

Case Study

Future Trend in Carbon Trading : A Case Study in Indian Prospective

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Introduction

Greed is not a financial issue. It is a heart issue.

~Andy Stanley

Being the largest growing economy of south Asia, India has tremendous demand for energy demand. Followed by China, India is the second largest producer of carbon in the world. In 1997, India agreed on Kyoto Protocol which is based on the principle that responsibilities would be different for both developed as well as developing countries. Generally the projects associated with carbon trading requires huge amount of fund. In India, for that purpose the World Bank has entered into an agreement with Infrastructure Development Finance Company (IDFC) where IDFC will handle carbon finance operations in the country. For that purpose initially \$ 10 million was provided by the World Bank as aid. Apart from it, IDBI in India has set up a dedicated Carbon Credit Desk that provides all services in the area of Clean Development Mechanism (CDM). After signing the Kyoto Protocol in August 2002, India is expected to gain from it in terms of technology and foreign investment.

In India, in two Commodity Exchanges, Carbon trading is done and they are Multi Commodity Exchange (MCX) and National Commodity and Derivatives Exchange (NCDEX). MCX launched future trading in carbon credits and it becomes Asia's first-ever commodity exchange and among the select few along with the Chicago Climate Exchange (CCE) and the European Climate Exchange to offer trades in carbon credits. On 11th April 2008, National Commodity and Derivatives Exchange (NCDEX) also has started futures contract in Carbon Trading for delivery in December of the same year. In MCX only Indian companies can trade Carbon units. Every year, in the month of December, the contract expires and at that time people who have bought or sold carbon will have to exercise it by delivery. If in any case, Indian buyer thinks that the current price

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is low , he can wait before selling his credits. There is no norm in the country or it is compulsory for the industries to reduce carbon emission to a certain limit. As developed countries are failing to meet the emission level of carbon, it creates opportunity for Indian investors that in future the demand as well as price of the carbon units will increase. There is a huge requirement of carbon credits in Europe before 2012. Only those Indian companies that meet the UNFCCC norms and take up new technologies will be entitled to sell carbon credits. There are parameters set and detailed audit is done before you get the entitlement to sell the credit. Since India is a developing nation, it does not come under the ambit of the Kyoto Protocol. So, we can use our developing country status to let any Indian company, factory or farmer link up with the United Nations Framework Convention on Climate Change and determine the permissible 'standard' level of carbon emission for its specific field of activity. For the amount of low carbon emissions made by an Indian company, the developed nation earns carbon credits.

Already, India's contribution to carbon credits stands at \$1 billion, out of a global trading of about \$5 billion. India has generated about 30 million carbon credits and has a line-up of about 140 million to introduce into the global market. These comprise chemical units, plantation companies, municipal corporations and waste disposal units that can easily sell their carbon credits for good amounts of money. This is possible because India has credits for emitting carbon below the permissible limits and so has enough credit to offer defaulting countries. With this facility, India can trade her carbon credits for large loans, better social visibility and ecological facilities and lucrative incentives by multinationals in their home countries. Some of the Indian countries that have already jumped on to this bandwagon include Tata Steel, Gujarat Fluoro Chemicals, NTPC, etc. Out of the 391 projects sanctioned by the UNFCCC, 114 were registered from India is the highest ever for any country.

Need of Carbon Derivative

In order to understand the concept of carbon trading, a minimum knowledge in derivative trading is the basic requirement. Simply, it is a contract traded on an underlying asset where the actual buying and selling of the underlying asset happens on a future date at a pre-defined price. Both in OTCs and Exchanges, these contracts can be traded. When emission of carbon as an underlying asset is traded through a derivative market in form of commodity derivative contract it is called

Carbon Derivatives. Like securities these are also traded in dematerialization form through D-mat Account. Carbon credit is the basis of these contracts which is simply the production cost of carbon. Basically there are 2 types of carbon trading. First, carbon emission trading and second, offset trading that is trading in project based carbon credits. The whole process of carbon trading can be broadly classified into five segments. They are as follows.

1. Setting a goal of Cap-Emission
2. Allocation of responsibility and allowances
3. Facilitating Emission reduced carbon trading
4. Monitoring & Reporting
5. Reconciliation

The carbon trading process starts at setting a target for emission of carbon by an entity. Generally the target is set according to the Government guidelines. The following step includes effort for reduction in emission of carbon. The entities have to reduce it so that the cap carbon emission would be at the target level or below it. If they fail to reduce the emission then allowances are to be paid as a fine. For the excess emission of carbon, the carbon unit is finalized and those units are traded in the market in form of forward, swap and option contracts in commodity derivatives. A regulatory body like Forward Market Commission (FMC) in India checks and controls the carbon trading activities as the market is still not efficient. At the end, the trading takes place with change hands of contract price from one party to another counter party. 1 carbon unit was traded at 13 Euro in India in the year 2013. Under Carbon trading, a country having more emissions of carbon is able to purchase the right to emit more and the country having less emission trades the right to emit carbon to other countries. More carbon emitting countries, by this way try to keep the limit of carbon emission specified to them. Emissions trading, as set out in Article 17 of the Kyoto Protocol, allows countries that have emission units to spare - emissions permitted them but not "used" - to sell this excess capacity to countries that are over their targets. Thus, a new commodity was created in the form of emission reductions or removals. Since carbon dioxide is the principal greenhouse gas, people speak simply of trading in carbon. Carbon is now tracked and traded like any other commodity. This is known as the "carbon market."

In Carbon Market, 6 gases are identified for carbon credits. 1 Carbon unit is equivalent to 1 ton of CO₂ that refers to the amount of different greenhouse gasses in terms of amount of CO₂. Carbon dioxide equivalents are commonly expressed as million metric tons of carbon dioxide equivalents, abbreviated as MMTCDE.

$$\text{MMTCDE} = (\text{million metric tons of a gas}) * (\text{GWP of the gas})$$

GWP stands for Global Warming Potential that is a relative measure of how much heat a greenhouse gas traps in the atmosphere. It compares the amount of heat trapped by a certain mass of the gas in question to the amount of heat trapped by a similar mass of carbon dioxide. (Source: https://en.wikipedia.org/wiki/Global_warming_potential). The companies that do not exhaust their cap are allowed to sell them in the market or to those companies in need of them. So, those who do not use up their entire permissible amount are rewarded by being allowed to sell their credits, while those who exceed their cap are penalized by having to pay for more credits.

Current Scenario in Carbon Trading

Table 1: Per Capita emission of GHG

Country	Emission %	Per Capita Emission
China	16	5.8
United States	16	24.1
European Union	11	10.6
Indonesia	6	12.9
India	5	2.1
Russia	5	14.9
Brazil	4	10
Japan	3	10.6
Canada	2	23.2
Mexico	2	6.4

Table 2: World vs. Indian Carbon Market

Year	Global CER Transactions (mCERs)	Indian CER transactions	Indian CER (in %)
2017	466	56	12

2018	551	33	6
2019	395	16	4
2020	200	04	2

Table 3: Distribution of NCDMA approved Projects

Name of State	No of Projects	Name of State	No of Projects
Maharashtra	368	Haryana	36
Tamil Nadu	358	Jharkhand	32
Gujarat	353	Kerala	18
Karnataka	251	Delhi	16
Rajasthan	223	Assam	13
Andhra Pradesh	208	Sikkim	10
Uttar Pradesh	163	Bihar	8
Chhattisgarh	104	J & K	6
Himachal Pradesh	91	Goa	4
Odisha	79	Meghalaya	4
West Bengal	78	Pondicherry	3
Punjab	74	Arunachal Pradesh	1
Madhya Pradesh	70	Tripura	1
Uttaranchal	49		

Conclusion

Carbon Derivative is such a financial instrument that helps a country to limit its carbon emission by offering financial incentives. Though it is a unique way of carbon trading for developing as well as developed countries yet we should not forget our concern for environment that comes as top priority. We should never forget that in order to gain financially through Carbon trading, our environment is not affected. We have to minimize our demand by not disrupting the balance in the environment so that our future generation has to pay for it by living in an unhealthy world. So, strict laws and guidelines should be implemented to limit the buying and selling of these Carbon units. Scientists must use their time, money, and all available resources in order to find substitutes for the carbon emitting fuels currently being used so that the environment does not suffer any damage at all. They could use sustainable development programs via renewable or zero carbon emission fuel. Countries need to be the change which they want to see in this world. Having

cornered more than half of the global total in tradable certified emission reduction (CERs), India's dominance in carbon trading under the CDM of the UNFCCC is beginning to influence business dynamics in the country. So, it can be safely concluded that the objective of Carbon Derivatives or Carbon trading should not be financial gain but Sustainability of our environment and our world to make it a healthy and safer place for our next generation.

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