Carbon Trading: An Emerging Dimension of Business Ethics

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***Abstract*— Emissions Trading /Carbon Trading is an administrative intervention for controlling pollution by providing economic rewards for controlling the Green House Gases. The business model is based on clean development mechanism (CDM)-initiated and designed as a part of the Kyoto protocol. Kyoto Protocol (February 2005) elaborates on the potential trade in carbon emission reductions and hence the Carbon Credits markets emerged. Companies are issued emission permits and are required to hold an equivalent number of allowances (credits). Credits represent the right to emit a specific amount. Companies that exceed their emissions must buy credits from those who pollute less. This transfer of allowances is referred to as trade. Carbon credits are vital ingredients of the national and international emissions trading schemes that have been implemented to alleviate the menace of global warming. This implies a capping on the annual emissions on an industrial scale and letting the market assign a monetary value to any shortfall through trading, thus providing a measure to reduce the green house effect emissions. Policies that provide a real or implicit price of carbon could create incentives for producers and consumers to significantly invest in low-GHG products, technologies and processes. Such policies could include economic instruments, government funding and regulation. This business is based on a tool called the clean development mechanism (CDM), initiated and designed as part of the Kyoto Protocol. The paper investigates the impact of Carbon Trading. The study strongly supports that emission(s) trading is an administrative intervention used to control pollution by providing economic rewards. There is a provision of financial incentives for achieving reductions in the emissions of pollutants. It is termed as cap and trade.**

***Index Terms*—Business ethics, corporate social responsibility, ethics in business, corporate governance, ethics of sales and marketing, ethics of production, ethics of technology, general business ethics and international business ethics**

I. INTRODUCTION

Power, cement, steel, textile, and fertilizer industries are a major source of industrial green house gas emissions. Carbon dioxide, methane, nitrous oxide, hydro fluorocarbons (HFCs)are the major greenhouse gases emitted by these industries that increase the atmosphere's ability to trap infrared energy and thus affect the climate. Methane's Global Warming Potential (GWP) is much higher than CO2. However, since CO2 is the main contributor to the effects of Global Warming the Greenhouse Gases are known collectively as CO2 emissions. Increasing awareness for the need of controlling emissions gave birth to the concept of Carbon Credits.

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II. BACKGROUND

The phrases 'global warming' and 'climate change' are used to describe dramatic changes in the world's weather patterns attributed to increases in greenhouse gas emissions in the atmosphere.

These changes have taken the form of cyclones, floods, severe storms, droughts, increased landslides, sea level rises as well as incremental changes in temperature that particularly affect agriculture and can lead to famine.

Scientists have urged for an immediate reduction in "anthropogenic climate change" i.e. mankind induced climate change.

Our current emissions of Carbon Dioxide and other gases that induce climate change are far greater than the ability of 'carbon sinks' such as forests to absorb it from the air. A reduction in green house gas emissions would be necessary to contain the damage done to the environment.

As a response to this phenomenon the Kyoto Protocol, United Nations Framework Convention on Climate Change was signed and came into force in February 2005.

This Kyoto Protocol elaborates on potential trade in carbon emission reductions which is why so called Carbon Credit markets emerged.

Recognizing that industrialized countries are the biggest polluters to our atmosphere, the Kyoto Protocol legally committed the industrialized signatories to reducing their collective emissions by an average of 5.2% from 1990 levels in the period 2008 to 2012.

Developing countries were exempted in this first commitment period to allow these countries to pursue economic growth with the lowest possible energy costs in the hope that clean energy technologies would become cheaper and more attractive over time or due to the revenue stream from carbon credits.

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Unfortunately not all countries have signed up to the Kyoto agreement and this was one of the most important issues in the debate during the Bali conference that took place late 2007.
Negotiations are currently ongoing on how to assure that all countries sign to the Kyoto Protocol, on how fast industrializing economies such as China or India can be included in an wider agreement and how we can move ahead after the end of the present accord end in 2012.
The Kyoto Protocol recognizes that it is expensive and time consuming for industrialized economies to change pollution patterns for instance through the construction of less polluting power plants or through the introduction of cleaner vehicles.
While these efforts are ongoing, the protocol provides the industrialized economies with an option to buy carbon credits from developing countries listed in an annex to the Kyoto Protocol so that they can achieve their targets at least cost, while buying extra time to allow their industries to adjust.
Those carbon credits are bought to enhance the quota of allowed emissions allocated to specific countries through carbon emissions saved elsewhere.
That means, either non-emitted quotas are traded or emission reduction projects are funded and can offset other emissions.
This system thus enables developing countries to reduce their own emissions while gaining a new revenue stream from the credits sold, because industrialised countries would fund part of the investment required for clean technologies.
However one has to note that carbon credits cannot be traded at fixed rates but are subject to market developments like other commodities.
But unlike those ordinary goods they need to be certified and approved through a United Nations body first.
The trading in these carbon credits has grown to a large international business and is expanding very fast.
For instance in 2006 the carbon market grew to a value of US$ 30 billion, three times greater than in the previous year.

III. The Kyoto Protocol

The Kyoto Protocol is a 1997 international treaty which came into force in 2005. It binds most developed nations to a cap and trade system for the six major greenhouse gases. The United States is the only industrialized nation which has not ratified and therefore is not bound by it. Emission quotas were agreed upon by each participating country, with the intent of reducing their overall emissions by 5.2% of their 1990 levels by the end of 2012. Under the treaty, for the 5-year compliance period from 2008 until 2012, nations emitting less than their prescribed quota will be able to sell emissions credits to nations that exceed their quota.
The world's major polluters were identified using the global CO2 emission statistics based on 1990 figures. At the meeting in Kyoto in 1997, the nations considered responsible for significant CO2 emissions were given targets to reduce them. India and China deemed as meager polluters were not included. The US has used the non-inclusion of China and India as its reason to stay out of the Kyoto Protocol.

The basic premise is that all living things absorb carbon for growth and thus planting trees reduces the carbon content in the atmosphere. The outcome of the Kyoto protocol is that as each country produces CO2, it must be able to absorb that CO2 by tree-planting or other processes, such as sequestration and changing farming methods. Nevertheless, if a country produces more CO2 than it can contain, it must purchase the additional 'absorption ability' from another nation. The Carbon Credit is this new currency and one Carbon Credit is equal to one Tonne of CO2 and is called a CO2e (CO2 equivalent). A nation might have a shortfall in absorbing 500,000T of CO2 and according to the Kyoto agreement it must seek to purchase those from another nation.

What are Carbon Credits

Carbon credits are generated by enterprises in the developing world that shift to cleaner technologies and thereby save on energy consumption, consequently reducing their greenhouse gas emissions. For each tonne of carbon dioxide (the major GHG) emission avoided, the entity can get a carbon emission certificate which they can sell either immediately or through a futures market, just like any other commodity.

The certificates are sold to entities in rich countries, like power utilities, who have emission reduction targets to achieve and find it cheaper to buy 'offsetting' certificates rather than do a clean-up in their own backyard. This trade is carried out under an UN-mandated international convention on climate change to help rich countries reduce their emissions.

IV. Emissions Trading

Emission(s) trading is an administrative intervention used to control pollution by providing economic rewards. There is a provision of financial incentives for achieving reductions in the emissions of pollutants. It is termed as **cap and trade**.
A central authority, which is invariably, a government or international body, prescribes a limit or ceiling or *cap* on the amount of a pollutant that can be emitted. Companies or other groups are issued emission permits and are required to hold an equivalent number of *allowances* (or *credits*) which represent the right to emit a specific amount. The total amount of allowances and credits cannot exceed the cap, limiting total emissions to that level. Companies that exceed their emissions or inevitably need to increase their emissions must buy credits from those who pollute less. The transfer of allowances is referred to as a trade. The net effect of the transaction is that the buyer is paying a charge or penalty for polluting, while the seller is being rewarded for having reduced emissions by more than was needed. Thus, theoretically, those that can easily reduce emissions most cheaply will do so, achieving the pollution reduction at the lowest possible cost to society.
Carbon trading approach is preferred to a direct carbon tax or direct regulation. It has many advantages viz.

- By simply and exclusively aiming at the cap it avoids the consequences and compromises that often accompany the direct carbon tax or direct regulation.
- It can be cheaper
- The initial allocation of allowances is often allocated with a *grandfathering provision* where rights are issued in proportion to historical emissions. Hence, the provision is politically preferable for existing industries.
- Finally, most of the money in the system is spent on environmental activities. The investment directed at sustainable projects that earn credits in the developing world can contribute to the Millennium Development Goals.

Critics of emissions trading indicate towards the problems of complexity, monitoring, enforcement, and sometimes dispute the initial allocation methods.

V. BUYING CREDITS REDUCE EMISSIONS

Emissions become an internal cost of doing business and are visible on the balance sheet alongside raw materials and other liabilities or assets. Carbon credits assign a monetary value to the cost of polluting the air and thus create a market for reducing greenhouse emissions. For instance, consider a business that operates a factory X putting out 100,000 tonnes of greenhouse gas emissions in a year. Its government is signatory of a law to limit the emissions. So the factory is given a quota of say 80,000 tonnes per year. The factory either reduces its emissions to 80,000 tonnes or is required to purchase carbon credits to offset the excess.

The business has an option of either limiting the emissions to 80,000 tonnes per year or it may choose to buy carbon credits from organizations that have been approved as being able to sell legitimate carbon credits. In the latter case the factory continues to emit 100,000 tonnes of carbon, it will have to pay another group to reduce the equivalent of 20,000 tonnes of carbon dioxide emissions from the atmosphere for that year.

At the same instance, there might be a business that has invested in new low-emission machinery and has a surplus of allowances as a result. The factory X could compensate for its extra emissions by buying 20,000 tonnes of allowances from them. The cost of the seller's new machinery would be subsidized by the sale of allowances. Both the buyer and the seller would submit accounts for their emissions to prove that their allowances were met correctly.

The Carbon Credits Business Model

The carbon-credit business is new globally. Some businessmen jokingly call it a trading of emptiness, while some activists claim it is tantamount to making money from global warming.

- This business is based on a tool called the clean development mechanism (CDM), initiated and designed as part of the Kyoto Protocol.
- Rich countries agreed to reduce their greenhouse gas emissions, especially carbon dioxide, within an agreed timeframe. However, because of the impact it could have on their economies, the CDM was devised as an alternative.
- The CDM allows these countries to buy carbon credits from poor countries, which could reduce emissions despite their obligation under the protocol.

An appraisal of the Model

It is new and many opportunities are available.

It is also an unstable business

Rules and regulations related to this business change rapidly, depending on the ongoing negotiations, and information about global warming is constantly updated by the United Nations Framework Convention on Climate Change. So, one has to be prepared accordingly.

Business Imperatives

Funding carbon saving schemes

The revenue generated through carbon trading would eventually be used to fund further carbon saving schemes. For instance, New Zealand has recently funded some wind generation projects from the money gained from selling carbon credits.

Managing credits- The Ireland experience

Ireland has been too proactive on this front. It has recently purchased 95% of its carbon credits from other nations to offset the millions of tons of CO2 its industries would possibly develop for the forthcoming year. The other 5% would come internally as they have innovative practices of farming and been planting trees since 1990. It has been a well conceived strategic activity at Ireland. Contrary to a common belief, some tree bound countries may not necessarily have loads of carbon credits to sell off as they have not made any attempts to increase the number of trees since 1990. It's all a matter of foresight and how seriously a country attempts to solve the problem of green house emissions.

Virgin Airways in Australia

All serious attempts by Virgin to foray in Australia have gone haywire, because the business proposition becomes uncompetitive when the cost of offsetting its CO2 pollution by the purchase of Carbon Credits is calculated. Deterred by the exorbitant costs, Virgin has dropped a seemingly lucrative business proposal.

Global markets becoming less global

The ramifications of the Kyoto Protocol are that it will affect the way we measure the cost of items. The dynamics of global business would change and the markets would become less global if the cost of a product is measured in terms of total CO2 emissions. The end result will be that we may all be seeking to trade locally.

Shift from corporations to co-operatives

Along with our new found local power generation facilities we may see a shift away from massive corporations and move back towards co-operatives. Made in China might be something people in Europe see less of. Alternatively, goods could be moved around the globe super efficiently and only the large corporations will be able to afford this.

Trends in the Carbon Market

India 2nd largest seller of carbon credits globally

The carbon market is the most visible result of early regulatory efforts to mitigate climate change. Certified emission reduction (CER), that are traded on the global climate exchanges, are carbon credits issued by the Clean Development Mechanism (CDM) Executive Board for emission reductions achieved by CDM projects and verified under the rules of the Kyoto Protocol. A world bank report titled 'State and trends of the carbon market 2008' reveals that India has emerged as the second largest seller of carbon credits in the global market with six per cent share in 2007 along with Brazil, while China tops the list with a whopping 73 per cent. For the third consecutive year, China was the world leader in CER supply with a 73 per cent market share in terms of volumes last year against 54 per cent in 2006.

Reasons for China being the destination of choice for buyers of credits include:

Large size

Economies of scale in origination,

Favorable investment climate

China has consolidated its position as the pre-eminent carbon supplier, by quadrupling its number of projects in the pipeline

from January 2007 to March 2008.China is well ahead of other nations in the CDM pipeline with 53 per cent of potential CER supply with 1,104 projects till 2012, compared to India's 15 per cent of the total CDM pipeline, it noted.

While the EU countries are the biggest buyers of carbon credits, the largest sellers are China and India with respectively 61% and 12% of the total CDM market in 2006. African countries so far have not played a major role with only 3% of the market in the same year.

Recent Status on Carbon Credits traded under Kyoto Pact- a World Bank Report

According to a World Bank Report, the volume of carbon credits traded under a scheme in the Kyoto Protocol remained almost unchanged in 2007 as compared with 2006, slowing the rapid growth logged in previous years.

This suggests that the number of greenhouse gas reduction projects funded by industrialized nations and their private sector entities in developing countries has effectively stalled. The volume of carbon credits created by the Clean Development M mechanism totaled 551 million tonnes worth of carbon in 2007, up slightly from 537 million tonnes in 2006. The figures compared with about 350 million tonnes in 2005, just below 100 million tonnes in 2004 and 50 million tonnes in 2003.

The slow growth is likely to affect the climate change strategy of the Japanese government, as 1.6 per cent of Japan's 6 per cent carbon emissions reduction obligations under the Kyoto pact, to be covered by carbon credits obtained from developing country is via the CDM.

The World Bank had attributed the slow growth to complicated procedures for registering greenhouse gas reduction projects in developing countries and cast its apprehension whether investors will be able to sell credits on the carbon market under a new carbon-capping framework beyond the expiration of the Kyoto pact in 2012.

Thailand-A Case in Point

There is high potential in Thailand, especially in the energy sector. It can invest more on technology to reduce carbon emissions and gain carbon credits for selling to clients. The carbon-credit business is booming in Thailand. But the key question is: how long is the boom going to last? In a sign of the upbeat scenario, executive director of Thailand Greenhouse Gas Management Organization (TGO), Sirithan Pairojboriboon, revealed last week that 27 projects had been approved and the figure would exceed 100 by the end of this year. Until last July, when TGO was established, only 17 projects had been approved for carbon trading. Since then, 10 more have been approved.

Today's carbon-credit business in Thailand deals with easy medium-to-large companies. Future projects will be smaller, heading to small and medium entrepreneurs (SMEs), such as gaining carbon credits from converting waste of pig farms to biogas generation. This means, something needs to be done today in order to prepare for this challenge. Will the government support trading of carbon credits among SMEs?

TGO should have a proactive strategy and not repeat past mistakes that let private companies lead authorities. It must study the potential, set the right policy for the trade and then act as facilitator. It is a big challenge but if it fails to rise to it, the present boom in carbon trading will go bust.

Carbon Credits-A Gold Rush

The rest of India might fear the impacts of climate change but Indian techies are fast realizing the business opportunity it has brought to their doorstep. Cashing on the carbon credit trade, many of them have begun business ventures to write up projects and take consultancies to help Indian and international businesses turn green.

It's a gold rush at the moment — India has the highest number of carbon credit projects in the world. Not surprisingly, the business is also attracting its fair share of not-so-clean operators. With investments pouring in (more than Rs 40,000 crore is already locked into the Indian industry going green under the global carbon credit scheme), industrial towns like Bilaspur and Indore, along with the four metros, are witnessing a mushrooming of experts and consultants. India is witnessing the rise of novel firms like Emergent Ventures Ltd, one of the foremost carbon trading firms in India today.

CONCLUSION

There are opportunities galore. It's both about making money and keeping the environment clean and green. The processes need to be made simpler for a better utilization of this administrative intervention.

Cap-and-trade systems for greenhouse gas emissions have been put in place in several countries over the last decade. While the evidence so far suggests that they have been successful in reducing emissions, they have been subject to increasing criticism by climate-change sceptics. Over the course of 2010, they were also tarred with the same brush of dissatisfaction addressed towards the United Nations negotiations, which failed to deliver a binding agreement at the international conference in Copenhagen in December 2009, but which appears to have achieved greater progress at Cancún in December 2010.Given the moral virtues of cap-and-trade systems and the absence of compelling moral objections relative to other policy possibilities, we conclude that emissions trading remains a valuable policy tool with which to address climate change. Carbon taxes have some advantages over cap-and-trade, 69 but in other ways are worse, not least in the fact that they provide no guarantee of environmental outcomes, and are significantly more difficult to establish politically. Indeed, carbon taxes are likely to continue to be politically difficult, especially in the USA, to implement and maintain at a level that will achieve reductions in emissions at the necessary rate to provide a just outcome for future generations. Direct regulation is inferior to an ETS or a carbon tax because it increases costs of compliance, increases wastage and reduces liberty of individuals and companies to adapt to a low-carbon economy in the manner most suitable to them. In an ETS, the possibility of trade minimises waste, the cap ensures environmental integrity over time, potentially according to a gradual "contraction and convergence" pathway, 70 and the allocation of the permits determines the distributive justice (and political success). None of this is to suggest that a single cap-and-trade system would alone be an adequate response to climate change. Nevertheless, it is a morally valuable, rather than a morally suspect, contribution to moving at speed and at scale to the low-carbon economy required for humans to continue to flourish on Earth into the next century and beyond.

REFERENCES

1. IPCC Fourth Assessment Report 2007, using data adapted from Olivier et al. 2005 and 2006.
2. UNFCCC CDM Distribution of Projects by Scope, 10/27/08, Update.
3. 3 .World Bank, "State and Trends of the Carbon Market 2008".
4. "Forging a New Frontier: State of the Voluntary Carbon Markets", 2008. Ecosystem Marketplace, New Carbon Finance.
5. "State of the Voluntary Carbon Market", Ecosystems Marketplace, 2008.
6. "A Cost Curve for Greenhouse Gas Reduction", McKinsey Quarterly, 2007 Number 1.
7. Environment Finance "A trillion dollar marketplace", by Gareth Phillips and Assaad Razzouk, March 2007.
8. 8 .New Carbon Finance, Feb 2008.
9. 9 .Based on "Carbon Mitigation Potential and Forestry Options in Brazil, China, India, Indonesia, Mexico, Philippines and Tanzania" by Sathaye et al.