensure agreement. His research is ultimately motivated by a concern for the commercial viability of CO2 buying & Selling.

The author, R. Fowler, weighs the pros and cons of selling CO2 credits in the agricultural sector in his 2016 publication. His primary area of focus is on farmers and others in the agricultural sector who trade CO2 credits. He argued that the Clean Development Mechanism (CDM) programs were the best option for cutting down on greenhouse gas production. The cost of monitoring and verifying the reduction in CO2 emissions is the biggest challenge for a farmer. While this strategy may be fair and cost-effective for large-scale commercial farmers (especially in the context of a group of farms in close proximity to one another), it presents significant difficulties for farmers operating on a smaller scale. At the end of his speech, he said that smallscale farmers have a chance at making money in the CO2 credits buying & Selling market if they put in the effort.

In their paper, authors Malav M. K., Kumar S., Malav L. C., and Kharia S. detail some of the monetary benefits associated with buying & Selling CO2 credits (2015). The article highlights the part India plays in the global CO2 credit buying & Selling market. As of recently, India was added as a potential host country for CDM projects; this is exciting news because India is widely believed among the majority promising nations for selling CO2 credits due to CDM initiatives. The vast potential in India's electricity industry and the government's aggressive efforts to take part in the CDM make this a real possibility. The process of buying & Selling in CO2 credits is also explored in this essay.

CO2 credits buying & Selling: Using the segment to fight against global warming is described in detail by Moukwa M. (2015) in his paper of the same name. He claims that fossil fuels are still responsible for supplying nearly 82% of the world's energy needs. Pricing CO2 is a step in the right direction, but a lot more needs to be done before we can declare that humanity has successfully weaned itself off CO2. The disruption of the Earth's normal climate and temperature is, in his opinion, the most critical contemporary environmental issue.

Sethuraman N. R. (2014) provided a thorough overview of the CO2 credit buying & Selling market and the roles of various service providers. A ton of CO2 dioxide emissions reduction in developed countries costs about \$300–\$500, while in developing countries the cost is only about \$10–\$25. Since India's projected GHG emissions are lower than the target, the country is able to sell any excess credits to established nations. Over 21% of all international CO2 trade occurred in India in 2010. As a result, the business of buying and selling CO2 credits in India is thriving.

Singh N. (2014) explains how Indian companies that are currently hoarding CO2 credits are looking at a real loss. She adds that Indian companies that had been claiming a "notional loss" on unsold credits after investing in clean development mechanism (CDM) projects under the Kyoto Protocol in order to receive CERs or CO2 credits are now facing a "real loss" as prices fall below one euro. Expert estimates place the made-up deficit at Rs 12,200 crore. This is a major contest that Indian businesses must face. The impact of global warming on the average temperature of the planet was mitigated in part by CDM initiatives.

According to Patnaik N. (2012), NALCO was the earliest PSU in India to engage in CO2 credit buying & Selling. This organization is leading the charge in launching a program to sequester CO2. There, in Angul, Alaska, the company generates its own electricity and does not rely on external sources. The cutting down on GHG emissions is the main focus of this plan (GHG). Once this plan is put into action, NALCO will be able to enjoy all of the benefits associated with buying & Selling CO2 credits. This is possible due to the technique used to remove CO2 from flue gas. Realizing these benefits is possible thanks to the production of bioproducts and bioenergy.

Menon S. (2011) talks about a variety of individual shareholders whom is ready to invest into

developments that are part of the clean development mechanism. They have a plan for making money from Energy production by buying and selling CO2 credits and receivables for authenticated emissions. CER prices, according to experts, should mirror those in the European Union and other countries where voluntary emission cuts are possible. Therefore, private equity investors should gain from supporting CDM projects due to the two-way revenue stream provided by the sale of CO2 credits.

Bhardwaj (M.) and Wadadekar (A.) have written an article on Environmental Management (2010). Conservation for the benefit of humanity necessitates not only environmental management, but also the regulation of human activity and its effects on the natural world. This means that environmental regulation is the most significant challenge we face. Some countries have enacted laws meant to protect the environment, but these are often inadequate. Thus, the concept of selling CO2 credits provides both environmental safeguards and economic benefits. Business analysts estimate that Indian companies will bring in nearly \$7.7 billion at the current pricing of \$21 per tonne of CO2 emission Rating (CER). Tata Sponge Iron Ltd.'s waste heat recovery facility in Orissa received a CDM certificate from the UN, joining Reliance Energy's efforts in a similar vein. Finally, organizations of all types are acting to improve and secure our global community.

Objects of the Research

- A comprehension of CO2 credit buying & Selling's foundational principles.
- The goal of this research is to gain a deeper sense of the structure and functioning of India's CO2 credit market.
- To learn more about the benefits and drawbacks of CO2 credit buying & Selling for businesses.

How to Do Research

A research methodology is a methodical approach to defining a study's purpose, designing its methods of data collection and analysis, and naming its components in accordance with standard scientific practices and tools. The current study made every effort to adhere to the standards of a well-executed study.

Both an analytical and a descriptive approach are used by the researcher during this study. From a total of about 400 to 500 companies in India, 85 were chosen at random to participate in the study's

sample. The questionnaire used in this study was the primary data collector, and random and systematic sampling techniques were employed to

select the sample groups. Table 1 provides details about the procedures used in this study:

Table 1 Research Methodology

S. No.	Particulars	Data
1	Survey Area	India
2	Sample Size	85
3	Sample Unit	Organizations
4	Type of Research	Analytical & Descriptive Research
5	Sampling Type	Convenient and Random Sampling
6	Research Tool	Questionnaire
7	Data Type	Primary & Secondary Data

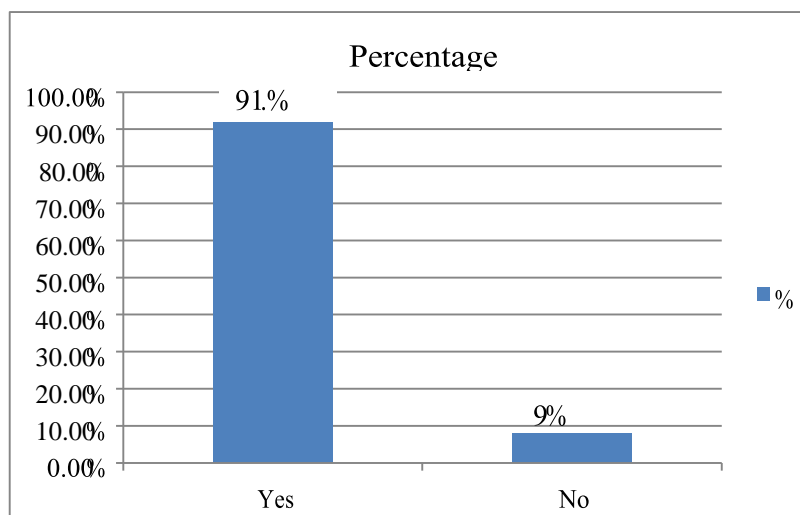
Data Analysis

1. How the group is involved in buying and selling CO2 credits

Table 2 demonstrates that perhaps the mentioned organisations are involved in CO2 Credit Buying and selling.:

Table 2 Involvement of the Organization

S. No.	Answer	Frequency	%
1	Yes	76	91%
2	No	9	9%
3	Total	85	100.0%



All above chart shows that 91% of participants stated that their organisations are participated in CO2 credit buying and selling, while 9% of participants tell that they are not participate but hope to get engaged in the coming years.

1. CO2 credit buying and selling has helped the organisation in many ways.

The given figure 3 depicts the various ways that buying and selling CO2 credits has helped the organisations:

Table 3 Benefits of CO2 Credit Buying & Selling

								Total
			Improvement in Social Status	Reduction in overall cost	Additional Revenue	Funds for R & D	Market Share Value	
Answer	Strongly Agree	Count	31	9	33	11	34	118
		Expected Count	23.6	23.6	23.6	23.6	23.6	
		% within	43.6	13.7	41	16	41	
Agree	Agree	Count	29	9	29	18	32	117
		Expected Count	23.4	23.4	23.4	23.4	23.4	
		% within	31.5	11	38.6	21	38.9	
Neutral	Neutral	Count	12	45	9	33	9	108
		Expected Count	21.6	21.6	21.6	21.6	21.6	
		% within	11.8	63	9	41.8	11.7	
Disagree	Disagree	Count	9	9	7	11	5	41
		Expected Count	8.2	8.2	8.2	8.2	8.2	
		% within	11	11	11	13.6	6	
Strongly Disagree	Strongly Disagree	Count	3	7	3	9	5	27
		Expected Count	5.4	5.4	5.4	5.4	5.4	
		% within	3.6	6.6	3.6	11	7	
Total	Total	Count	82.2	82.2	82.2	82.2	82.2	411
		% within	20.0%	20.0%	20.0%	20.0%	20.0%	100.0 %

i. Problem Statement: The organisations' reputation has gone up because they exchange CO2 credits.

H₀: Barter CO2 credits has little or no impact on how well-known the organisations are.

H₁: The organisations' reputation has gone up because they exchange CO2 credits.

S.No.		VAL
1	SAMPLE MEAN	3.035
2	HYPOTHESIZED MEAN	2.77
3	STANDARD DEVIATION	0.0729

Z – Tests

	LEVEL OF SIGNIFICANCE	TABLE VALUE	Calculated Value	Ho
Z	5 %	1.87	1.0628	DISALLOWED

Clarification: The organisations' social standing has gone up because they trade CO2 credits.

ii. Problem Statement: Because of CO2 credit buying and selling, the overall price of reaching the deCO2isation goals has gone down.

H₀:CO2 credit buying & Selling has no effect in the overall cost of meeting the emission reduction targets.

H₁: Because of CO2 credit buying and selling, the overall price of reaching the deCO2isation goals has gone down.

S.No.	PARTICULARS	VALUE
1	SAMPLE MEAN	2.2
	HYPOTHESIZED MEAN	2.78
3	STANDARD DEVIATION	0.8857

Z – Tests

	LEVEL OF SIGNIFICANCE	TABLE VALUE	Calculated Value	Ho
Z	5 %	1.87	3.6234	DISALLOWED

Clarification: Because of CO2 credit buying and selling, the overall cost of achieving the deCO2ization goals has gone down.

Problem Statement: CO2 credit buying and selling gives the organisations a way to make more money.
H₀:CO2 credit buying & Selling does not offer any additional revenue to the organizations.
H₁: CO2 credit buying and selling gives the organisations a way to make more money.

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	LE MEAN	
2	HYPOTHESIZED MEAN	2.46
3	STANDARD DEVIATION	0.2503

Z – Tests	LEVEL OF SIGNIFICANCE	TABLE VALUE	Calculated Value	H0
Z	5 %	1.87	1.2467	DISALLOWED

Clarification: Barter CO₂ credits gives the organisations a way to make more money.

iv. Problem Statement: Barter CO₂ credits brings in money that can be used for study and development.

H₀: CO₂ credit buying & Selling does not provide any help to research and development purpose by providing the funds.

H₁ Barter CO₂ credits brings in money that can be used for study and development

S.No.	PARTICULARS	VALUE
1	SAMPLE MEAN	2.267
2	HYPOTHESIZED MEAN	2.82
3	STANDARD DEVIATION	2.2466

Z – Tests

	LEVEL OF SIGNIFICANCE	TABLE VALUE	Calculated Value	H0
Z	5 %	1.87	3.8626	DISALLOWED

Clarification: Barter CO₂ credits helps research and innovation by giving them the money they need.

v. Problem Statement: Barter CO₂ credits has made the organisations' sales volume worth more.

H₀: CO₂ credit buying & Selling has no effect on organizations' market share value.

H₁: CO₂ credit buying & Selling has improved the organizations' market share value.

S.No.	PARTICULARS	VALUE
1	SAMPLE MEAN	3.314
2	HYPOTHESIZED MEAN	2.86
3	STANDARD DEVIATION	0.2746

Z – Tests

	LEVEL OF SIGNIFICANCE	TABLE VALUE	Calculated Value	H0
Z	5 %	1.87	1.3918	DISALLOWED

Clarification: Barter CO2 credits has made the organisations' market share worth more. CO2 credit buying and selling has a number of advantages for the organisations that use it. This same great feature of this idea is that it makes organisations more respected in society. The total amount of trying to meet the reduce emissions goals will go down, which is an additional benefit. CO2 credit buying and selling gives different organisations more money, which

they may use for things like study and development. Engaging the organisation in emission allowances buying and selling can also boost the worth of the group's total market share. Problems that come up when companies attempt to adopt CO2 credit barter practices

Figure 4 demonstrates how various problems with putting CO2 credit able to trade practices into place in organisations have affected them:

Table 4 Challenges of CO2 Credit Buying & Selling

								Total
			Taxation Issues	Ambiguity	Encourages movement	Explicit mention of these	Source of pervers	
					towards unsustainable ways	transactions as exports	e incentive	
Answers	Strongly Agree	Count	35	27	14	21	37	134
		Expected Count	26.8	26.8	26.8	26.8	26.8	
		% within	43.6	33.7	17	27	47	
	Agree	Count	26	33	19	19	28	123
		Expected Count	25	25	25	25	25	
		% within	33.7	43.6	21.6	24.7	33.7	
	Neutral	Count	13	18	27	15	12	86
		Expected Count	17.2	17.2	17.2	17.2	17.2	
		% within	16	21	33.7	19.3	17	
	Disagree	Count	7	5	15	27	3	57
		Expected Count	11.4	11.4	11.4	11.4	11.4	
		% within	5.5	6.2	17	33.7	7.3	
Strongly Disagree	Count	3	1	13	3	5	20	
	Expected Count	5	5	5	5	5		
	% within	3.6	0.5	17	2.7	7		
Total	Count	84	84	84	84	84	420	
	% within	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

i. Problem Statement: CO2 credit transactions generates a number of tax problems for businesses.

H₀: When companies buy and sell CO2 credits, it does not really affect each and every financial difficulties.

H₁: CO2 credit transactions generates a number of tax problems for businesses

S.No.	PARTICULARS	VALUE
1	SAMPLE MEAN	4.26
2	HYPOTHESIZED MEAN	3.63
3	STANDARD DEVIATION	1.0567

Z – Tests

	LEVEL OF SIGNIFICANCE	TABLE VALUE	Calculated Value	Ho
Z	5%	1.87	1.835	DISALLOWED

Clarification: CO2 credit exchange generates a number of tax challenges for businesses.

H₀: Because of the absence of appropriate accounting rules, there is no amount of uncertainty in the financial reporting of CO2 credits.

- ii. Problem Statement: CO2 credits are hard to keep track of because there aren't any clear rules for doing so.

H₁: CO2 credits are hard to keep track of because there aren't any clear rules for doing so.

S.No.	PARTICULARS	VALUE
1	SAMPLE MEAN	4.016
2	HYPOTHESIZED MEAN	3.61
3	STANDARD DEVIATION	0.7721

Z – Tests

	LEVEL OF SIGNIFICANCE	TABLE VALUE	Calculated Value	Ho
Z	5%	1.87	2.3756	DISALLOWED

Clarification: Bookkeeping for CO2 credits is fraught with uncertainty owing to an absence of appropriate accounting rules.

H₀: CO2 credit transactions don't make the rich want to live in aspects that aren't as good for the environment.

- iii. Problem Statement: CO2 credit exchange pushes the wealthy to pursue more unhealthy lifestyles.

H₁: CO2 credit exchange pushes the wealthy to pursue more unhealthy lifestyles.

S.No.	PARTICULARS	VALUE
1	SAMPLE MEAN	3.066
2	HYPOTHESIZED MEAN	3.63

	STANDARD DEVIATION	1.3427
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Z – Tests

	LEVEL OF SIGNIFICANCE	TABLE VALUE	Calculated Value	H ₀
Z	5 %	1.87	3.4352	DISALLOWED

Clarification: CO₂ credit exchange promotes the wealthy to live in increasingly problematic ways.

iv. Problem Statement: Because the sale of CO₂ credits to overseas customers generates tariffs, these activities must be explicitly identified as shipments.

H₀: Because the exporting of CO₂ credits to overseas purchasers generates no duty, it is not necessary to explicitly identify these activities as shipments.

H₁: Because the sale of CO₂ credits to overseas customers generates tariffs, these activities must be explicitly identified as shipments.

S.No.	PARTICULARS	VALUE
1	SAMPLE MEAN	3.45
2	HYPOTHESIZED MEAN	3.62
3	STANDARD DEVIATION	1.3248

Z – Tests

	LEVEL OF SIGNIFICANCE	TABLE VALUE	Calculated Value	H ₀
Z	5 %	1.87	1.7835	ACCEPTED

Clarification: Because the transfer of CO₂ credits to overseas purchasers generates no tax, there is no need to explicitly designate these operations as sell overseas.

v. Problem Statement: CO₂ credits are a provider of market failures for both corporations and the government.

H₀: CO₂ credit does not serve as a strong encouragement to corporations or the government.

H₁: CO₂ credits are a provider of market failures for both corporations and the government

S.No.	PARTICULARS	VALUE
1	SAMPLE MEAN	4.2
2	HYPOTHESIZED MEAN	3.62
3	STANDARD DEVIATION	1.1677

Z – Tests

	LEVEL OF SIGNIFICANCE	TABLE VALUE	Calculated Value	Ho
Z	5%	1.87	2.3511	DISALLOWED

CO2 credit might be seen as a cause of perverse incentive for both the government and the companies who use it.

Taxation presents a significant number of difficulties in the market for CO2 credits. The absence of appropriate accounting standards results in a big deal of uncertainty in the process of accounting for CO2 credits. Because the sale of CO2 credits to international customers does not result in the collection of any taxes, there is no need to make specific reference to these dealings as exports even if they do encourage the wealthy to move toward practices that are less sustainable.

Conclusion

The amount of CO2 emissions in the atmosphere may be lowered by the implementation of a concept called CO2 credit buying & Selling. Now, the majority of firms have adopted this idea, and while they do so, they reap a variety of advantages, they also confront certain obstacles. According to the research that was presented earlier, a number of different industries are directly involved in the buying & Selling of CO2 credits. These industries include the supply of energy, transportation, infrastructure, manufacturing industries, agriculture, forestry, and waste management, amongst others. A number of businesses, including Gujarat Fluorochemicals Limited (GFL), SRF Limited, Delhi Metro Rail Corporation (DMRC), Jindal Vijaynagar Steel, and Kalpatru Power Transmission Ltd., are reaping several advantages from the trade of CO2 credits. According to the findings of the aforementioned study, the majority of companies

are becoming interested in the trade of CO2 credits. Aside from monetary gain, the most important advantage that businesses get is an increase in their social prestige as well as their market share. From the standpoint of the nation, it is in the nation's interest to bring the number of CO2 emissions released into the atmosphere down. This is the primary advantage that we get because of engaging in the trade of CO2 credits. If we breathe in some fresh air, then a lot of our problems will be fixed on their own. Buying & Selling CO2 credits come with a host of complications in addition to its many advantages. The primary obstacles consist of taxation rules, accurate accounting standards, documentation surrounding the export of CO2 credits, and other similar issues. Last but not least, the trade of CO2 credits acts as a source of perverse incentive, not only for the nation but also for many organizations.

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