

Carbon Credits - The Emerging Gold Mine

24th May 2007

Recently we had done an Investment Idea on Navin Fluorine International Ltd. The main basis of our recommendation was the huge cash flows that it would generate from the implementation of the CDM project under the Kyoto Protocol. In this special feature, we bring to you the various aspects of the Kyoto Protocol and the markets dynamics revolving the trading mechanisms for the carbon credits. In this issue to Wealth Compass we have also encapsulated an interview of Mr. Sadekar, MD of Navin Fluorine, which would also be an interesting read. To begin with lets look at what prompted this need for a climate change protocol.

The world economies are growing at a fast pace; the developed nations are setting new challenges for themselves, the developing ones are trying to make the most out of the opportunities globalization has to offer and the underdeveloped ones are working hard to bridge the gap between themselves and rest of the world. But in all this action, the world's environment has been deteriorating rapidly. Over the past several decades, rising concentrations of greenhouse gases have been detected in the Earth's atmosphere, which have been causing a variety of detrimental changes in the global climate, sea level, agricultural patterns, and ecosystems. We have already witnessed calamities like Katrina in US and the Mumbai floods in July 2005, which were caused due to the changes in the ecosystem.

In 1990, UN's Intergovernmental Panel on Climate Change's (IPCC) submitted its first report raising concerns about global warming and changing climatic and environmental conditions. Following this, the United Nations Framework Convention on Climate Change (UNFCCC) was created in 1992 at the 2nd Earth Summit or the United Nations Conference on Environment and Development (UNCED). In this the participating nations signed a treaty, which aimed at reducing the emissions of greenhouse gas (GHG).

Although the convention did not provide specific emission reduction targets or set penalties for violations, a resolution was made to conduct regular meetings called 'Conference of the Parties (COP)' to discuss and assess the progress made towards conserving the global environment. In 1997, at third such COP in Kyoto, Japan, an agreement was reached to curb the emissions of GHGs, which came to be known as Kyoto Protocol.

The Kyoto Protocol

Kyoto Protocol is a legally binding agreement, which makes it obligatory for 37 developed countries to bring down their collective emissions of GHGs by 5.2% compared to the year 1990.

Each of the countries have been given a target to be achieved over a period of 2008-2012.

Signatories to the UNFCCC are split into three groups:

- Annex I Parties - This group includes the industrialized countries that were members of the OECD (Organization for Economic Co-operation and Development) in 1992 and the Economies in Transition (EITs).
- Annex II Parties - It consists of the OECD members of Annex I, but not the EIT Parties. They are required to provide financial resources and technological assistance to enable developing countries to undertake emissions reduction activities under the Convention.

Non-Annex I Parties - These are mostly the developing countries. These developing or Non-Annex I countries do not have to meet any emission reduction targets.

It was agreed that the Protocol would come into force when 55 countries have ratified it, accounting for 55% of developed country emissions in 1990. With the ratification of Iceland on May 23, 2002, the "55 parties" clause was fulfilled and on November 18, 2004 Russia ratified satisfying the "55% of developed country emissions" clause thus paving way for the Protocol to come in force on February 16, 2005. However, it is noteworthy that the US, which accounts for one-third of the total GHG emission, though having signed the Protocol, is yet to ratify for the same. In December 2006, 169 countries and other governmental entities were parties to the convention.

Targets under Kyoto Protocol

	Target (1990** - 2008/2012)
EU-15*, Central Europe, Eastern Europe, Bulgaria, Czech Republic, Estonia, Latvia, Liechtenstein, Lithuania, Monaco, Romania, Slovakia, Slovenia, Switzerland	-18%
US***	-7%
Canada, Hungary, Japan, Poland	-6%
Croatia	-5%
New Zealand, Russian Federation, Ukraine	0
Norway	+1%
Australia	+8%
Iceland	+10%

* The EU's 15 member States will redistribute targets among themselves, taking advantage of a scheme under the Protocol known as a "bubble". The EU has already reached agreement on how targets will be redistributed.

** Some EITs have a baseline other than 1990.

*** The US has indicated its intention not to ratify the Kyoto Protocol.

Note: Although *Belarus* and *Turkey* are Annex I countries they are not included in the Protocol's Annex B as they were not Parties to the Convention when the Protocol was adopted.

If a Party fails to meet its emissions target, it must make up the difference in the second commitment period, plus a penalty of 30%. It must also develop a compliance action plan, and its eligibility to "sell" under emissions trading will be suspended. In the case of compliance with emission targets, Annex I Parties are granted 100 days after the expert review of their final annual emissions inventory has finished to make up any shortfall in compliance (e.g. by acquiring credits through emissions trading).

Kyoto Mechanism

The most obvious way to meet the targets is to reduce the emission of GHGs through technological or process changes within a country. However, the Protocol also establishes three market-based mechanisms aimed at giving countries flexibility and lowering the overall costs of achieving its emissions targets.

- Joint Implementation (JI) - JI is a mechanism through which a developed country with relatively higher costs of domestic greenhouse reduction sets up a project in another developed country, which has a relatively low cost.
- Clean Development Mechanism (CDM) - Under CDM, a developed country can take up a greenhouse gas reduction project in a developing country where the cost of GHG reduction project activities is usually much lower. The developed country would be given credits, called carbon credits, for meeting its emission reduction targets, while the developing country would receive the capital and clean technology to implement the project.

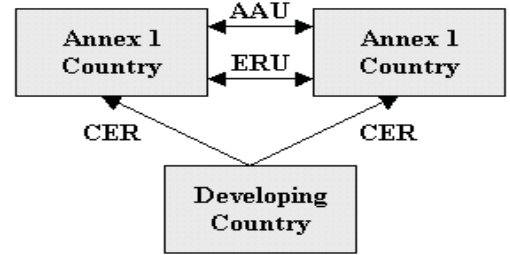
International Emission Trading (IET) - Through IET mechanism, countries can trade in the international carbon credit market. Countries with surplus credits can sell the same to countries who are hard-pressed in meeting their emission reduction targets and thereby help such countries in meeting their targets.

Carbon Credits

Each of these mechanisms creates tradable commodities called carbon credits. One credit is equivalent to one tonne of CO₂ emission reduced. The are three forms of credit that exist:

- **Emission Reduction Units (ERUs):** Emissions reduction units (ERUs) are units of Greenhouse Gas reductions that have been generated in developed countries via Joint Implementation. ERUs can be generated and used for compliance during the 2008 - 2012 period. ERUs are also traded between the Annex I countries.

Certified Emission Reductions (CERs): This form of carbon credit is generated when a GHG reduction is effected through the commissioning of a project under CDM in a Non-Annex I country and the emission reductions called CERs are certified. These CERs are transferred from a Non-Annex I country like India and China to a developed country in the Annex I.



The cap and trade mechanism

Emission Trading, also known as cap and trade mechanism, is supervised process used to check the pollution by giving economic incentives to the parties for achieving reduction in the emission of the GHGs. Although, the caps, or the upper-limits marked by the protocol on the emission of various pollutants, are national-level commitments, in practice most countries will pass on their emissions targets to individual industrial entities in form of quota. In this way all participating firms are allocated a quota of credits or allowances giving them right to a specific amount of emissions. The total amount of credit so allocated cannot exceed the cap-level set by the central authority (usually the government). When a party exhausts its quota of credits, it can buy from those parties with surplus credit i.e. they can buy CERs, ERUs or AAUs, which is referred to as emission trading.

The Global Carbon Trading Scenario

Firms would choose the most cost effective way to comply with the pollution regulation, creating incentives that reduce the cost of achieving a pollution reduction goal. So some firms might go for a trade off where they might prefer to buy additional credits than curtailing their emissions to meet their targets. Developed countries have to spend nearly \$300-\$500 for every tonne reduction in CO2 emission against \$10-\$25 in case of the developing countries. Typically, they will purchase credits directly from another party with excess allowances, from a broker, from a JI/CDM developer, or on an exchange. The more firms that need to buy credits, the higher the price of credits becomes, that is to say, the buyer is being fined for polluting, while the seller is being rewarded for having reduced emissions -- which makes reducing emissions cost-effective. Just like for any other commodity, the crucial price determinants for the carbon credits are the demand and supply forces. The prices soar when the demands for the credits exceeds supply and vice versa.

According to industry sources, the carbon trading market is extremely vibrant. The current demand for emission reduction is high. According to a research done by Citigroup Global markets, the demand for additional permits can be anywhere in the range of 3565.3 million tonnes to 6393.1 million tonnes through the 5 year Kyoto period (2008-2012).

• **CDM and CERs**

On the supply side, the CDM projects are expected to deliver around 1.8 billion CERs in the Kyoto period if all the projects in the pipeline are successfully registered.

Expected No. Of Projects	Annual Average CERs	Expected CERs until end of 2012
CDM project pipeline: >1500	N/A	1,800,000,000
of which:		
411 are registered	113,906,980	>740,000,000
64 are requesting registration	25,312,437	>140,000,000

Source: UNFCCC (1st March 2007)

However, the argument against this projection is that the process of registration of projects and verifying the emission reduction is extremely slow and bureaucratic. Also, the actually realized emission reduction varies largely from targeted/expected reductions. Specialists in CDM projects, such as EcoSecurities, have commented that they do not expect more than half of the CERs in the project pipeline to be finally issued.

▪ **JI and ERUs**

So far, the Joint Implementation Supervisory Committee responsible for managing the JI mechanism has not issued any permits under this scheme. Expectations on the number of permits likely to become available through this mechanism vary significantly. The data from the UN Environment Programme and New Carbon Finance gives an estimate of 134 million ERUs, which are expected to be generated from existing projects. This number is expected to increase as companies become more familiar with the methodologies allowed under this mechanism and as the JI committee gains experience.

▪ **IET and AAUs**

AAUs are the last leg of the trading, at the country level, for a country that fails to meet its targets will have to meet its targets by buying from the surplus nations. However this would only be the last resort. In case the company doesn't comply with its targets penalty can be as high as €30 per tonne of the emissions beyond the set targets and its eligibility to "sell" under emissions trading would be suspended.

Geographical Distribution JI Projects in the Pipeline				
JI Host Country	Number of projects		2012 MtCO2	
	Total	Of which presented to JISC	Total	Of which presented to JISC
Russia	27	11	69	55
Bulgaria	21	3	16	2
Ukraine	17	3	14	4
Romania	16	1	11	1
Hungary	11	1	7	1
Czech Republic	21	-	4	-
Poland	13	3	4	1
Estonia	11	2	3	1
New Zealand	5	-	3	-
Slovakia	3	-	1	-
Germany	3	-	1	-
Lithuania	4	1	1	0.2
Total	152	25	134	63

Source: UNEP/New Carbon Finance

Finally the question remains to be answered is the prices of CERs, Currently, the price of one credit is within a range of \$16 to \$18 in the emission trading market. The industry experts are projecting the price to range from \$20 - \$30 level going forward. Looking at the current situation and the analysis done so far, leads us to believe that the demand for carbon credits in whatever form is only likely to go up and so are the prices. The way the world economy is shaping up and the increasing commitment to bring about environmental change is only positive towards the demand for emission reductions. Our interactions with industry experts and various industry players further enhance our confidence on the demand for CERs and the prices of the same. We remain extremely bullish on the prices of CERs and would safely assume at least a \$15 price.

However there are some mounting concerns over the protocol, What after 2012?

The Kyoto Protocol provides guidelines and directions for conservation of the ecosystem up to 2012. Negotiations regarding the second stage of emission control are at very early stages and will progress through 2007 and 2008. So far the compulsive directions of the Kyoto protocol have been pushing the economies to reduce the emissions. But now, the world economies have started to understand the need of the emission reduction of the GHGs and are intentionally gearing up to incorporate the ecosystem conservation measure harmoniously with the growth objectives. If at such a juncture, the COP doesn't come up with the post-2012 plan soon, the whole action scene would loose the steam.

Another important concern is whether USA will ratify or not?

United States is the largest emitter of green house gases accounting for nearly 35% of the emissions. However, it has not ratified for the Kyoto Protocol and hence is not bound to reduce the GHG emissions. But there is optimism that during the second stage, the country would ratify and hence the environmental benefits would be large. Should the US government change, the chances in only get brighter. Hence, the over all outlook with respect to the US participation is bright.

Analyst: Bijal Karania
Email: bijal@way2wealth.com
Telephone: 4019 2900

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