

CARBON CREDITS: ACCOUNTING AND DISCLOSURE PRACTICES OF CEMENT COMPANIES IN RAJASTHAN

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ABSTRACT

Human is exploiting nature in every possible way to fulfil the needs of their day-to-day life, without thinking that excessive use of environmental resources puts adverse effect on environment in many ways. Whole world is facing issue of global warming which is caused by emission of Green House Gases (GHG). Emission of these gases have negative impact on climate cycle. India is a developing country having fifth largest economy in the world. Rapid development includes urbanization, investing a lot in infrastructure sector which includes construction and repairs and construction of dams, tunnels, roads, other infrastructure development project, urbanization etc. Construction work mainly consumes cement. Cement companies are major source of carbon emission because production of cement emits carbon in environment. Rajasthan is a second largest state in cement production (after Andhra Pradesh) with abundant limestone, which is main ingredient in cement production. The purpose of the study is to understand accounting and disclosures practices regarding carbon credits of Ambuja Cement, J.K. Cement & Shree Cement companies in Rajasthan for the past five years. Analysis of annual reports of the selected companies reveals that companies are disclosing maximum information regarding energy usage and cost, carbon emissions, carbon credits, new technology adopted to curtail carbon emission and other green initiatives taken to compensate carbon emission. Companies have environmental policies and sustainability reports. Companies are not trading their CERs. Lack of uniform and proper accounting procedure and format to record and disclose earnings from trading of carbon credits is a big hurdle in its accounting.

KEYWORDS: Kyoto Protocol, Carbon Emission, Green House Gases, Clean Development, Mechanism, Carbon Credit Accounting, Cement Companies.

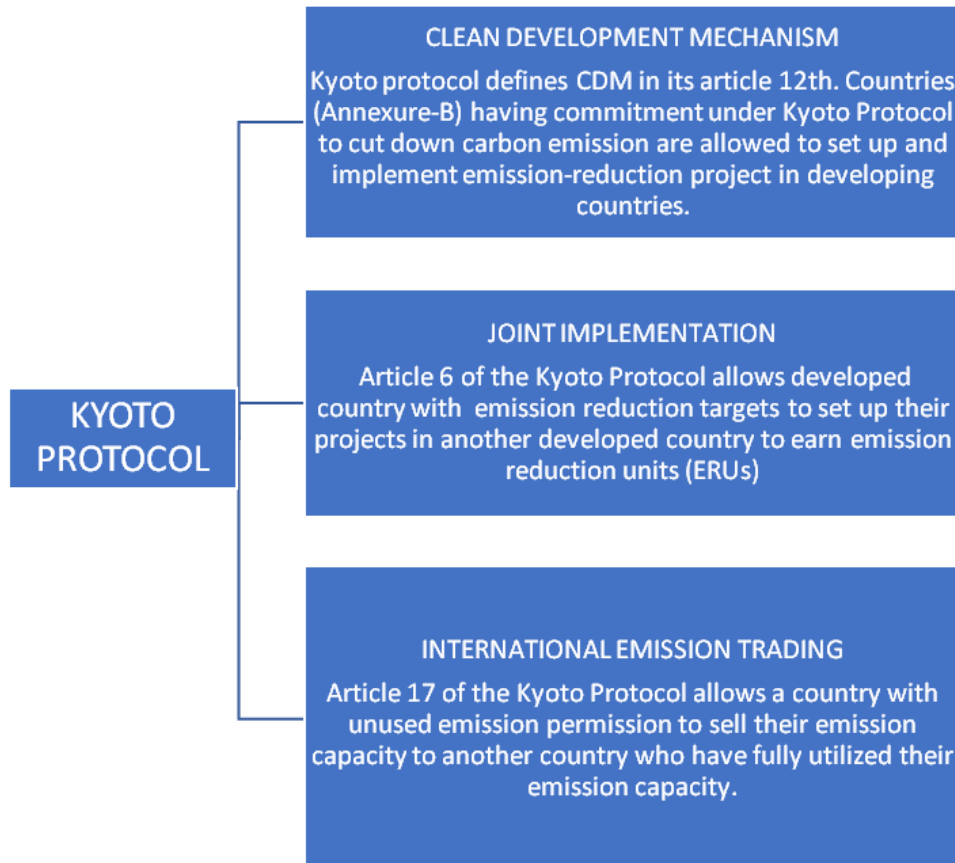
Introduction

Human is exploiting nature in every possible way to fulfil the needs of their day-to-day life, without thinking that excessive use of environmental resources puts negative effect on environment in many ways. Whole world is facing issue of global warming which is caused by emission of Green House Gases (GHG). Emission of these gases have negative impact on environment. Extreme weather conditions, cyclones, earthquakes are some examples of climate change. Accumulation of excessive carbon-di-oxide in environment is the main cause of global warming. Burning of fossil fuels, rapid urbanization, industrialization, deforestation etc. are the main activities causing global warming. India is a developing country having second largest population in the world after China and the fifth largest economy in the world. India is a developing country hence, investing a lot in urbanization and infrastructure development which includes construction and repairs of dams, tunnels & roads etc. Government Policies of developing and maintaining national and state highways also promotes construction work.

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To control the alarming situation of global warming, different countries came together to show some concern and to take some initiatives. As a result] Kyoto Protocol was formed on 11 Dec. 1997 in Kyoto (Japan) and got implemented on 5 Feb. 2005. The main purpose of this protocol is to put a check and control over the carbon emission emitted by the industries under United Nations Framework Convention on Climate Change (UNFCCC). Three mechanisms were suggested and implemented to achieve the target of curtailing carbon emissions.



Three Mechanism of Kyoto Protocol

By adopting and implementing the Kyoto protocol mechanism, countries are able to cut down their carbon emissions. As a result of carbon emission reduction, a new tradeable commodity created as 'Carbon Credits'. Carbon Credits are the certificates earned by any participating country by emitting less carbon in environment. Having carbon credit certificate, permits to emit one ton of carbon di oxide. These certificates are tradeable in international market. Trading of carbon credits motivates industries to emit less carbons and earn such certificates and they can generate revenue by selling them in international market.

Objectives of the Study

Continuous maintenance and development work exploit nature in one and many ways. Above data reveals the requirement of developing Country/State. Rajasthan ranks second in cement production in the country after Andhra Pradesh. Rajasthan has numerous numbers of established cement companies. Abundant store of limestone, gypsum, Coal etc. made Rajasthan most favourable place to flourish for cement companies. The process of production of cement involves consumption of fuel which emits carbon in the atmosphere. The research maintains the following objectives to study: -

- To know about the quantity of carbon emitted during production of cement by selected companies.

- To understand the methods adopted by selected companies to cut down the carbon emission.
- To know about the level of awareness of selected companies about earning of carbon credits and trading them in international market.
- To study selected companies accounting policies and disclosure practices regarding carbon credits and related income.
- To know about the selected companies' strategies for controlling carbon emissions in future.
- To suggest, recommend best practices that can be followed by the selected companies to earn more carbon credits.

Review of Literature

Review of Literature is an important in understanding the topic thoroughly. Drawing upon the Literature gives direction to our study. Reviewing literature helps in understanding about the work done in past and what is going on in present. Different authors from various countries gave their opinion, suggestions, criticism and evaluate the work done in relevant field. Literature at national and international level is available in the form of research papers, articles, books, published reports, magazines, newspapers etc. Selected articles review various aspects of Kyoto protocol, Clean Development Mechanism, Joint Implementation, Carbon Credit Accounting. Review of literature is classified into four categories to understand above mentioned aspects as:

- Review of literature on Kyoto Protocol:
- Review of literature on Clean Development Mechanism:
- Review of literature on Joint Implementation:
- Review of literature on Carbon Credit Accounting:

Review of Literature on Kyoto Protocol

Anderson, J., 1998. *The Kyoto Protocol on Climate Change. Background, Unresolved Issues and Next Steps*. After studying Kyoto Protocol and issues related with it, it was found that climate change is one of the major issues for future. World should look out seriously and committedly regarding climate as increasing population is also a matter of concern.

Parikh J. & Parikh K., 2004. *The Kyoto Protocol: An Indian Perspective*. Objective of the study is to know about the role and effect of Kyoto Protocol & CDM in Indian context and to know about the technologies and natural resources introduced in Indian in this regard. Conclusions reveals that CDM projects are need to be carried out carefully to get benefit for developing country like INDIA. Author also concludes that developing countries should be economically strong and united to get fair allocation of tradeable emission quotas.

Wang C., Ko M., & Chen W., 2019. *Effects of Kyoto Protocol on CO₂ Emissions: A Five-Country Rolling Regression Analysis*. Paper studies the relationship between carbon emission and income of 5 development diversity countries viz., Germany, Italy, Japan, India & Taiwan. Germany and Japan responded very quickly to the policy of less emission. Italy showed a low downward rate and that was also because of global financial crisis. India, emits low carbon. Although, India is a developing country with agriculture and software designing sector, which proves that its 'structure' not development stage which decides carbon emission. Taiwan showed high emission due to economic development indicating that protocol promotes Annex- I countries to emit less.

Review of Literature on Clean Development Mechanism

Ian H. Rowlands, 2001. *The Kyoto Protocol's 'Clean Development Mechanism': A sustainability assessment*. Author emphasizes on putting a 'Cap' on CDM projects as 'supplementarily' and to propose 'geographical quotas', to encourage CDM activity.

Rashmi R. & Ahuja R., 2019. Clean Development Mechanism as Catalyst for Sustainable Development Mechanism Under Article 6.4. Study carried out to understand transitioning of CDM into SDM. Conclusion reveals that Transition of CER should be taken seriously to reduce global rise in temperature. Asian Development Bank. 2021. From Kyoto to Paris— Transitioning the Clean Development Mechanism. This study is on CDM and its 3 areas viz., Institutional Infrastructure, Activities & CER's. CDM methodologies may be transitioned if complemented by tools that enable consistency with Article 6 principles.

Review of Literature on Joint Implementation

Korppoo A., & Gassan-Zade O., 2008. Joint Implementation: Looking Back and Forward. Conclusion after study tells that JI is still in its initial stage and clear-cut policies and framework is required to strengthen the motive of JI. For this a strong outcome from 2012 agreement is required.

Shishlov, I., Bellassen, V., & Leguet B., 2012 *Joint Implementation: A Frontier Mechanism Within the Borders of an Emissions Cap*. Article reviews JI in different countries. Results of JI are different for different countries. Projects under JI promotes technologies which helps in reducing emissions at noticeable level.

Review of Literature on Carbon Credit Accounting

Sedimbi A., 2011. *Carbon Credit Accounting - A Study*. Objective of this paper is to study application of accounting principles for the carbon credits and its effects on the pollution emitted entities in India. Author states that there should be clear policies and guidelines for accounting and treatment of carbon credits and there should be an appropriate market for carbon trading.

Chotaliya M., (2014). *Accounting for Carbon Credits in India*. In this paper author study trends in carbon emission and issue of carbon credit accounting and its taxation issues in India and concludes that it is necessary for the proper functioning of carbon markets to have proper accounting standards.

Bhanawat S. & Vardia S., (2015). *An Analysis of Carbon Credit Revenue Practices in Indian Corporate Sector*. Paper studies 10 companies in India which have shown carbon credit revenue in their annual report and it was found that there is significant difference between average value of revenue earned from carbon credit transactions.

Jain M., (2019). *An Analyses on Carbon Credits in Indian Perspective*. Paper discusses that in order to be a green economy, country should impose carbon tax and also evaluate ongoing green projects more strictly by having proper monitoring on them.

Gorain S., Ayushman Malakar A., & Chanda S., (2021). *An Analysis of Carbon Market and Carbon Credits in India*. Objective of this paper is to analyse amount of emission from agricultural sector by burning crop residue and carbon credits may be earned by stopping this process of agricultural residue burning. Author also suggests an econometric model to study the effect of carbon trading on stock market.




Sources of Data

Secondary Data are the main source of the study. Annual reports and website of selected cement companies serves the purpose of the study. Articles in newspapers, magazines and reports published by various concerned authorities are also considered to complete the work.

Brief Profile of the Companies

Cement is a fine mixture of limestone, clay and marl which is used to bind bricks and stones to construct infrastructure. Globalisation, industrialization & urbanisation speeds up the consumption of cement. Construction activities for commercial and residential buildings, construction of roads throughout has increased the demand of cement year by year.

Rajasthan got its first cement plant in Lakheri in Bundi District in 1916. Rajasthan is enriched with abundant quantity of limestone and gypsum which are the main ingredients of cement mixture. Following companies have been selected for the study because their plants are in Rajasthan.

Profile	Ambuja Cements	JK Cements	Shree Cements
WEBSITE & LOGO	www.ambujacement.com 	www.jkcement.com 	www.shreecement.com 
YEAR OF ESTB.	1983	1975	1979
HEADQUARTER	Mumbai (Maharashtra)	Gurugram (Haryana)	Kolkata (West Bengal).
LISTING	BSE, NSE	BSE, NSE	BSE, NSE
CEMENT PRODUCTION CAPACITY	31 MTPA (across the country)	20 MTPA (across the country)	47.4 MTPA (including overseas)

ISO CERTIFICATION	ISO 14001	ISO 9001 and 14001	ISO 9001, i4001,45001 & 50001
PLANTS IN RAJASTHAN	Rabriyawas (Pali) Lakheri (Bundi) Nagaur (Marwar)	Nimbahera (Chittorgarh), Gotan (Nagour) Mangrol (Baran)	Beawar (Ajmer), Jobner (Jaipur), Khushkhera (Alwar), Suratgarh (Ganganagar) Ras (Pali).
VISION & MISSION	'Company wishes to be the most sustainable and competitive company in the industry and to create value for all Customers, Employees, Partners, Society, Shareholders and Environment.'	'To be the preferred manufacturer of cement and cement-based products that partners in nation building, engages with its community and cares for all stakeholders'.	'Lead in creating prosperity and happiness for all stakeholders through innovation and sustainable practices.
STRENGTH	WATER POSITIVE CEMENT COMPANY (8 times) SPIRIT OF I CAN (bulk Transport). PLASTIC NEGATIVE	JK cements operates with 5 values: - Integrity, Quality, Trust, Care, People.	Pushing The Limits. Reimagining The Future.
AWARDS	ICONIC BRANDS OF INDIA-2023	Annual Greentech Environment Award 2022	NA

Analysis & Interpretation

Analysis of Ambuja Cements

Criteria for Analysis	2018-19	2019-20	2020-21	2021-22	2022-23
ENVIRONMENT POLICY	✓	✓	✓	✓	✓
SUSTAINABILITY REPORT	✓	✓	X	X	X
CDM PROJECTS	✓	✓	X	X	X
SCIENCE BASED TECHNOLOGY	✓	✓	✓	✓	✓
CARBON DISCLOSURE PROJECTS (CDP) (With Rank)	✓ Second rank in the CDP League Table 2018	✓ Rank Not Disclosed	✓ 'A-' on Water 'B' on Climate	✓ 'A' for water security	✓ 'A' for tackling water
DISCLOSURE OF CERTIFIED EMISSION REDUCTION(CERs)	✓	✓	✓	X	X
TRADING & ACCOUNTING OF CARBON CREDITS	X	X	X	X	X

Analysis of Jk Cements

Criteria for Analysis	2018-19	2019-20	2020-21	2021-22	2022-23
ENVIRONMENT POLICY	✓	✓	✓	✓	✓
SUSTAINABILITY REPORTS	✓	✓	✓	✓	✓
CDM PROJECTS	X	X	X	X	X
SCIENCE BASED TECHNOLOGY	X	X	✓	✓	✓
MEMBERSHIP OF CARBON DISCLOSURE PROJECTS (CDP) (With Rank)	X	X	✓ Rank not Disclosed	✓ Rank not Disclosed	✓ Rank not Disclosed
DISCLOSURE OF CARBON CREDITS	X	X	X	X	X
TRADING & ACCOUNTING OF CARBON CREDITS	X	X	X	X	X

Analysis of Shree Cements

Criteria for Analysis	2018-19	2019-20	2020-21	2021-22	2022-23
ENVIRONMENT POLICY	✓	✓	✓	✓	✓
SUSTAINABILITY REPORT	✓	✓	✓	✓	✓
CDM PROJECTS	✓	✓	✓	✓	✓
SCIENCE BASED TECHNOLOGY	✓	✓	✓	✓	✓
CARBON DISCLOSURE PROJECTS (CDP) (With Rank)	✓ B	✓ B	✓ B	✓ Rank not Disclosed	✓ 'A-' in Climate Change Assessment and 'B' in Water Security
DISCLOSURE OF CARBON CREDITS	✓	✓	✓	✓	✓
TRADING & ACCOUNTING OF CARBON CREDITS	X	X	X	X	X

Conclusions & Suggestions

After studying and analysing annual reports and other reports of the selected companies, it is concluded that each selected company is intensely involved in Environment Protection Programmes. All the three companies are disclosing detailed data regarding carbon emission and their future policies regarding emission reduction. All the selected companies had also disclosed about their methods and technologies used to cut down carbon emission.

Although companies are involved in Clean Development Mechanism and are generating Certified Emission Reduction (CERs) but these are not traded by them. Trading of generated credits comes into final accounts of the companies. But if company do not sell these credits, they would not generate any income. Accounting for such credits cannot be done in this case. All the three selected cement companies generate CERs but do not sell them in international carbon market. Hence, accounting for such credits is not shown in financial accounts of the companies.

On the basis of above conclusion following suggestions are suggested:

- Companies should involve more with CDM projects. This should become mandatory for each emitting company to become a part of at least one CDM project to avail government grant and subsidies.
- CERs generated should be traded in international market so as to generate revenue. This can also cut down the project cost. Companies should be motivated to use CERs as a tradeable security. This will make carbon market wider. For acquiring more knowledge regarding this, companies should involve themselves with relevant programmes at international platform.
- Accounting procedure of Carbon Credits should be simplified and clear, to make their accounting easy.

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