

544

The Kyoto Protocol And Possible Business Opportunities In The Natural Rubber Sector

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Global Climate Change

Global climate has been changing very rapidly in the recent couple of decades. Initially the interest in this problem has been largely academic but now there is an almost unanimous consensus among scientists, politicians, policy makers, administrators and common people alike that of late climate has changed for the worse. Global climate change, global warming, green house effects etc are no more issues that concern only environmentalists and scientists, but they touch the day to day life of every man.

Unprecedented changes observed in the world's climate in the recent years point towards the vulnerability of our climate system on which the entire living world so closely depends. The adverse effect of climate change on natural resources such as water, food security, human health and economy have already started to appear. Climate change is largely a man made problem, mostly by the rich industrialized countries that polluted the earth's atmosphere with impunity in the name of industrialization and development. But the poorer countries and the economically weaker sections of the society will bear much of the brunt of climate change.

The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 to look into issues related to the causes of and preventive measures for global climate change. The adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1994 has been a major milestone that reflected the growing concerns of the international community for global climate change. The UNFCCC demonstrated the commitment of the international community to protecting the earth from dangerous interferences happening to its climate system. It aims at limiting the concentrations of six major green house gases (GHGs) in the atmosphere that are primarily responsible for climate change. These gases are methane, nitrous oxide, hydrofluorocarbon, perfluoro

carbon, sulphur hexafluoride and of course, carbon dioxide. Human activities have increased the concentrations of GHGs in the atmosphere, whose peculiar chemistry is responsible for global warming, penetration of harmful radiations such as ultra violet radiation to earth's surface etc.



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The UNFCCC has about 190 countries as its signatories, including India. The Annex I parties to the UNFCCC (the industrialized countries and the economies in transition to the open market) agreed, *albeit* non-legally, to reduce their respective GHG emissions to 1990 levels by 2000, but this never happened.

The Kyoto Protocol and Politics of Climate Change Negotiations

The third Conference of Parties (COP 3) to the UNFCCC held in Tokyo during December 1997 adopted a Protocol to the UNFCCC known as the Kyoto Protocol which aims to achieve quantified emission reduction targets by the rich industrialized countries. The Protocol commits the 18 developed countries plus the European Union (listed in the Annex B of the Kyoto Protocol and hence called Annex B countries) to achieve emission reduction targets for their GHGs. The developing and the least developed countries (called non Annex B countries) are not bound by any emission restrictions recognizing the need for these countries to have more industries for their development. The Annex B countries are required to reduce their collective emission of the six GHGs to 5.3 per cent below their 1990 emission levels by 2008-2012, the first commitment period of the Protocol.

The Kyoto Protocol will enter into force only if it is ratified, accepted, approved or acceded by 55 per cent of the Annex I countries representing 55 per cent of the total Annex I CO₂ emission as of 1990. More than 120 countries representing about 44 per cent CO₂ emission from the Annex I category have ratified, accepted, approved or acceded to the Kyoto Protocol, but the United States and Russia, the two largest GHG emitters in the world have not done so. The GHG emission by the US and Russia accounts for nearly 36% and 17%, respectively, of the Annex I countries total GHG emission as of 1990. Without at least one of these two big polluters ratifying the Kyoto Protocol, it cannot come into force in spite of the fact more than 120 countries are already

party to the Protocol. The European Union, Canada and Japan are very keen to see the Kyoto Protocol eventually come into force.

As far as the US is concerned the present administration of

President Bush is not very keen to ratify the Protocol which was originally negotiated by the Clinton administration which had a more pro-green image. While UNFCCC takes the position that "where there are threats of serious or irreversible damage (to the world climate), lack of full scientific certainty should not be used as a reason for postponing such measures to reduce the concentration of GHGs in the atmosphere". However President Bush is of the view that emission targets established by the Kyoto Protocol "were arbitrary and not based on science" and that "no one can say with any certainty what constitutes a dangerous level of warming and therefore what level must be avoided". According to the current US administration, the Kyoto Protocol is "fatally flawed". The world expected a much more environmentally sensitive approach from the president of the most powerful and the richest country which is also the largest CO₂ emitter in the world. The views and position of the present US administration on climate change in general and the Kyoto Protocol in particular are contrary to the accepted wisdom of most nations in the entire world. Although the federal government in the United States has a different view on this matter, several States in the US have adopted unilaterally their own measures to restrict GHG emission.

Russia has a large coal-based economy which makes it difficult to restrict its carbon dioxide emission and hence the reluctance of President Putin to ratify the Kyoto Protocol. Recently, Mr Andrei Illarionov, the Russian president's economic advisor called the Kyoto Protocol an "undeclared war against Russia". There have been reports that the European Union is putting pressure on Russia to ratify Kyoto Protocol before Russia can join the WTO. According to a Reuters report last month, President Putin has said that Moscow would move to ratify the Kyoto Protocol after an agreement with the EU on entry into the WTO. A Russian research group called "Russia and Kyoto Protocol" has gone on record that Russia can benefit from the Kyoto Protocol only if it is guaranteed sales of 100-130 million tonnes of CO₂ at a price of no less than US \$40 per tonne. The head of the UN Environmental Program, Mr Klaus Toepfer has stated that there are clear indications that Russia is serious about the ratification.

Clean Development Mechanism

The Kyoto Protocol has established policies and mechanisms to reduce GHG emission, including phasing out subsidy in energy intensive technologies, encouraging adoption of alternative environment-friendly technologies, taxing emissions etc. Obviously there will be a considerable cost in meeting the emission reduction target of the Annex B countries set by the Kyoto Protocol. The Protocol established three major market mechanisms to help the Annex B countries meet their emission reduction cost effectively. They are International

Emission Trading (IET), Joint Implementation (JI) of emission reduction projects among Annex B countries and the Clean Development Mechanism (CDM) that encourages projects by Annex B countries (i.e., industrialized countries) in non-Annex B countries (i.e., developing countries like India) that do not have emission restrictions.

CDM aims at bringing funding from Annex B countries for environment-friendly projects in the tropics and subtropics in the form of Certifiable Emission Reduction (CER) credits that can be virtually traded. (1 CER = 1 T CO₂ equivalent) that is either prevented from releasing into the atmosphere or removed from the atmosphere). Annex B countries can receive credits (CERs) for implementing projects in non Annex B countries that reduce CO₂ emission or remove CO₂ from the

atmosphere. CERs thus earned in the non Annex B countries can be traded with Annex B countries subject to conditions. The projects implemented under the CDM of the Kyoto Protocol offer opportunity for investing by Annex B countries to obtain CERs which can be used by them to offset their own GHG emissions. Obviously, such carbon trading makes good economic as well as environment sense. For the developed countries it will be more economical for them to invest in a developing country and obtain CERs rather than limit their own GHG emission, which can be more expensive than buying CERs from a non Annex B country. The developing countries are exempted from emission reduction and thus

the Kyoto Protocol does not hinder further industrialization of developing countries. Thus the CDM mechanism is an excellent economic opportunity for developing countries while environmental concerns are genuinely addressed.

CDM and the Natural Rubber Sector

In principle, all sectors of natural rubber industry, namely the plantation, primary processing and products manufacturing sectors are eligible to attract CDM funding. The articles 3.3 and 3.4 of the Kyoto Protocol refer to "sinks" of atmospheric CO₂. Sinks are stocks of carbon sequestered in terrestrial vegetation and soil. These stocks of carbon unlike the inorganic CO₂ gas in the atmosphere does not have any adverse effect on climate. Net removal of atmospheric CO₂ by sinks through "land use, land use change and forestry" (LULUCF) activities including "aforestation, reforestation and deforestation" initiated since 1990 and are "direct human induced" are eligible for CERs that can be traded in the CDM market. The ninth Conference of Parties to the UNFCCC held in Milan during December 2003 has agreed to this. The CDM Executive Board is currently finalizing the rules and modalities for including carbon sinks from LULUCF activities under the CDM of the Kyoto Protocol. Clearly, this has profound implications for the natural plantation sector. Although

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plantation activities have not been directly mentioned in the decisions of COP-9, they are eligible for CDM funding if they meet the general requirements as applicable to afforestation and reforestation and other conditions stipulated for CDM.

Plants remove CO² from the atmosphere through the process of photosynthesis. The Rubber Research Institute of India has conducted elaborate studies on the carbon sequestration capacity of natural rubber plantations which is in the range of 7-9 T carbon/ha/year which is roughly equivalent to 24-34 T CO₂/ha/year. Just like any tradable commodity, virtual trading of CERs is also open to market forces. If more and more buyers of CERs come into the market, naturally the price of CERs will go up. Obviously the demand for CERs must go up towards the end of the first commitment period of the Kyoto Protocol (2008-2012) when the price of CERs may increase substantially.

Between June 2003 to January 2004 the price of CER in the EU Emission Trading System (ETS) increased from about 7 Euro /T CO₂ to about 13 Euro /T CO₂ but in the CDM market the prices were notably low, around US \$ 5/T CO₂. Even at this modest price, rubber plantations have a potential worth of US \$ 120-170/ha/yr in the CDM market. It has been estimated that from the total area of 0.5 million hectare of natural rubber in India, there will be enough CERs to meet just under 10 per cent of the combined demand for CERs by Japan and the EU to meet their Kyoto targets.

The above market potential of natural rubber plantations in the CDM market can be realized only if natural rubber plantation sector is brought under the LULUCF activity of the Kyoto Protocol which is entirely up to the Indian government. This is now possible with the decision of COP-9 to adopt carbon sink projects like afforestation and reforestation activities under the CDM. Given the fact that natural rubber plantations are very efficient in sequestering atmospheric CO₂, they are an excellent candidate to attract CDM funding. CDM is as much about economics and environment as livelihood means and overall socio economic development. Rubber plantations through out the world are mostly small holders who are scattered in large rural areas in South and South East Asia. Any carbon abatement project in natural rubber plantations under the CDM will be compatible with the socio economic and ecological criteria set out under the CDM for sustainable development in the tropics and sub-tropics.

The NR Processing and Product Manufacturing Sectors

Any activity that results in reduction of emission of GHGs into the atmosphere is eligible for CDM funding. Many activities related to natural rubber processing and rubber based industry can qualify for funding under CDM. Production of biogas

from processing effluents, use of biomass gasifiers and solar thermal system for drying rubber are examples of use of non-conventional energy in the natural rubber processing sector. This helps in displacing fossil based fuel which amounts to indirect sequestration of CO₂ and therefore qualifies for CDM funding. By the same principle, any technological innovation in the manufacturing sector that improves the energy use efficiency over the existing level is currently eligible for CDM funding. The small amounts of CERs from the various processing and industrial units in the country can be pooled and traded in the international CDM market. Use of rubber wood in place of various timbers also qualifies for CDM funding. Where natural rubber is used in place of synthetic

rubber, the amount of fossil carbon conserved will qualify for CDM funding because synthetic rubbers are fossil carbon derivatives. Use of natural rubber instead of synthetic rubber helps in conserving equivalent amounts of fossil carbon. It may be noted that fossil carbon is perhaps the best form in which atmospheric CO₂ can be sequestered and put away permanently without interfering with the world's climate system. But it is unrealistic to expect to achieve this in reasonable time. Hence leaving the fossil carbon untouched is the best strategy and therefore any project that will utilize energy or product from a non-fossil carbon source instead of from fossil carbon is eligible for CDM funding.

It is important that all the concerned stakeholders in the natural rubber plantation, processing and industry sectors work in co-ordination to attract benefits of carbon trading under the CDM of the Kyoto Protocol into their respective sectors. There is still hope that the United States and Russia might eventually fall in line with the Kyoto Protocol and it will come into force in 2008. If that happens the CDM market will substantially increase in volume and scope raising the price of carbon in the CDM market. While President Bush remains somewhat committed not to ratify Kyoto Protocol, there have been reports that the democratic presidential candidate Mr. John Kerry is more pro-green. It is expected that environmentalists will make their presence felt in the upcoming US presidential election. Even in the event of Kyoto Protocol failing to come into effect in its original, it is expected that it will survive in one form or the other given the growing concerns of the international community towards climate change. The European Union has already put in place its own trading in carbon known as European Trading System (ETS). Business opportunities apart, environmental concerns must be addressed by the international community for the survival and well being of human kind in a sustainable manner. CDM offers a mechanism to achieve the same and all sectors of the natural rubber industry can potentially benefit from it if concerted and timely efforts are taken.

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