

# Carbon Emissions Trading in India: A Study on Accounting and Disclosure Practice



The increased public focus on global climate change (GCC) as well as measures introduced through inter-governmental initiatives to curb emissions, has brought carbon accounting to the fore. Accounting issues pertaining to carbon Emission Trading Scheme (ETS) remain as an accounting minefield. This article is an attempt to find out the accounting approaches applied in practice by the Indian companies regarding Certified Emission Reduction (CER) from CDM projects. Results indicate that divergent practices of accounting of CDM benefits are currently being followed by companies in India. The lack of mandatory guidance on CER accounting may be responsible for such a situation. Such diversity in accounting practice led to companies with similar CDM projects providing very different results on the financial statement, posing a clear challenge to the users. It is concluded that GCC has implications beyond accounting for carbon emission and research should imagine new social accounts from a normative angle.

## Introduction

Global climate change (GCC) issues have been given a serious thought in recent times and it has become imperative, to reduce the increased concentration of green house gases (GHGs). The framework for policy making in this area was agreed in the 1992 Rio Earth Summit. United Nations Framework Convention on Climate Change (UNFCCC) set in motion intergovernmental effort on this issue. Kyoto Protocol (United Nations, 1998) is an international agreement linked to UNFCCC and it was negotiated in December 1997. The protocol provides a market based mechanism to reduce carbon emission. Kyoto protocol requires ratifying countries to reduce their emissions of a specified GHG basket by a collective average 5% below their 1990 levels. To help reach these commitments, three relatively innovative environmental policy tools were introduced. Those tools were emission trading, Clean Development Mechanism (CDM) and Joint Implementation (JI).



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Developing countries are not required under the Kyoto treaty to reduce their emission, based on the concept of contraction and convergence. The treaty provides flexible mechanisms that enable pollutant firms to reduce GHGs emission by interacting with external actors through trading of emission allowance or cooperation in offset projects. (Pinkse and Kolk, 2007). While emission trading and Joint Implementation (JI) are targeted towards transactions between countries with commitments, the CDM was designed to include developing countries in the process. CDM projects accredited under Kyoto give rise to Certified Emission Reduction (CER) Credit. One CER represents a unit of green house gas (one metric ton of CO<sub>2</sub> equivalents) that has been avoided and certified by the UNFCCC under the CDM provisions of Kyoto protocol. Carbon credits generated in emerging countries like India can be sold to entities in developed countries which have mandated emission reduction targets.

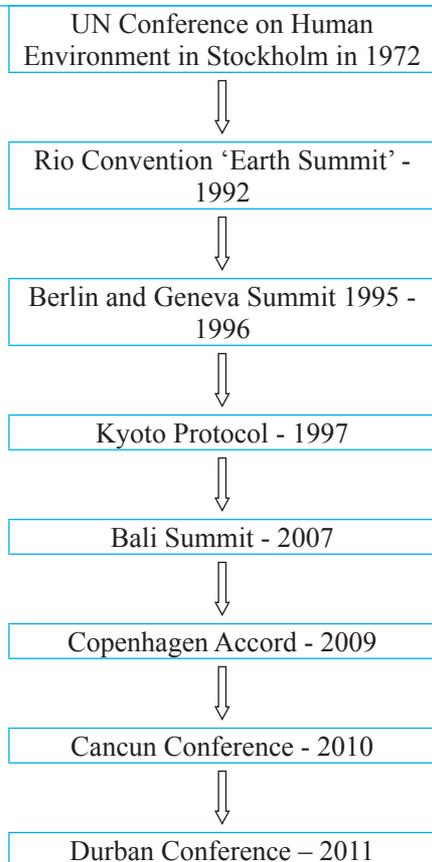
The past decades' attempt to create a global carbon market as the centrepiece of official efforts to address global warming, has entailed and presupposed some of the most potentially far reaching innovations in accounting in modern times (Lohmann, 2009). There is a strong criticism against emission trading system that removes the polluting activity from the “criminal spheres” and legitimises it (Bunin, 1991). The very attempt of calculating and internalising externalities through market mechanism is criticised by many on the ground that the spread of market like calculations into ‘non-market’ spheres is the root of many problems (O’Neill, 2007). It is argued that use of market mechanisms to allocate scarce environmental resources and related policies, tend to remove decision-making power from the community and cause some sections of the community to bear more than their fair share of environmental burdens (Beder, 2000). Criticism notwithstanding, generation and trading in carbon credit have gained a lot of momentum in recent years. But accounting for carbon credit remains a challenge and market participants continue to wait for clear guidance from accounting standard setters. Against this backdrop, this paper attempts to deal with accounting issues related to carbon credits, more particularly, CERs generated through approved CDM projects.

#### Kyoto Protocol and CDM Projects in India

Global climate change (GCC) arises from increased concentration of greenhouse gases (GHGs). Rising GHG concentrations will trigger GCC and even dangerous climate change. GHG concentrations have

risen from a pre-industrial level of 280 ppm in 1750 to current level of 430 ppm (rising at a minimum of 2 ppm each year) (Stern, 2006). As concentrations of GHGs leads to temperature increase, there is policy debate on combating such warming. The United Nations Framework Convention on Climate Change (signed in Rio in 1992, entered into force 24<sup>th</sup> March, 1994) sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. It recognizes that the climate system is a shared resource, whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The Convention enjoys near universal membership, with 189 countries having ratified it. United Nations Framework Convention on Climate Change (UNFCCC) set in motion a series of international conferences. Exhibit 1 gives a brief history of emission conferences.

#### EXHIBIT 1 History of Carbon Emission Conventions



The 1997 Kyoto protocol shares the Convention's objective, principles and institutions, but significantly strengthens the Convention by committing 35 industrialised countries (Annex I Parties) to individual, legally-binding targets to limit or reduce their greenhouse gas emissions. After several years of political negotiation, the Kyoto Protocol finally came into force on 16<sup>th</sup> February 2005. In February 2007, the protocol was ratified by 170 parties representing 61.6% of total GHG emissions. Kyoto protocol makes a crucial distinction between developed and developing countries. The differentiated approach of Kyoto protocol is based on equity, because of the close link between economic development and GHG emissions. Historically, developed countries occupied a major portion of atmospheric common (UNWCED, 1987). A major innovation of the Kyoto Protocol is the CDM, which is designed for a partnership between capped signatories (Annex I Parties) and the developing countries without caps (Labbat and White, 2007). A key issue regarding CDM projects is the accurate assessment of the carbon avoided by a particular project.

Apart from the use of CDM mechanism, Kyoto framework envisages a cap and trade system in which, each country is allowed a certain level of emissions during the commitment period. Under this system, regulatory authorities decide on the aggregate levels of allowable emissions for all parties participating in the programme (the 'cap') and allocate this aggregate to the parties in the form of 'allowances' and such 'allowances' represent tradable rights to pollute. For GHGs, the largest trading programme is the European Union Emission Trading Scheme (EUETS) and the Scheme has been in operation since 2005. A good description of the scheme and its implication is available in Kruger and Pizer (2004).

### CDM Projects in India

Under the Clean Development Mechanisms, entities in India have set up GHGs reduction project to generate carbon credits and earn revenue. An entity desirous of undertaking a CDM project activity to generate carbon credits, needs to go through several stages. Project registration requests are submitted to CDM executive Board. UNFCCC website hosts all documents relating to project registration. To make a survey of CDM projects set up by Indian entities, author has consulted UNFCCC website. It is found that as on 19<sup>th</sup>

October 2011, there are details of 816 projects that are registered by UNFCCC. However, some of those projects are withdrawn/reviewed/rejected subsequently. Excluding such projects, there are 617 registered projects. Table 1 gives industry wise break up of such projects.

TABLE 1  
Industry-wise Break-up of CDM Projects in India

Nature of Project	No. of Companies	Percentage (%)
Energy Industries (renewable/non-renewable sources)	483	78.28
Energy demand	31	5.02
Manufacturing industries	70	11.35
Transport	2	0.32
Fugitive emissions from fuels (solid, oil and gas)	3	0.49
Fugitive emissions from production and consumption of halocarbons and sculpture hexafluoride	4	0.65
Waste handling and disposal	17	2.76
Afforestation and reforestation	2	0.32
Agriculture	5	0.81
<b>Total</b>	<b>617</b>	<b>100.00</b>

Source: UNFCCC (2011). Results computed.

### Carbon Trading: Accounting Issues

Accounting issues pertaining to carbon Emission Trading Scheme (ETS) remain as an accounting minefield (IETA, 2007). There are two types of issues. One type of issues relates to financial implications of emission trading scheme for entities in developed countries. Another set of issues pertains to financial implication to CDM projects on host entities in developed countries.

The main issue regarding ETS is the accounting for allowances (allocated or purchased). Emission Trading Schemes raise the question of whether and how to recognise allowances as assets and obligation to deliver allowances as liabilities (including timing issues) (Bebbington and Larrinaga-González, 2008). It may be noted that in December 2004, the International Accounting Standard Board (IASB) issued IFRIC 3, *Emission Rights* in an attempt to address how participants should account for cap and trade emission trading scheme. There was widespread

debate on the proposal of IFRIC 3. The key concern was measurement and reporting mismatches that are produced when a new category of intangible assets are created by measuring assets at cost and corresponding liability at fair value and change in the market value of emission allowances held are recognised in equity, but the change in value of emission obligation is recognised through profit and loss. It was argued that application of IFRIC 3 would result in artificial volatility of results. In June 2005, the IASB withdrew IFRIC 3 to address the underlying accounting in a more comprehensive manner (IASB, 2008).

In relation to accounting for carbon credit trading, particularly, self-generated CERs, there is no mandatory accounting prescription under Indian GAAP. Agrawal (2006) is an early attempt to deal the accounting and taxation aspect of carbon trading from Indian perspective. The Institute of Chartered Accountants of India (ICAI) issued an Exposure Draft (ED) on accounting for self-generated Certified Emission Reduction (CER) in June 2009 (ICAI, 2009). Recently, the Exposure Draft was notified as Guidance Note in February, 2012. The Guidance Note (GN) entitled *Accounting for Self-generated Certified Emission Reductions (CERs)* aims to provide guidance on matters of applying accounting principles to be adopted for recognition, measurement, and disclosure of CERs. More specifically, the GN addresses following key accounting considerations:

1. Whether CER is an asset?
2. Recognition of CERs.
3. What type of asset is a CER?
4. Measurement of CERs.
5. Measurement of underlying asset related to CERs.

In a nutshell, it is prescribed that a CER is an intangible asset, but it should be measured at net realisable value or cost by applying the requirements of Indian Accounting Standard (AS 2) on Inventories. Sufficient rigours and controls need to be instituted to ensure proper measurement of costs. Costs incurred to bring CERs into existence would be inventorised and other costs are to be expensed. The Guidance Note effectively provides that CERs should be recognised on certification by UNFCC at nominal costs ( i.e. by including only the consultant's fee and cash payment to UNFCC towards meeting administrative cost).

It must be admitted that due to the evolving nature of various concepts relating to emission credits, the accounting alternatives appear equally compelling.

Furthermore, political and economic considerations make the process more complicated.

### Carbon Credit: Accounting Practices of Indian Companies

It is reported that there is a lack of consistency in carbon accounting (IETA, 2007). Companies are employing a variety of different accounting practices for carbon trading. Absence of clear accounting guidelines on the issue has made the situation very challenging for users of financial reports. Against this backdrop, it is attempted to make a survey, to find out the accounting approaches applied in practice by the Indian companies regarding Certified Emission Reductions (CERs) from CDM projects. Another purpose of the survey is to understand the key issues arising, given the absence of specific accounting standard. The author has considered the following elements of reporting, to understand how carbon credits are being accounted and reported by Indian companies.

1. Revenue recognition policy on carbon credit.
2. Disclosure of revenue from carbon credit.
3. Policy on cost assessment and valuation of self generated CERs.
4. Treatment of CERs as assets or otherwise.

### Sample and Methodology

For the purpose of sample selection, the author has consulted UNFCC website that host details of all registered projects. It is found that as on 19-10-2011, there are 816 registered projects set up by Indian entities. The author has handpicked the name of host entities to analyse the nature of such entities. It is observed that 78 projects are withdrawn or reviewed or rejected at a later stage. Excluding such projects and also excluding the projects where the name of the host institution is not available, we are left with 617 projects. The author has sorted those projects on the basis of nature of host institution. Table 2 gives the results of such analysis. Results indicate that most of the projects are initiated by unlisted public limited companies. There are 189 projects from listed companies. As some companies are having more than one project, the number of listed companies available for survey is 149.

TABLE 2  
Nature of Host Entities having CDM Projects in India

Nature of Entities	No. of Companies	Percentage (%)
Listed Companies	189	30.63
Private Limited Companies	185	29.98

Nature of Entities	No. of Companies	Percentage (%)
Public Limited Companies	198	32.09
Public Sector Undertakings	15	2.43
Co-operative Societies	3	0.49
NGOs	8	1.30
Others	19	3.08
<b>Total</b>	<b>617</b>	<b>100.00</b>

Source: UNFCC (2011). Results computed.

Due to time and resource constraints, the author has restricted the survey among the listed companies forming part of BSE 500 index. The choice of BSE 500 index stems from the fact that BSE 500 companies cover 93% of market capitalisation of all listed companies in India. After matching with BSE 500 list, it is found that, 34 BSE 500 index companies are having approved CDM projects up to 19-10-2011. These 34 companies consist our final sample. The data for this research are taken from the annual reports of the 2010-11 financial year, being the latest period for which annual reports are available. In a few cases, the year end date falls between 30<sup>th</sup> June 2010 to 31<sup>st</sup> December 2010.

## Results

### 1. What policy is followed for recognition of revenue from carbon credit?

As mentioned earlier, the survey sample consists of 34 companies and these companies are part of BSE 500 index. The survey reveals that out of 34 companies, only 10 companies have disclosed accounting policy on carbon credit and other 24 companies have not disclosed anything on carbon credits and related issues. Such disclosure may be avoided by those companies on materiality consideration. This position also highlights the need of mandatory requirements of disclosure on carbon trading. Analysis of accounting policies of other 10 companies having disclosure indicates that, there is divergence in approaches and disclosed policies are not free from ambiguity. For example, one company discloses its accounting policy on carbon credit as follows:

*“Other income includes....Receipt against monetisation of Certified Emission Reduction (CER) under Kyoto Protocol for Clean Development Mechanism.”*

There is a clear majority of sample companies who adopt an accounting policy of recognising

revenue from carbon credit on sale of CERs. But a few companies make initial recognition of CERs on confirmation of CERs by the approving authority. Thus, the initial recognition policy is divided into two main approaches viz., initial recognition at fair value and initial recognition at nil value. First approach is not dominantly used, as only 2 (20%) companies having disclosure used this approach. For the purpose of fair valuation, these two companies used estimated realisable value. The other 8 (80%) companies adopted the policy of recognising carbon credit revenue on sale of CERs. Table 3 provides a summary of the practices followed by the sample company on adoption of accounting policy.

TABLE 3  
Accounting Policy on Carbon Credits

Nature of policies	No. of Companies	%
Carbon credits are initially recognised on confirmation of CERs at realizable value	2	5.88
Carbon credits are recognised on sale of CERs i.e. , recognised at nil value on confirmation	8	23.53
Companies having no disclosure	24	70.59
<b>Total</b>	<b>34</b>	<b>100.00</b>

Source: Annual Reports of Sample Companies. Results computed.

Furthermore, there is a lot of diversity regarding timing of revenue recognition. Some companies have not spelt out the point of sale and typically the policy is stated as below.

*‘Income from sale of Certified Emission Reduction points (CERs) granted by UNFCC on energy efficient measures are accounted as and when sold to customers.’*

On the other hand, a few companies have disclosed that sales of CERs are recognised as income on the delivery of CERs to the buyers account. One company has adopted the policy of recognising CDM benefits on execution of purchase agreement with buyers. Another company has disclosed that revenue from carbon credit is recognised on delivery thereof or on sale of rights therein. Thus, there is scope of recognition revenue on the basis of forward sales. Based on our findings, it is possible to identify three approaches on recognition of revenues from sale of CERs. Use of such divergent

approaches impairs comparability of financial results across companies.

### 2. Whether revenue from carbon credits is recognised as normal sales, or treated otherwise?

Regarding initial recognition, International Standard (IAS 20) provides that when due grant is measured at nominal amount, revenue is recognised only on actual sale of CERs. When the CERs are initially recognised at fair value, the grant is recognised as other income. Consequently, there is scope of having diversity of practice. Our analysis of the reporting practice of an Indian company, reveals that three approaches are mainly used to recognise revenue from carbon credits. The findings given in Table 4 indicate that a majority of Indian companies have shown earning from CER sale as other income.

TABLE 4

#### Approaches in Recognition of Carbon Credit Revenue

Nature of policies	No. of Companies	%
Carbon credits are recognised as sales and included with sales of product or services	3	30
Carbon credits are recognised as other operating income	1	10
Carbon credits are recognised as other income	6	60
<b>Total</b>	<b>10</b>	<b>100.00</b>

Source: Annual Reports of Sample Companies. Results computed.

IAS 20 principles on initial recognition are not followed by Indian companies as some companies recognised CERs on grant (*i.e.* confirmation by designated authority) but preferred to recognise it as normal sales instead of other income. It is not clear whether revenues from CER sales are offered to income tax as some opine that these receipts should not be taxed as CDM gives certificates to discourage emission of greenhouse gases and therefore earnings from carbon credit are for a bigger cause (Singh and Koshy, 2008).

### 3. Which line item of the income statement is used to record the revenue from carbon credit?

As there is no mandatory accounting guidance on the issue, Indian companies are not required to disclose carbon credit revenues as separate line item. The author's analysis reveals that out of ten companies making disclosure, five companies have disclosed the amount of CDM benefits as separate line items. Three

companies have not disclosed the amount of CER sales and merged the amount with regular sales for the year. One company has included the amount with miscellaneous receipts under the head 'Other Income' but disclosed the amount of income through a note in the 'Other Income' schedule. Only one company has shown the amount as separate line item under the head 'Other Operating Income'. There is wide diversity in naming the line item. Exhibit 3 gives the names of the line item used by Indian companies.

#### EXHIBIT 3

##### Name of Line Items used to disclose Carbon Credit Revenues

1. Incentives under CDM
2. Clean Development Mechanism
3. Certified Emission Reduction Receipts
4. Certified Emission Reductions
5. Income from Sale of Carbon Credits

Source: Annual Reports of Sample Companies

### 4. Whether there is any disclosure on cost measurement and valuation aspects of CERs?

ICAI Guidance Note prescribes that CERs should be valued at cost or net realisable value, whichever is lower, applying the principles of inventory valuation as per AS 2. But none of the sample companies have disclosed anything on cost measurement and valuation aspect of CERs. It appears that no company has measured the cost associated with bringing the CERs into existence.

### 5. Whether CERs are recorded as an asset in the balance sheet?

An entity that makes initial recognition of certified CERs at realisable value effectively recognises CERs as asset. ICAI draft guidance note supports such a view. As mentioned earlier, there are two companies which follow such initial recognition policy. But no such company has mentioned CERs as a line item in the balance sheet. There is also no mention on this aspect in the disclosed accounting policies of such companies.

On overall basis, our survey results indicate divergent practices of accounting of CDM benefits currently being followed by companies in India. Some improvement may be visible in the coming years after the introduction of the Guidance Note.

#### Conclusion

Internationally, accounting for greenhouse emission remains a challenge and market participants continue



to wait for clear guidance from accounting standards setters. The entire issue of carbon credit accounting is relevant for the time being as market mechanisms will remain as the key enablers for industry engagement in climate mitigation. Extension of Kyoto Protocol

was agreed to in the Durban Conference, held in December 2011 to deliberate and discuss the future of UNFCCC's climate regime. The main outcome of the Conference may be summarised as: Kyoto Protocol will continue up to 2015 beyond the first phase (2009-2012); the conference decides to launch a process to develop a protocol or another legal instrument that will encompass all member countries by 2015; and such protocol or legal instrument should be adopted and implemented by 2020. For the Indian industry, extension of Kyoto Protocol is a great boost and companies can now gear up for more positive action and innovation to address the challenge of climate change. At last, it may be concluded that GCC has an implication beyond accounting for carbon emission and research should imagine new social accounts from a normative angle. ■

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