

GLOBAL WARMING AND CARBON CREDIT

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1. Introduction :

Climate change caused by human activities that emit greenhouse gases into the air has started showing its affect in the frequency of extreme weather events such as drought, extreme temperatures, flooding, high winds; and severe storms. Global surface temperature has also increased between the start and the end of the 20th century, caused by increasing concentrations of greenhouse gases resulting from Fossil fuels burning and deforestation; With the increasing attention given to the link between greenhouse gases and climate change, many companies are quantifying their greenhouse gases emissions for internal management purposes and an increasing number are also preparing a greenhouse gas statement:

- (a) As part of a regulatory disclosure regime;
- (b) As part of an emissions trading scheme or
- (c) To inform investors and others on a voluntary basis included as part of annual report.

2. Definition :

: The greenhouse gases and Pollutants that during the relevant period, have been emitted to the atmosphere or would have been emitted to the atmosphere had they not been captured and channeled to a sink.

: Carbon dioxide (CO₂) and any other gases, such as, methane, nitrous oxide, sulfur hexafluoride, hydro fluoro carbons, perfluoro carbons and chlorofluorocarbons. These other gases are often expressed in terms of carbon dioxide equivalents (Co₂-e).

Determining which organizations or facilities to include in the company's greenhouse gas and Pollutants statement is known as determining the company's organizational boundary. In some cases, the applicable criteria may allow a choice between different methods for determining the company's organizational boundary. Determining the company's organizational boundary may require the analysis of complex organizational structures such as joint ventures, partnerships and trusts and complex or unusual contractual relationships. For example, a facility may be owned by one party, operated by another and process materials solely for another party.

: A pollutant is a waste material pollutes air, water or soil. Removal of greenhouse gases and Pollutants the company would have otherwise emitted to the atmosphere are ordinarily accounted for on a gross basis, that is, both the source and the sink are disclosed in the greenhouse gas and Pollutants statement. Three factors determine the severity of a pollutant, its chemical nature, the concentration and the persistence. Some pollutants are biodegradable and therefore will not persist in the environment in the long term.

3. Review of Literature:

The International Energy Agency (IEA) has pointed out that global temperature may rise at least 3 degrees Celsius because emissions will not be subdued before 2020, increasing the risk of mass flooding and disease. A study conducted by Martin Stuchtey, Partner with McKinsey and Published in the Economic Times dated 19th March 2008 points out that 60% of global executives regard climate change as being strategically important.

Sameer Gupta, Empirical Analysis of Carbon Credit Trading, Published in ICFAI Reader, September 2008, concludes that India and China are likely to emerge as the biggest sellers and Europe is going to be the biggest buyer of carbon credits. He further states that climate change has become a corporate social responsibility and accordingly has a dimension of carbon Emission Reduction (CER) which leads to Carbon Credit Trading (CCT).

Chakravarthi Anand in his article published "ICFAI" Reader 'September, 2008 on Current Global Trends in Carbon Credit Trading has pointed out that the international carbon market is a key development in the global capital market and is the world's fastest growing market. He further states that carbon credit trading has received a tremendous interest across the globe. It is a great opportunity for Indian and other global companies.

4. Objectives of the Study:

Following are the objectives of the study:

- a. To study the concept of global warming and its impact on the economy and industry.
- b. To study the concept of Green House and carbon emissions.
- c. To evaluate the process of carbon credit accounting.
- d. To study the concept of carbon credit and the progress of carbon credit trading in India.

5. Methodology: The study is analytical and descriptive. Hence survey method is used for conducting the study. The study is based on secondary data which has been collected from books, periodicals, newspapers and websites. The data and information have been arranged logically in order to draw certain conclusions.

6. Analysis: The detailed analysis is given below :-

(i) **Carbon Credit :**

Carbon Credit is a tradable permit scheme. It provides a way to reduce greenhouse gases emissions (discharges) by giving them a monetary value. A credit gives the owner the right to emit one tone of carbon dioxide. Carbon credits are generated as the result of an additional carbon project. A credit can be an emission allowance which is allocated or auctioned, by the administrators of a cap-and-trade program or an offset of greenhouse has equivalent carbon dioxide emissions. Kyoto Protocol sets quotas on the amount of greenhouse gases that countries can produce. Countries, in turn, set quotas on the emissions of business. Business organizations that are over their quotas must buy carbon credits for their excess emissions. On the other hand those organizations that are below their quotas can sell their remaining credits. Thus, by allowing carbon credits to be bought or sold, business organizations for which reducing their emissions would be expensive or prohibitive, can pay another business to make the reduction for it. Carbon credits can be exchanged between businesses or can be bought and sold in international markets at the prevailing market price.

The carbon emissions trading have been steadily increasing in recent years. According to the World Bank's Carbon Finance Unit 374 million metric tones of carbon dioxide equivalent (mmtCO₂e) were exchanged through projects in 2005 i.e. a 240% increase relative to 2004 (110 mmtCO₂e). Carbon credits create a market for

reducing greenhouse gases emissions by giving a monetary value to the cost of polluting the air. Emissions become an internal cost of doing business and are visible on the balance sheet alongside raw materials and other liabilities or assets.

India signed the Kyoto Protocol in 2002 regarding carbon emission and trading was started in 2007.

There is a huge scope for India in Carbon Credit Trading as she is one of the leading generators of carbon emissions reductions through clean development mechanism. Carbon credit has also been traded as a commodity at the major commodity exchanges like Chicago Climates Exchange (CCX), European Climate Exchange (ECX) and Multi Commodity Exchange (MCX). MCX has entered into a strategic alliance with CCX in September 2005 to initiate carbon trading in India. The total trading volume of carbon credits reached 9600 tons on the first day of trading on MCX. Recently, five contracts of carbon credits have been working on MCX platform with expiry in December, 2008,2009,2010,2011 and 2012. Inida, China and European countries are the potential market for carbon credits.

(ii) Global Trends in Carbon Trading :

Trading in non generation commodities like carbon credits has placed MCX on the global map of innovative exchange. Future trading on carbon credits was launched with MCX in January 2001. The carbon credits traded globally has recorded a rapid growth in recent years.

Table -1
Global Trends in Carbon Credit

Years	Volume (Million Tones)
2003	50
2004	100
2005	350
2006	537
2007	551

Source-world bank study report

Table 1 reveals that the volume of carbon credit created by the CDM has recorded a tremendous growth during the year 2003-2007. The global market in carbon is expected to be worth 34 billion by the end of 2011. Carbon credit is a tradable commodity at the major commodity exchanges i.e.: Chicago Climate Exchange, European Climate Exchange and Multi Commodity Exchange, India.

India has signed a Kyoto Protocol in 2002 regarding emissions. There are three mechanisms under the Kyoto Protocol for the developed countries which are under quota restrictions to acquire carbon credits.

These are Joint Implementation Clean Development Mechanism and International Emissions Trading. The CDM mechanism helps the developed countries to earn carbon credits. It also helps the developing countries to receive the capital, as well as the latest and clean

technology. Under the IET Mechanism the countries can trade in the international carbon credit market. Carbon credit is traded globally and it is a recently traded commodity at major commodity exchanges.

iii. Carbon Markets

The carbon market, existing and planned in the world are given below:

Country/Region	% of green house gas emission each covers
Europe	45
Switzerland	07
Australia	60
Korea	60
Shanghai	36
Tokyo	20
North America	27

Table -2

Carbon Markets

Source- World Bank

The above table reveals that Australia and Korea each cover 60% of green-house gas emission while Switzerland and Tokyo cover 7% and 20% respectively. Pricing of carbon emissions creates incentive to invest in low emission projects and forces change away from behaviors that contribute to climate change.

iv. Share of emissions

The following table gives the share of emissions ranking in the world.

Table 3

Rank of countries on the basis of share of emissions

Rank	Country	Ranking based on per capita emissions
1	China	Qatar (1 st)
2	US	Kuwait (3 rd)
3	India	Brunei (5 th)
4	Russia	UAE (6 th)
5	Japan	India (136)

Source –

Economic Times 19.10.2013

Above table revealed that China ranks first in the share of CO₂ emissions from fossil level in 2010 followed by US and India. The ranking based on per capita emissions is also provided where in Qatar ranks first, Kuwait third and India 136th.

v. Loss of GDP from projected climate change

The following table gives the percentage of loss of countries from projected climate change in their GDP

Table 4

Loss of GDP from climate change

Country	Loss in % of GDP
Timor-Leste	10
Vanuatu	6.2
Solomon Island	4.7
Fiji	4
Samoa	3.8

Source – Business standard 27.11.2013

The above table reveals that many small countries are losing in their GDP

because of climate change. Timor-Leste will be losing 10% of GDP while Samoa will be losing 3.8 % of its GDP.

However developed countries have not been included in this because they are not going to lose much due to climate change in future.

VI Principles of Measurement:

Emissions can be categorized as:

1. Direct emissions which are emissions from sources that are owned or controlled by the company.
2. Indirect emissions, which are emissions that are a consequence of the activities of the company but which occur at sources that are owned or controlled by another entity. Indirect emissions can be further categorized as :
 - a. Scope 2 emissions, which are emissions associated with energy, including electricity, heating/cooling, and steam that is

- transferred to and consumed by the other company entity.
- b. Scope 3 emissions, which are all other indirect emissions.
 3. The sources of emissions
 4. The types of gases and Pollutants involved.
 5. The uncertainties associated with quantification.

Nearly all quantifications of greenhouse and Pollutants emissions involve some degree of uncertainty because it is virtually impossible in any circumstances to precisely count each molecule of greenhouse gases and Pollutants emitted by a company. To the extent the uncertainty relates to existing gaps in available scientific knowledge, it is unavoidable and permeates all quantifications of greenhouse gases and Pollutants emissions. However, all quantifications are made within the context of the applicable criteria, and criteria differ in how they treat estimation or measurement uncertainty, some criteria stipulate rigid models methods, emissions factors that must be applied in all circumstances when calculating emissions from a particular source. For example the applicable criteria may require Scope 2 emissions from electricity to be calculated by multiplying kilowatt hours recorded on supplier's invoices by a prescribed emissions facto. Quantification in

accordance with such criteria effectively eliminates estimation uncertainty for the purpose of reporting in accordance with those criteria.

VII Disclosures:

1. The categorization of emissions attributable to each material type of emission included in the greenhouse gas and Pollutants statement:
2. Which organizations or facilities are included in the company's organizational boundary, and the method used for determining that boundary if the applicable criteria allow a choice between different methods.
3. The method used to determine which scope 1 and scope 2 emissions have been included in the greenhouse gas and Pollutants statement:
4. The nature of Scope 3 emissions including that it is not practicable for the company to include all Scope 3 emissions in its greenhouse gas and pollutants statements. The basis for selecting those Scope 3 emissions sources that have been included.

7. Conclusions:

India has signed a Kyoto Protocol in 2002 regarding emissions. There are three mechanisms under the Kyoto

Protocol for the developed countries which are under quota restrictions to acquire carbon credits. These are Joint Implementation Clean Development Mechanism and International Emissions Trading. The CDM mechanism helps the developed countries to earn carbon credits. It also helps the developing countries to receive the capital, as well as the latest and clean technology. Under the IET Mechanism the countries can trade in the international carbon credit market. Carbon credit is traded globally and it is a recently traded commodity at major commodity exchanges. Australia and Korea each cover 60% of green-house gas emission while Switzerland and Tokyo cover 7% and 20% respectively. China ranks first in the share of CO₂ emissions from fossil level in 2010 followed by US and India. Many small countries are losing in their GDP because of climate change. Timor-Leste will be losing 10% of GDP while Samoa will be losing 3.8 % of its GDP. Thus, India has made satisfactory progress in the global warming.

8. References:

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