

## MANAGING HEALTHY ENVIRONMENT THROUGH AN INNOVATIVE MARKET BASED INSTRUMENT

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### ABSTRACT

Protection of environment now not just remained a legal issue but a management issue as well. Day by day the cycle of climate on earth is changing. Global warming has led to season shifting, changing landscapes, rising sea levels, increased risk of drought and floods, stronger storms, increase in heat related illness and diseases all over the world. This has resulted due to emissions of Green House Gases (GHG's) from various anthropogenic activities. Since the inception of Kyoto Protocol in the year 1997, countries all over the world have become more concerned about 'Global Warming'. In today's scenario Global Warming is costing a lot of money, so Green Environmentalist aims to promote policy and business that works for the environment. As we all know, carbon dioxide, the most important greenhouse gas produced by combustion of fuels, has become a cause of global panic as its concentration in the Earth's atmosphere has been rising alarmingly. This has created an opportunity for the trade of carbon credits both within and outside of the regulated area, thereby creating a global "carbon market". In this system of carbon trading, controls are imposed on Greenhouse Gas (GHG) emissions under the Kyoto Protocol, and the pre-decided emission limits are then allocated across countries, which have to control the greenhouse gas emissions from the various industries and commercial units operating within them. The objective of the paper is to discuss the basic concepts and importance of carbon credit. It also emphasizes on the methods used to save the environment. This paper also discusses the business opportunities in the global emissions market in Indian context.

**KEYWORDS:** Carbon Trading, Kyoto Protocol, Green House Gas (GHG) emissions.

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### INTRODUCTION

Environmental management is not merely managing the environment but it's the management of human interaction with; and impact upon the environment in order to conserve the environment for mankind's sake. Managing environment is the biggest issue these days which is being faced by everyone everywhere across the globe. Decomposition and stabilization of solid organic waste material has been taking place in nature ever since life appeared on this planet. With the progress of civilization and advancements of scientific knowledge, efforts are being directed towards rationalizing and controlling the process in such a way as to make it more effective and efficient. Carbon Credits are a tradable permit scheme under UNFCCC (United

Nations Framework Convention for Climate Change) which give the owner the right to emit one metric tonne of carbon-dioxide equivalent. They provide an efficient mechanism to reduce the green house gas emissions by monetizing the reduction in emissions. Rural India has a tremendous potential to earn carbon credits by setting up household based energy substitution or fuel switching projects like biogas plants, solar cookers and solar cells, smokeless chulhas etc.

Global warming is an imminent catastrophe with irreversible consequences. The Kyoto Protocol was adopted in Kyoto, Japan on 11<sup>th</sup> December 1997 and entered into force on 16<sup>th</sup> February 2005. 180 countries have ratified the treaty to date. It aims to reduce the green house gas emissions by 5.2% against the 1990 levels over the five year period 2008-2012.

The carbon market is a concept based on “polluter pays” and cap and trade principle. The objective is to reduce gas emissions through the use of market law. It assembles voluntary organizations that exchange the rights to issue carbon dioxide.

When the companies are listed, the administration decides on the total amount of gas emissions they can emit as a group. Normally the total amount is lower than the one emitted the previous year. The main idea here is to reduce this level every year.

After the central administration decides on the total amount, a specific amount of gas emissions is distributed to each company. During the year, if a company manages to emit less than the allowable amount, it can sell the remainder to another company. This transaction doesn't change the total emissions of the group. Therefore, one company must emit a lower-than-allowable amount in order for another company to emit more.

As we can see, this procedure encourages companies to make changes in order to reduce their gas emissions and respect their allotted amount. The companies who surpass their allowable emissions must pay for the surplus by buying more permits. Another important aspect is that it encourages companies to emit less in order to acquire extra profit by selling their right to pollute.

The carbon market has already started in Europe and North America. It works pretty much like the stock exchange. The problem with this system is that it needs rigid regulations and enforcement in order to have a large impact. There is no law limiting the amount of carbon emissions by a company. The carbon market is purely based on volunteerism, which works well for the companies already involved. This system was at the heart of Kyoto.

### **MARKET BASED INSTRUMENTS FOR ENVIRONMENTAL BENEFITS:**

Market Based Instruments refer to the environmental policies which encourage change in technology, behaviour or products through financial incentives like subsidies, taxes, price differentiation or market creation.

## **CARBON CREDIT**

### **DEFINITION**

The Collins English Dictionary defines a carbon credit as “a certificate showing that a government or company has paid to have a certain amount of carbon dioxide removed from the environment”

The Environment Protection Authority of Victoria defines a carbon credit as a “generic term to assign a value to a reduction or offset of greenhouse gas emissions, usually equivalent to one tonne of carbon dioxide equivalent (CO<sub>2</sub>-e).”

### **FEW GLIMPSES OF BACKGROUND**

Burning of fossil fuels is a major source of industrial greenhouse gas emissions, especially for power, cement, steel, textile, fertilizer and many other industries which rely on fossil fuels (coal, electricity derived from coal, natural gas and oil). The major greenhouse gases emitted by these industries are carbon dioxide, methane, nitrous oxide, hydro fluorocarbons (HFCs), etc., all of which increase the atmosphere's ability to trap infrared energy and thus affect the climate.

The concept of carbon credits came into existence as a result of increasing awareness of the need for controlling emissions. The IPCC (Intergovernmental Panel on Climate Change) has observed that: Policies that provide a real or implicit price of carbon could create incentives for producers and consumers to significantly invest in low-GHG products, technologies and processes. Such policies could include economic instruments, government funding and regulation.

While noting that a tradable permit system is one of the policy instruments that has been shown to be environmentally effective in the industrial sector, as long as there are reasonable levels of predictability over the initial allocation mechanism and long-term price.

The mechanism was formalized in the Kyoto Protocol, an international agreement between more than 170 countries, and the market mechanisms were agreed through the subsequent Marrakesh Accords. The mechanism adopted was similar to the successful US Acid Rain Program to reduce some industrial pollutants.

### **EMISSIONS REDUCTION THROUGH CARBON CREDIT**

Carbon credits create a market for reducing greenhouse 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 material and other liabilities or assets.

For example, consider a business that owns a factory putting out 100,000 tonnes of greenhouse gas emissions in a year. Its government is an Annex I country that enacts a law to limit the emissions that the business can produce. So the factory is given a quota of say 80,000 tonnes per year. The factory either reduces its emissions to 80,000 tonnes or is required to purchase carbon

credits to offset the excess. After costing up alternatives the business may decide that it is uneconomical or infeasible to invest in new machinery for that year. Instead it may choose to buy carbon credits on the open market from organizations that have been approved as being able to sell legitimate carbon credits.

We should consider the impact of manufacturing alternative energy sources. For example, the energy consumed and the Carbon emitted in the manufacture and transportation of a large wind turbine would prohibit a credit being issued for a predetermined period of time.

- One seller might be a company that will offer to offset emissions through a project in the developing world, such as recovering methane from a swine farm to feed a power station that previously would use fossil fuel. So although the factory continues to emit gases, it would pay another group to reduce the equivalent of 20,000 tonnes of carbon dioxide emissions from the atmosphere for that year.
- Another seller may have already invested in new low-emission machinery and have a surplus of allowances as a result. The factory could make up for its emissions by buying 20,000 tonnes of allowances from them. The cost of the seller's new machinery would be subsidized by the sale of allowances. Both the buyer and the seller would submit accounts for their emissions to prove that their allowances were met correctly.

## **KYOTO PROTOCOL**

In 1992 the United Nations Framework Convention on Climate Change (UNFCCC) was formed to explore possible ways to militate against the global warming problem. The Kyoto Protocol was adopted in 1997 and went into force in 2002. Approximately 170 countries have ratified the Protocol; as of the date of this publication the United States is not one of those countries. The Kyoto Protocol expires in 2012. The Kyoto Protocol is a compliance market that involves allowances based on entity-wide emissions as well as project-based credits.

The Kyoto Protocol separates countries into two categories: developed countries, which are referred to as Annex I countries, and developing countries, referred to as non-Annex I countries. Annex I countries are required to reduce their greenhouse gas (“GHG”) emissions by a collective average of 5% below the 1990 baseline by 2012. Non-Annex I countries have no GHG emission reduction obligations but may participate by implementing GHG reduction projects that can generate carbon credits which can then be sold to Annex I buyers to meet their requirements. Annex I countries can acquire the right to pollute beyond their assigned limits through three mechanisms: Clean Development Mechanism (“CDM”), Joint Implementation (“JI”), and Emissions Trading.

## **CLEAN DEVELOPMENT MECHANISM**

CDM provides for Annex I Parties to implement projects that reduce emissions in non-Annex I countries in return for certified emission reductions (“CERs”). The CERs generated by such project activities can then be used by Annex I Parties to help meet their emissions targets under

the Kyoto Protocol. CDM projects must be approved by a designated national authority (list available at <http://cdm.unfccc.int/DNA/index.html>).

## **JOINT IMPLEMENTATION**

Joint Implementation provides for an Annex I Party to implement an emission reducing project in another Annex I Party's territory and count the resulting Emission Reduction Unit ("ERU") towards its own requirements under Kyoto. All JI projects must have the approval of both Annex I Parties.

## **EMISSIONS TRADING**

Under Emissions Trading, one Annex I polluting entity can trade with another Annex I polluting entity for their rights to pollute. Annex I countries can authorize businesses and other non-governmental entities to engage in Emissions Trading so long as the country has a national registry established to register emissions offsets and settle emissions trades.

In order for the Annex I countries that have ratified the Kyoto Protocol to meet their requirements, many have individually instituted GHG emission caps for the emitters within their borders. Each emitter is then allowed to utilize CDM, JI, and Emissions Trading to meet the requirements of the cap imposed by its home country. Thus, purchases of CERs and ERUs may be made between businesses within the same Annex I country or between businesses from different Annex I countries.

In order for countries or other entities to hold credits under Kyoto and transfer them to another party, registries must be in place that tracks the location and ownership of credits at all times. Most Annex I countries have implemented a national registry containing accounts within which Kyoto Units are held and may be traded from one account to another. The individual national registries, as connected through the international transaction log, form the backbone of the Kyoto carbon market.

For example, the European Union Emission Trading Scheme ("EU-ETS") was formed to help EU states achieve compliance with their respective commitments under the Kyoto Protocol. Under the EU-ETS, a certain quantity of emissions is granted to EU companies in the form of EU Allowances. These EU Allowances can then be bought and sold by the companies. Since the EU Allowances are also Kyoto Units, however, transactions in EU Allowances are automatically recorded on the international transaction log in addition to the national registry of EU countries involved.

Because the United States did not ratify the Kyoto Protocol, projects within the U.S. will not generate CERs or ERUs. U.S. entities can buy and sell Kyoto Units but are unable to create them. U.S. companies could presumably buy Kyoto Units to meet a voluntary standard, but because of the uneven playing field inherent when other parties in the market require Kyoto Units to meet a mandatory requirement, the price could be prohibitive.

## **CARBON OFFSETS: METHODS TO SAVE THE ENVIRONMENT**

Carbon offset is another financial solution to reduce greenhouse gas emission, which works on a similar strategy. A carbon offset credit is equivalent to reduction of one metric ton of CO<sub>2</sub> or equivalent greenhouse gas in the atmosphere. It immensely aids in promoting renewable and green energy options like solar energy and wind energy, and in funding projects on nature conservation and reforestation. Using cleaner and renewable energy sources like wind and tidal energy helps to achieve this crucial reduction. Even individuals are also using this method and are buying carbon offset to make the environment cleaner and to spread awareness about environment conservation. Buying carbon offset is straightforward and can be conveniently executed on the internet through one of the several carbon offset provider websites. But we must keep in mind that simply buying carbon offset does not take away our responsibilities, as all of us can play an important part in decreasing our carbon footprints by bringing small modifications to our daily lives. These small modifications can be of immense help in preventing further environmental degradation. We should adhere to certain fundamental practices like switching off lights and other electronic equipments when not needed, using low-energy bulbs and LED lighting, and opting for renewable fuels like biodiesel. According to the calculator on westnet.com if the average motorist does 400kms per week in a 2L petrol car then 19 trees should be planted to absorb all the CO<sub>2</sub> created. As the car drives, the trees grow. Planting 19 trees will offset all your vehicle's emissions for as long as you live, as long as the trees are not felled of course. There are certain few things that we can do to greatly reduce our carbon waste like carpooling, it cut half of the cost and saving can also be done. The another way to reduce the footprint is by eating vegetarian food because it takes much more energy to produce animal protein then vegetable protein. We can also reduce carbon waste by reducing the size of our landfills i.e. don't take anything that cannot be eaten or reusable. A few simple changes can really make a difference, especially if all 6.75 billion of us started to adopt them.

## **INDIAN INITIATIVES FOR ENVIRONMENTAL MANAGEMENT**

Comparing the globally placed carbon trade, India seems nowhere near. However, Policy Statement for Abatement of Pollution, 1992 by the Government favours the use of MBIs for pollution control, wherever feasible. In the recent years, compulsion to comply with Euro II emission norms is a very confident step towards controlling air pollution. It has now become essential for companies to make environmental considerations as a part of their business decision making. The enactment of the Information Technology Act, 2000 has enabled the industry to kick-start the use of electronic mode as a valid legal medium for carrying out its business operations which were until now done compulsorily on paper. This includes initiatives like MCA e-filing, Income Tax e-filing, SEBI Reporting and other electronic communications via, emails and video conferencing.

**LIST OF THE INDIAN COMPANIES USING CARBON CREDIT**

<b>Companies</b>	<b>Project</b>
Tata Steel	Waste heat recovery-based power project
Kesoram India	Steam system up gradation
Jaya Shree textiles	Energy efficiency
ACC	Blended cement
Birla Corp	Blended cement
JK cement	Waste heat recovery-based power project
JCT	Small-scale biomass
RIL	Energy efficiency
USWL	Cogeneration
Shree Cement	Optimal utilization of clinker
TNPL	Methane extraction, fuel conserve.
Rana Sugars	Bagasse-based cogeneration
Ultra Tech Cement	Prod of Pozzolana cement
United Phosphorus	Natural gas as fuel
Nahar Spinning	Rice husk-beased cogeneration

**ROLE OF INDIA IN CARBON TRADING**

India is emerging as a serious player in the global carbon credits market. This has prompted originator, developer and trader of carbon credits, to set up office in India. Carbon credit is very emerging domain now a day's especially in India but very few corporate are aware of this emerging segment. At present it is quite essential to create awareness about this business segment. As, India's GHG emission is below the target and so, it is entitled to sell surplus credits to developed countries. India is considered to claim about 31% of the total world carbon trade, which can give \$25bn by 2010. This is what makes trading in carbon credits such a great business opportunity. Foreign companies which cannot fulfil the norms can buy the surplus credit from

companies in other countries. Many Indian companies have been re-rated on the stock markets on the basis of the bonanza that will accrue to them when carbon trading kicks off. SRF Ltd and Shell Trading International have entered into sale and purchase Credit Emission Reduction. Suzlon Energy and Shriram EPC have business in wind energy which is eligible for carbon credit benefits. Shree Renuka Sugars is also expected to benefit from carbon credits. Gujarat Flourochemicals was among the early companies to register for Clean Development Mechanism (CDM) project. India has emerged as the dark horse in this race as more than 200 Indian entities have applied for registering their CDM Project for availing carbon credits. The 800 million farming community in India has also a unique opportunity where they can sell Carbon Credits to developed nations. The India's Delhi Metro Rail Corporation (DMRC) has become the first rail project in the world to earn carbon credits because of using regenerative braking system in its rolling stock. DMRC has earned the carbon credits by using regenerative braking system in its trains that reduces 30% electricity consumption. It is believed that it is not the penalty awarded to erring companies, but the rewards and recognition given to green firms is what makes this system so popular and exclusive. This means that companies with limited emissions will devise strategies to further reduce emissions so that they can sell more carbon credits in the international market and thereby increase their profits. Thus, the system keeps on de-polluting the environment increasingly.

### **WHAT PROFESSIONALS CAN DO?**

India is still not a signatory to the Kyoto Protocol, which in a way, is a road-block for effectively carrying out environmental management by the industries. Currently companies like Jindal Stainless, Essar Steel, Hyderabad Chemicals, Paschim Hydro Energy P. Ltd, The Andhra Pradesh Paper Mills Ltd, have been making use of market based instruments like Carbon Credits in their businesses.

It is a need of the hour for Company Secretaries, Chartered Accountants, Lawyers, Cost Accountants and other Management professionals to put up their say in the management of their respective organisations (financial, manufacturing or services) and be a part of the decision making more proactively & aggressively.

### **AT THE ORGANISATION LEVEL**

1. The various industry Chambers like FICCI, ASSOCHAM, CII should take-up the issue of introducing market based instruments like Carbon Credits through a legal framework with the Government.
2. Introduction of corporate-run carbon funds
3. Introduction of Government-run carbon programmes.
4. Professionals, should stress upon and make the company management aware of the benefits of such market based instruments

5. Awards like 'Best Green Idea' for employees coming up with suggestions; ideas, ways, etc. should be introduced.
6. Ask the management of organisations to take help of the MBIs wherever feasible.
7. Computer-based entrance tests for educational courses.
8. Organizations can also come up with policies for reducing wastes like for encouragement of use of metal water bottle in the organization in place of plastic water bottles which is sanitary, easy to clean and is capable of being used over and over.

## **CONCLUSION**

Carbon offset and carbon credit still needs to find its place in layman's vocabulary. Thus, mass awareness on the issue through widespread education is required, to provide our future generations the better cleaner environment. But still the increased demand flowing to carbon credits and the introduction of newer financial instruments for emission trading are all signs of heightened activity. It's the need of the hour to think very seriously on reducing environment loss by religiously following & implementing and innovating techniques & ways to contain the same. This is a high time to call a revolution for reducing carbon footprint in order to preserve what's left of the ozone layer, which is a protective layer between sun's harsh ultra violet rays and the living beings. Otherwise, the day is not far when the world will be full of hunger; sun burnt, blind people, scary sounds and many more incurable diseases. It can also be concluded that India is an emerging leader for the developing countries in designing innovative strategies and portfolios for carbon trading. We are all advice to come up with policies to reduce wastages, be it paper, electricity or any other. Policies on travels can also be modified to discourage air travel at all levels of management. A small change can add a big thing to the concept of "Go Green".

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