

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/315711765>

An evaluation of the perceptions in carbon accounting and reporting in India

Article in *Researches World – Journal of Arts Science & Commerce* · January 2015

CITATIONS

4

READS

292

2 authors:



Manoj Subhash Kamat

WM's Shree Damodar College, Margao-Goa (India)

62 PUBLICATIONS 93 CITATIONS

SEE PROFILE



Manasvi M. Kamat

Goa Multi-Faculty College, Dharbandora-Goa

40 PUBLICATIONS 59 CITATIONS

SEE PROFILE

AN EVALUATION OF THE PERCEPTIONS IN CARBON ACCOUNTING AND REPORTING IN INDIA

Dr. Manoj S. Kamat,

Department of Commerce,
VVM's Shree Damodar College of
Commerce and Economics,
Margao-Goa, India

Dr. Manasvi M. Kamat,

Department of Economics,
VVM's Shree Damodar College of
Commerce and Economics,
Margao-Goa, India

ABSTRACT

This paper analyses the current regulations in carbon accounting and reporting. Secondly it surveys perceptions of stakeholders (practicing accountants and educators) to see if they have demonstrated general awareness in understanding the key dynamics of the issues involved. The perceptions of the 196 accounting professionals and their sensitivity on carbon accounting are measured across both groups using the non parametric Levene's test for differences. The test for internal consistency and inter-rater reliability of our instrument mirrors the appropriateness and reasonability of this exploratory research. Lastly we very critically evaluate the global and Indian carbon accounting regulations and the concerns in implementation of the proposed guidelines.

Keywords: Carbon Accounting, Norms, Accountants, Educators, Primary Research, India

INTRODUCTION:

PROBLEM IDENTIFICATION AND DEVELOPMENT:

In the coming years, most firms will be required, at a minimum, to report their carbon emissions to regulators in at least one of the countries in which they operate. In addition, they will likely be faced with emission-reduction regulations, as more countries adopt some form of carbon legislation like that of cap-and-trade, carbon tax or other carbon reducing policies. Rough estimates show that the overall costs of climate change amount to losing 5% or more of the world's GDP annually. If a wider range of risks or impacts are considered, the damage cost could be 20% of global GDP and thus the industry is perceived to have a vital responsibility in making global efforts for climate protection successful. Recent reports of the Intergovernmental Panel on Climate Change (IPCC) indicate that Asia and more specifically India will feel some major impacts of climate change and several of these are becoming increasingly evident. Regulatory efforts are geared internationally towards reduction of the quantum of pollution by making it commercially viable and an attractive unexplored profitable business opportunity. Generating carbon credits (allowances) and carbon trading is one such positive initiative towards abating pollution internationally. Thus corporatists realize that political responsibility of working for clean technologies would benefit in the long run. Baseline accounting and reporting has to be in place before optimization and reduction can be reliably achieved.

OBJECTIVES:

The accountancy profession has been slow to develop mechanisms for accounting for climate change but are keen to see standards of accounting and reporting. This paper whether stakeholders have demonstrated general awareness in understanding the key complexities of the issues. Very specifically we assess the general awareness and knowledge of the carbon accounting, and to establish an understanding of opinions on how to resolve the absence of accounting guidance for emission allowances, by identifying the concerns of the industry and educators and barriers to implementation or CER initiatives.

WHY FIRMS DISCLOSE THEIR CARBON EMISSIONS: THEORY AND LITERATURE:

Theoretically, the increasing number of firms fulfils voluntary corporate GHG reduction targets, especially because sometimes internal reductions are not feasible or cost-effective. They also attempt to create internal incentives for reductions by internalizing the cost of carbon further they gain carbon market experience in order to increase authority and influence in policy discussions about climate change and GHG regulation. In case where regulatory requirements exist, firms prepare for potential that may include a range of offset approaches and partners offering products at a price premium. By mapping carbon footprint in detail, an organization can identify 'emission hotspots', the energy intensive processes and take actions to reduce the carbon footprint/energy consumption per unit product/service produced/delivered. This can directly lead to cost savings and thus addition to bottom-line, the ultimate test for evaluating success or failure of an activity/intervention. Secondly sound pollution prevention makes strong economic sense as it helps corporate to minimise emissions, effluents and waste discharges, which ultimately leads to increased profitability

Carbon accounting is thus the first step towards measuring the sustainability of firms. This will help the market assess the environmental liabilities of an organisation and provide a fuller picture of its long-term prospects and if they don't start measuring emissions in a serious way they basically don't count in commercial decisions. There is demonstrated increasing recognition of the fact that sustainable development is of prime importance than unhindered industrialization for overall economic development. This message percolates down to the corporate houses and their stakeholders which makes it impossible for corporations to dismiss and relegate their social responsibilities to background. Environmental disclosures have become a significant concern in business management. Impact of business on the environment is likely to be of increasing importance for managers over the coming decades and since annual reports are qualified, verifiable disclosures with high credibility, a reference

to it has significant usage to different user groups. Better image acquired by implementing environmental protection measures also attract investors, particularly in light of increasing awareness of risks associated with GHG emissions in a carbon-constrained future.

With globalization, Multinational Firms (MNC) of European Union, United States of America (USA) and Japan are strengthening their global presence in India. These international firms bring in their responsible good practices thereby helping Indian firms to set higher international disclosure standards. These firms MNC's do understand their responsibility to prove them to be socially and environmentally conscious in India. Further they demonstrate a sense of commitment to improve the economic efficiency of the firm, through efficient pollution prevention measures.

Carbon accounting is an essential requirement for firms and will likely become necessary due to government legislation. No longer is it permissible for a company to look within its borders, but it must look at its overall environmental responsibilities and accurately gauge and measure carbon production and emission caused by its very existence. Financial data must be directly linked through lifecycle assessments enabling action to be taken to help reduce greenhouse gas emissions. Though the carbon accounting and disclosure efforts of an individual company may not have a direct bearing on the climate policy decisions taken by the Indian government, a wide participation by firms in activities in the area of carbon accounting, emission reductions and reporting can send a strong signal that industry is proactively engaging in the climate change dialogue and response process. Such activities will contribute towards political process through analysis and reporting. It is also evident that voluntary initiatives such as the CDP or company's sustainability reports highlighting their carbon emissions, reduction measures and targets are influencing policy decisions and in future will play a significant role in India's climate change strategy and policy.

Kolk et al. (2008) analyzed disclosures by the global 500 firms to the CDP from 2003 to 2007 and that while the CDP has been successful in increasing response rates it has been less successful in prompting firms to disclose comparable and reliable emissions data. They examined the CDP disclosures of the global 500 firms beyond just answering the questionnaire and found that the level of detail provided about emissions and carbon accounting is insufficient for investors needs. This according (Kolk et al., 2008) of minimal disclosure is consistent with the legitimacy theory that predicts that firms would disclose the minimum to conform to stakeholders' expectations (Patten, 2002, Cho & Patten, 2007). While legitimacy theory usually pertains to stakeholders, in general, and not investors, in particular, this research examines whether CDP disclosures are consistent with the legitimacy theory as it has been applied to explaining environmental disclosures. Accordingly, firm would avoid being targeted by a shareholder resolution by only answering the questionnaire and not disclosing details such as emissions or how they account for them.

There has been extensive research evaluating the ability of legitimacy theory to explain environmental disclosures (see e.g., O'Donovan, 2002, Tilling & Tilt, 2010, Patten, 1992, 1991, Newson & Deegan, 2002, Milne & Patten, 2002, Magness, 2006, Cormier et al., 2004, Aerts & Cormier, 2009). Aerts & Cormier (2009) describe legitimacy theory as mainly being about perceptions. Legitimacy theory implies that organization will make disclosures to conform with community expectations (Deegan, 2002). With respect to environmental disclosure firm will use environmental disclosures to construct an image that it is trying to convey to the outside world (Neu et al., 1998). Applying legitimacy theory to environmental disclosures leads to the prediction that firms will disclose the minimum necessary to avoid scrutiny.

Reid & Toel (2009) argue that a firm is more likely to engage in practices consistent with a social movement if they want to deter the possibility of additional governmental regulation. Concepts and ideas from these three broad areas of literature are used as lenses to explore the political and institutional challenges of governing the financial reporting of emissions allowances and to assess whether there is anything particularly new or different about the treatment of carbon in financial statements. Environmental accounting provides a common framework for organizations to identify and account for past, present and future environmental costs in order to support management decision-making, control and public disclosure as per KPMG and UNEP (2006).

Kamat and Kamat (2012) analyses the current responsible practices in carbon accounting reporting by Indian NSE (National Stock Exchange) Nifty firms within their disclosed financial statements, to establish a baseline understanding of current their accounting practices to assess whether they are meaningful and transparent. The finding suggests that large number of firms in NSE Nifty demonstrates their concern for the environment and indicates their voluntary willingness to address the ill-effects of carbon emissions. The findings suggest that comparable information about the relative performance of firms in India cannot be discerned from carbon related disclosures.

REVIEW OF OPERATING MODELS: INTERNATIONAL GUIDELINES ON CARBON CREDIT ACCOUNTING:

Carbon footprint measures the total greenhouse gas emissions caused directly and indirectly by an individual, event, organization or product. Carbon Credit accounting does assess the carbon footprint to help organizations adopt strategies aimed at fighting climate change. Carbon Credits (CC) are certificates issued to countries that reduce their GHG (Green House gas) emission that causes global warming. Carbon credits are measured in units of Certified Emission Reductions (CER) / Removal Unit (RMU) / Emission Measurement Unit (EMU).

There is currently no authoritative accounting literature from either the Financial Accounting Standards Board (FASB) or the International Accounting Standards Board (IASB) on accounting for emission allowances, although both U.S. and international accounting standard setters have previously attempted to address the issue. In 2003, the Emerging Issues Task Force (EITF) contemplated emission accounting questions in EITF 03-14, but the item was removed from its agenda in short order. Some of the countries suggest recognition of carbon credits as government grant. However, this approach would be inappropriate as government grants are received by an organization on concessional or free of cost, wherein government would grant or allocate some concessional benefit to an entity. In case of CERs, it is not any benefit that is provided by government; it is an incentive provided to entities for conservation of the environment. To resolve accounting issues, International Accounting Standards Board had issued an interpretation on Emission Rights. In 2004 the International Financial Reporting Interpretations Committee (IFRIC) issued IFRIC 3 to address emission accounting issues, but the interpretation was withdrawn six months later in part due to criticism about potential income matching issues, continuing to debate on the appropriate treatment for CERs.

IFRIC 3 concluded that Rights (allowances) are intangible assets (IAS 38 Intangible assets)– Where allowances are issued by governments for less than fair value, the difference between fair value and the amount paid, if any, is a government grant – Provisions for emissions-related liabilities should be recorded (IAS 37 Provisions, contingent liabilities and contingent assets)

The reason for its withdrawal was the often undesirable impact its adoption had on the income statement, introducing both volatility for those balances re-valued based on the prevailing market prices of allowances, and a mismatch between movements in the asset and liability as recognised through the income statement. The withdrawal of IFRIC 3 did not however invalidate its application. Some firms across Europe have decided to continue to adopt it on the grounds that it remains compliant with existing IFRS. Other firms however have sought to adopt alternative approaches to address the shortcomings of IFRIC 3.

Despite the withdrawal of IFRIC 3 there remain a number of existing standards that provide authoritative guidance on relevant accounting on which firms must draw in forming their policies for carbon-related transactions (including IAS 2, 20, 37, 38 and 39).

The FASB and IASB are currently working on a joint project to address emissions accounting, but both boards have been discussing the project since 2007 and final guidance is not expected until 2011. In the meantime, there are numerous firms currently impacted by carbon emissions (and likely many more in the near future) that have developed their own accounting policies in the absence of explicit authoritative guidance.

CARBON CREDIT ACCOUNTING GUIDELINES IN INDIA:

The Institute of Chartered Accountants of India (ICAI) has issued an 'Exposure Draft of the Guidance Note on Accounting for Self-generated CERs' in 2009 enumerating suggested accounting principles for CERs generated by an entity. The exposure draft provides for accounting principles relating to recognition, measurement and disclosures of CERs generated by CDM. While undertaking a CDM project, an entity has to go through plenty of research and development, documentation and approvals process. Accounting treatment for CERs taking in consideration the exposure draft issued by ICAI is proposed in the following manner:

According to the ED, the generating entity should recognise CERs as asset only after receipt of communication for credit from United Nations Framework for Climate Change (UNFCCC) and provided it is probable that future benefits associated with CERs will flow to the entity and costs to generate CERs can be measured reliably. In case of CERs held with the CDM Executive Board, the note on accounting for carbon credits states that when the CERs are in the approval stage, these should be accounted for as per the provisions of AS 29 as Contingent Assets, and once approved, should be recorded in the books as an intangible asset. During the processes when CER are being generated and till the time the communication of about its verification is received from UNFCC, they are at best to be classified as Contingent Assets as per AS 29. Further, when such when the communication for recognition is received this assets meet the definition of the term 'Inventory' given under AS 2 (Valuation of Inventories) and, hence, are valued at lower cost and net realisable value.

Only the costs incurred generated by the entity for certification of CERs bring the CERs into existence and, therefore, only those costs (cost incurred for certification of CER, consultants fees and fixed cash payment made per unit of CER as a levy towards administrative charges) should be included in the cost of inventory. According to the prescribed criteria, all other costs are either not directly relevant in bringing the inventory to its present location and condition or they are incurred before CERs come into existence. Thus, those costs cannot be inventorised.

Expenses in the research and development phase are classified as pre-implementation cost of CDM and while undertaking the project for reduction in carbon emission, cost incurred on development should be accounted for as enumerated in AS 26 for Intangible assets.

And in cases where an entity may use a tangible asset / install devices to reduce emissions and generate CER, the cost in respect of such equipments/devices be treated as per the provisions of the Accounting Standard (AS 10 *Revised*) for Property, Plant and Equipment. Accordingly the depreciation of such assets / devices should not be included in the cost of the inventory of the principal product/s of the generating entity as they do not contribute to bringing the inventory of the principal product/s to their present location and condition, as the depreciation is incurred at the stage before CERs come into existence. Accordingly, depreciation of these assets / devices should be expensed in the statement of the profit and loss in the period to which it relates

With regards to CERs held for sale; in case an enterprise possess CER to be traded in the ordinary course of business, i.e., the enterprise would hold the asset as 'available for sale', the same should be accounted for as Inventory under provisions of AS 2. Further, intent of the entity would determine whether these credits should be recorded as intangible assets or as inventory.

EVALUATION OF GENERAL AWARENESS:

A self designed questionnaire containing a set of statements is administered on practicing chartered accountants in practice (practioneers) and educators in accounting profession teaching at degree level and higher. The participants were asked to mark their responses on a five point scale from 1 (Strongly Disagree, Disagree, Neutral, and Agree) to 5 (Strongly Agree). The questionnaire was distributed to practicing public accountants and accounting teachers in degree colleges. The survey was conducted from August 2011 through December 2011. Usable questionnaires were obtained from 196 respondents comprising of 97 practioneers and 99 educators.

Table 1. Test for Internal Consistency and Inter-rater Reliability of Sample Results

Factors (1)	Practicing Accountants		Educators	
	Cronbachs α (2)	ICC2 (3)	Cronbachs α (4)	ICC2 (5)
1. Awareness and Preparedness for Carbon Accounting & Reporting	0.69	0.78	0.72	0.79
2. Awareness about ICAI Guidance Note and Reporting Practices	0.70	0.86	0.68	0.77
3. Perceived Commercial Risks and Opportunities arising out of Carbon Emissions	0.72	0.80	0.740	0.81
4. Perceived Motives for Voluntary Accounting and Disclosures of Carbon Emissions	0.78	0.89	0.69	0.84
5. Perceived Reasons for Not Imparting (Formal / Informal) Instructions on Carbon Emission Accounting by Higher Education / Professional Institutions	0.68	0.88	0.77	0.85

Test for internal consistency assesses the consistency of results across items within a test and is typically a measure based on the correlations between different items on the same test (or the same subscale on a larger test). It measures whether several items that propose to measure the same general construct produce similar scores. Internal consistency is usually measured with Cronbach's alpha, a statistic calculated from the pair-wise correlations between items and ranges between zero and one. Internal consistency of the scales as measured by Cronbach's *alpha* is shown in the table 1 above. All scales show satisfactory internal consistency and employed to measure the reliability of our instrument used. Since the *alpha* in all cases is around / more than 0.7 it indicates the instrument used is acceptable, has high reliability and doesn't open up errors. Inter-rater reliability is used to assess the reliability of a trust mean score is measured by ICC(2) (*see column 3 and 5 in the same table*). Values of around 0.80 are considered acceptable, so all scales here demonstrate very good inter-rater reliability. In general, the profile of the respondents of this study and the validity instrument seems to mirror appropriateness and reasonability of the research. Hence, there is no reason to suspect that the findings of the present study are not generalizable to the overall population.

IS THE ACCOUNTING PROFESSION AWARE AND PREPARED FOR CC ACCOUNTING?

In order to foster the relevance of topic, awareness and preparedness to carbon accounting and disclosure norms the first stage of the analysis was to identify the perceptions from the practioneers and educators. Table 2 consists of the men responses on 11 statements defined in to a common scale. The results in this table are not so encouraging in terms of preparedness; provide converging feedback about the perceptions of the accountants and educators over understanding of different issues relating climate change, implications of carbons, and current initiatives about carbon accounting at the industry and academic institutional level.

It is indicated that the accounting practioneers and educators are well aware of the climate change crisis its ill effects and the urgency to make learning about the crisis as an essential part of education. Both the group respondents are unanimous that carbon emissions are significantly affecting the mankind and the incidences are common and increasing; with aggregate mean response value of 4.14 and 4.02 respectively, out of 5. The respondents also seem to have understood the importance teaching about carbon emission and the ill-gotten effects as a part of essential learning at higher degree and professional level education.

Even though there is heightened awareness about the issues of carbon emission among the sample of

educated masses which we verify, according to their perceptions no proper follow up seems to be coming from the industry, educational institutions and the regulators. The responses to statements bearing number 4, 5, 7 and 9 collectively indicate that as per the respondents; the industry is not currently geared up and taking adequate steps to account and disclose carbon emissions in India (aggregate mean of 3.35) and educational institutions and professional bodies are not doing enough to propagate and disseminate information about accounting and reporting for carbon emissions (aggregate mean of 3.33).

Table 2. Perceived Awareness and Preparedness for Carbon Emissions and Accounting

Statements	Practitioners Mean	Educators Mean	Aggregate Mean	Levene Statistics	P Value
1. The incidences of Carbon emissions are common and increasing	4.12	4.07	4.14	14.62	0.02*
2. I am aware about the ill-effects of Carbon Emissions on the man kind	4.01	3.99	4.02	13.11	0.02*
3.The instructions on Carbon emissions, ill-effects, its accounting and reporting should form a necessary part of learning at higher degree / professional level	4.03	3.98	3.99	11.02	0.02**
4. I feel that the Industry is currently geared up and taking adequate steps to account and disclose Carbon emissions in India	3.41	3.11	3.35	7.58	0.09***
5. I feel that educational institutions and professional bodies are doing enough to propagate and disseminate information about accounting and reporting for Carbon emissions	3.29	3.30	3.33	14.02	0.00**
6. I am aware that Carbon Emissions can be accounted for, and disclosed along with other financial disclosures made by the businesses	3.95	3.10	3.32	26.14	0.11
7. Currently enough efforts are directed by the regulators to enforce quantification and reduction Carbon Emissions	3.32	3.23	3.15	20.16	0.01*
8. I am aware about firms which account and disclose information about Carbon emissions and credits along with the their financial statements	3.77	3.11	3.14	14.18	0.12

9. Currently enough instructions are imparted in institutions of higher learning to make students aware and sensitive about Carbon emissions	3.03	3.01	3.00	3.75	0.00*
10. I had formal exposure to accounting and reporting aspects for Carbons at my higher/professional education level	2.98	2.01	2.97	13.12	0.02**
11. Without a drastic change in the present situation, I am Optimistic about the future of Carbon Emission Accounting and Reporting India	2.61	2.53	2.46	4.32	0.02**

Source: Primary Research

Similar is the expressed dissatisfaction that currently not enough efforts are directed by the regulators to enforce quantification and reduction carbon emissions (aggregate mean of 3.15), and that enough instructions are not being imparted in institutions of higher learning to make students aware and sensitive about carbon emissions (aggregate mean of 3.00). The responses to all the statements gathered from both the groups are converging and the Levene’s test indicate significance at than ten percent level or less. Thus it can be safely deduced that the forthcoming actions of the government, educational bodies and the corporate to address the carbon emission problems seems to have not been effective. The further response of both the groups is that they had no formal orientation in carbon accounting during their higher and professional education levels in the past nor they perceive that current students receive enough orientation presently.

On shocking and significant finding is that the accounting educators demonstrate relatively and significantly very little understanding of the facts that the carbon emissions can be accounted for, and disclosed along with other financial disclosures made by the businesses and also awareness about firms which account and disclose information about carbon emissions and credits along with the financial statements in India. The mean responses obtained in respect of this former statement (no. 6) are 3.10 compared to 3.95 of practioneers and in the later statement (no 8) the mean response is 3.11 as to 3.77 of practioneers. The tone of the respondents is pessimistic about the future. No significant differences are noted among the responses among both groups of respondents that without a change in the present situation, they perceive no optimism about carbon emission accounting and reporting in the future unless drastic change in the present situation. Given the disappointing response about the educator’s preparedness to address the issues of carbon emissions at an educational level it is obvious that the drastic change is needed at their level itself.

The overall results from responses suggest an encouraging level of awareness about carbon accounting but pathetic state of affairs with respect to preparedness for the change from accounting profession, more particularly from accounting educators at the present.

ARE THE ACCOUNTING PROFESSIONALS AWARE OF RECENT DISCLOSURE REGULATIONS?

The Institute of Chartered Accountants of India (ICAI) issued a Guidance Note on CC Accounting in 2009 increasing number of firms in India are resorting to disclosures relation carbon emissions and self generated carbon credits. This part of the survey measures the awareness of the respondents with respect to the note issued by the Institute and the practices of such accounting and reporting firms.

The responses marked by the practioneers and the educators do not converge in 3 out of the 4 cases as reported in table 3. The striking result we observe is that the accounting educators have lower demonstrated knowledge and awareness about the measures adopted by the Institute ion term of

coming up with the guidance note on the subject and the initiations by the corporate on this account. There is satisfactory aggregate agreement that the ICAI is doing enough to propagate information about the carbon accounting and reporting standards I they have gone through the carbon accounting and reporting practices of some company (*ies*) in their financial statements in the recent past. It is maintained that in spite of acceptable awareness of ICAI Guidance note on the subject very few professionals have taken time to go through the guidance note on the subject. The results also corroborate our findings from the earlier table that the accounting educators demonstrate very unsatisfactory understanding on the latest developments in the subject of carbon accounting and reporting relative to the professionals.

Table 3. Awareness about ICAI Guidance Note and Corporate Practices

Statements	Practitioners Mean	Educators Mean	Aggregate Mean	Levene Statistics	P Value
1. I have gone through the Carbon accounting and reporting practices of some company (<i>ies</i>) in their financial statements in the recent past	3.71	3.07	3.50	9.20	0.09***
2. I am aware about the Guidance Note issued by ICAI on Carbon Emission Accounting	3.68	2.48	3.17	26.62	0.19
2. In my opinion the ICAI is doing enough to propagate information about the Carbon Accounting and Reporting standards	3.82	3.01	3.04	3.36	0.12
4. I have gone through Guidance Note issued by ICAI on Carbon Emission Accounting	3.17	2.10	3.01	27.30	0.11

Source: Primary Research

WHAT ARE THE PERCEIVED RISKS AND OPPORTUNITIES OF CARBON EMISSIONS?

Table 4 attempts to measure the perceptions of accounting practitioners and educators on commercial risks and opportunities to the organisation arising out of carbon emission.

Table 4. Types of Perceived Commercial Risks and Opportunities arising out of Carbon Emissions to Organisations

Statements	Practitioners Mean	Educators Mean	Aggregate Mean	Levene Statistics	P Value
Perceived Commercial Risks					
1. Strict Regulations and Policy	4.00	4.06	4.11	12.62	0.02**
2. Customer / Market / Reputation loss to Firms	4.02	4.04	4.04	18.63	0.00*
3. Input shortages and Increase in Input and Maintenance costs	3.83	3.86	3.89	12.82	0.01**
4. Physical and Operational damages	3.76	3.65	3.74	11.70	0.02**
5. Loss of Output	3.15	3.13	3.15	9.00	0.04***
Perceived Commercial Opportunities					
6. Better environmental friendly products, and increased markets	4.11	4.12	4.17	0.01*	0.01*
7. Larger R&D	4.13	4.22	4.14	24.36	0.06*
8. Growth opportunities for Insurance, banks and fund management sectors	3.90	3.12	3.78	16.88	0.14
9. Energy and Material Efficiency	3.67	3.01	3.23	17.42	0.11

Source: Primary Research

The responses received from both the groups of respondents are converging and not significant

differences are observed in 8 of the 9 cases. The major risks perceived by the accounting fraternity comprising of educators and practitioners are regulatory, loss of business opportunities in terms of market and reputation loss and about input shortages and increases in their costs. Better environmental friendly products, advantages of more resource allocations to research and development and high growth opportunities for the financial sectors are some of the commonly perceived advantages arising out of carbon emissions to the organisations.

WHY CORPORATIONS VOLUNTARY CHOOSE TO ACCOUNT AND DISCLOSE CARBON EMISSIONS?

The perceived motive behind large number of corporations following carbon accounting and disclosures is self-driven and self-directed rather than as a means of statutory compliance and enforcing from external stake holders.

Table 5. Perceived Motives for Voluntary Accounting and Disclosures of Carbon Emissions by Organisations

Statements	Practitioners Mean	Educators Mean	Aggregate Mean	Levene Statistics	P Value
1. Part of Business Strategy	4.01	4.08	4.19	16.26	0.01*
2. Voluntarily reduce emissions and environmental cost impacts (CSR Initiative)	4.13	4.16	4.17	15.37	0.01*
3. Assess and minimise risks	4.12	4.12	4.14	24.36	0.00*
4. Corporate image / respectability	3.81	3.97	3.80	14.14	0.01*
5. Green marketing	3.01	3.87	3.32	14.11	0.13
6. Explore cost saving opportunities	3.00	3.79	3.12	5.38	0.11
7. Compliance requirements	2.98	3.01	3.00	22.61	0.00*
8. External Stakeholder driven initiative	3.04	3.96	2.67	14.70	0.12

Source: Primary Research

The respondents feel that their corporate primarily use CC accounting as a part of their persuasion of business strategy to gain competitive advantage over others and an voluntary measure to reduce emissions as a part of their CSR initiatives. As firms move from an oppositional political response toward a matured preparation for a carbon constrained future, they display a wide range of strategies as per Kolk and Pinkse (2005). Some businesses see carbon accounting action on climate change to minimise their risks and some as reputation issue by disclosing a better image. The responses converge in 5 out of the 8 cases and are highly significant. This is also true for the US. It is reported that US-based firms were particularly active in challenging climate science, pointing to the potentially high economic costs of greenhouse gas controls, and lobbying government at various levels as per Leggett (2000) and Levy and Egan (2003).

WHAT AILS EDUCATIONAL INSTITUTIONS IN TEACHING CARBON ACCOUNTING?

Given that very few corporations are voluntary accounting and disclosing the carbon emission, the divergent practices currently followed by them and in the absence of relevant regulatory framework in this regard, the accounting professionals perceive the ability to teach carbon accounting. Lack of educator’s skill and competence, not knowing from where to source information, and the uncertainty regarding a definite policy on the subject are perceived to the prime inhibiting factors in imparting necessary classroom instructions on the subject.

Table 6. Perceived Reasons for Not Imparting (Formal / Informal)

Instructions on Carbon Emission Accounting by Higher Education / Professional Institutions

Statements	Practitioners Mean	Educators Mean	Aggregate Mean	Levene Statistics	P Value
Lack of skills and technical knowledge on how to account and disclose carbon emissions	4.01	4.08	4.19	16.26	0.01*
Not knowing where to source appropriate advice, material and expertise	4.13	4.16	4.17	15.37	0.01*
Uncertainty regarding future government policy and regulation	4.12	4.12	4.14	24.36	0.00*
Not a part of essential syllabus	4.00	4.02	4.02	13.55	0.01*
Unawareness of the development in this context	3.53	3.77	3.75	14.90	0.04**
Lack of time and resources	3.96	3.60	3.62	7.50	0.12
Lack of demand from the Industry	3.33	3.42	3.40	3.28	0.03**
Lack of support from colleagues and / or management	2.34	3.17	3.30	4.22	0.16

Source: Primary Research

CONCERNS TO IMPLEMENTATION OF CARBON ACCOUNTING & DISCLOSURES:

Generation and trading in carbon credits in India has gained a lot of momentum, but there remains lot of ambiguity for the accounting treatment questions on accounting for expenditure on the CDM projects, accounting for self-generated CERs, accounting for sale consideration and so on. This could be resolved in the prevailing accounting standards as there are no separate accounting standards prescribed for accounting, measurement and disclosures of carbon credits. There are further questions on CERs cost at which CERs be recorded in the books, as huge amount of expenditure is incurred in terms of initializing the project, emission of reduction, approval and acceptance of CERs, etc.

The treatment prescribed in the ED appears to be inconsistent with the existing Indian GAAP literature in more than one regard. The ED requirement to recognise CERs as asset only when these are credited by UNFCCC in a manner to be unconditionally available is contrary to the principles currently being followed for recognition of an asset. In most cases, recognition of assets is based on criteria of probability/reasonable assurance as against absolute certainty prescribed in the ED. For example, both under AS 9 (Revenue Recognition) and AS 12 (Accounting for Government Grants), recognition of income is based on the criteria of reasonable assurance.

Further the cost incurred on receiving CER is measured with certainty at the time of incurring those expenses whereas revenue recognition will happen only at the time of sale of CERs. The ED results in significant cost and revenue mismatch in the financial statements. This is because entities would need to expense most of their costs as soon as incurred (with an insignificant amount being capitalised as inventory), but will recognise revenue arising from CERs only when these are actually sold.

The ED is also inconsistent with an Expert Advisory Committee's (EAC's) opinion on export incentives. According to the EAC, DEPB credit should be recognised in the year in which the export was made, without waiting for its actual credit in the subsequent year, provided there are no insignificant uncertainties of ultimate collection. The EAC opinion is based on the application of existing accounting principles, including definition of the term 'asset' given in the framework, which is based on the probability theory.

The ED clearly is in conflict with the existing requirement and practices under both Indian GAAP and IFRS and is contrary to the definition of an asset in the Framework.

As India is adopting IFRS and the guidance in these areas are being developed under IFRS, issuing India-specific guidance is duplicating the effort and creating more differences in how the two GAAPs are applied, which will have to be then taken care of in 2011, which is the transition date for adopting IFRS.

The ICAI's exposure draft is in conflict with the existing requirement and practices under both Indian GAAP and IFRS and is contrary to the definition of an asset in the UN framework. Under the International Financial Reporting Standards (IFRS), the International Accounting Standards Board (IASB) had issued an interpretation IFRIC 3 (Emission Rights), which was withdrawn in June 2005. Thus, the IASB is still debating on an appropriate treatment for Carbon Emission Reductions (CERs).

A number of Indian firms generate carbon credit under the CDM. The amount involved is material enough to the overall viability of a project. Under IFRS, most entities generating CERs treat the same as government grant covered under IAS 20 (Accounting for Government Grants and Disclosure of Government Assistance). This is because an international agency grants the same. Accordingly, based on IAS 20 requirements, a generating entity recognises CERs as asset once there is a reasonable assurance that it will comply with conditions attached and CERs will be received. IAS 20 gives an option to measure such grants either at fair value or nominal value. Most entities measure the CERs at fair value to ensure appropriate matching with the costs incurred. They recognise this in the income statement in the same period as the related cost which the grant is intended to compensate. The corresponding debit will be to intangible assets in accordance with IAS 38 (Intangible Assets).

No guidance is currently available under Indian GAAP (Generally Accepted Accounting Principles). Consequently, various practices exist (a) income from sale of CERs is recognised upon execution of a firm sale contract for the eligible credits, as prior to that there is no certainty of the amount to be realised; (b) income from CERs is recognised at estimated realisable value on their confirmation by the authorities concerned; and (c) income from CER is recognised on an entitlement basis based on reasonable certainty after making adjustments for expected deductions.

Clearly, the accounting recommended by the ICAI is very different from existing practices under Indian GAAP and, hence, every company that has significant revenue from carbon credits will have to consider the impact of the ED carefully.

SUMMARY AND SUGGESTIONS:

Carbon credits are treated as government grants, accounting for R& D expenses incurred on undertaking the CDM project etc. Though several CDM projects are being undertaken in India, but there remains a lot of ambiguity with regard to legal, regulatory, accounting and taxation issues. One of the most important factors is consistency and methods must be adopted so that reported emissions may be compared over time. Fundamental to the adoption of these accounting practices is the need to be transparent and coherent and to leave a clear audit trail in all respects.

This paper examines responses from the industry and academia to climate change in relation to the development of disclosure. A major challenge to reporting community at large in India is to improve comparability among environmental reporting. We recommend that accounting standard setters issue clear guidance on emission allowance accounting as soon as is practical from the Exposure Draft in 2009. We recommend that corporate in India work more with each other, and with auditors and other technical accounting experts, to try to harmonise accounting practices in the run up to the issue of final guidance by regulators. We also recommend that corporatists, practitioners and educators engage in information search for guidance from IASB and FASB webpage to keep abreast of new developments in the debate on emissions trading accounting. This study reveals that sustainable reporting in India has overcome initial disclosure challenges, by strongly suggesting that continued and improved sustainable reporting is not only desirable but highly achievable. Future research in this area could probably target on the survey of firms on awareness of standards/ guidance, the practical / operational difficulties faced by them and on suggestion for further regulations.

REFERENCES:

- [1] Bebbington, J. & Larrinaga-Gonzalez, C. (2008), 'Carbon Trading: Accounting and Reporting Issues', *European Accounting Review*, 17(4), 697-717.
- [2] Bolivar M. P. R. & Garcia B. S. (2003), 'The Corporate Environmental Disclosures on the Internet: The Case of IBEX 35 Spanish Firms', *International Journal of Accounting, Auditing and Performance Evaluation*, 3:15.
- [3] Deegan, C. Rankin, M. & Tobin. (2002). 'An Examination of the Corporate Social and Environmental Disclosures of BHP from 1983-1997: A Test of the Legitimacy Theory', *Accounting, Auditing & Accountability Journal*, 15(3), 312-343.
- [4] Deloitte (2007), Accounting for Emission Rights – Energy & Resources Briefing Paper, New York: Deloitte.
- [5] Deloitte (2009), New Challenges in Carbon Accounting: An Overview, Deloitte China Research and Insight Centre, Beijing.
- [6] EC Directive 2009/29/EC (2009), Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading Scheme of the Community, EUR-LEX – Official Journal of the European Union, accessed 15 November 2011.
- [7] Ernst and Young (2010), Carbon Market Readiness: Accounting, Compliance, Reporting and Tax Considerations under State and National Carbon Emissions Programs, New York: Ernst and Young.
- [8] FASB (2010), FASB Project Update: Emissions Trading Schemes. www.fasb.org
- [9] Gray, R. (1993), Accounting for the Environment, Paul Chapman Publishing Ltd: London
- [10] IASB (2010), Emissions Trading Schemes, www.ifrs.org/Current+Projects/IASB+Projects/
- [11] Isenmann R. (2004), 'Internet-based Sustainability Reporting', *International Journal of Environment and Sustainable Development*, 3(2): 145–167.
- [12] Johnston, D. M., Sefick, S. E. and Soderstrom, N. (2008), 'The Value Relevance of Greenhouse Gas Emissions Allowances: An Exploratory Study in the Related United States SO₂ Market', *European Accounting Review*, 17 (4): 747–64.
- [13] KPMG, United Nations Environment Programme (UNEP). (2006), Carrots and Sticks for Starters: Current Trends and Approaches in Voluntary and Mandatory Standards for Sustainability Reporting. KPMG: Parktown.
- [14] Leggett, J. (2000) *The Carbon War: Dispatches from the End of the Oil Century* (London: Penguin Books.
- [15] Levy, D. L. and Egan, D. (2003) A neo-Gramscian approach to corporate political strategy: Conflict and accommodation in the climate change negotiations, *Journal of Management Studies*, 40(4), pp. 803-830.
- [16] Lohmann, L. (2009), 'Toward a Different Debate in Environmental Accounting: The Cases of Carbon and Cost-benefit', *Accounting, Organizations and Society*, 34 (3): 499–534.
- [17] Milne, M. & Patten, D. (2002). 'Securing Organizational Legitimacy: An Experimental Decision Case Examining the Impact of Environmental Disclosures', *Accounting, Auditing & Accountability Journal*, 15(3), 372-405.
- [18] O'Donovan, G. (2002). 'Environmental Disclosures in the Annual Report: Extending the Applicability and Predictive Power of Legitimacy Theory', *Accounting, Auditing & Accountability Journal*, 15(3), 344-371.
