gases (Carbon dioxide, Methane, Nitrous Oxide, Hydrofluoro carbons (HCFs), Perfluoro carbons (PFCs), Sulfur Hexaflouride (SF_6)) from human activities have influenced the global climate. Thus on 16th February 2005, the 'Kyoto Protocol' finally came into force. This protocol aimed to solve the problem of global warming by setting target levels for nations to reduce the green house gas emissions to 5.2 per cent below 1990 level by the year 2012.

The Kyoto Mechanism

The Kyoto Protocol has three innovative mechanisms for reducing the green house gas emissions. They are:

(i) Joint Implementation (ji)

It is a project based mechanism in which the developed countries (Annexure 1 countries) can reduce their emission targets through joint projects with other Annexure 1 developed countries. Here the investors could be Government companies, Private sectors etc. which will participate in the project activities of the host country to generate **Emission Reduction Units (ERUs)** to use them for compliance with targets under the Kyoto Protocol.

(ii) Clean Development Mechanism (CDM):

This mechanism is established by Article 12 of the Kyoto Protocol for project based emissions reduction activities in the **developing country.** The main objective of the mechanism is to meet the sustainable development needs of the host country which is a developing country. This would also help in reducing the emissions level of green house gases of the developed country which has invested in the projects in the host country.

(iii) International Emission Trading (IET):

In this mechanism, a country may allocate permits to individual companies for the emission of a certain quantity of green house gases allotted by the Kyoto commitments. If a country is incapable of meeting its target, it could buy permits from other countries. Similarly companies within a country that can reduce there emissions limits to a level lower than the allowed limit can 'sell' or 'trade' their excess **carbon credits** to other polluting countries.

As discussed in Unit-8, Carbon credits, as defined by the Kyoto Protocol are one metric ton of carbon dioxide emitted. The current prices of credits range from 25 Euros to 29 Euros. e.g. DMRC (Delhi Metro Rail Corporation) earned 4.2 crores of carbon credits by selling 82,000 CER's in 2008, for using regenerative braking system that reduces 30% electricity consumption.

Carbon Credits for Indian Scenario

India being a developing country is exempted from the requirement of adhering to the Kyoto Protocol. However it can sell the carbon credits to the

developed countries. The sectors which can generate the carbon credits are projects in wind mills, Bio-diesel, Co-generation, Bio-gas, afforestation etc.

The protocol is designed not only to reduce the climatic ill effects of the industrialization but identify the economic beneficiaries (i.e. the developing countries) and make them more accountable in the damage control.

Carbon Trading and Carbon Credits

Carbon trading is part of the large emission trading which is a method to control pollution by using economic incentives. In emission trading a central authority such as a government or an international body like the European Union sets a limit on the amount of the emitted pollutants. The allowance to emit pollution is called 'credit' and if the pollutant emitted is carbon dioxide, it is called carbon credit. If an industry or a company exceeds its emission level it will have to buy the extra allowance or credits from the countries which pollute less.

Merits of Carbon Credits

The following are the advantages of carbon credits:

- This allows the total quantum of emissions to be controlled without having to micromanage emissions by each firm.
- This concept penalizes the party polluting the environment by making it pay for the credit while the seller is rewarded monetarily.

Demerits of Carbon Credits

- Instead of policies that reduce emission, strict regulations, and penalties for polluters, this trading provides elaborate get out clauses for the biggest polluters.
- Carbon trading is a new form of colonialism where the developed countries would continue to pollute the atmosphere by buying the credits from the developing countries.
- Licences and credits will have no value without effective enforcement as the industries or companies may find it far less expensive to corrupt inspectors than to purchase emission licenses.

Markets Set up for the Trading

Different markets have been set up for different emissions. For carbon trading, the European Union is the largest multinational trading centre where all the 27 members of the union are involved. The programs covered under this, caps the amount of carbondioxide that can be emitted from large installations such as the power plants. The markets to reduce the acid rain is in the US where trading of nitrous oxide takes place. Markets for other pollutants tend to be smaller and more localised.

CASE STUDY

The first IT park to win carbon credits for India is in Kolkata. This park which is located in the posh 'salt lake" area of Kolkata would earn 8,500 carbon credits a year for next ten years. This will be sold in the International Market at the rate of 10 Euro each and would fetch to developers Rs 70 lakhs every year.

13.8 ENVIRONMENTAL MANAGEMENT SYSTEM STANDARDS ISO 14000 SERIES

The ISO: 14000 Series, currently being developed by the **International Organisation for Standardization (ISO)** is a collection of standards and guidance documents to help organizations address environmental issues.

wind up the "Forest Bench' and dispose of the writ petitions seeking a direction to the Centre and States and to take more adequate and effective steps to conserve and increase the forest cover of the country.

13.7 CARBON CREDITS

One of the environmental threats our planet is facing today are the long term changes in the earth's temperature and climatic pattern. This is known as **Global Climate Change.** Scientists are estimating that as a result of global climatic changes, the Earth's temperature could increase by as much as six and a half degree (6.5°) Fahrenheit by the year 2100. This increase in temperature could result in the melting of glaciers, increase in the rise of sea levels to more than three feet and many other changes in the natural and human systems. To prevent this sort of disruption, on our planet efforts should be made to control global climatic changes. An important step in this process was made in 1997 when over 2500 scientists from the world agreed that emissions of the six green house