

GLOBAL WARMING – ACCOUNTING FOR EMISSIONS AND ISSUES THEREON

Dr. Jayalakshmy Ramachandran, Mr. Ramaiyer Subramanian***

Abstract

It is seen that companies across the countries lack a proper system for accounting and valuation of emissions because the government bodies and standard setters have not been in a position to arrive at a consensus on an acceptable treatment such that the matching concept convention is not violated. The current systems adopted in some countries are seen to cause mismatch in accounting and reporting. Emissions and the resultant effect on climatic changes are persistent problems as of date. While the role of the government is sought to be enhanced to include addressing issues concerning global warming, it is indeed challenging for the auditors as well since statutes do not require any such reports and the auditors might lack the expertise to provide such reports while adhering to 'true and fair view' reporting. With cooperation of all nations, emissions can be controlled to a certain extent provided political consensus is arrived at among the countries. The accounting and the auditing profession should equip itself with proper accounting framework and guidelines to address environment related issues without marring 'true and fair view' of financial statements.

Keywords: Environment, Emissions, Global, Warming, Valuation, Accounting

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** Lecturer attached to Monash University. Her research interests are in the areas of Corporate governance, Environmental reporting, Financial reporting and social responsibility. She has published articles in a number of well recognized journals including The Managerial Accounting Journal.*

*Monash University
Jalan Lagoon Selatan
46150 Bandar Sunway
Selangor Darul Ehsan
Tel: +(603)55144935
Fax: +(603)55146194
Mail: jayalakshmy@buseco.monash.edu.my*

*** Corresponding Author*

Lecturer attached to Multimedia University. His research interests are in the areas of corporate and internet accounting and reporting, Environmental accounting and reporting and Tax. He has published number of articles in well recognized journal and presented papers at international conferences.

*Multimedia University
Jalan Ayer Keroh
75450, Bukit Beruang
Melaka
Tel: +(606)2523968
Fax: +(606)2318869
Mail: ramaiyer.subramaniam@mmu.edu.my*

1. Introduction

Environmental issues are given high priority in the modern world, due to emission generated by public and private sectors, both in developed and developing countries. Environmental emissions are substances that are released into the air as waste. Many times, these emissions are the result of combustion, manufacturing, and natural waste, in addition to other processes. One of the reasons for global warming is the high growth rate of emissions

while some other causes could be exploration of natural resources, industrialization and open burning. Decades have passed by since the effect of emissions on environment; health and economy have been studied closely by various authorities (Fornaro et. al., 2009). In the last two decades there has been growing concerns about global warming and climate change (World Bank, 2009). In the U.S., tradable rights/ permits are proposed and adopted as market mechanisms to address ozone, depleting chemicals, nitrogen oxide and sulfur

emissions, urban land development, exploring natural resources and heavy polluting vehicles and industries (Stavins, 2000, as cited by Bonnie, 2000). Demand from greenhouse supporters highlighted the adverse impact of climate change and its effect on global environment.

In order to restrict global warming within a limit of 2 °C above the pre-industrial level at 50% probability the concentration of Green House Gases (GHGs) in the atmosphere must be stabilized at or below 450 ppm CO₂e. In order to meet these target world wide cumulative emissions of GHGs must be limited to approximately 1700 Billion tCO₂e (ton of carbon dioxide equivalent) for the period 2000 to 2050. Out of the total of 1700 Billion tCO₂e, 330 Billion tCO₂e has already been emitted till 2007. The adverse impacts of businesses on the natural environment relating to global warming, depletion of the ozone layer, indiscriminate land clearing, destruction of the habitat, landslides and disposal of hazardous waste, have led to considerable public concern and outcry on the accountability of businesses to multiple groups of stakeholders

These concerns have resulted in the use of tradable permits as a key component in global control of greenhouse gases (Bonnie, 2000). The government and the business sectors are deliberating on the issues involved and are trying to incorporate precautionary measures to reduce the effect of emissions in their policy making decisions. The Lieberman Warner Climate Security Act of 2008 failed to get the support of U.S Senate (Elfrink et al., 2009). In this bill, if passed, it would have created a program to reduce greenhouse gas (GHG) emissions by lowering the emission through a set of system called “cap-and-trade”. Greenhouse gases generally mean gases in the atmosphere that absorb and emit radiation which includes water vapor, carbon dioxide, nitrous oxide and others. Greenhouse gas concentration changes or increases due to human activities which affects global warming. All countries wanted to reduce the carbon emission but only few countries have initiated regulation to reduce the emission. Mainly carbon emission comes from man made activities such as open burning deforestation, agriculture, manufacturing and exploration of natural sources. Business houses should consider the importance of emissions in the natural atmosphere, thus resulting in the ‘cap and trade system’.

The objective of ‘cap-and-trade’ system is to reduce the emission. The cap and trade referred to the quantity of emission expected to be produced by the companies and if they produce less than the cap (level) they have surplus credits for transfer. If the outcome is more than the cap the company is allowed to buy credits from other businesses that is covered under the cap trade. Therefore the participants will have a set of target and specify the

cap level allowance, beyond which the participant is expected to pay a charge or buy the emission rights in the market. The surplus or deficits may also be carried over to next period. The scheme is for a specified compliance period. It is interesting to note that the scheme also provides that ‘the rights’ can be transferred or it can be traded.

Industrialization has brought about economic benefits to the nation but it too has contributed air, and water pollution. The act of emitting or discharging chemical waste into natural atmosphere by industries pollutes the global environment. Many industries including, chemical, power plants, coal, and iron and steel, transport sector, cement, glass, lime, brick, ceramics, and pulp and paper installations along with other industries pollute the nature. This implies that the government and non-government organizations, investors, and stakeholders have a role play in bringing down the emission. A vast majority of existing environmental reports are unable to satisfy all of the information requirements of the target group such as public for which they are written (Azzone et. al., 1997). This article investigates and analyzes how to recognize, measure and account for the emission rights and its implication on taxation.

2. Literature review

It was highlighted by Davis and Caldeira (2010) that the primary cause of global warming can be allotted to carbon emissions caused by the burning of fossil fuel. The authors concluded that sharing responsibility for emissions among producers and consumers could facilitate international agreement on global climate policy that is now hindered by concerns over the regional and historical inequity of emissions. Even though various programs are initiated and incentives as well as allowances are given to corporate entities to reduce the emissions, market based programs raise new accounting, tax, and liability issues which were not seen earlier (Hopp, 1994). Hopp also emphasized that economic incentives come in many forms and they include carbon tax, garbage levies, earth fill tax as well as environmental subsidies and grants. The indirect incentives and the pollution credits or allowances are traded as a commodity in kind for financial compensation.

Emission trading is an administrative approach used to control pollution by providing economic incentives for achieving reduction in the emissions of pollution. A cap and trade system allows emitters to either reduce pollution or continue to pollute and meet the consequences (Elfrink, et.al. 2009). The nature of the pollutant plays a very important role when policy makers decide which framework should be used to control pollution. The U. S Congress proposed a bill to

reduce greenhouse gas emissions and create a market based mechanism known as cap and trade that would encourage moves toward low emission technologies and practices (King and Rachael, 2009). The Kyoto Protocol is the original international regulatory response to global warming (Ratnatunga and Balachandran, 2009), under which more than 150 countries agreed to strive to decrease carbon dioxide emissions. It suggested different schemes for reducing the emission by industrial countries.

International Emission Trading (IET) scheme is one among them. Under this scheme countries are allowed to trade in the international carbon credit market. Cap-and-trade systems are currently used in many countries and were successfully employed in the US (Elfrink et al., 2009). The authors highlighted some of the financial accounting issues such as obligation, recognition, measurement and valuation. Pricewaterhouse Coopers and the International Emissions Trading Association, in their survey in 2007 found that there were six major treatment differences among 26 firms which may affect the comparability and usefulness of financial statements. Studies conducted by Repetto (2005) indicate that the stakeholders are not satisfied with the disclosures that the companies make with respect to environmental issues. They also claimed that the enforcement by the Securities and Exchange Commission with respect to environmentally sensitive companies requiring disclosures are not strong.

It was noted by Nile and Schwarze (2001) that it was important to account for carbon fluxes for wood products. While wood products and bio-energy today only represent a small fraction of worldwide carbon fluxes, we cannot be certain that tomorrow will be the same in other industries like agriculture and deforestation. The authors also suggested that accounting for carbon in wood products can help generate investments in truly sustainable forestry. Thus developing proper accounting for carbon in the whole range of economic activities could benefit one and all.

3. Accounting treatment

Accounting Bodies are concerned with the development activities which affect global warming. Accordingly International Accounting Standards Board (IASB) in 2004 issued International Financial Reporting Interpretation Committee (IFRIC) 3 on **Emission Rights** which highlighted the accounting for emission rights that arise from cap and trade emissions. This was brought about to cater to the launch of the European Union Emission Trading Scheme. The Interpretation specified that:

- rights (allowances) are intangible assets that should be recognised in the financial statements in accordance with International Accounting Standards (IAS) 38 Intangible Assets.
- when allowances are issued to a participant by government (or government agency) for less than their fair value, the difference between the amount paid (if any) and their fair value is a government grant that is accounted for in accordance IAS 20 Accounting for Government Grants and Disclosure of Government Assistance.
- as a participant produces emissions, it recognises a provision for its obligation to deliver allowances in accordance with IAS 37 Provisions, Contingent Liabilities and Contingent Assets. This provision is normally measured at the market value of the allowances needed to settle it.

However it was withdrawn in the year 2005 since it created unsatisfactory measurement and reporting mismatches, thereby becoming unhelpful to both preparers and the users of financial reporting. The Accounting Board is still considering the modification of IAS 38 and IAS 20 to arrive at the correct measurements to avoid disparities.

Similarly the US GAAP also endowed guidance on Accounting for Emission through their 'cap and trade' program which was discussed by Emerging Issues Task Force (EITF). However the discussion was immediately removed from their agenda following the accounting anomalies that were perceived to distort the assets, liabilities and operating income. Further releases on this issue were expected between 2009 and 2010. The decision on the same is yet to be established.

Despite these issues, companies have still developed and disclosed information for cap and trade scheme under different approaches.

Approaches used to account for cap and trade emission rights schemes

It is seen that companies have practiced 'net liability' approach method and 'government grants' method. Under the 'Net liability method', a provision for liability is required under International Accounting Standard-37 when three conditions are fulfilled. These conditions are (a) the entity has a present obligation as a result of past event; (b) it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and (c) a reliable estimate can be made of the amount. In the case of emission, the obligation is a result of past event which is the emission itself. Therefore a provision is to be made when the reporting entity makes excess emission than the prescribed limit.

In other words an entity should not recognize a full provision for an expected shortfall immediately when the expectation arises. The reason being that the outflow of cash occurs only

when the entity's emission exceed the emission rights that it holds. In case the cover period exceeds one year, say a three year period, it is then possible to carry over emission rights from one year to the next year or use the net liability approach for the entire period of three years. Anyhow, measurement of deficits should be based on annual allocation of emission rights or an allocation that covers the entire period of three years. It is opined that under annual allocation scheme the deficit measured rights can not be carried over to next period and the entity should follow the method employed consistently.

The aspect that should be looked into is the measurement of liability that needs to be provided at the year-end. When the entity receives an allowance 'cap' which exceeds the cap, a provision is obligatory at the end of the year based on the market price of the allowance. At the same time, the entity's purchased emission rights which is lesser than the year-end market value and accounted for as an intangible asset at cost in its balance sheet, may face a question as to the impact of purchased emission rights on the application of 'net liability' approach at the balance sheet date. To address this issue, a couple of views can be considered. Some authors argue that the provision can be measured at the cost of settling the obligation and that the cost to the entity is the current carrying value of the emission rights held. Others argue it should be re-measured to indicate the fair value of the emission rights at the year end. In the author's opinion both methods can be considered but preference is given to fair value method.

As for the government grant method, the entity is to recognize the emission rights granted by the government, if any, initially at their fair value. This will be recognized in accordance with IAS-20. In finding out the fair value to recognize the emission rights as an intangible asset the entity should take into consideration the guidelines in IAS-38 'Intangible assets'. When an entity acquires another entity, the acquired emission rights in a business combination would be recognized under fair value method. As required by the fair value method, the entity should constantly review its fair value of emission rights, which it had accounted for at every balance sheet date. If the asset does not have any future economic benefits then the asset should be de-recognized or fully amortized. If the fair value is lower than the carrying value as shown, the loss should be recognized.

Features of cap and trade emission rights scheme (E&Y, 2008)

A cap and trade emission rights scheme has the following features:

- a) The government or its agencies set a target or *the cap* for the participant to reduce the emission and consented to allowances for *below or above* the cap;
- b) the scheme may cover a defined period of compliance;
- c) the participant is free to transfer the allowances;
- d) if the emission produced exceeded the cap at the end of compliance period the entity may buy additional rights from the market and incur penalty;
- e) it is allowed to carry over the surpluses and deficits for future period.

Until the International Accounting Standards Board (IASB) or the International Financial Reporting Issues Committee (IFRIC) releases definite guidelines on accounting for cap and trade on emission rights, IFRIC 3 'Emission rights' which was withdrawn in 2005 (E&Y,2008) can be considered for arriving at a consensus. The basic question viewed by IFRIC 3 was whether 'cap and trade' give rise to a net asset or liability. E&Y (2008) advocated that accounting for emission rights by participants in cap and trade schemes can apply either IFRIC 3 or opt to develop its own accounting policy for cap and trade schemes based on the International Accounting Standards (IAS) 1 'Presentation of financial statements and IAS 8 'Accounting policies, changes in accounting estimates and errors'. This may amplify the differences in approach from an accounting perspective.

Accounting methods adopted in different countries, so far:

In France:

The allowances must be accounted for as intangible assets and recognized at its fair value while it does not affect the taxability. An entity is expected to recognize its obligation, for recording excess emission, in its financial statements. Under French regulations sale of emission allowances and reduction units are exempt from VAT (Machael and Machael, 2010).

In Germany:

The allowances are treated as intangible assets and are reported as current assets in the balance sheet of the companies. The allowance granted free of charges is recognized at nil cost. The incidental cost would be treated as business expenses. German companies are allowed to purchase additional allowances to cover up the gap between the entitled allowance and actual emission on carbon dioxide units. The acquisition cost of allowances is allowed to be written off. Any excess allowances or unused

allowance can be transferred, in which case the profit would be subject to tax.

In Spain:

The allowances are treated as intangible assets in accordance with Spanish GAAP. The grant is treated as a deferred income and recognized at its fair value in the balance sheet. At the end of the emission period the obligation to surrender the allowances to the state arises. If the entity did not have enough allowance to reach the target allowance then it has to make a provision at the market price to satisfy the shortfall. Any transfer of allowance to a third party for a price attracts tax for the differential amount between the sale price and asset value of the allowances.

In Australia

Though the government of Australia had announced a scheme called 'Carbon Pollution Reductions Scheme' (CPRS), which will apply from July 2010, to hold a permit for every tonne of carbon di oxide equivalent emitted, the accounting bodies have failed to regulate the way in which the emissions will be accounted for (Deloitte, 2008).

In New Zealand

The government intended to completely adopt the Emission Trading Scheme by 2013 for liquid fuels, coal and gas. Forestry was the first to be introduced into the scheme in 2008. However they were charged with dubious accounting rules by conservation groups at the world climate summit in Denmark (William, 2009). The press release also revealed other countries such as Australia, Austria, Canada, Estonia, Sweden, Finland, Britain, Germany and Japan also proposing to "hide" the largest amount of emissions. It was noted that New Zealand would benefit the most from the dubious accounting.

Major issues and concerns in accounting for emissions

Valuation:

The allowances can be marketable, only if it has some value. The accounting standards expect that an asset should be recorded at its fair value. If the allowance is treated as an intangible asset, then it is subjected to impairment loss. However, to test the allowances for impairment at each balance sheet date and further for an entity to recognize amortization of the allowances might not be easy. This impairment is in addition to any other liability to be recognized for emissions made during that period. On every balance sheet date, the entity

should find out the fair value of allowances. Fair value is the recoverable amount. Recoverable amount would be either the sale value less cost to sell or 'value in use' whichever is higher. But a doubt may arise whether 'value in use' can be ascertained since allowances cannot be used in the business to generate cash. Therefore in the opinion of the authors sale value less cost to sell can be ascertained. In accordance with IAS -38, clause 79 amortization of intangible asset commences when the asset is available for use. Since allowance is not available for use, no amortization can be claimed.

Taxation issues:

The Tax Policy Briefing Book (2008) had defined 'green taxes' or 'environmental taxes' or 'pollution taxes' as excise taxes on environmental pollutants or on goods whose use produces such pollutants. The book also differentiated the tax policy between United States and Europe. In United States there are virtually no green taxes although 'gas guzzler' tax is imposed at the federal level on new cars which exceed fuel efficiency standards, ozone depleting substances and on fertilizers and pesticides used in agriculture. While it is felt that higher taxes would address both pollution and other costs, implementation of such taxes is yet to take effect.

In the Europe number of examples of green taxes could be witnessed like the 'pure environmental tax', 'direct tax', 'indirect taxes', 'direct emission taxes', 'trade permit schemes', 'subsidies' and 'excise levy' (The Tax briefing Book, 2008). However a consensus as to the best tax scheme is yet to be arrived at. The best tax scheme as per the book is that which can reduce the pollution by the firms and household at the lowest cost. The proposed green tax that had gained favor in Europe was carbon tax, which would impose excise levy on the carbon-based content of fossil fuels as a means of reducing greenhouse gas emissions that contribute to global warming.

World organizations such as World Bank, International Monetary Funds and Organization for Economic Cooperation and Development, favor a price on carbon. A carbon price would provide economic incentives to invest and deploy *renewable energy* technology that does not emit carbon to our atmosphere. (Gurria, 2010). Such energy efficiency mechanism and price mechanism would also act as disincentive for electricity generators to use relatively more polluting coal, gas and oil fired stations (Global greenhouse warming.com). Most of the countries are now considering carbon taxes and allowances on emission and may support any mechanism that would bring down or reducing carbon emission effectively. At present companies in the UK are subject to the Climate Change Levy (CCL), a tax on energy usage intended to encourage greater

energy efficiency and lower emissions by increasing the price of energy (MarketWatch, 2010). On May 24, 2010, in Northeast BondWatch, it was reported that Maryland Montgomery County municipality has approved a carbon dioxide tax and will affect only one business corporation which is Mirant Corp. Dickerson coal fired plant which comes under country municipal jurisdiction (www.bondbuyer.com).

Accounting Issues

Accounting for emission rights brings the following questions in issue:

- a) Does an emission rights scheme give rise to (i) a net asset or liability or (ii) an asset (for allowances held) and a liability, deferred income and/or income?
- b) If a separate asset is recognized, what must be the nature of that asset?
- c) If a separate liability, deferred income and/or income is recognized, what is the nature of that item and how is it measured?
- d) When should a potential penalty, which will be incurred if a participant fails to deliver sufficient allowances to cover its actual emissions, be recognized, and how should it be measured?

In order to answer the above questions we begin with the analysis of whether emissions are to be recognized as an asset. Assets are defined as those through which 'probable future economic benefits could be obtained which are controlled by a particular entity as a result of past transactions or events' (IASB 1). In essence, an asset is an existing economic resource to which the entity has an ongoing right or other privileged access. This suggests that the emission allowance fulfills the definition of an asset to qualify to treat it as such.

To consider the nature and recognition of the asset, to classify them in the balance sheet, we obtain guidance from IFRS. Most common classification seems to include emissions as inventory or as an intangible asset. However, in the absence of any specific authoritative guidance under IFRS, emission rights held are generally accounted for as 'intangible assets'. The reason being, that the allowance lack physical substance.

Having classified the asset as 'intangible', we could decide on the nature and measurement of the asset. The allowances generally granted to the emitter do not result in any additional cost for them thus resulting in a zero value to the emitter (Federal Energy Regulatory Commissions Uniform System of Accounts). Accordingly, the cost and the fair value must be estimated as on the date of grant which will be recognized as a government grant and classified as a deferred credit in the financial statement. Allowances can also be purchased like any other investments or marketable securities.

To summarize the accounting for emissions, the fair value will be recognized at the beginning of the period in the books of accounts debiting allowances (Intangible assets) and crediting Government grant in the balance sheet. Any increase in the fair value of allowances will also be recognized by debiting intangible asset and crediting reserve account. In nut shell the entity will report in its income statement as an expense for the emissions made during the year, income for the government grant, any loss for the excess allowance purchased.

Disclosure

Due to the unavailability of proper standards or guidelines, companies are required to disclose their accounting policies with regard to measurement and treatment of emission rights, grants, revaluation, amortization and impairment of emission rights, liabilities and other obligations in its notes attached to the financial statements. The importance of such obligation could be traced to climatic changes due to emissions. There are two ways available to deal with climate change. One is carbon tax and the other is to Cap and Trade. The basic distinction between these two are that under carbon tax the price for emitting carbon would be fixed but the level of emissions reduction would not be. Under cap and trade, there would be a fixed limit on emissions, but the price for emitting carbon would fluctuate depending on ups and downs in the allowances market (Jim, 2009).

The proponents of carbon tax suggest that carbon tax scheme provide incentives for emission reduction, cost benefits, simpler to administer and tremendous gain across the economy in energy efficiency. But on the other hand the advocates for cap and trade point out the fundamental goal of putting a price is to reduce the emissions and advocate regulations by which the emitters rather pay tax or reduce the emissions, and promote international cooperation. Much of the emissions discussed, however, relates only to carbon emissions ignoring others.

Auditing

The International Chamber of Commerce has defined environmental audit as "*management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of helping to safeguard the environment by: facilitating management control of environmental protection; assessing compliance with company policies which would include meeting regulatory requirements*" (Vinten, 1996). From the above it can be construed that the main purpose of environmental audits would be to ensure

that the concerned parties would provide the necessary environmental information to the society and control emissions to maintain them to the permissible limit. The advantages of environmental audit would include clean air, water, environmental protection and, public awareness.

Almost all countries are taking initiatives to protect the environment by introducing regulatory measures to reduce if not avoid the limit of pollution. For example the European Commission has established a Council regulation for Community-wide voluntary eco-audit scheme and in the UK, the Environmental Protection Act 1990 imposes liability on those who control waste (Vinten, 1996). Neil (2009) studied the emissions between personal transportation including air travel, buses, trains and the cars and greenhouse gas emissions from household fuel and electricity consumption. The findings show that the emissions from air travel were greater than the fuel and electricity related emissions from the house, and greater than the emissions from the cars. However these findings could not be validated as there is no single agreed standard on reporting and verifying these emissions. Some guidance was provided by the World Resource Institute (2004) and International Standards Organisation (ISO 14064). However these are not considered sufficient enough to provide insights for the auditors to conduct a detailed audit and provide an unbiased report.

Guidance and criteria for environmental verification services are scant and the accounting profession may benefit from expeditious development of such standards so that public accountants are empowered to offer a needed assurance service and compete effectively with other consulting firms claim Beets & Souther, 1999. Some guidance is made available over the years only for carbon emissions, which are not enforced by professional bodies as a part of statutory responsibilities. Carbon auditing of companies involve data collection, calculation and allocation of emission costs. McKinnon (2010) quoted that “if you can’t measure it, you can’t manage it” applies to carbon emissions as well and to date relatively few firms have got their carbon emissions audited. This suggests that auditors’ experience of auditing such emissions could be limited as well.

Corporations are now required to calculate and estimate the emission of carbon voluntarily and report under social responsibility reports. These social reports generally do not come under statutory auditors review as no statutes require such comments or opinion from them. The practical problems involved in carbon emission auditing are that it is ‘borderless’. The Challenges thus faced by the auditors could include verifying how emissions were identified, how they were measured, how they were valued, allocated and benchmarked.

Auditors’ challenges in auditing emissions

Emissions auditing is the “watch this space” sector for sustainability efforts. While emission reporting today is voluntary, there is growing market and shareholder pressure on companies to provide transparency (Perry, 2008). Emissions auditing is fast emerging as an area of focus for niche claims the author. A key challenge for Supreme Audit Institutions, who are responsible for the accountability of public funds and internal control mechanisms, will be to identify areas that are particularly vulnerable to corruption in climate financing and to monitor these risks in the activities of public agencies involved in the administration of emission reduction schemes (Chene, 2010).

Validating the measures of emission of an entity could be a difficult job in spite of planning to measure the emission score. To offset the measurement problem, some acceptable standard and benchmark measurement would be necessary. It is also equally difficult to obtain high level evidence to support the measurement. These inadequacies could create a sky-scraping echelon of corruption in terms of emissions reporting as well as public funds. The auditors thus face a new challenge of protecting the stakeholders from the threats of corruption. Poor records and internal controls could add fuel to the challenges. For example Indonesia, faces criticisms of poor commitment to accountability. The misappropriation of the billion dollar reforestation fund (*Dana Reboisasi*) has rocked the news headlines. The government audits revealed the incapability of the regional and the national government to spend the money allocated. All these boil down to merely one factor which is ‘poor governance and control’ In order to be able to meet or beat these challenges, the auditors must be able to identify the risk areas, identify red flags in each risk area recognized and seriously consider existence of fraud. Thus the scope of the audit must include fraud identification.

Finally, integrity audits of revenue flows generated by climate financing do not differ in nature from the audits of other public resources flowing through the national budget. Regular investigative auditing techniques can be applied by Supreme Audit Institutions to identify opportunities for corruption (Chene, 2010). To enable more meaningful audit, it is necessary to develop a quantifiable pollution management model so that the measurement and comparability would be assessed and a meaningful report can be delivered. Here again the auditors must be willing to appropriate expertise, provide staff training, recruit highly qualified staff, enforce and re-enforce integrity and honesty. The efforts of the auditors must be complimented by professional bodies by

providing guidance and amending the rules from time to time to protect the auditors and assist them in complying with their duties. It also implies that auditors failing their responsibilities and duties must be clouted with rigorous penalties and sentences.

Conclusion

The regulatory authorities have not come with any definite framework about appropriate accounting approach and generally accepted accounting principles under which emission rights can be measured and accounted for. In the absence of proper guidance the disclosure presently is purely on voluntary basis.

While the ‘global warming’ issues have universally debated about its complexities in measuring the emissions that occur beyond the control of the entity, such as development of urban land and product usage. These may be associated with company For example, Coco-Cola observed that major share of emission came from cold drink equipment, coolers, vending machines and fountain dispensers rather than from its fleet of trucks or from its manufacturing operations. These caps may bring some useful results in reducing the emissions. With cooperation of all nations, emissions can be controlled to a certain extent provided political consensus is arrived at among the countries. The accounting profession should equip itself with proper accounting framework and guidelines to face these potential challenges.

By energy savings the emissions can to some extent can be reduced. Energy savings generally means greater energy efficiency and lower emissions. For example some countries promote power production through renewable sources and issues renewable energy certificates based on the actual green energy produced while on the other hand emission rights are granted for future limit on emissions. The green energy certificate can be tradable and using the income to subsidize the cost of generation of renewable energy. This certificate can be treated as a grant by the government.

Governments play a vital role in controlling the emission. Governments influence emission intensities by energy conservation policies, by utility regulation, by taxing energy-using goods and through the provision of infrastructure. They observed that energy conservation policies and regulations are likely to have reduced emission intensities in different degrees. Therefore by taxing in various forms, the government can make forward march in controlling the emission. Emission right allowance system is still in its infancy and being developed. This is a global issue which demands a global solution. Developed countries should persuade developing countries to opt for carbon

policies or necessary steps to curtail carbon emissions beyond accepted limit. Developing countries should address global warming and bring suitable policies to reduce and restrict the carbon emissions. Higher taxes would not be an effective means of addressing global warming risks. In such cases the government must resort to penalties and other stringent measures that could curb excess emissions than permitted. To reduce the greenhouse gas substantially, a combination of different measures such as carbon pricing, government funding, regulations, standards, organizational changes, education and information are needed.

Last but not the least, auditors’ role must be enhanced to include auditing emissions by giving high regard to possibilities of fraud and corruption. Auditors must not shun their duties under the pretext that the disclosures are not covered by statutory regulations. They become social obligations of a ‘socially accountable auditor’.

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