

Financial Aspects of Carbon Trading

“A hotter, wetter country with lesser food and greenery ...”

This is the finding of a joint Indo-UK programme on the impact of climate change in India. The situation for the world as a whole is not expected to differ much. The climatologists, the geologists and researchers from related fields have been giving us warnings on climate change for the past few years. According to their prediction, the Earth will face a barrage of atmospheric disturbances like earthquakes, cyclones, inundations and epidemics as the climate shifts from a mild phase to a warm phase – popularly known as ‘Global Warming’. People from all walks of life will feel the reverberations. Shareholders are no exceptions. Severe and frequent weather changes causes loss to commercial property and shuts them down for days, if not months. So investors have started to put pressure on companies to curb greenhouse gases. A group of 115 investors with \$21 trillion worth of assets under management has started to monitor the emissions of the world’s top five hundred companies for the last three years through the London-based Carbon Disclosure Project. The message is clear for everyone – *take care of the environment or the environment will take care of you.*



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Kyoto Protocol is a ‘techno-economic’ document that tries to prevent environmental degradation while presenting a unanimous financial package in the form of Carbon trading to manage the process. This paper focuses on the emerging contours of Kyoto Protocol, its financial implications for practising companies and the accounting challenges being faced by companies and countries alike during its implementation.

Human beings are not claimed for nothing to be the most intelligent species to have roamed the planet Earth. Damage-control exercises have already begun. The root of the problem, the **Greenhouse Gases** (GHGs), has been identified. The primary sources of

GHGs are the automobiles, factories and power plants using fossil fuels. The plan is to reconvert the released CO₂ and other GHGs back into organic matter through the process of carbon sequestration. The simplest way to achieve this is to stop using fossil fuels. But this is neither practically feasible nor commercially viable.

A commercially viable plan has thus been devised to systematically reduce the emission of GHGs that will not force us to change our present lifestyle. This process is what is known as ‘**Carbon Trading**’.

Concepts

Kyoto Protocol: Ecologically sustainable development was the theme of discussion at the ‘Earth Summit’ that was held at Rio de Janeiro, Brazil in the year 1992. This meet laid down the foundation for the next summit that was held in December 1997 at Kyoto, Japan. The resolution, signed by 120 member countries, came to be known as the Kyoto Protocol. It contains a total of 28 articles and was adopted on 11th of December, 1997. According to this Protocol, developed countries (Annex I countries) are required to reduce their GHG emission between 2008 and 2012 to 5.2% below the 1990 level. This is the first phase target. The target for the second phase is yet to be ascertained. Developing and Least-developed countries (Annex II

countries) are not required to reduce their emission for now. United Nations Framework Convention on Climate Change (UNFCCC) looks after the implementation of Kyoto Protocol.

Greenhouse Gases (GHGs): The Kyoto Protocol identified the gases that trap solar radiation and increase the mean sea-level temperature of the Earth causing global warming. These gases are called GHGs. They are Car-

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bon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SFI₆), ozone and even water vapour. Out of these, the first six are to be curtailed.

Global Warming: The mean sea-level temperature of the Earth is expected to rise by as much as three to four degrees over the next century. This happens as the GHGs trap the solar radiation that bounces back from the Earth's surface and heats up the atmosphere. This phenomenon is called global warming. This warming will cause the polar ice-caps and mountain glaciers to melt. The Gangotri glacier that feeds the river Ganges has already shrunk by 30% since the mid 1970s. The increased amount of free-flowing water available

from melting ice will submerge a large part of low-lying areas of the world and cause heavy rainfall and cyclones in other areas.

Carbon Emission Rights (CER)/Carbon Credits: This is a type of financial derivative product that derives its value from reduction in emission of GHGs. One CER is equivalent to one tonne of CO₂ emission reduced. Cutting down CO₂ emissions generates CERs. These instruments can be traded at designated markets called Climate Exchanges.

Carbon Sequestration: As trees grow, they absorb carbon dioxide through the process of photosynthesis and store carbon. This is known as carbon sequestration. This helps to reduce carbon dioxide concentrations in the atmosphere and is permitted under Article 3.3 of the Protocol to help countries meet their target commitments. The carbon credits generated from sequestered carbon could be traded in an emissions trading market.

Mechanism

It is an established fact that thirty-eight developed countries of the world generate as much as seventy percent of total GHG emissions. While a large number of developing and least-developed countries generate the rest. Since the onus is on developed countries to reduce GHG emissions in the first phase, they have to upgrade their production process and spend billions of dollars to achieve the target. Developed countries are required to spend approximately \$300-\$500 to reduce a tonne of CO₂ emission compared to just \$10-\$25 re-

quired by a developing country. Also this change-over process would shut down their factories for days. In the cut-throat world of modern business, companies cannot afford either of the options.

The only way out for them is to purchase CERs generated by another company. There are three mechanisms developed under the Kyoto Protocol. They are – (i) Joint Implementation (JI), (ii) Clean Development Mechanism (CDM) and (iii) International Emission Trading (IET).

Under JI, a developed country with high production cost can set up a GHG-reducing project in a low-cost developed country. Under CDM, a developed country can buy CERs from GHG-reducing projects approved by UNFCCC and set up in a developing or least developed country. Under IET, a developed country simply buys CERs off-the-shelf through a Climate Exchange.

These mechanisms are a win-win formula to both the buyer and the seller. The polluting companies from developed countries do not need to undertake expensive restructuring exercises. The non-polluting companies from less-developed countries can sell the quantity of CO₂ emission they have reduced and earn extra money in the process. This mechanism of buying and selling CERs is what is known as carbon trading.

Financial and Accounting Aspect

There are two ways to financially exploit CERs from a developing countries' perspective – (i) generation and then sale of CERs and (ii) trading of

CERs. Companies from developing countries like India can set up carbon-reducing projects approved by UNFCCC. The projects start generating CERs once they go on-stream. These CERs can then be sold through the Climate Exchanges. Otherwise, companies can just buy and hold CERs to be sold later at a profit.

But from the viewpoint of a developed country, carbon accounting takes on a different meaning. They have to first measure the amount of CO₂ released by various industries, determine the limit up to which they are allowed, and devise an

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accounting system for its companies that will be transparent, consistent, complete, accurate and comparable.

Generation of CERs

The process of generating CERs has already begun. Two projects from Honduras and one from India have received their CERs. The National CDM Authority (NCA) has already approved ninety such projects till June 2005. Specifically, companies engaged in renewable energy generation like Suslon (wind energy), Webel SL (solar power) and Jaiprakash Industries (hydro power); in sugar like Balrampur

Chini; in steel like JSW Steel, Tata Steel; in chemicals like SRF (tyre-cord) are expected to reap the windfall. UNFCCC has already approved four CDM projects being set up by Gujarat Fluorochemicals, Kalpataru Power, Clarion Power and Dehar Power. A consortium of fourteen global development banks has set up a carbon fund of \$20 billion to help small and medium-sized companies from developing countries to set up their UNFCCC-approved projects. One of such banks, DEG from Germany, has already lent money to Srei Infrastructure Finance of India.

These companies are expected to make substantial financial gains in the following ways.

- (1) New projects being set up to reduce GHG emissions also add to total output of the firm, contributing to its turnover.
- (2) New equipments installed to reduce GHG emission, leads to increased amount of depreciation in the books that act as tax-shield for the company.
- (3) Use of energy-efficient equipments reduces the total energy bill of the companies, contributing directly to its bottomline.
- (4) Availability of Government incentives on import or use of energy-efficient equipments help to reduce cost of production and makes their products globally competitive.
- (5) India may have to reduce her own GHG emissions sometime in the future. So if that task is completed now, Indian companies will not have to spend any money in the future to achieve the target.

- (6) At last, sale of CERs through the Climate Exchanges help companies to earn extra profits over and above they earn from their regular operations.

As of now there are no separate Indian accounting standards to measure income and expenditure from carbon reducing projects. The existing standards can well account for new capital investments, depreciation and profits from sale of CERs. But what is needed is the creation of a separate segment under AS 17 (Segment Reporting) showing the amount of capital invested, income generated and profit earned from UNFCCC approved projects. This will show the actual profitability of the operations separated from the profits generated from sale of CERs.

Trading of CERs

The projects under implementation are already dealing in carbon futures. This is a type of forward trading as the instruments will be delivered on a future date at a price that is fixed today. Chicago Climate Futures Exchange (CCFE), New South Wales Trading System (Australia) and the European Climate Exchange (ECX) are the places where CERs can be traded. CCFE is the world's first climate exchange. It then went on to set up ECX along with Climate Change, a London Stock Exchange listed company. The trading possibilities include:

- o An option to buy or sell one tonne of CO₂ sequestered in a year between 2008-12 at a price agreed today.
- o The outright purchase or sale of rights to future ownership of CERs that will be

generated in a year between 2008-12.

- o The purchase of CERs before 2008 for use outside the Kyoto Protocol.

In the year ending 2003, 78 million tonnes of CER futures were traded. In 2004, the figure was 107 million tonnes. The current market price of one CER is about \$10, which is expected to rise substantially in the near future. A number of financial institutions and companies have entered the market to buy CERs that will be sold later

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at a profit. So a secondary market has already evolved for these instruments.

Carbon Accounting

Companies from developed countries, especially the European Union, need to buy or generate CERs under the Emission Trading Scheme or face stiff penalties. Accounting from their viewpoint involves two aspects – recognition of value of carbon they are allowed to emit and cost incurred to meet emission-reduction commitments.

A new international accounting standard, to be followed mainly by European countries, has already entered into force. It treats CERs as balance sheet items. The emission allowances cannot be marked to market ((recorded at fair or market

value) via the profit and loss account but via the reserves. The actual problem lies in measuring the amount of carbon actually sequestered or emitted into the atmosphere. As the carbon stock in organic matter is always changing, sampling and estimation techniques are used to arrive at a fair valuation.

Australia has introduced its own carbon accounting standard (AS 4978.1: Carbon accounting for greenhouse sinks Part 1: Afforestation and reforestation) to account for carbon sequestered in plant matter. However, USA, world's largest polluter, has not accepted the Kyoto Protocol and so is not bothered about carbon accounting.

India's Present Position

Out of the three mechanisms, Joint Implementation is not relevant for India. But the country is already making a mark in the Clean Development Mechanism arena. Its companies are spending vigorously to cut GHG emissions and generate CERs in the process.

Under CDM, India already commands a thirty percent share of the carbon trading market and is expected to improve its share in the future. Hemant Kanoria, director of Srei Infrastructure Finance, expects this market to be worth at least \$10 billion a year during the commitment period of 2008 to 2012. This sounds like India has got hold of the mythical goose that laid golden eggs. However the actual picture may not look so rosy. Brazil and Chile are already giving tough competition to India in this market. Whereas China, India's biggest threat, is yet to enter the market.

In the case of emissions trading, India has just taken a small step. Multi-Commodity Exchange (MCX) has entered into a licensing agreement with CCFE to list its Carbon Financial Instrument (ECX-CFI miniSM) and Sulphur Financial Instrument (CCFE-SFI miniSM) on the exchange. This represents the first linkage between Kyoto Annex I and Annex II countries.

India does not have or is in need of a separate Accounting Standard at present to account for carbon trading. A little change in AS 17 (Segment Reporting) can help to bring out the true exposure of companies to carbon trading. But with a growing economy, increasing use of fossil fuels and emission of GHGs, India will need such a standard in the near future.

Conclusion

If everything goes as per plan, the emission of GHGs will reduce and limit much of the damage to the environment. The scheme of carbon trading will help a lot of developing countries to become energy-efficient, earn extra money and improve the living standards of their people. India will hopefully benefit from this mechanism and become more environment-friendly for its citizens. But will all this reverse the damage already caused to the environment? This was the moot point behind the development of this mechanism of carbon trading. The answer seems to be a big 'NO'. Carbon trading may reduce GHGs, may cool down the planet a little bit, may increase the size of polar ice-caps but will not bring back the thousands of species of flora and fauna that have already become extinct. Neither will it be able to resurrect the people



who have died or are now dying because of contamination, pollution, natural disasters and the like. So while carbon trading and environmental accounting may heal some of the environmental wounds, the picture-postcards will remain just that—'postcards'.

Annexure I

Developed Countries

Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, European Union, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Monaco, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States of America.

Annexure II

Developing and Least-developed Countries

Afghanistan, Albania, Algeria, Angola, Antigua and Barbuda, Argentina, Armenia, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Burkina Faso, Burundi, Cambodia, Cameroon, Cape

Verde, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo, Cook Islands, Costa Rica, Côte d'Ivoire, Cuba, Cyprus, Democratic People's Republic of Korea, Democratic Republic of the Congo, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Ethiopia, Fiji, Gabon, Gambia, Georgia, Ghana, Grenada, Guatemala, Guinea Bissau, Guyana, Haiti, Honduras, India, Indonesia, Iran (Islamic Republic of), Israel, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Kuwait, Kyrgyzstan, Lao People's Democratic Republic, Lebanon, Lesotho, Liberia, Libyan Arab Jamahiriya, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands, Mauritania, Mauritius, Mexico, Micronesia (Federated States of), Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nauru, Nepal, Nicaragua, Niger, Nigeria, Oman, Pakistan, Palau, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Qatar, Republic of Korea, Republic of Moldova, Rwanda, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia and Montenegro, Seychelles, Sierra Leone, Singapore, Solomon Islands, South Africa, Sri Lanka, Sudan, Suriname, Swaziland, Syrian Arab Republic, Tajikistan, Thailand, the former Yugoslav Republic of Macedonia, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkmenistan, Tuvalu, Uganda, United Arab Emirates, United Republic of Tanzania, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Yemen, Zambia and Zimbabwe. □