

## A Study on Reporting Standards in Carbon Credit Accounting



### Medical Science

**KEYWORDS :** Carbon credit, CERs, Kyoto Protocol, Greenhouse Gas emission, ICAI

**Neharika Shrivastava**

Research Scholar, Scholar (Part Time), Department of Management, Birla Institute of Technology, NOIDA Campus

**Dr. Vandana Sharma**

Associate Professor, Department of Management, Birla Institute of Technology, NOIDA Campus

**Dr Barnali Chaklader**

Associate Professor (Finance and Accounting) International Management Institute, New Delhi

### ABSTRACT

*India has emerged as a leader in carbon trading (Bhardwaj D. B., 2013). This study aims to analyse how carbon credit trading is done, reporting practices of carbon emission in financial statement of different Indian companies in India and to give some recommendation on reporting for Certified Emission Reductions. This study is an exploratory study. Secondary data has been used for this study. Data has been collected from annual reports of 30 Indian Companies for the year 2012. Reporting standards of CER has been compared according to the Guidance Note on Accounting for Self-Generated Certified Emission Reduction (CERs) (issued 2012) by Institute of Chartered Accountants of India (ICAI, 2012). Judgemental sampling was used for this study. It was found out that 7 percent of Indian Companies gives details about number of CER held as inventory, basis of valuation in their financial report and number of CERs under certification. 93 percent does not give details. 17 percent of Indian companies doing carbon trading disclose about equipment used for reduction of CER and 83 percent does not disclose. No Indian company discloses about depreciation, maintenance and operating costs of equipment's used for CER reduction. The accuracy of the analysis is dependent upon the accuracy of the data in the annual report. This study has focused on guidance note on accounting for self-generated certified emission reduction (CERs) (issued 2012). But the lack of specific guidance furthers scope for judgement and results in varying treatment. The result of this study would help Indian listed companies to save carbon and implement reporting standards for Certified Emission Reductions. This study is first of its kind to determine the reporting standards of Certified Emission Reduction in different listed companies in India. It is a beneficial source for those companies who are saving carbons and reporting in their financial statements.*

### Introduction

The Kyoto Protocol has created a mechanism under which countries those who are emitting carbon and other gases has voluntarily decided that they will bring down the level of carbon to the level of early 1990's.

Kyoto Protocol suggested that governments should reduce their emission of greenhouse gases. The Protocol commits Annex I countries (developed countries which have accepted the emission-reduction goals for the period between 2008 and 2012) to individual, legally-binding commitments on the reduction of their greenhouse gas-emissions. The general target that the developed countries were to reduce their greenhouse-gas emissions by about 5% below their 1990 levels in the timeframe addressed by the Kyoto Protocol, namely 2008-2012 (UNFCCC, The Kyoto Protocol)

### The Protocol divides the nation into two general categories as:

**Annex I countries:** The group of countries included in Annex I (as amended in 1998) to the UNFCCC, including all the OECD (Organisation for Economic Co-operation and Development) countries and economies in transition. Annex I countries committed themselves of returning individually or jointly to their 1990 levels of greenhouse - gas emissions by the year 2000 (Verbruggen)

**Non-Annex I countries:** Annex I is an Annex in the United Nations Framework Convention on Climate Change listing those countries which are signatories to the Convention and committed to emission reductions. The Non-Annex I countries are developing countries, and they have no emission reduction targets (TFS Green, Glossary)

Clean Development Mechanism is applicable to India. (Punjab Energy Development Agency, Clean Development Mechanism).

### Reporting Standards in Carbon Credit Accounting

Lot of companies in India are generating and trading in carbon credits, but there remains lot of questions for the accounting

treatment. There are questions on accounting for expenditure on the CDM projects, accounting for self-generated CERs, accounting for sales and so on. Some countries suggest recognition of carbon credits as government grant. But, this approach CERs is not a benefit that is provided by government. It is an incentive provided to entities for conservation of the environment (Sharma, 2013). International Accounting Standards Board had issued an interpretation on Emission Rights but later withdrew the same. Debate continued on the appropriate treatment for CERs (Sharma, 2013). The Institute of Chartered Accountants of India (ICAI) has issued an Exposure Draft of the Guidance Note on Accounting for Self-generated Certified Emission Reductions in 2009 suggesting accounting principles for CERs generated by an entity. It provides an accounting principles relating to recognition, measurement and disclosures of CERs generated by CDM.

### Presentation

An entity should show certified emission as a part of Inventories, in the balance sheet, separately from other categories of inventories such as Raw material, Finished Goods and others (ICAI, (2012). *Guidance Note on Accounting for Self-Generated Certified Emission Reduction*. New Delhi: Institute Of Chartered Accountant Of India.)

### Disclosure

An entity should disclose the following information relating to the certified emission rights in the financial statements: (ICAI, (2012). *Guidance Note on Accounting for Self-Generated Certified Emission Reduction*. New Delhi: Institute Of Chartered Accountant Of India.)

- No of CERs held as inventory and the basis of valuation
- No of CERs held under certification
- Depreciation, operating and maintenance costs of Emission Reduction equipment expensed during the year

An entity should apply this Guidance Note for accounting periods beginning on or after April 01, 2012.

### Literature Review

There is a study which has been done to examine reporting mechanisms for greenhouse gases focusing on carbon disclosure projects in UK. The result shows that Carbon disclosure Projects is very successful in terms of reporting and backing from prominent investment banks and pension funds. But it is still very difficult to get insight of the emissions of a firm by Carbon Disclosure Project (Kolks Ans, Levy David and Pinkse Jonatan, 2008). Research has been done to study the standards of emission reporting in New Zealand. It has been suggested that New Zealand constituents should participate in the international deliberations. New Zealand boards may move quickly to adopt the international standards (Simpkins Kevin, 2008). A study has been done on the accounting issues that are associated with the valuation of pollution allowances and their identification as assets. It has been suggested that Accounting for Emission Allowance Units requires a development of traditional accounting principles to ensure that accounts show a true and fair value in the financial statement. Research has to be done on non-financial reporting of GCC (Lar-rinaga-Gonza'Lez, 2008).

A study shows that there has been a strong growth for carbon credits and offsets projects in India. Global warming has become an advantage for developing countries and lot of credits goes to corporates (S.Raval Dharmesh, 2009). Study has been undertaken to examine liquidity and transaction costs in the European carbon futures market. Results indicate an improvement in liquidity and reduction in transaction costs since carbon futures began trading in 2005. Bid-ask spread widens because of information asymmetry which results in permanent price effect which may lead to medium and large trades (Frino Alex, Kruk Jennifer, Lepone Andrew, 2010). In India for developing sound marketing system there is a need to comply Global Accounting Standards. Carbon neutrality and Carbon literacy will play major role. Business Model for CERs transaction needs to be developed in India. Voluntary carbon market with focus on Carbon Offsetting will help in emission reduction (Sarkar A. N., 2010). To value and report the underlying non - current assets that produces or uses carbon allowances on the balance sheet an Environmental Enhancing Capability Model has been proposed for the conversion of non-monetary CO<sub>2</sub> emission and sequestration measure to monetary values (Janek Ratnatunga Jones Stewart, and R. Balachandran Kashi , 2011). A study is of 117 carbon offset providers from eight countries was done to analyse the performance of carbon offset providers as a firm. The result shows that certification, standardization, and transparency are the performance baseline for carbon offset ventures (K. Dhanda Kanwalroop and J. Murphy Patrick, 2011).

A study shows that there is no relation of between academics and real life practice of carbon accounting. There is a necessity of an accurate measurement system and how much certain carbon project mitigating the GHG from the atmosphere (Ms. Machado André, Dr. Lima Guasti Fabiano, Dr. Carlos da Silva Filho Antonio, 2011). After the withdrawal of IFRIC 3: Emissions Rights in 2005, those European Union (EU) companies who are participating in an Emissions Trading Scheme (ETS) do not have guidelines as how to account for carbon emissions allowances. Emission granted as an allowances is written as intangible assets with a nil value upon receipt, company purchases emission allowances at cost price initially but don't report it at the end, the obligation to deliver allowances to their national authorities as a provision (or liability) at either the carrying amount or the purchase cost for allowances held at the end of the reporting period. The amount outstanding is recorded at the market price at end of the reporting period (Warwick Peter & Ng Chew, 2012). India is at third place in the global supply of project-based emission reductions in 2005 (at 3%) 13, behind China (73%) and Brazil (11%). The public sector in India is relatively absent from the carbon market. At present, there is no accounting guidance within

International Financial Reporting Standards (IFRS) for transactions involving carbon allowances. The International Accounting Standards Board (IASB) issued IFRIC-3 on 'Emissions Rights' but it was withdrawn in June 2005 (Mondal Atish Prosad, Sachdev Sanchit, 2012). GHG emission reporting schemes of the UK, France, Japan and Australia was undertaken and it was suggested that to make reporting scheme important it is necessary to enforce reporting obligation and follow up with company. Government can also use the information in the reports.

In France, UK, U.S. or New Zealand, for the development of GHG measurement methodologies and regulatory schemes requires inputs from business. Country experiences show that there are benefits to consultants due to effective reporting schemes. There are several reasons for this. The technical knowledge of GHG emissions can be deeply found in the companies report. In the report level of compliance of voluntary schemes, and level of acceptance of mandatory schemes, can be seen. Reports can also help to know that how fare is the competition (Céline Kauffmann, Tébar Less Cristina and Teichmann Dorothee, 2012). A report was made which analysed the extent and quality of carbon management reporting amongst of the top 100 UK listed companies. The report reveals that for the year 2013 shows that just over half of FTSE 100 companies disclose their carbon footprint in their annual report, Only one company engage carbon credit with their supply chain, 41% of companies shows that they are willing to go beyond reporting their emissions and looking for more opportunities in risk mitigation strategies and adaptation strategies associated with climate change, Only 29 companies have carbon targets to or beyond 2020 (Limited Carbon Clear, 2013). A study was done to look at how climate change risk affect a sample of rated oil companies, and its investors' to understand the implications of future carbon constraints on the oil sector. In this study model has been constructed on the basis of 2012 price assumptions which will continue to decline at a lower long-term oil price floor. Changes in rating or outlook seem unlikely in the very near term because the scenario is not different from the current price assumptions. However, as the price declines in the stress scenario of weaker oil demand, pressure could build on ratings. First thing which will be affected would be, higher cost producers, and then the more players. In both cases, according to the study, there would be a decline in operating cash flows, weakening free cash flow and credit measures, less returns on investment and less reserve (Redmond Simon, Wilkins Michael, 2013).

It was found out that reduction in carbon emissions improves medium and long term profits and cash inflows in Japan (Chika Saka, 2014). Disclosure of carbon management practices has a positive relation with the market value of equity for Japanese companies (Chika Saka, 2014). There is a negative relation between the volume of carbon emissions and the market value of equity and positive relation between the disclosure of carbon management and the market value of equity with a larger volume of carbon emission (Chika Saka, 2014). For this study samples were collected for the year 2006, 2007 and 2008 and there were 1,085, 808, and 1,057 listed companies, respectively that reported carbon emissions. A CDP questionnaire was prepared which included questions like perceived risks and opportunities relating to climate change and any plans for emission reductions, targets, and strategies. Questionnaire was sent to 150 Japanese Companies for the year 2006, 2007 and 2008. 96, 111, and 111 companies responded to each questionnaire, respectively. For financial and stock price data Nikkei NEEDS Financial Quest was used. Sample consisted of companies with a March fiscal year end (which represents 74 per cent of listed companies in Japan). Earnings before extraordinary item were used as Profit. Sample has been limited to manufacturing sector using Nikkei Classification codes. All financial variables (i.e. MV<sub>Et</sub>, BV<sub>Et</sub>, EARN<sub>t</sub>, Et [EARN<sub>t</sub>÷1]) have been deflated by year-end total assets. To

calculate carbon emissions per unit, following year's sales as a proxy of the level of manufacturing has been employed. Stock prices at the end of May were used, as tentative financial statements are usually released at this time in Japan. For carbon management disclosure, list of companies responding to the CDP questionnaire was employed. An empirical model was suggested to analyse the carbon emission and carbon management disclosure.

$$MVE_t = a + B1BVE_t + B2EARN_t + B3E_t (EARN_{t+1}) + B4Disclosure + e$$

Where;

MVE<sub>t</sub> = Market Value Of Equity at time t

BVE<sub>t</sub> = Book Value Of Equity at time t

EARN = Earnings before extraordinary items in period t

E<sub>t</sub> (EARN<sub>t+1</sub>) = Forecast of earnings before extraordinary item for the next year at time t.

Disclosure = a dummy variable that takes a value of 1 if the company responded to the CDP questionnaire at time t, otherwise 0, and all other variables are as previously defined.

e = error term

Another empirical model was suggested to analyze the interactive effect of the volume of carbon emission and carbon management disclosure.

$$MVE_t = a + B1BVE_t + B2EARN_t + B3E_t (EARN_{t+1}) + B4 Carbon + B5Disclosure_t + B6Carbon_t X Disclosure_t + e$$

Where;

MVE<sub>t</sub> = Market Value of Equity at time t

BVE<sub>t</sub> = Book Value of Equity at time t

EARN = Earnings before extraordinary items in period t

E<sub>t</sub> (EARN<sub>t+1</sub>) = Forecast of earnings before extraordinary item for the next year at time t.

Carbon<sub>t</sub> = Volume of carbon emission per unit of sales in period t.

Disclosure = a dummy variable that takes a value of 1 if the company responded to the CDP questionnaire at time t, otherwise 0, and all other variables are as previously defined.

e = error term

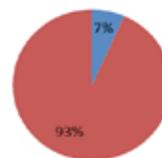
Hence, some studies has been conducted on carbon credit trading reporting and accounting , but no specific study has been conducted on reporting Standards in Carbon Credit for Indian listed companies. This paper aims to discuss the reporting standards for carbon emission according to the Guidance note on self generated certified emission reduction and 30 listed Indian companies doing carbon trading were analysed.

### Analysis and Interpretation

30 listed Indian companies annual report was analysed for the year 2012-13. It compares the disclosing of CERs in the annual report according to Guidance note on self-generated certified emission reduction by ICAI. Analysis is shown below.

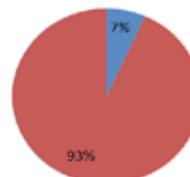
### Basis of Valuation of CERs held as Inventory

■ Yes ■ No Details



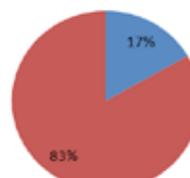
### No. of CERs Under Certifications

■ Yes ■ No



### Equipments Used For CERs Reduction

■ Yes ■ No



### Following can be interpreted from the above Pie Charts:-

Only 7 percent of Indian Listed Companies gives details about number of CER held as inventory, basis of valuation in their financial report and number of CERs under certification. 93 percent does not give details.

Only 17 percent of Indian Listed Companies disclose about equipment used for reduction of CER and 83 percent does not disclose.

No Indian Listed Companies disclose about depreciation, maintenance and operating for equipment used for CER reduction.

From the above table we can interpret that no Indian listed companies completely follows the guidance notes given by ICAI for reporting of CER.

### Suggestions

Reporting of environmental performance and CER reduction has becomes a high priority for many companies (lasalle, 2008). Now day's companies are scrutinising the way it is monitoring and reporting on sustainability issues to stakeholders (lasalle, 2008). Companies are facing challenges for balancing these sustainability reporting requirements, which are complex and varied, with existing operational performance reporting and analysis (lasalle, 2008). The major challenge for these companies is to develop effective measurement and reporting tools to provide all the information required via a common set of base data (lasalle, 2008).

According to this study, following suggestions has been made:-

- Companies may disclose the number of CER they have kept as inventory (if, in case) and basis of valuation of CERs as inventory.
- Companies may also disclose of number of CERs under their certification by UNFCCC.
- Companies may disclose in what way and at what price they are trading CERs. Is it OTC, derivatives, SPOT exchange etc.... Also, they should disclose with whom they have traded.
- Companies may disclose about taxation for purchase and sale of CERs.
- Companies may disclose about equipments used for CER reduction and how are they operating and maintaining the equipments and how are they charging depreciation on that equipment's.

### Limitation and Conclusion

According to this study, no Indian Listed company follows the reporting standards guided by ICAI. This leads to mismatch of comparison of financial performance of companies for shareholders. Companies may disclose about the information related to CERs as this will help the investors to make a fair judgement. Companies may disclose about the price of the CERs at which they are trading. Proper reporting standards for CER in the financial statements can be made mandatory by Companies Law.

This study is limited to 30 listed Indian companies' annual report for the year 2012 and based upon guidance note issued by ICAI for certified emission reductions. There are no set guidelines for reporting of carbon credits in the financial statements. This can lead to further research and suggestion in this regard.

## REFERENCE

- Bhardwaj, D. B. (2013). Future of carbon Trading: A Business That Works for Global Environment. *International Journal Of Science, Environment and Technology* , 115-121. | ICAI (2012). Guidance Note on Accounting for Self-Generated Certified Emission Reduction. New Delhi: Institute Of Chartered Accountant Of India. | UNFCCC. (n.d.). The Kyoto Protocol. Retrieved 21 Tuesday, 2014, from <http://www.mtholyoke.edu>: <http://www.mtholyoke.edu/~danov20d/site/history.htm> | Verbruggen, A. Annex I. | Green, T. (n.d.). Glossary. Retrieved January 24, 2014, from <http://www.tfsgreen.com>: <http://www.tfsgreen.com/glossary.php> | (PEDA), P. E. (n.d.). Clean Development Mechanism. Retrieved January 24, 2014, from <http://peda.gov.in>: [http://peda.gov.in/eng/clean\\_dev\\_mech.html](http://peda.gov.in/eng/clean_dev_mech.html) | Sharma, S. (2013, December). Carbon Credits – A growing opportunity with boon to Environment. *EPCI&I* . | Ans Kolk, D. L. (2008). Corporate Responses in an Emerging Climate Regime: The Institutionalization and Commensuration of Carbon Disclosure. *European Accounting Review* , 719-745. | Simpkins, K. (2008). Standards on emissions information reporting, assurance some way off. *Chartered Accountants Journal* , 1-3. | lasalle, J. I. (2008). Sustainability: The Measurement and Reporting Challenges. *New Knowledge First*. | S.Raval, D. (2009). Businesses and Global Warming Interface:Carbon Credit. *SCMS Journal of Indian Management* , 31-40. | A.N.Sarkar. (2011). Global Climate Governance: Emerging Policy Issues and Future Organisational Landscapes. *International Journal of Business Insights & Transformation* , 1-19. | Alex Frino, J. K. (2009). Liquidity and transaction costs in the European. *Journal of Derivatives & Hedge Funds* , 100–115. | Janek Ratnatunga, S. J. (2011). The Valuation and Reporting of Organizational. *Accounting Horizons* , 127–147. | Kanwalroop K. Dhanda, P. J. (2011). The New Wild West Is Green:Carbon Offset Markets, Transactions, and Providers. *Academy of Management Perspectives* , 1-14. | Ms. André Machado, D. F. (2011). CARBON CREDIT STORAGE: A STUDY OF HOW TO MEASURE AND ACCOUNT POSTING. *Review of Business Research* , 126-133. | Peter Warwick, C. N. (2012). The 'Cost' of Climate Change: How Carbon Emissions Allowances are Accounted for Amongst European Union Companies. *Australian Accounting Review* , 1-15. | Atish Prosad Mondal, S. S. (2012). Carbon Credit: A Burning Business Issue. *International Trade & Academic Research Conference* , 170-178. | Céline Kauffmann, C. T. (2012). Corporate Greenhouse Gas Emission Reporting: A Stocktaking of Government Schemes. *OECD WORKING PAPERS ON INTERNATIONAL INVESTMENT* , 1-69. | Clear, C. (2013). Carbon Reporting. UK: Carbon Clear. | Simon Redmond, M. W. (2013). What A Carbon-Constrained Future Could Mean For Oil Companies' Creditworthiness. London: Standards and Poor's rating services. | Chika Saka, T. O. (2014). Disclosure effects, Carbon emission and Corporate value. *Sustainability Accounting, Management and Policy Journal Vol.5 No. 1*, 22-45. | lasalle, J. I. (2008). Sustainability: The Measurement and Reporting Challenges. *New Knowledge First*. |