
Delhi GHG Forum 2006: Final Narrative Report

The Delhi GHG Forum 2006 (hereafter referred to as the Forum) was organized by a partnership of The Energy and Resources Institute (TERI), the International Emissions Trading Association (IETA), the World Bank's Carbon Finance Unit, the World Business Council for Sustainable Development (WBCSD), and Canada's Clean Development Mechanism and Joint Implementation (CDM and JI) Office. The Forum took place at the India Habitat Centre, Lodhi Road, New Delhi, between 31 January and 1 February 2006.

As in previous years, the Forum provided participants the opportunity of interacting with senior policymakers and business representatives from India, Sri Lanka, Nepal, Bhutan, Pakistan, and Bangladesh, as well as with other eminent international experts. The topics of discussion included: an update on the GHG (Greenhouse gas) market; new carbon funds; recent pronouncements of the CDM Executive Board; and the impact of these pronouncements on the market.

The Forum also provided an excellent opportunity of learning about existing regulations and programs concerning emission reduction projects and the progress that countries and sectors are making to participate in this market. It showcased select CDM projects, and served as a platform for project developers to meet with potential investors and develop new partnerships.

The final agenda of the Forum is given in Annexure 1.

Opening session

Dr R K Pachauri, Director-General TERI and Chairman Intergovernmental Panel on Climate Change (IPCC), welcomed the participants to the Forum of 2006. Highlighting the importance of initiatives and their ability to influence policy, Dr Pachauri made a brief mention of the background work done for the Intergovernmental Negotiating Committee (INC) of the United Nations Framework Convention on Climate Change (UNFCCC), which outlined market-based solutions to address climate change. Expressing his confidence in the certainty of the Kyoto flexibility mechanisms, he hoped for the continuation of CDM beyond 2012, and for various types of bilateral and multilateral partnerships with flow of credits under the umbrella of CDM.

Mr Andrei Marcu, CEO, International Emissions Trading Association (IETA), spoke about the relevance of the GHG forum in the light of increasing project activities and regulatory developments in the past year. According to Mr Marcu, with MOP-1 – new guidelines from the Executive Board (EB) of CDM – and adoption of the Marrakech Accords, there is more certainty, which has speeded up the process of CDM project development across the globe. He focused on the key issues of environment delivery, competitive delivery, and sustainable development to ensure

that the basic premise of the Kyoto Protocol is met with, in the evolution of the CDM market.

Mr Charles Cormier, Team Leader, Capacity Building and Stakeholder Relations, Carbon Finance Business, World Bank, said that the carbon market presents a way of addressing climate change with reduced costs and sustainable development. However, he expressed concern over the continuity of the carbon market in the post-2012 scenario. He emphasized the inclusion of bigger projects from the energy efficiency sector linking to a more programmatic approach. He also assured potential project developers that the World Bank would relax terms on framing ERPAs (Emission Reduction Purchase Agreements), contracting, and carbon pricing.

Mr Laurent Corbier, Program Director (Energy and Climate), WBCSD, spoke about the importance of the GHG Forum and linked it to broader issues of climate change, timeline risk, and uncertainties in the overall process. He talked about the evolution of the climate change negotiations, the status of the Kyoto Protocol, and the importance of India as an important market for CDM.

Dr Prodipto Ghosh, Secretary, Ministry of Environment and Forests (MoEF), Government of India (GOI), started by commending TERI on its work on a gamut of issues related to climate change policy and market-based mechanisms. He presented insights from the Indian CDM market and expressed optimism about the development of large projects from Indian public sector enterprises. However, Dr Ghosh also voiced concern over high transaction costs, and called for programmatic sectoral baselines to simplify the CDM process. He said that there was also a need to link CDM to other initiatives for non-Kyoto members to come on board to address the challenge of climate change.

Session 2: GHG regulatory and market update

Mr Daniele Violetti, Programme Officer, Project-based Mechanisms Programme, UNFCCC Secretariat, provided a brief update on the developments that took place during the COP11 and COP/MOP1 in Montreal in November–December 2005. Recognizing the need to continue with CDM beyond 2012, the COP/MOP1 adopted several positive decisions, including adoption of the CDM rulebook, i.e., the Marrakesh Accords. The COP/MOP1 also made a call for public inputs on new proposals to demonstrate additionality. The COP/MOP1 also invited submissions on HFC23 projects, carbon capture and storage, and equitable distribution of CDM projects.

Mr Violetti also briefly explained the CDM project cycle and the status with regard to project validation, registration, and CER (Certified Emission Reduction Certificates) issuance. As of 25 January 2006, 77 projects had been registered and 64 projects had requested registration. Most of the project development activity has happened in the Asia-Pacific region, followed by Latin America, with very little activity in Africa. For the benefit of the new players in the field, Mr Violetti introduced them to sources of information and guidance on the UNFCCC website.

Dr Axel Michaelowa, Point Carbon, provided a brief update on the GHG market and covered all the European Union Emissions Trading Scheme (EU ETS), CDM, JI, and International Emissions Trading (IET) mechanisms as also some non-Kyoto mechanisms. According to him, in the year 2005, total turnover has been 262 million CERs with 54 billion Euros worth of transactions. He mentioned that plant level allocation has not yet been done in many large emitting countries such as Hungary, Italy, and Poland, and in some small emitting countries such as Cyprus, Luxembourg, and Malta. The CDM/JI Linking Directive has not been implemented in a majority of the countries. Also large potential sellers in Eastern Europe have not yet traded. Financial institutions, however, are increasingly getting involved.

Regarding CDM, Dr Michaelowa mentioned the great rush since mid-2005, more so because of the deadline of December 2005. India is in the lead in so far as the number of approved and registered projects is concerned, whereas China, because of its HFC23 projects, has been able to get a large number of CERs to its credit. Regarding the pricing of the CERs, he mentioned that a project is able to get a higher CER price as it moves up the CDM project cycle, yet there is a difference between the CER price and the EU ETS price.

Activities related to JI could not move much due to unclear rules: during the COP11, a Joint Implementation Steering Committee was set up. About 186 projects are in the pipeline with a potential of 139 million ERUs (Emission Reduction Units). As regards IET, efforts such as Canada's Green Investment Schemes as also Bulgarian efforts did not work. Canada and Japan are aiming for AAU (Assigned Amount Unit) purchases in April 2006 and the Czech Republic and Latvia are in active talks with prospective buyers. Dr Michaelowa also briefly discussed some of the voluntary mechanisms such as state level programmes in USA and in New South Wales, Australia. He also touched upon the initiatives taken by exchanges such as the Chicago Climate Exchange.

Mr Marc Stuart, Ecosecurities, presented a brief overview of the Indian carbon market. The Indian market is one of the more sophisticated and mature markets for CDM, mainly due to strong government support, opportunities across a number of sectors, good investment climate, domestic capability in sophisticated financial structuring, and an existing – and growing – distributed generation paradigm. However, he expressed some concern over the Indian carbon market being consultant driven rather than transaction oriented as also over the unrealistic concerns among developers and consultants. He particularly mentioned that Indian projects have to face quality concerns.

Mr Stuart cautioned Indian project developers about choosing partners with care and working with those who understood the nuances of the CDM. He also mentioned that project developers should understand and acknowledge the global supply market of CERs and face the fact that CERs are not European Union Allowances (EUAs) and that the opportunity is highly dynamic. Further, he stated that Ecosecurities is active in India regarding project development and credit purchase, and bears all of the upfront cost, which is adjusted against the first delivery of the CERs.

The discussion in this session mainly focused on market trends and market transparency. The general belief was that the higher a project is able to come up on the project cycle on its own the higher the CER price it is able to get, e.g., a very small project in South Africa could sell CERs at 14.7 Euros. However, waiting and watching may not always be a good idea – one needs to test the market and make an assessment of the prevailing prices and consider all the pros and cons when taking such decisions.

The difference between the EUA price and the CERs was another issue of concern and people were not sure if this was justified. In general, CDM is a supply driven market – quite mature with a number of projects available for transactions. Other Kyoto Protocol mechanisms and the EU ETS provide additional credits for transaction. In view of this, it is not clear how long it will be able to offer higher prices.

Mr Violetti mentioned that the CDM EB is receiving a large number of CDM projects, which is a positive trend. The EB is now in a position to deal with this huge upcoming business. He also mentioned that the meeting in Bonn in April 2006 would throw some light on the international transaction log development process and carbon credit transactions.

Dr Michaelowa stated that the decision of the EU on the second commitment period is very critical to determine the CDM market. Further, additionality interpretation of the CDM EB is very important. So far, there are no large projects with a critical additionality component, which is the testing point to determine whether this will open the flood gates with a lot of supply.

Session 3: CER demand and buyers

There were seven presentations in this session from carbon funds and trading agencies.

It was made clear that the European Carbon Fund would invest 40–100 million Euros in buying carbon credit from India, following a portfolio approach through project, sector, and counter party risk diversification. The expectations of buyers in terms of contractual agreements, index based pricing, proven technology, bank guarantee, and solid due diligence were expressed to bring more clarity to bear on the carbon trading business.

Japan Carbon Finance (JCF), Ltd, another major buyer of carbon credits from India, elucidated the organizational structure and functioning funding pattern of the JCF operations. It presented the Emission Reduction Purchase Agreement (ERPA) as the forward trading unit with price fixation beforehand and payment on delivery basis, with a possibility of upfront payment on a case-to-case basis. It presented JCF's role as that of a risk taker for development and registration of CDM projects with delivery risk borne by the fund.

The Asian Development Bank (ADB) presented its redefined role in the whole business of carbon trading. Initially being a financing institution for clean energy

and energy efficiency projects to a carbon market initiative as a dedicated carbon co-financing facility, focusing on the implementation phase of projects with the provision of marketing and brokerage services to the sponsors.

The presentation from brokerage provided the Forum information on the different stakeholders in the carbon buying business – for compliance with a national Kyoto target (e.g., Annexure 1 government); for compliance with a EU ETS obligation (e.g., EU power generator); as an agent for one/both of the above (e.g., multilateral fund); and as a speculator/market maker/liquidity provider (e.g., commercial fund). It mentioned buyer expectations of different risks associated with buying carbon credits from India projects.

Among the different buyers, a major industrial buyer from Germany the RWE utility expressed their perception of risks associated with the carbon business and presented their approach of purchasing credits through mechanisms like over-the-counter (OTC) trade, tenders, and participation in carbon funds and buyer's pool with the possibility of direct investment in project or technology contribution.

The Shell presentation contributed fresh insights on the demand scenario from the corporate angle, with particular focus on Shell's buying of credits from India. Their risk perception and carbon price determinant factors were given to provide fresh insights about carbon pricing to the Forum. In conclusion, the session presented buyer's perceptions of transactions, risks, price fixing, and other contractual issues to the Forum for better carbon trading practices.

Keynote speech

Dr Richard Sandor, Chairman and CEO, Chicago Climate Exchange, highlighted the environmental concerns for wealth creation in the 21st century. He emphasized the increasing dynamics and market potential as reflected in the trillion-dollar market, and noted the significance of CDM in the process. Dr Sandor also highlighted the potential of small environmental projects, which could go beyond Kyoto and be monetized at a later stage.

Dr Sandor initiated a macroeconomic point of view, highlighting the size of the existing carbon market and potential opportunities globally. He started off with some interesting historical facts about the creation of wealth, including the survival of America after World War II and the substantial creation of wealth around American manufacturing businesses. He moved on to describe the moving of the value proposition of the derivatives market in 1980s to software businesses in 1990s. He proposed that the potential for creating wealth in the 21st century is mainly in commoditizing air and water, which, in his opinion, has enormous potential in future.

Talking about the EU ETS market in 2005, Dr Sandor highlighted how very few people operated over a trillion dollars. However, a huge, unleashed potential, means that it could easily cross exchanges worth a trillion dollars in the coming years. Dr Sandor brought to the notice of participants that the European Climate Exchange has a more than 60% share and exchanges worth \$60-70 million/day. He

also mentioned the short position of the European Union with roughly 2.6 billion tons of CO₂, and pointed out that 70-80% of this is to be achieved through the CDM market. However, he also emphasized the need for more attention on the offsets by the EU ETS.

Dr Sandor envisioned enormous opportunities in other areas for environment, including emphasis on offsets, where he also mentioned the liberal treatment of offsets by the Chicago Climate Exchange. Emphasizing the need for such offset providers, he quoted an example of a dairy farmer in Minnesota who bought an agriculture manure digestion plant, earning \$10,000 through selling CERs and supplying excess electricity generated to the grid. Similarly, he pointed out the huge potential in India for such small projects, like forestry preservation and renewables, for which it is also required that there should be a more liberal CDM process. He concluded that such small projects have huge potential of being monetized later, if not through CDM as of now.

During the discussions, Dr Sandor highlighted the role of other developing countries, in addition to India and China, like Bangladesh or Africa, for which there is enormous potential for other funds like the World Bank, Natsource, etc. However, he said that it is essential that businesses in developing countries attract these funds and benefit from them.

Session 4: Presentations on projects

The session started with a presentation summarizing the CDM regulatory framework in South Asian countries. Mr Jagjeet Sareen, TERI, briefly described the present status of CDM activities in India, Pakistan, Bangladesh, the Maldives, Sri Lanka, Bhutan, and Nepal. It was highlighted that Designated national Authorities (DNAs) have been established in all these seven countries. The DNA in a country is generally an interministerial body with its secretariat in the Ministry of Environment or Ministry of Science and Technology of the concerned country and is supported by other relevant ministries.

The focus of the capacity building areas arising in CDM project development in South Asian countries includes different priority areas such as renewables, transportation, Land-Use, Land-Use Change and Forestry (LULUCF), industrial waste management, and the industrial process. Pakistan and Sri Lanka consider all of these priority areas for CDM project development.

The details of the CDM approval process were discussed, where it was mentioned that the approval of a CDM project takes nearly 60 days. Under the CDM profile of South Asian countries it was highlighted that India enjoys the distinction of having 74% of all the registered projects with the EB. Whereas Sri Lanka stands second with 11% of the total share, while Pakistan's share is however negligible. South Asia accounts for 31 of 143 submitted methodologies and 8 of 54 approved methodologies.

The presentation concluded with highlights on some of the unique features of the DNA structure in these countries, such as, Bangladesh having a two-tier DNA

structure and Pakistan exempting CER proceeds from taxation. India has the distinction of being the number one destination for CDM development.

Mr Vinod Kala, Emergent Ventures, presented an overall scenario of the CDM process including advantages, barriers, and the factors required for accelerating the CDM process in the Indian context. There exist large possibilities in India for industrial clusters upgrading efficiency in power generation, power distribution, and power consumption. India also has great potential for bio diesel, where large availability of wasteland can be converted to plantation of jatropha.

It is therefore obvious that India has high potential for adoption of most modern CDM based technologies and that the journey in this direction has just begun. CDM success in its infancy stage has built the expectation of success of SRF and GFL in the stock market since private sector project proponents see ownership of carbon assets as a good lever for stock price movements. However, certain bottlenecks like distributed ownership and lack of credit worthiness make it difficult for projects, such as bio-fuels and biomass power, with high social impact to be financed. Moreover, states have a differing and changing regulatory framework and public sector cooperatives having a large ownership of assets are late adopters of technology due to poor financial health. Rapid growth of business is another problem, e.g., in the cement industry it is very difficult to convince the owner to optimize efficiency beyond a certain limit. The present situation highlights the need for accelerators, which will help in developing the CDM market. Given that getting finance for energy efficient improvements is because they are idea based and not asset based, it becomes imperative to make a provision for specialized funds in financial structures with the help of ESCO. Services for risk assessment and assurance need to be developed to bridge the gap between buyers and sellers. Centralized information resources like grid emission factor, price, availability of fuels in various states and regions, and benchmarking and comparison of technologies in important sectors give a very good boost to the market. Regulatory support and market support mechanism are other accelerators and go a long way toward upgrading the present status. Actions by participating players like the government and financial institutions that play a catalyzing role are also needed.

Mr Milind Chittawar, SEE-Tech Solutions, made a presentation on effective replacements for boiler fuels. There are a lot of opportunities for small-scale CDM projects in the industrial and transport sectors and in municipal corporations, which can be explored by encouraging investors and simplifying the CDM procedures for the small CER market. In these SME-based CDM projects one should have basic economic gain and then achieve environmental gains. Boiler fuel conversion was taken as a good example of CDM activity in SMEs, to focus on the environmental gains through fuel savings and reduced emissions. The boilers considered for the CDM activity are of the capacities 3 TPH to 20 TPH. This fuel conversion offers many advantages over fuel costs and emission reductions through CDM activity. In any immediate switchover to biomass as a fuel, the main problems faced are the space availability and the biomass availability. The company came out with excellent solutions of brequetting machines and improved design of the boiler, which overcame the problems.

The baseline for this project simply becomes the GHG emission, which when burning of RFO is replaced by biomass gives 20,000 CERs. Some of the barriers to small-scale industries opting for such CDM activities consist of the difficulty in promoting the project without third party financial support.

Session 4 (continued): Presentations of projects

The presentation of CDM projects continued in Session IV of the Forum, held on 1st February 2006, which was chaired by Dr V.V.N. Kishore, Senior Fellow, TERI.

The session commenced with a detailed presentation by Dr Bakul Rao from the Environmental Policy Research Institute (EMPRI), Bangalore, on two Project Design Documents (PDDs). The first PDD related to a small-scale project namely the fuel switch in the public transport sector. The objective of the project was to replace petro-diesel with bio-fuel (to an extent of 20%) in buses owned by the Bangalore Metropolitan Transport Corporation (BMTTC). The project's contribution to social well being by way of generating 3000 mandays of employment on bio-fuel plantations and improving quality of life through income-generation activities, such as seed collection, as per the priorities of DNAs for social development, was highlighted. The environmental benefits offered by emission reduction – expected to be achieved by use of bio-diesel – were explained in detail. The barriers in the implementation of this project, such as, the availability of bio-fuels, associated underdeveloped transportation and distribution network, price-competitiveness, etc. were elaborated upon during the presentation.

The second CDM project presentation was on bio-fuel production for power generation for the purpose of rural electrification in two villages of Karnataka (deficient in electricity with low per-capita consumption) with the purpose of augmenting energy demand. The benefits and the barriers related to the project were elaborated upon.

In the second presentation, Mr Shashank Jain, TERI, presented details of a CDM project being implemented by an acrylic fiber manufacturer in Punjab whereby power is generated using rice husk (renewable biomass) as the fuel. This is in line with the development priorities of local government to accelerate the use of renewable sources of energy. The electricity generated is used to meet the captive needs of the manufacturer and surplus power generated is then supplied to the Punjab State Electricity Board (PSEB) grid. Apart from highlighting the other details of the project such as the start date, project cost, and the crediting period, the 21,452 MT of CO₂ emissions reductions expected to be achieved per year was also mentioned. Green power, reduced emission due to decay and uncontrolled burning of rice husk, emission reduction due to cut in fossil fuel consumption, availability of grid power to other users, and reduction in T & D losses were mentioned as other project benefits. The socio-economic benefits in the form of providing direct and indirect employment (loading/unloading), development of business opportunities, and an increase in the income levels of locals were also highlighted during the presentation. It was mentioned that the barriers in the implementation of this project pertained primarily to the availability of fuel (rice-husk in this case), its storage, seasonal variations in rice production thereby

affecting availability of risk husk, etc. Moreover, the technology being deployed was not a prevalent technology and no prior success was achieved in this field thereby acting as a barrier in the implementation of the project.

This was followed by a presentation by Mr James Jacob from the Rubber Research Institute of India, Ministry of Commerce and Industry, GOI. He highlighted that viable CDM project activities could be undertaken in the Indian rubber industry. In this context, he emphasized that the CER potential of these activities was immense. He presented three CDM project activities through which the CERs could be achieved. The first CDM activity aimed at the reduction of methane emissions during primary processing of rubber latex. The presentation highlighted that the total annual CERs generated from methane emission reduction from sheet rubber processing effluents in a factory with a capacity of 1 tonne/day would amount to around 301.94 CERs/day. In addition about Rs 200,000 is saved as a result of avoided/reduced use of firewood and electricity. The second CDM activity, which boasts of CER potential is the drying of rubber using biomass gasifiers. The energy auditing of the gasifiers already in operation illustrates that switching from kerosene/diesel to biomass would reduce CO₂ emissions by 8361 tonnes/annum while switching from electricity to biomass would save 44.8 kWh units of electricity based on certain assumptions. The energy savings in the rubber industry achieved by substituting synthetic rubber with natural rubber were also presented. A detailed calculation of CERs from this substitution showed that the emission of 11.867 tonnes of CO₂ is avoided when 1 tonne of synthetic rubber is substituted by 1 tonne of natural rubber. It was emphasized that this is technologically feasible, economically very attractive, and environmentally sound. The radialization of tyres as another viable CDM project activity in the rubber industry was also presented. In the presentation, it was mentioned that a tyre factory that produces 0.5 million tyres/year can earn a CER of 70,000/annum if it switched over to radialization from the present bias tyre, thereby making it a viable CDM project activity.

In the presentation that followed, Mr S. Bhalerao from the Maharashtra State Power Generation Company Ltd. (MAHAGENCO) presented details of a CDM project developed by MAHAGENCO (formerly known as MSEB) with the objective of improving the power generation efficiency of units-1 and 2 of the Koradi Power Plant. While describing the project, he highlighted that the latest technological features, such as, modified design turbine blades, modern instrumentation and controls, low NO_x burners for boiler, etc. would be introduced in these units, which were operating as per the old technology of 1970, with the objective of improving efficiency and reducing GHG emissions. The expected environmental benefits accruing from the project are estimated to be 85,364 metric tonnes of CO₂ equivalent abated/sequestered. The risk of approval of new methodology as well the high cost of refurbishment, high payback period of about 11 years as against a life of 15 years, etc. were elaborated upon. It was mentioned that emission reduction depends on the reliability of old components, wear and tear, and external factors like grid disturbance, coal quality, maintenance, etc.

The concluding presentation was made by Mr S. Rajhagopalan, CEO, Renco Technologies Pvt. Ltd., Chennai. He presented the details of a proposed small-scale CDM project activity related to methane mitigation in a paper mill in Tamil Nadu. The proposed project involves the installation of a Desi Anaerobic Digester System

(closed system) known as Up-flow Anaerobic Sludge Blanket (UASB) for capturing methane gas emitted from waste water in the mill. The methane capturing activity is estimated to achieve 9,300 tonnes of CO₂-equivalent reduction per year. Similarly, the burning of methane gas as a supplementary fuel in the lime kiln has resulted in the reduction of 1,650 tonnes/annum. The project would result in financial gains by burning of methane gas as a 'supplementary fuel' in the lime kiln thereby reducing fuel consumption. The contribution of the project activity to reduction in the Kiln Stack Gas Pollutants, i.e., (SPM, PM, NO_x, etc.) was highlighted as a sustainable gain. It was mentioned that this project was the first of its kind in India. There existed potential for continued improvement of the technology component, as the paper had developed the technology locally. The project cost estimation was based on the 'pilot operation' at site. Thus, the possibility of the estimated cost exceeding the actual cost on execution did exist. There is a great potential for the project being replicated. It is planned that the project cost will be met through internal accruals. The Project Developer has a dedicated R & D division with highly qualified technical personnel and relevant the testing equipment.

Session 5: Facilitating market access (carbon exchanges and brokers)

There were five presentations in this session by different carbon brokers and exchange representatives. The session was chaired by Mr Edwin Aalders of IETA.

The session started with a presentation by Ms. Sascha Bloemhoff, New Values, who highlighted the different aspects of facilitating market access for carbon exchanges and brokering. She discussed the CER auction by which both buyers and sellers would benefit through easy access, low cost, and lesser time in trading. The procedure for the project bidding was to be in two rounds in which participants would need to sign a two-page participation contract. She further elaborated on the trading, emphasizing that buyers and sellers develop strategies and standardize the risk assessment.

The session was followed by a discussion on CDM by Mr Chintan Shah of Senergy Global, who elaborated on the larger potential of the CDM project and its types in India, e.g., the HFC incineration project. It was felt that renewables have the largest potential but that the issue of additionality remains with a few projects. The lack of information about the buyer and seller and the lack of market access were also mentioned. He further discussed his experience with the sellers who were not interested in selling total offloading of CERs; the project transaction cost is often not realized and hence a proper structuring is needed. He also highlighted the large potential in municipal solid waste.

Following this, Mr Shanti Nath Jain of MGM International, made a presentation on the capabilities and experiences of his company MGM on carbon facility, where he discussed the price drivers and put forth the CER supply and demand. A carbon portfolio had been put together by MGM to create market awareness and to provide contractual services to both buyers and sellers with minimal delivery risk and insurance. He also elaborated on the partnership of MGM with Morgan Stanley.

The final presentation was by Ms. Lucy Mortimer of TFS. She discussed the role of the buyer in the CER market and the role of brokers in the CDM. She emphasized that brokers are important in the financial and commodity market around the world because of requirements of efficiency, establishment of relationships, transparency, and competency. It was pointed out that in the CDM market there is lot of overlap amongst the participants. Brokers provide knowledge and decision-making, and structure a deal through conceptualization, planning, construction, and generation of cash. She further described the steps for selling through a broker by bids and negotiations.

The session ended with some concluding remarks by Mr Edwin Aalders who summarized the viewpoints of the various speakers and emphasized the need for an integrated approach toward CDM projects.

Session 6: Pricing of CERs

The session on the pricing of CERs was chaired by Mr Andrei Marcu of the IETA, and included industry players like Mr Steve Drummond and Ms. Nicola Steen of CO2e.com, Mr Neil Cohn of Natsource, and Mr Charles Cormier of the World Bank. The pricing of CERs has become one of the most important issues for the Indian CDM market – due to the presence of a large number of sellers and their lack of understanding of the nature of the CER market and the factors that determine price. The primary aim of the session was therefore to focus on throwing light on the issue of how to get the best value for the CERs.

The first presentation made by CO2e.com was largely from the broker's point of view. The presentation lucidly explained the importance of risk perceptions of the buyer that would determine to a considerable extent the price offered for the CERs. CO2e.com also reiterated that they encouraged their buyers to get involved at the production stage – this would not only secure client trust but also build buyer confidence in the nature and title of the CERs. The presentation also suggested that the best price could be got when the CERs are offered in large quantities – something in the line of a million units or so. The presentation also pointed out that at most times buyers wanted amount guarantees (of the number of units that would be offered for sale) –not popular in India, but reflected in the offered price. Other than CERs, Verified Emission Reductions (VERs) have also become popular for voluntary private corporate social responsibility purposes.

Neil Cohn of Natsource gave an informative presentation covering specific aspects of CER brokerage. He provided a comparative overview of other environmental allowances markets from which lessons could be drawn, and came to the conclusion that the usual trend in most of these markets has been an upsurge in the price of the tradable units followed by a rapid fall that is usually stabilised in the form of a gradual trend downward. The nature of the markets being largely political in terms of construction and operation makes them completely open to changes in policy and therefore renders them rather tenuous in nature. Thus, the government caps in Europe are the main driving force in pushing the CER market. Apart from that it is only the Japanese government that is investing hugely in the CER market: the Canadians have adopted a wait and watch policy.

The presentation made by Mr Charles Cormier of the World Bank also focussed on contractual issues like what should be the point of payment – at the time of delivery or at the time of issuance of CERs. Most buyers would like to transfer funds at the time of issuance of CERs and not at the time of delivery since that increases the uncertainty. Mr Cohn suggested that the price of CERs would be determined by a host of issues and it is important to focus on the minor details of the contractual agreement. He also reiterated that clauses like a supply guarantee and the like would also help in securing a good price.

The discussion following the session focussed largely on the international events that might affect the price of CERs. The general consensus was that events like the Russian allowances had the potential to affect the market for CERs. However as long as there are caps set and the market dominated by institutional buyers, the CERs would not be fungible and prices were expected to stabilise soon.

Session 7: Emission reduction purchase agreements (ERPAs): key issues

Peter Zaman, Senior lawyer, Cliford Chance, currently leading the IETA project on revising ERPA.

Key issues with the ERPA - price seems to be the key issue in India. Mr Zaman mentioned that the old ERPA was obsolete and that the revised ERPA should now be used. He mentioned that this document would have far greater longevity than the previous version.

The common theme emerging from all the ERPAs begins with the following question, what are we buying VERs or CERs? Other common themes that come into focus and which form the base are standardization, flexibility, multi-functionality, and compatibility. Also the solution over the negotiations should be given equal importance while selling or buying the ERPA.

If everybody has a standard provision for delivery, such as delivery at national registry or delivery at CDM registry, then it would reduce the amount of negotiation over what provisions should be talked over when negotiating an ERPA. This is nothing but the standardization point in CDM ERPA.

CDM ERPA's flexibility aims at accommodating both types of project participants – those who want to be actively involved in the CDM project and those who do not.

Multi-functionality aims at processing a contract that could be used in multiple contexts. Not just in the context of people who want to negotiate ERPAs but also people who want to negotiate insurance contracts. The project financing, documentation, contractual relation for technology investment, etc. form the other functions activated through the new IETA ERPA.

While performing transactions on earned CERs and VERs, there should be provisions to enable suitable types of contracts to include certain clauses for payment coming from the sale of CERs via an ERPA.

The idea of the revised CDM ERPA is to try and create as much compatibility as possible between the CDM ERPA and the IETA emissions Trading Master Agreement.

The proposed structure as a solution to the existing issues is to provide a simple front-end agreement, code of CDM terms, and the schedules of elections and term sheets, which would make the process easy for different kinds of CDM projects.

The code of CDM terms should bring out the shopping list of provisions that fit the particular deal. But this needs detailed study of the provisions included for enhancing the selling and buying issue because pricing of CERs is directly related to risks as the EU ETS prices are different from the CER prices. All in all, the code of terms should be a frequently updated depending on market dynamics.

The new ERPA should have provisions for mitigating the various risks such as project risks, jurisdiction-specific issues, counter party issues, issuance of CERs, delivery risks, and compatibility with back-to-back arrangements.

To the question on the scope of outsourcing legal services to India, since most of the CDM project developers in India are from small-scale industries and cannot afford the high cost of Clifford Chance. Mr Zaman responded that Indian lawyers working in CDM are quite capable of undertaking the same.

Mr Charles Cormier, the World Bank, mentioned that the market is very non-transparent for prices and purchase terms. Bank or other government buyers are comparatively more transparent and are further introducing more transparency in their deals. The basic aim of the World Bank's ERPA is to standardize purchase and sale clauses. The ERPA will soon be made public on the bank's website. This will lower the negotiation costs and will also be easy to understand. There are three main components of the ERPA: (1) what is the product (VER or CER); (2) define the delivery; and (3) establish price and payment terms.

The World Bank generally purchases VERs up to 2015. In VER contracts, the World Bank provides support in key components of projects, such as establishing the baseline, developing the methodology, project approval, creating the monitoring plan, etc. Delivery is defined as receipt of the Verification Report or Annual ER Report if verification is waived. Price in the World Bank contracts is fixed. Payment is made after delivery and the cost of project preparation (PDD, validation, etc.) is deducted.

In World Bank contracts, responsibility of risk is assigned throughout the project to both entities. The bank is responsible for payment and all Kyoto risks. However, the project entity is responsible for construction and operation of the project and for project risks.

In contrast to most of the other buyers, the bank avoids termination of default projects in case of unintentional breach. The bank tries to understand the cause of failure and works with the project entity to undertake corrective measures, failing which the project is terminated without imposing a penalty.

To the question of what the price differential of VER and CER was for the same project, Mr Cormier replied that it was in the range of \$ 1-2/ tonne. The bank does not buy all VERs from a project. The ratio of VER and CER depends on negotiation.

Mr Roop Salotra, CEO and President, Fluorochemicals Business, SRF Ltd, presented the experiences of the SRF Group. The SRF Group commissioned a HFC23 destruction facility in August 2005 with technology transfer from Solvay, Germany. This was registered as a CDM project in December 2005. To aid sustainable development in the vicinity of the project primary education and health projects were commenced and watershed development is in the planning phase. Three Monitoring Reports of the project were published. The first CER issuance of 0.5 million was made in January 2006. This was the largest issuance at that time. Recently a request for second issuance (1.29 million) was also made. The company has entered into several forward sale agreements. There are seven project participants.

Mr Salotra mentioned that the approach to the sale process and to the ERPA was to maximize long term value and to manage risk related to regulatory, market, transaction, counter party, operational, appropriate timing, and amounts of CER at a particular time. Knowing the fact that every risk that is passed on to buyer has a cost implication, the risks that can be managed by the project entity are accepted. Risks that are beyond the control of the seller and buyers are identified as condition precedent or FM. He also stated that the portfolio approach was used for pricing.

As part of market strategy to mitigate regulatory and counter party risk, multiple project participants were selected. As also phased tranches to mitigate market risk and capture value as the project develops. In the first tranche delivery priority and delivery guarantee were used as instruments to optimize value and to manage risk. The entire process was transparent to all parties. Participants were short listed on the basis of their credit quality and the possibility of a long-term relationship. Mr Salotra also highlighted some of the recent developments, which may aid the CDM process.

Wrap-up session

Mr Andrei Marcu, IETA, congratulated Indian industry and the Government of India for the phenomenal development with CDM in India.

Mr Laurent Corbier, WBCSD, mentioned that a year back during the last Delhi GHG Forum, there was a gap, lots of funds were available and lots of projects were also available but they were not able to match each other. He said that this year even more funds were available and even more projects were available. He highlighted that India has a very high potential and is a very dynamic market.

However, there is still a gap – India now has 20 of a total of 77 registered projects and two of the six projects, which have been issued CERs.

Mr Corbier also mentioned that the CDM projects entail several risks both to buyers and to sellers, mainly due to various uncertainties. He said that WBCSD along with other partners would work to alleviate these uncertainties. Exchange of knowledge and opinions is very important for this - even the business deals will help. He also said that the Delhi GHG Forum provides a good platform to discuss these issues.

Mr Charles Cormier, World Bank, said that the CDM market feels more real now, not due to developments such as the Kyoto Protocol ratification and the coming into force of the EU ETS but due to the real thriving market in India. He said that he observed quite an evolution in the Indian CDM market in terms of supply of projects and the richness of the debate. He also mentioned that the discussion this year had focused on risk hedging strategies and how to maximize value.

He mentioned that though India has been very successful in developing small projects, a huge backlog remains. To make an impact and to address the climate change challenge, a large programmatic approach is required, e.g., upgradation of old boilers and turbines, etc. and India can take the lead in this direction. He pointed to the potential lying with the SME, EE improvement activities, and waste management as some examples and the need to involve both the public and the private sector. He stated the World Bank would look forward to this work.

Mr Marcu said that he was excited to see that a year later the CDM works and was hopeful that it would continue to work. He mentioned that the discussion this year had been different with regulatory discussion going downstream and much less focus on project cycle and methodologies and a greater focus on issues in registration and issuance of CERs. This, according to him, is proof of far more mature market. He said that IETA would continue to work to finalize the regulatory cycle and mentioned that the Government of India has been very helpful in this effort. He said that IETA would also continue to work on commoditizing the product and in bringing transparency to the process. The CDM market is a pure regulatory market with lots of variability therefore transparency is required. He said that everyone needed to ensure that it delivers environmental dimensions, which means helping keep the industries in Annexure I competitive, as also helping developing countries achieve sustainable development. He said that if this was not done then the post-2012 process would possibly be difficult to negotiate.

31 January–1 February 2006

Silver Oak, India Habitat Centre, Lodhi Road, New Delhi 110003, India

ANNEXURE 1: Final agenda



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Tuesday, 31 January 2006

TIME	SESSION
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12:30 – 13:30	Registration and Lunch
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13:30 – 14:15	Opening Session
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- **Dr R K Pachauri**, Director-General, TERI
- **Mr Andrei Marcu**, CEO, International Emissions Trading Association (IETA)
- **Mr Charles Cormier**, Team Leader, Capacity Building and Stakeholder Relations, Carbon Finance Business (World Bank)
- **Mr Laurent Corbier**, Program Director, Energy and Climate, World Business Council for Sustainable Development (WBCSD)
- **Dr Prodipto Ghosh**, Secretary, Ministry of Environment and Forests, Government of India

14:15 – 15:30	Session 2: GHG Regulatory and Market Update
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- Update on COP and CDM Executive Board – **Mr Daniele Violetti**, Programme Officer, Project-based Mechanisms Programme, UNFCCC Secretariat

- Update on GHG market – **Dr Axel Michaelowa**, Point Carbon
- Update on Indian GHG market – **Mr Marc Stuart**, Co-founder, Ecorescurities

Chair: **Mr Andrei Marcu**, IETA

15:30 – 16:00 Coffee break

16:00 – 17:45 Session 3: CER Demand and Buyers

- World Bank Carbon Finance Business – **Dr Venkata Ramana**, Senior Environmental Specialist
- Japan Carbon Finance – **Mr Shin Oya**, Deal Manager, Carbon Finance Department
- European Carbon Fund – **Mr Laurent Segalen**, Investment Manager
- RWE – **Mr Hans Georg Adam**
- Shell Trading – **Ms Roon Osman**, Environmental Products Trading Developer
- Trading Emissions – **Ms Camilla Taylor**, Investment Advisor

ADB's Carbon Market Initiative – **Mr Bindu N. Lohani**, Director General and Chief Compliance Officer, Regional and Sustainable Development Department

Chair: **Mr Adam Kirkman**, WBCSD

18:00 Reception and dinner

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Wednesday, 1 February 2006

09:30 – 09:45 Keynote Speech – Dr Richard Sandor, Chairman and CEO, Chicago Climate Exchange

09:45 – 10:30 Session 4: Presentation of Projects

- CDM Regulatory Framework in South Asian Countries – **Mr Jagjeet S Sareen**, TERI
- Emergent Ventures India Pvt. Ltd. – **Mr Vinod Kala**
- SEE-Tech Solutions Pvt. Ltd. – **Mr Milind Chittawar**

Chair: **Mr Edwin Aalders**, IETA

10:30 – 11:00 Coffee break

11:00 – 12:30 Session 4: Presentation of Projects *contd*

- EMPRI – **Dr Bakul Rao**
- Indian Acrylics – **Mr Shashank Jain**, TERI
- MSEB – **Mr S Bhalerao**
- Indian Rubber Research Institute - **Mr James Jacob**
- Renco Technologies – **Mr S Rajhagopalan**

Chair: **Dr V V N Kishore**, TERI

12:30 – 13:30 Lunch

13:30 – 14:30 Session 5: Facilitating Market Access (Carbon Exchanges and Brokers)

- New Values – **Ms Sascha Bloemhoff**
 - Senergy Global – **Mr Chintan Shah**, General Manager
 - MGM International – **Mr S N Jain**, Country Manager
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- TFS – **Ms Lucy Mortimer**, Senior Emissions Broker

Chair: **Mr Edwin Aalders**, IETA

14:30 – 15:30 Session 6: Pricing of CERs

- CO2e.com – **Mr Steve Drummond and Ms Nicola Steen**
- Natsource – **Mr Neil Cohn**
- World Bank – **Mr Charles Cormier**, Team Leader, Capacity Building and Stakeholder Relations, Carbon Finance Business

Chair: **Mr Edwin Aalders**, IETA

15:30 – 16:00 Coffee break

16:00 – 17:00 Session 7: Emission Reduction Purchase Agreements – Key Issues

- The World Bank – **Mr Charles Cormier**
- Clifford Chance – **Mr Peter Zaman**, Senior Associate
- SRF – **Mr Roop Salotra**

Chair: **Mr Edwin Aalders**, IETA

17:00 -17:15 **Wrap up**
