

Role of Carbon Credits in Textile Industry



By: Fibre2fashion.com

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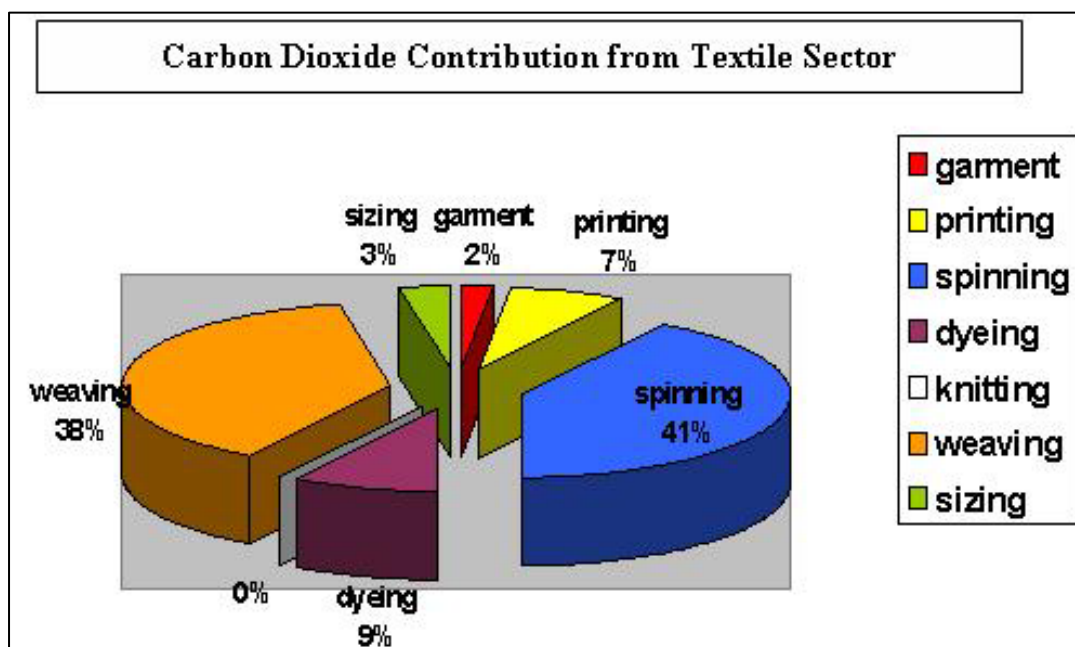
By: **Fibre2fashion.com**

It is estimated that about 60-70% of emission of CO₂ in the environment is due to the fuel combustion in the industries. The Textile industry is one of such polluters of the environment besides steel, cement and fertilizer industry.

The global textile industry produces about 60 billion kg of fabric annually and is responsible for the production of large amount of the carbon emission by various processes such as dyeing, bleaching, and finishing. It is estimated that about 132 million metric tons of coal is burned year on year basic and about 9 trillion of water is used in the processes. It is this textile processing units which have raised many major environmental issues and can be well described as “Elephant in the Room”.

India's total emissions are the fourth-largest in the world, after the United States, China and Russia, though its per capita footprint remains lower at 1.2 tons annually, compared to 20 tons in the United States and the world average of 4 tons. In US, the textile industry is the 5th largest contributor of CO₂ emissions and its worst in the rest of the world.

Where as, in India the total emission from the textile industry is estimated to be 18.12 million tons.

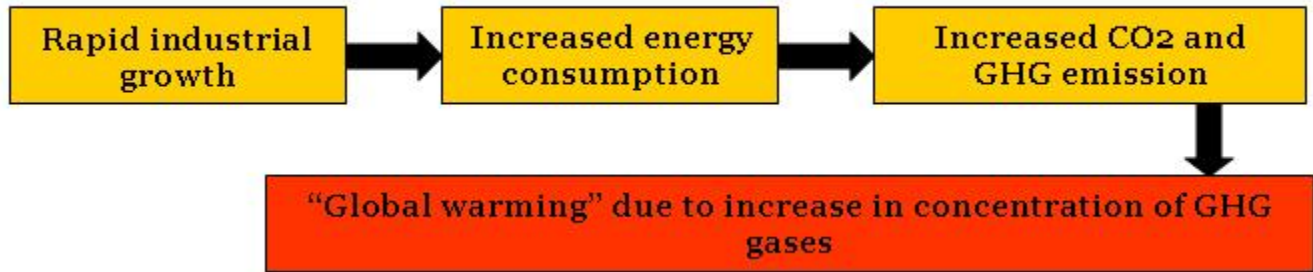


Out of the total energy available in India, textile industry consumes about 9-10 % of total energy, which accounts for 20% of the total production cost. The thermal and the electrical energy demand in the Indian textile industry are met by burning fossil fuel (like coal, firewood, fuel oil). The burning of the fossil fuel results in the emission of the CO₂. Apart from this, through the use of chemicals, solvents and large amount of water, textile product affects the environment drastically. Also some of the flame retardants used in the textiles contain organic bromine, which do not easily decompose in the environment and there by pollute the environment. Azo dyes and formaldehyde used in the Textile processing and dyeing also pollute the environment. The most suitable way to reduce this GHGs is by using environmentally sustainable technologies.

If we see all the processes and the sources of CO₂ emission, then we can closely understand the pollution created at every step of textile processing.

Process	Source	Pollutants
Energy Production	Boiler	Nitrous oxide, sulphur dioxide
Coating, drying and curing	Ovens , Dryer	Organic chemicals
Cotton handling activities	Carding, combing	particulates
Sizing	Sizing process	Nitrous oxide, sulphur dioxide
Bleaching	Bleaching process	Chlorine, chlorine compound
Dyeing	Dyeing chemicals	H ₂ S, Aniline
Printing	Printing process	Ammonia, HC
Finishing	Finishing process	Lubricants, formaldehyde
Chemical storage	Storage tank	Volatile chemicals
Waste water treatment		Toxic emission, non decomposable

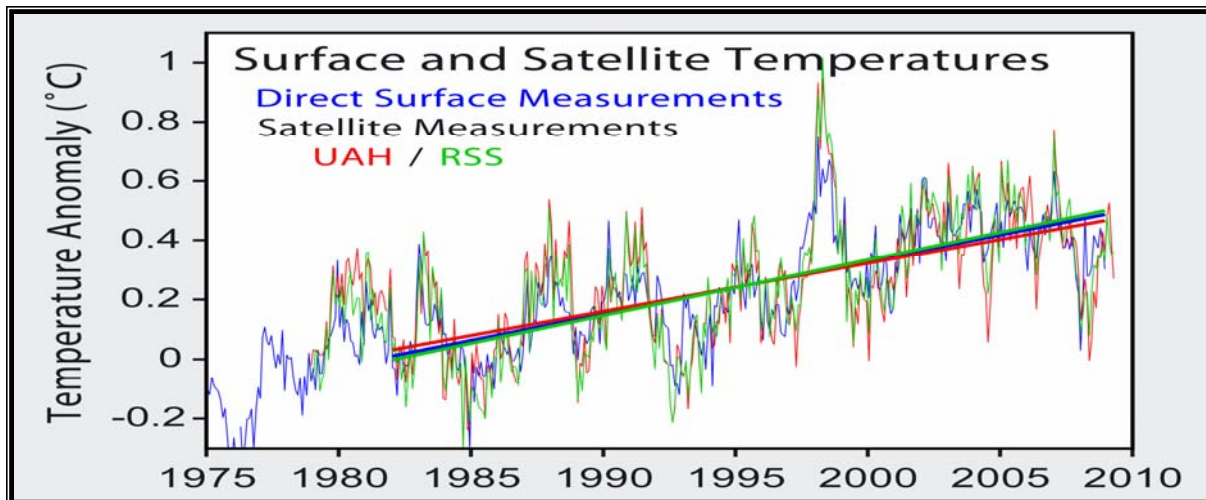
This increase in the pollution due to carbon dioxide has led to increase in the global temperature of the atmosphere. Apart from Carbon Dioxide, there are many reasons for these changes in the climate, but the major cause of this change in climatic condition is the rapid industrialization and the use of the modern equipments.



Global warming is the increase in the average temperature of the air and the water near the earth surface since the mid of 20th century and its projected continuation.

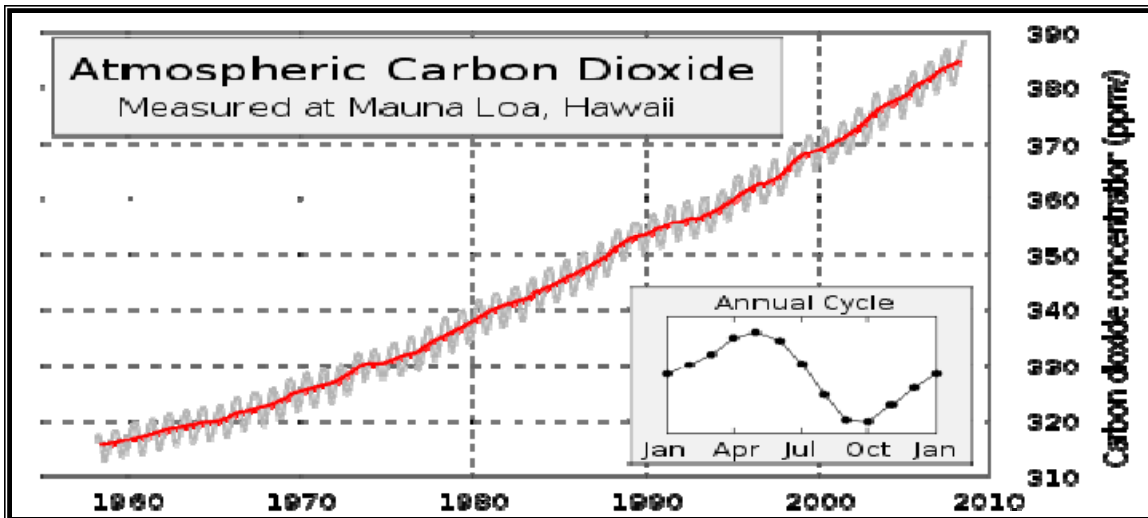
The major cause of this observed temperature increase since 20th century is caused by the increasing concentration of the greenhouse gases, which is the result of the human activity like burning fossil fuel and deforestation.

The **picture** shows the ever increasing temperature of the earth surface, since 1975



Source: Wikipedia

Previous the carbon dioxide content in the atmosphere help to keep the surface of the earth cool at around 14 degree celcius, which would have been other wise very cool up to -18 degree celcius. But now the overall scenario has been changed, the carbon content has increased to a huge extent, which is not safe and should be controlled as early as possible.



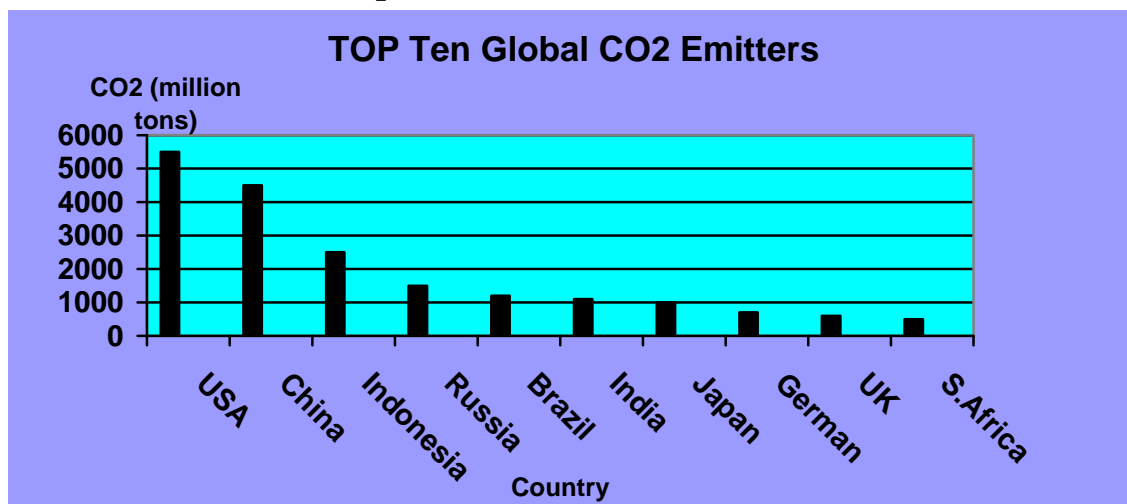
Source: Wikipedia

The **graph** shows the increase concentration of Carbon Dioxide in the atmosphere. The safe level of carbon dioxide in the environment should be around 300 ppm to 325 ppm. This level of CO₂ was maintained in the environment for about 35 years. But now we can see that the level of CO₂ has been increased to about 380 ppm, far above the safe limit.

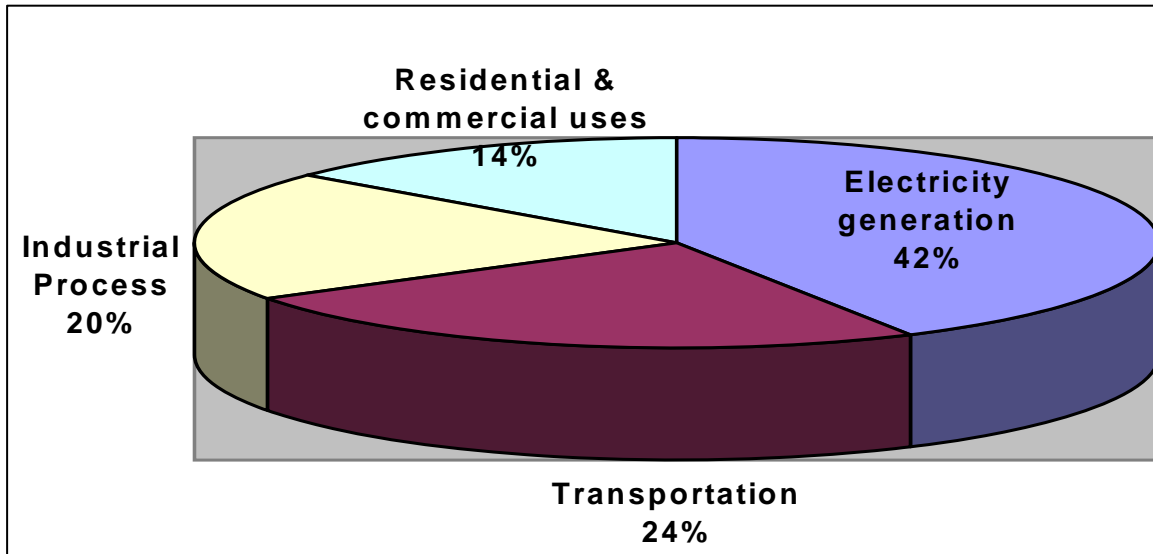
The Kyoto protocol was the first attempt made by all the countries to eliminate this increase in the level of Carbon Dioxide.” The Kyoto Protocol is an agreement under which industrialized countries will reduce their collective emissions of greenhouse gases by 5.2% compared to the year 1990.”

The objective of this Kyoto Protocol is to lower overall emissions of six greenhouse gases - **sulfur hexafluoride** ,**carbon dioxide**, **nitrous oxide**, **methane** , **HFCs** , and **PFCs** - calculated as an average over the five-year period of 2008-12.

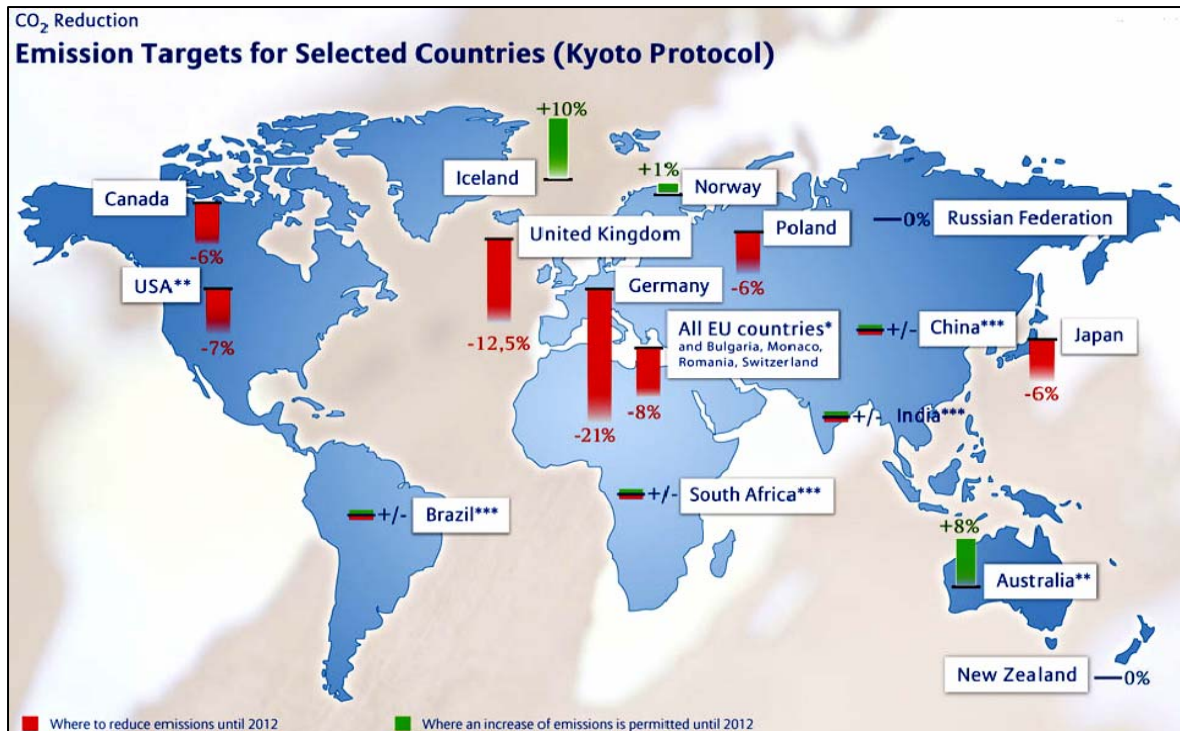
Top ten Global CO₂ Emitters:



Sector wise world over GHGs Emission:



The emission reduction targets for different countries are:



Source : (Indian Jute Industry Research)

The Kyoto Protocol had designed 3 mechanisms for the reduction of the carbon from the environment:

- 1) Joint implementation
- 2) Clean Development mechanism
- 3) International Emission Trading

Joint implementation:

In Joint Implementation, any developed country can invest in emission reduction projects, in any other developed country, as an alternative to reduce emissions domestically. By opting to this method, the country can reduce the overall cost, as investing in GHG reductions in other developed country are cheaper. The company can then apply this reduced emission credit to their committed goal. The JI allows the country which is investing into another company to claim credit for emission, due to which there is transfer of ERU (Emission Reduction Units) between the countries. Where as the host country do not earn any ERU, but get a new technology development with low or no carbon emission potential.



E.g. of JI: Replacing coaled based power plant with efficient combined heat and power plant. Currently Russia and Ukraine have planed to host largest number of the JI.

Jl, likely projects are:

- 1) Afforestation or reforestation
- 2) End-use energy efficiency improvements
- 3) Fuel switching projects
- 4) Renewable energy projects such as Biomass, Hydropower etc
- 5) Reduction of industrial emission

The general conditions that needed to be fulfilled for doing JI projects are:

- 1) Project should be approved by the both the parties or countries
- 2) Project much led to sustainable development in the host country.
- 3) Project must cause a real time long term benefits for reducing the emission in the environment.

The general conditions needed to be fulfilled by all the parties involve in the JI are:

- 1) All the parties should have ratified the Kyoto protocol
- 2) All the parties should have an assigned amount of the emission reduction target.
- 3) Each party should establish a national JI authority.
- 4) Each party should have a national system for estimation of the anthropogenic emission and sink of all GHGs.
- 5) Each party should have a good national registry, an annual inventory, and accounting system for the sale and purchase emission reduction.
- 6) Each party should submit a supplementary information of assigned amount, with addition or subtraction of the emission units.

Source: (Wikipedia)

Procedure

Track 1 procedure: If on verification the host country meets the as above then the host country may issue appropriate quantity of ERUs.

Track 2 procedures: If the host country does not meet the entire requirement, then the verification of reduction of the emission or removal by sinks is done with the co-ordination of Joint Implementation Supervisory Committee (JISC).

Source:

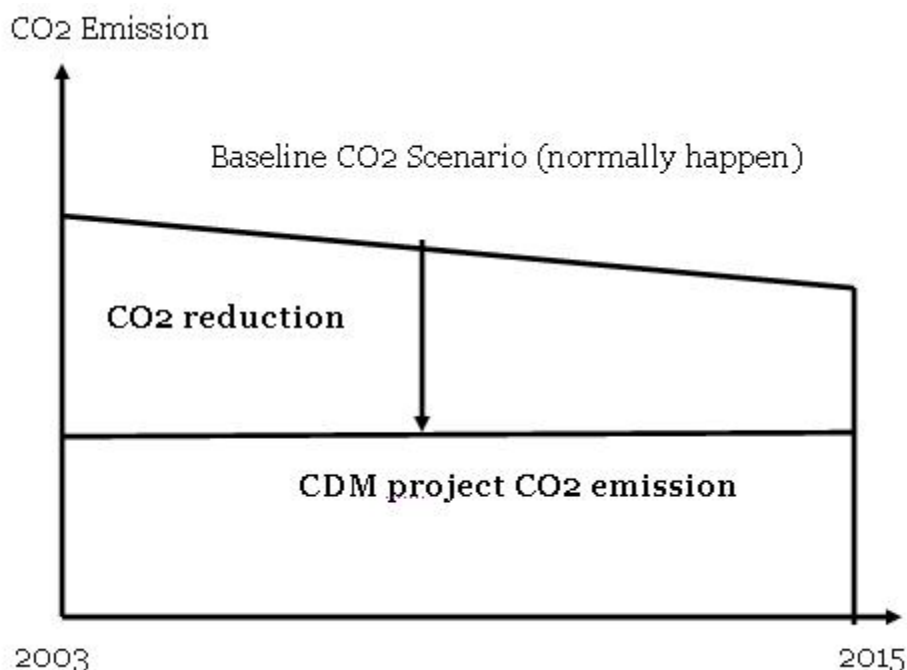
Clean Development mechanism:

CDM is one of the flexible mechanisms as defined in Article 12 of Kyoto Protocol, and it is designed to meet two objectives:

- 1) To assist developing countries who host CDM projects to achieve sustainable development.
- 2) To provide developed countries with flexibility for achieving their emission reduction targets, by allowing them to take credits from emission reducing projects undertaken in developing countries.

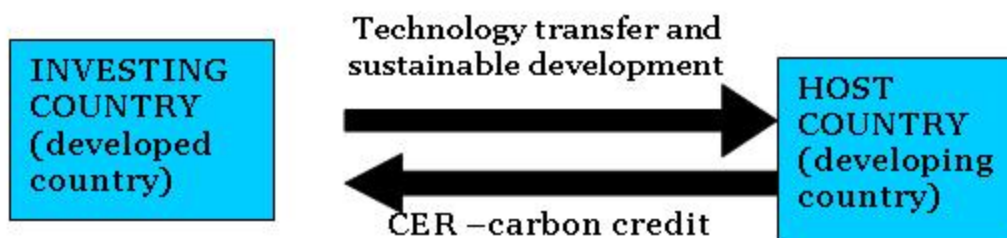
CDM is designed to encourage clean development in the developing countries. The idea behind this mechanism is to have production with reduced emission. The reduced emission is subtracted from the baseline CO₂ emissions. The CDM projects are given credit against this baseline.

Base line estimation:



It is more economic to develop and implement this emission cut technology in the developing countries. This is due to the fact that the rules and the regulations are less stringent in the developing country as compared to the developed country.

Outline of the project process



1) The developed country that wishes to take credits from a CDM project will have to take the prior consent of the project from the developing country that the project will help to contribute to sustainable development and will help to reduce the CO2 emission.

- 2) The developed country, with the help of process designed by CDM Executive Board (EB), must establish a baseline estimating the future emissions in absence of the registered project.
- 3) The proposal is then verified by Designated Operational Entity (DOE), to ensure the project results in real, measurable, and long-term emission reductions.
- 4) The EB then decides whether or not to register (approve) the project. If a project is registered and implemented, the EB issues credits, called Certified Emission Reductions (CERs, commonly known as carbon credits, where each unit is equivalent to the reduction of one metric ton of CO₂e, e.g. CO₂ or its equivalent), to project participants based on the monitored difference between the baseline and the actual emissions, verified by the DOE.

Source :(Wikipedia)

International Emission Trading:

According to the Article 17 of the Kyoto protocol, the countries that have emission remaining lower than the upper limit provided to them in the protocol, during 2008-12, can sell this excess credit to the countries that are over their targets. And this is how a new commodity was created in the form of emission reduction. Carbon being the main element of the pollution this carbon is now traded like any other commodity and the market where it is traded is called “Carbon market”. And the units are called carbon credits. The transfer of this carbon credits units between the countries, are tracked and recorded in a registry system, developed under the protocol.

Other trading units in the carbon market

The other units which may be transferred under the scheme, each equal to one ton of CO₂, may be in the form of:

- 1) Removal unit (RMU) - on the basis of land use, land-use change and forestry activities such as A-forestation.
- 2) Emission reduction unit (ERU)-by JI
- 3) Certified emission reduction (CER) - By CDM

The Credentials of Textile Industry for Carbon Credits:

The Nahar Spinning, Punjab has received carbon credits for its rice husk based power generation project. This plant will help to 22000 ton of carbon dioxide emission. Apart from this, the Oswal Woolen Mills power generation

project, which is also a subsidiary of Nahar Spinning have helped to reduce carbon dioxide emission by 22000 ton. So totally it is going to reduce about 44000 ton of carbon from the atmosphere.

It has also commissioned 9-mega watt plant, which will be along the same lines. Nahar Spinning has gone to the UNFCCC to get this project approved. The said project will reduce emissions by 70000-80000 ton.

Nakoda Textile Industries: The use of gas machines has led to substantial cost saving and pollution free supply of power. The process for accreditation for claiming carbon credit also has already started.

Ambika Cotton Mills: This textile company (total turnover: ₹185.40 crore in 2008-09) reported a net profit of Rs 9.42 crore. Carbon credit accounts for more than one-third of its net profit. Has booked Rs 3.39 crore for sale of carbon credit earned through its wind energy plant in 2008-09

Sambandam Spinning Mills: Its wind energy converters generated power of Rs 8.59 crore as against Rs 8.51 crore in the previous year. Earned Rs 1.66 crore from carbon credits compared with Rs 3.36 crore in 2007-08.

Kandagiri Spinning Mills: Its wind energy converters generated power, earned carbon credit income of Rs 1.28 crore in 2008-09 (Rs 2.93 crore in 2007-08).

Jayashree Textile: 'Humidification Towers' of Jaya Shree Textiles under CDM.

Arvind mills submitted two CDM projects to UNFCCC on agro-based steam generation (80,000 CER/ Year).

Velatal spinning mills Pvt. Ltd. implemented 8.75MW capacity wind energy based power plant (CER 67184).

Thus reducing carbon = Money!!!!!!



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