

## **CARBON CREDITS – IN RESPONSE TO CLIMATE CHANGE**

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### **Global Warning: Global Warming**

Rapid economic development and incessant tapping of natural resources have posed severe problems for the life system on our planet. Mankind now confronts by far the biggest environmental challenge in the form of global warming: the gradual increase in the Earth's temperature, which brings about a noticeable change in the climatic conditions. Across the world, there is growing concern about global warming and its impact on the earth's ecosystem.

Today, most scientists agree that global warming in the last few decades has primarily been caused due to human activities which have increased the release of Greenhouse Gases or GHGs in the atmosphere, deforestation and urbanization, etc. Carbon dioxide levels are at their highest since the industrial revolution and are continuously rising. According to the 2008 Report of US National Academy of Sciences, the Earth's surface temperature has risen by about 1 degree Fahrenheit in the past century, with accelerated warming during the past two decades. The Report of the Intergovernmental Panel on Climate Change also projects that the Earth's average surface temperature has risen by 0.76°C since 1980 and is further likely to rise by 1.8-4°C by the end of the 21<sup>st</sup> century. Even temperature change to the lower of this limit would trigger serious consequences like rise in the average temperature, shift in weather seasons around the world, early snowmelt, rising sea levels leading to coastal flooding, warm sea temperatures causing more intense hurricanes and disruption of coastal habitat.

### **Kyoto Protocol – An Initiative Against Climate Change**

The European nations have been the vanguard of combatting climatic change internationally. They have played a key role in developing two major treaties addressing issues affecting climate changes i.e. The 1992 United Nations Framework Convention on Climate Change (**UNFCCC**) and its Kyoto Protocol ("Protocol"), which was accepted by several developing and developed countries in 1997. Australia, the latest signatory to the Convention acceded to it in late 2007. However, the world's biggest GHG emitter, USA has refused to sign the Convention, which aims to achieve and stabilize GHG concentrations in the atmosphere at such levels that would prevent dangerous human interference with the climatic system.

The Kyoto Protocol is an international agreement which lays down targets for industrialised countries to cut their Greenhouse Gas Emissions (**GHG**) which include Carbon Dioxide (**CO<sub>2</sub>**), Methane (**CH<sub>4</sub>**), Nitrous Oxide (**N<sub>2</sub>O**), Hydro-Fluorocarbons (**HFCs**), Per-Fluorocarbons (**PFCs**) and Sulphur-Hexafluoride (**SF<sub>6</sub>**). The Protocol commits countries to reduce their GHG emissions to an approximate average of 5.2% below the 1990 emission levels over the period 2008-2012. The increasing need for energy is the single biggest challenge to slowing climate change.

**Mechanism under Kyoto** – Kyoto Protocol provides for three innovative mechanisms for reducing GHG emissions, namely i) the Joint Implementation (**JI**), ii) Emission Trading (**ET**) and iii) the Clean Development Mechanism (**CDM**). The CDM provides for co-operation between developed and developing countries while the JI and ET are mechanisms for co-operation between developed countries. Only the countries that have ratified the Protocol and their companies are allowed to engage in carbon trading and are free to sell Carbon Credits to the other countries.

**Kyoto Protocol and India** – India is a signatory to the UNFCCC and acceded to the Protocol on 26 August, 2002. Under the UNFCCC, developing countries (**Annexure 1 Countries**) such as India and China, in consideration of their low GHG contribution as well as low financial and technical capacities, do not have any binding GHG reduction commitments.

In order to achieve the commitments under the UNFCCC and the Protocol, India has setup the Ministry of Environment and Forests as its nodal agency to address issues related to climate change. Under the Protocol, India stands to benefit from foreign investments and technology transfer when the Protocol comes into force. Additional investments are also expected into projects related to renewable energy, energy generation and afforestation projects.

#### **What are Carbon Credits?**

Carbon Credit is a concept that incentivizes countries which reduce their GHG emissions and disincentivizes the ones which do not reduce their GHG emissions. This concept promotes the generation of credits by companies in developing countries (Company) who reduce their GHG emissions by shifting to cleaner technologies. Under the Protocol, each Company that shifts to cleaner technologies obtains to its account, one credit per tonne of CO<sub>2</sub> emission reduction. This credit that the Company obtains is called Carbon Credit, which is a right to emit one tonne of CO<sub>2</sub>.

The Protocol imposes target commitments upon countries, who in turn, set emission quota on companies in their country. In order to fulfill their quota,

companies whose emission are above their permitted quota buy Carbon Credits from Companies that have excess credits to their account. Allowing such credits to be bought and sold makes it possible for businesses to achieve their target commitments since reducing their own emissions may either be too expensive or prohibitive for such companies. For each tonne of CO<sub>2</sub> avoided, the Company receives a carbon emission certificate which can be sold either immediately or through the futures market, just like any other commodity.

**Trading of Credits** – The credits can be traded in worldwide on exchanges such as Chicago Climate Exchange, Nordpool, European Climate Exchange, European Energy Exchange and NYMEX's Green Exchange and India's National Commodity & Derivatives Exchange Limited and Multi Commodity Exchange of India (MCX India).

**Futures Trading of Credits** – Carbon transactions range from simple purchases and sales to structured options transactions. The basic transaction structures include:

- i) *Immediate Settlement trades* where the terms of a bid and offer are set on the trade date with delivery and payment occurring in a standard timeframe shortly thereafter.
- ii) *Forward Settlement trades* resemble immediate settlement trades, with the difference being that terms are again set on the trade date, but delivery of reductions and payment are deferred to a future date also specified at the time of trade.
- iii) *Options are derivative products* in which the parties buy or sell the option or right, whether or not to enter into a specified cash transaction at or before a future date, referred to as the strike date. The most common types of options are call options and put options, though there are many other forms. Call options allow a buyer to lock in the right to purchase reductions at a specified date at a specified price. Put options allow a seller to lock in the right to sell reductions at a set price.

#### **Trading Through Voluntary Markets**

Credits are also traded through voluntary projects which fall outside the Protocol system. Their emission cannot be officially traded through the emission trading systems. Most emission projects are developed in the voluntary market and do not follow any particular standard. Small projects find the voluntary offset market increasingly attractive because such projects are mostly cheaper than through the CDM under the Protocol and are also attractive to companies who use offset as part of their corporate social responsibility strategy but which are not legally obliged to lower their emissions. Buyers however look for quality assurance for

credits generated by such projects. The Gold Standard for voluntary projects tackles this need and is so far the only independent standard for quality in the market.

**Other Innovative Instruments** – With the awareness and knowledge of credit trading one could see more complex and exotic contracts in India, such as weather derivatives. So far as the commodity futures are concerned, there is no limit to the type and number of contracts which can be introduced into the Indian markets.

**Carbon Credits In India** – India, is one of the leading generators of carbon credits through CDM projects, and has a great scope in emissions trading. The forecasted credits trading in India is expected to touch US\$ 100 Billion by 2010. At present, the total no. of registered CDM projects are over 300 in number, which account for almost one-third of the total CDM projects registered with the UNFCCC. The total issued credits with India stand at US\$ 34,101,315 (around 34 Million), which again account for around one-third of the total credits issued by the UNFCCC. According to MCXIndia, in terms of value in Indian Rupee, the credits could be running into thousands of crores.

**Government Initiatives** – The Government of Maharashtra has also taken the initiative of setting up an Urja Ankur Fund to generate 10% power through renewable energy sources including, wind and solar energy and tidal power. Several other state

governments are also instrumental in adopting similar initiatives of setting up environment friendly projects.

### **Benefits for India**

The carbon market is one of the fastest growing and most volatile market and India is fast emerging as a leading net seller of credits in the world and the largest supplier of credit after China. There has been a surge in number of registered projects in India. In 2007, a total of 160 new projects were registered with the UNFCCC indicating that more than half of all registered projects in India happened last year. It is expected that with increasing awareness this would go further up in the future. The number of expected annual credits in India is hovering around 28 million and the expected value is going to be around Rs 2,500 crore.

India, being one of the leading generators of credits through CDM projects has a large scope in emissions trading. Analysts forecast that India's trading in carbon credits would touch US\$ 100 billion by 2010. Carbon trading has brought a huge opportunity for Indian companies. Companies can earn credits by adopting energy saving and environment protecting methods and in turn can earn huge incomes by selling them. Besides, the rising crude oil prices will further incentivise the carbon market. However, this opportunity will not exist forever for

Indian companies. Like the industrialised countries around the world, India will have to adopt strict emission norms once India is also recognised as an industrialised country. In that event, India may turn into a net buyer of carbon credit from other developing countries.

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