



Carbon-New Commodity

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Abstract:

“Carbon trading” it consists of two words. Carbon means a chemical element which is present in all animals and plants and in oil and coal (symbol “C”) while trading is commercial term & which means to give something as a part of your payment. Carbon trading is one of the systems for controlling pollution. Companies & government can buy and sell licenses to produce carbon dioxide (not only carbon dioxide but also gases that are harmful for environment [GHG]) Trading of carbon is quite a new concept for the common people; this article has try to reach them.

Keywords: Carbon, Commodity, GHG, Environment, Global Warming

1. Introduction

A new dimension related to environment is that “GLOBAL WARMING” which ultimately caused by the greenhouse effect. The greenhouse effect refers to the temperature regulating effect of atmospheric gases on the earth. The earth’s outer atmospheric has several gases such as Carbon dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydro Fluorocarbons(HFC’s), Per Fluorocarbons(PFC’s) and Sulfur Hexafluoride (SF₆). These gases called greenhouse gases which are form a blanket around the earth to keep some heat from the sun within the earth’s atmosphere orbit and which keep the planet warm & habitable. In short without these gases, the world would become cold and which would not suitable place to live. These GHG work as blanket of the earth, if is 1% of the total atmosphere of the earth but today this blanket has become thick due to 1) continuous emission of carbon from the burning of oil, coal, natural gases & also almost from cement industries. 2) Additional methane & nitrous oxide by farming activities & changes in land use. Now a day, the different countries of the world as well as different industries become aware about it & they make organized efforts to protect the environment at international level. This include the first ‘Earth Summit’ was held in the year-1972 at Stockholm city, Sweden & then in the year-1992 at Rio de Janero (Capital city of Brazil) & other Montreal Protocol, Vienna Conference, Kyoto Protocol, Copenhagen Summit. ***Carbon trading is one of the important mechanisms of Kyoto Protocol (also known as KP)***

2. Why Kyoto Protocol Require?

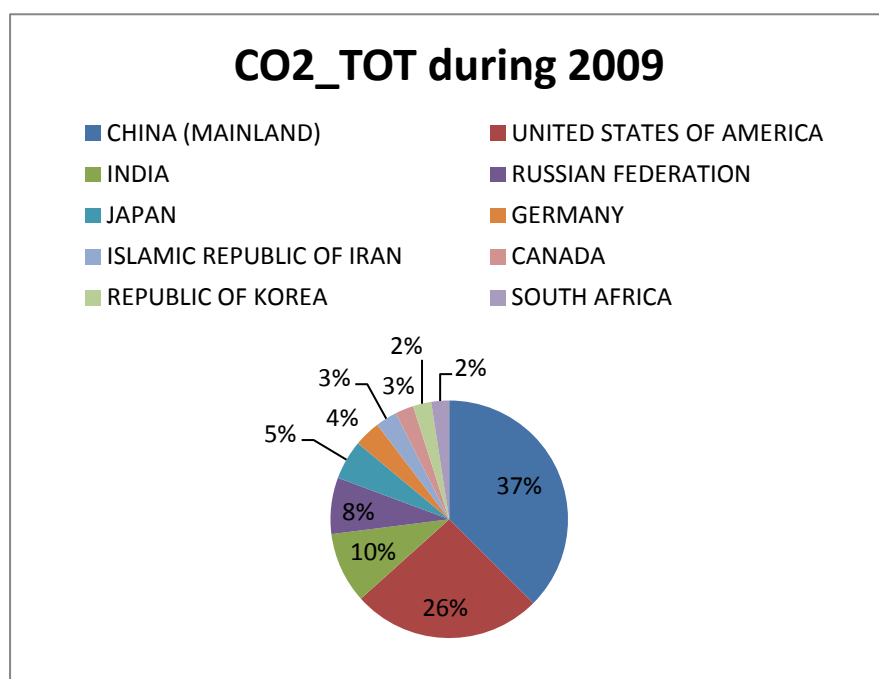
Large amount of GHG spread in the atmosphere of the earth due to above mention reasons this lead to rapid melting of glaciers in Artic & Antarctic regions, melting of snows in high

mountain regions, untimely rains, heavy floods, frequent earthquakes & tsunamis, rise of sea level & erosion of coastal regions.



The average temperature on the earth has risen by 0.60 Celsius since 1800 & is expected to rise by another 20 Celsius by 2100. Average sea level has risen by 20 Centimetres & is expected to rise by 40 Centimetres.

Top 10 Countries of the world by 2009 total CO₂ emissions from fossil-fuel burning, cement production, and gas flaring. Emissions (CO₂_TOT) are expressed in thousand metric tons of carbon (not CO₂)



To Control GHG emission at international level, it's requiring best possible efforts from all countries of the world & take a step ahead to form of Kyoto Protocol.

2.1 Response of International Community to Climate Change: The Climate Convention and the Kyoto Protocol

At the UN Conference on Environment and Development (UNCED), the United Nations Framework Convention on Climate Change (UNFCCC) was signed. The convention entered into force in March 1995.

The aim of the convention is to maintain atmospheric levels of greenhouse gas concentration in order to prevent man-made interference with the climate and the signatory nations to the Convention commit themselves to report national greenhouse gas inventories every year and also to review the progress on their regional greenhouse gas abatement programmes. Other commitments are technological help to developing countries which are especially vulnerable to climate change and participation in the meetings of the Conference of Parties (COP) to the Convention.

The 41 industrialised countries listed in the Annex I of the Convention are recommended to take emissions reductions at domestic level, while developing countries are not included in to immediate emission reduction measures, though may participate on a voluntary basis. All

parties to the treaty agreed to mitigate climate change by, for example, promoting climate-friendly technologies.

2.2 Kyoto Protocol

The Kyoto Protocol is the initiative step of United Nations Framework Convention on Climate Change to cope with the dangerous effect of global warming, which **commits** its Parties by setting internationally binding emission reduction targets.

To recognize that developed countries are principally responsible for the current high levels of GHG emissions in the atmosphere as a result of more than 150 years of industrial activity, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities." The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005. The detailed rules for the implementation of the Protocol were adopted at COP 7 in Marrakesh, Morocco, in 2001, and are referred to as the "Marrakesh Accords." Its first commitment period started in 2008 and ended in 2012.

Different Parties adopted different targets:	
Switzerland, Central and East European states, the European Union*	-8 %
United States	-7 %
Japan, Canada, Hungary, Poland	-6 %
Russia and Ukraine	0 %
Norway	+1 %
Australia	+8 %
Iceland	+10%

* The EU opted for a "bubble" solution, allowing the distribution of a single Kyoto Protocol commitment between its member states.

2.3 Doha Amendment to the Kyoto Protocol

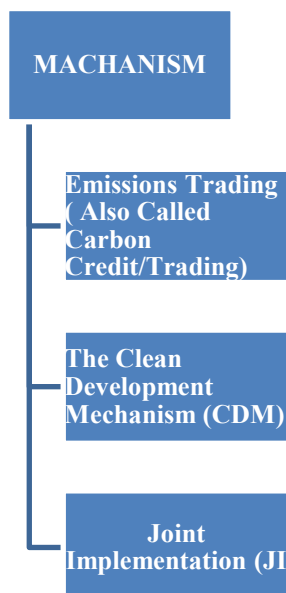
In Doha, Qatar, on 8 December 2012, the "DOHA AMENDMENT TO THE KYOTO PROTOCOL" was adopted. The amendment includes:

- New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 1 January 2013 to 31 December 2020;
- A revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period; and
- Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

On 21 December 2012, the amendment was circulated by the Secretary-General of the United Nations, acting in his capacity as Depositary, to all Parties to the Kyoto Protocol in accordance with Articles 20 and 21 of the Protocol.

During the first commitment period, 37 industrialized countries and the European Community committed to reduce GHG emissions to an average of 5 % against 1990 levels. During the second commitment period, Parties committed to reduce GHG emissions by at least 18 % below 1990 levels in the eight-year period from 2013 to 2020; however, the composition of Parties in the second commitment period is different from the first.

2.4 The Mechanisms under the Kyoto Protocol



The Kyoto Protocol had identified three market based mechanisms for providing flexibility in to meet respective commitment of nations, thereby creating what is now known as the “carbon market.”

2.4.1 The Clean Development Mechanism (CDM)

Under this mechanism, developed countries get financial inflow by sale of advance cleaner technologies which ultimately designed by them. Operational since the beginning of 2006, the mechanism has already registered more than 1,650 projects and is anticipated to produce CERs amounting to more than 2.9 billion tonnes of CO₂ equivalent in the first commitment period of the Kyoto Protocol, 2008–2012. CDM has two

purposes.

1. To help developing nations to achieve sustainable development.
2. To help developed nations to comply with emission limitations and meet reduction commitments.

2.4.2 Joint Implementation (JI)

This mechanism allows a country with an emission reduction or limitation commitment under the Kyoto Protocol (Annex B Party) to earn emission reduction units (ERUs) from an emission-reduction or emission removal project in another Annex B Party, each equivalent to one tonne of CO₂, which can be counted towards meeting its Kyoto target.

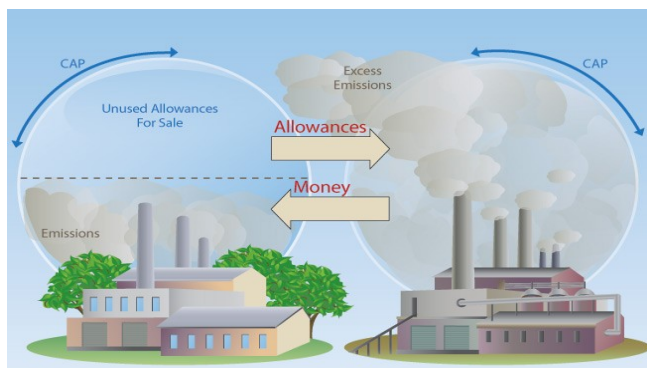
3. Emissions Trading (Also Called Carbon Credit/Trading)

Today, Carbon become most essential product for industries to make money by selling to polluting industries in the developed and developing nations at Carbon Market.

A system whereby countries or individual companies are set emission targets. Those that cannot meet their targets can buy credit from countries or companies that bear theirs.

In economics, carbon trading is a form of emissions trading that allows a country to meet its carbon dioxide emissions reduction commitments, often to meet Kyoto Treaty requirements, in as low a cost as possible by utilizing the free market. Carbon trading is the term applied to the trading of certificates representing various ways in which carbon-related emissions reduction targets might be met.

People buy and sell such products because it is the most cost-effective way to achieve an overall reduction in the level of emissions, assuming that transaction costs involved in market participation are kept at reasonable levels. It is cost-effective because the entities that have achieved their own emission reduction target easily will be able to create emission reduction certificates "surplus" to their own requirements. These entities can sell those surpluses to other entities that would incur very high costs by seeking to achieve their emission reduction requirement within their own business. Similarly, sellers of carbon sequestration provide entities with another alternative, namely offsetting their emissions against carbon sequestered in biomass. (*The Carbon Trade, BBC News, Thursday 20 April 2006*).



Source: <http://www.watradehub.com/node/639>

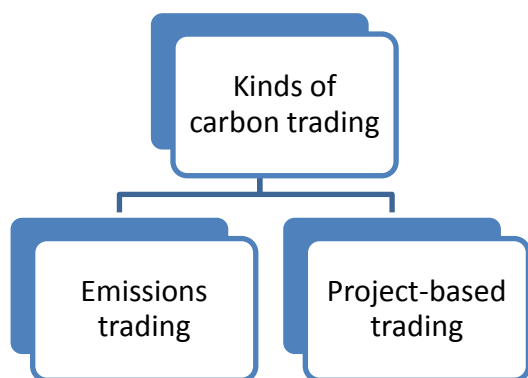
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4. Types of Carbon Trading

There are two kinds of carbon trading. The first is emissions trading. The second is trading in project-based credits. Often the two categories are put together in hybrid trading systems.

4.1 Emissions Trading

Emissions' trading is also sometimes called 'cap-and-trade'. A cap and trade system is an emissions trading system, where total emissions are limited or 'capped'. The Kyoto Protocol is a cap and trade system in the sense that emissions from Annex B countries are capped and that excess permits might be traded. However, normally cap and trade systems will not include mechanisms such as the CDM, which will allow for more permits to enter the system, i.e. beyond the cap (Point Carbon).



Suppose there are two companies, A and B. Each emits 1, 00,000 tonnes of carbon dioxide a year. The government wants to cut their emissions by 5 per cent. It gives each company rights, or 'allowances', to emit 95,000 tonnes this year. Each company must either reduce its emissions by 5,000 tonnes or buy 5,000 tones of allowances from someone else. The market price for these allowances is \$ 10 per tonne. Company A can reduce its emissions for half this cost per tonne. So it's reasonable for it to cut its emissions by 10,000 tones: if it sells the extra 5,000 tones (for \$ 50,000) it will be able to recover its entire expenditure. So the company saves \$ 25,000. For company B, making reductions is more expensive. Cutting each tonne of emissions costs it \$ 15. So it decides not to reduce its emissions, but instead to buy the 5,000 tonnes of surplus allowances that company A is offering. If company B reduced its own emissions, it would cost \$ 75, 000. But if it buys company A's surplus allowances, the cost is only \$ 50,000. So company B also saves \$ 25,000 on the deal. Both firms, in short, save \$ 25,000 over what they would have had to spend without trading. If they are the only two companies in the country, this means the country's business sector winds up cutting emissions just as much as it would have under ordinary regulation. But by distributing the reductions over the country's

entire private sector, it costs the sector as a whole \$ 50,000 less to do so. Some emissions trading schemes allow companies to save any surplus allowances they have for their own use in future years, rather than selling them.

4.2 Trading in Project-Based Credits

Suppose there are two companies, A and B, each emitting 1,00,000 tonnes of carbon dioxide a year and the government wants to cut their emissions by 5 per cent, so it gives each company allowances to emit only 95,000 tonnes. But now the government tells each company that if it doesn't want to cut its emissions by 5,000 tonnes each, it has another option. It can invest abroad in projects that 'reduce' emissions of carbon dioxide 5,000 tonnes 'below what would have happened otherwise'. Such projects might include growing crops to produce biofuels that can be used instead of oil; installing machinery at a chemical factory to destroy greenhouse gases; burning methane seeping out of a coal mine or waste dump so that it doesn't escape to the atmosphere; or building a wind power generator solar power. The price of credits from such projects is only \$ 4 per tonne, due to low labour costs, a plethora of 'dirty' factories, and government and World Bank subsidies covering part of the costs of building the projects and calculating how much carbon dioxide equivalent* they save. In this situation, it makes sense for both company A and company B to buy credits from abroad rather than make reductions themselves. Company A saves \$ 5,000 by buying credits from projects abroad rather than cutting its own emissions. Company B meanwhile saves \$ 55,000. The total saving for the domestic private sector is \$ 60,000. Other names for project-based credit trading include 'baseline-and-credit' trading and 'off set' trading

4.2.1 Sources of Demand & Supply

To emerge carbon credit markets offer large no. of opportunities for the upcoming manufacturing/public utility projects to employ a range of energy saving devices or any other mechanisms or technology to reduce GHG emissions and earn carbon credits to be sold at a price. The carbon credits can be either generated by project participants who acquire carbon credits through implementation of CDM in Non Annexure I countries or through Joint Implementation (JI) in Annexure I countries or to supply into the market by those who got surplus allowances with them. The buyers of carbon credits are principally from Annexure I countries. They are as under.

- Especially European nations, as currently European Union Emission Trading Scheme (EU ETS) is the most active market;
- Other markets include Japan, Canada, New Zealand, etc.

The major sources of supply are Non-Annexure I countries such as India, China, and Brazil.

4.2.2 Risks Involved In Carbon Credit

There are market- and policy-related risks for CER producers, including the supply-side risks starting from the DNA approval risk to the CER issuance risk in a complete CDM approval cycle. Apart from these risks there are a host of other risks from both the supply and demand sides that the real market players confront with. Most CDM projects by their very nature take a long time to generate the CERs and hence, face the aforesaid risks in large proportion, which if not hedged would lead to reduced realization. Under such a situation, the realization of CER generators at times may not even cover the investment put in to generate the CERs and thus, has the potential of even making a CDM project unviable in the long term. Given the long period of CDM projects and the risks involved, it is rather inevitable that they pre-sell their potential credits in the futures market (preferably a domestic futures market, to avoid forex risk attached to

participation in a foreign exchange) and thereby, cover their probable downside in the physical market.

5. A Market of Carbon Credit of the 21st Century

With growing concerns among nations to control pollution levels while maintaining the growth in their economic activities, the emission trading (ET) industry has come to life. And, with the increasing ratification of Kyoto Protocol (KP) by countries and rising social accountability of polluting industries in the developed nations, the carbon emissions trading is likely to emerge as a multibillion-dollar market in global emissions trading. The recent surge in carbon credits trading activities in Europe is an indication of how the emissions trading industry is going to pan out in the years to come.

6. Conclusion

It has been believed that GHGs will be slashed to a great extent and this novel mechanism will enable a host of developing countries to become self-sufficient in energy production, resulting in revenue generation, leading thereby to improved living standards to their people. India will hopefully benefit from this mechanism and become more environment-friendly for its citizens as it was the main behind the development of this mechanism of carbon trading.

References

- 1 Singh, Anchal. (2010). The Accounting World, Accounting and Taxation aspects of Carbon Trading by IUP publication, Hyderabad.
- 2 Victor, (2004). A New Currency, by Harvard Intl.
- 3 <http://cdiac.ornl.gov/trends/emis/top2009.tot>
- 4 <http://cdm.unfccc.int/methodologies/index.html>
- 5 http://en.wikipedia.org/wiki/Carbon_credit
- 6 <http://iroaf.gov.in/subpage.php?pageid=15&page=Carbon%20Credit>
- 7 <http://www.carboncurrencyfoundation.org/news/australian-bank-accepts-carbon-credits-as-currency.html>
- 8 <http://www.investopedia.com/terms/c/carbontrade.asp#ixzz2JQu48a1C>
- 9 <http://www.nytimes.com/2011/11/14/business/energy-environment/carbon-trading-may-be-ready-for-its-next-act>.
- 10 http://www.reliancepower.co.in/business_areas/carbon_credits.htm
- 11 www.mcxindia.com
- 12 www.pointcarbon.com
- 13 www.unfccc.int