



**MINUTES**  
CSLF Financial Issues Task Force Meeting  
New Delhi, India  
02-03 December 2008

Prepared by the CSLF Secretariat

**LIST OF ATTENDEES**

Australia:	Clement Yoong
European Commission:	Derek Taylor
India:	Anil Razdan (Task Force Chairman), D.N. Prasad, G.B. Pradhan, Rakesh Nath, B.C. Behera, Sanjay Garg, D.K. Jain. A.A. Tazir, Ishraq Ahmad, A. Damodaran, R.S. Sharma, S. Chopra, M. Anand, M. Mahajan, P. Pal, B. Panigrahi
United States:	Justin Swift, Raj Luhar
Agence Française de Développement:	Jerome Adam, Yazid Bensaid
Asian Development Bank:	Ashok Bhargava
CSLF Secretariat:	Richard Lynch

**MINUTES OF MEETING**

**1. Opening Remarks**

The Task Force Chair, Secretary Anil Razdan of India's Ministry of Power, called the meeting to order and asked that the meeting attendees observe a moment of silence for the victims of the Mumbai attacks. He then welcomed the meeting attendees to the third formal meeting of this Task Force. He also welcomed the assistance of the CSLF Secretariat. Chairman Razdan stated that there were useful and meaningful deliberations in the first two formal meetings of the Task Force, in New Delhi in October 2007, and Cape Town in April 2008. The two main considerations that were the focal point of these meetings were how to promote carbon capture and storage (CCS) research and development (R&D) and how to deal with the issue of intellectual property rights (IPR) to CCS technologies. Collaborative R&D is essential and requires public funding in part or in full. In view of the initial risks and uncertainties involved, public investment in CCS R&D is unavoidable. IPR is also very important, and may come down to two options: either the IPR or parts thereof can be acquired via international funding and be made available to developing countries at a

concessional rate, or the R&D itself could be funded by public investment to directly acquire the IPR. Secretary Razdan proposed that the Task Force discuss options for mobilizing the support of the international community for making such technologies available to developing countries at affordable prices.

## **2. Approval of Minutes from Cape Town Meeting**

The Minutes from the Cape Town meeting in April 2008 were approved with no changes. A finalized version is now available at the CSLF website:

<http://www.cslforum.org/taskforces.htm>

## **3. Presentation by Asian Development Bank**

Ashok Bhargava, Senior Energy Specialist of the Asian Development Bank (ADB), presented the ADB's views of the issues and challenges of financing CCS in developing countries. ADB energy sector priorities are threefold:

- Targeted approach to improve access to electricity, especially for the poor.
- Support transition to low-carbon energy path to mitigate climate change impact of energy growth.
- Knowledge support to formulate appropriate sector policy framework.

ADB's approach to financing climate change-related projects and activities is to mobilize additional concessional resources, catalyze private sector capital, and maximize the use of market-based mechanisms such as carbon markets. Three of ADB's current funding mechanisms are the Clean Energy Financing Partnership Facility (CEFPPF) which currently totals approximately \$93 million in equivalent committed or intended contributions from five funding partners (Australia, Norway, Spain, Sweden, and Japan), the Climate Change Fund to address the causes and consequences of climate change which currently has available \$30 million for climate change mitigation and \$10 million for climate change adaptation, and carbon market initiative funds (totaling more than \$250 million) for investment in clean energy projects.

Mr. Bhargava stated that there were some key issues that would impact any proposed CCS demonstrations in developing countries such as India and China. There are currently no economic or regulatory drivers that would encourage CCS, and there are currently no entities empowered with clear mandates to move forward with any CCS activities. One key challenge in financing CCS is that the perceived risk is too high for private investors and thus requires the involvement of governments and multilateral development banks. These banks can play an important role in mitigating high transaction costs by providing grants to prepare bankable CCS demonstration projects, but national policies should demonstrate commitment and vision for CCS as a low carbon technology option.

Ensuing discussion touched on the topic of CCS costs, especially for demonstrations and for acquisition of IPR. Task Force Chairman Razdan stated that these costs would have a huge impact on commercial replication of CCS technologies. However, Derek Taylor of the European Commission stated that IPR is a somewhat overrated issue that should not be a show-stopper and that the only real IPR is on capture side.

Mr. Bhargava mentioned that the ADB is willing to work to help decide what projects could happen and could help identify possible projects as well as be a source of financing. Fast-track globalization of CCS technologies is essential, and developing countries need to be included in the demonstration phase itself to reduce time lag.

#### **4. Presentation by Agence Français de Developpement**

Jerome Adam, India Country Director for the Agence Français de Developpement (AFD), provided a description of AFD's activities in the financing of CCS. AFD is the main French instrument for international development aid and is active in more than 60 countries, including India. AFD makes use of a wide range of financing tools, including non-sovereign loans (concessional or market conditions), sovereign loans (from very concessional to market conditions), guarantees on loans in foreign or local currency, equity investment, and grants (for both projects and studies).

Mr. Adam stated that AFD is committed to conduct exemplary actions in the field of climate change and that CCS is a part of the solution to mitigate climate change. AFD believes it is too early for it to be involved in financing of CCS projects, but there is a need to increase technical expertise in CCS. To that end, AFD is currently involved in the training aspects of the European Commission-China COACH project and has so far made grants totaling €200,000 for training.

Ensuing discussion touched the mechanism of how CCS project could get financing by multilateral development banks. Mr. Adam stated that, most likely, financing institutions would look at how to finance capital cost, and some other mechanism would need to come into play to compensate power plants for parasitic power losses associated with the capture of carbon dioxide (CO<sub>2</sub>). On the topic of what repayment terms would be requested from projects receiving such financing, Ashok Bhargava stated that it would be treated like any other project. In ADB's case, that would mean about a 30-40 year repayment time with close to zero interest. Mr. Bhargava also mentioned that ADB has a manual on project financing.

#### **5. Presentation by India**

A.N. Damodaran, Professor and Homi Bhabha Fellow at the Indian Institute of Management, presented India's perspectives and concerns on CCS. India has some reasonable prospects for CCS for enhanced oil recovery (EOR). However, there are major concerns about risk of leakage and the significant increased cost for electricity production in power plants utilizing CCS technologies. Also, as CCS technologies still seem to be on a learning curve, there is still some uncertainty about the overall efficiency and economic performance of such technologies. Financing of CCS remains a major issue as well. For these reasons, India is not yet ready to host a large-scale CCS demonstration. Before India would consider large-scale CCS, the following four needs would have to be addressed:

- Risk assessment of long-term leakage of CO<sub>2</sub>, including assessment of possible collateral damage that could result from such leakage.
- Implementation of smaller-scale projects within India that would ascertain technological reliability and cost efficiency of CCS.

- Formulation of guidelines for monitoring and evaluating CCS projects under the Clean Development Mechanism (CDM).
- Working out financing systems to enable all of the above.

Ensuing discussion centered on the difficulty of making CCS projects happen in developing countries. Dr. Damodaran stated that developing countries would most likely be interested in CCS projects that have maximum likelihood of success. However, any gaps in financing, as well as shortfalls in the financial rates of return, should be covered by outside funds. It is imperative that any demonstration be economically viable for the host country.

## **6. Presentation by Australia**

Clement Yoong, Senior Advisor for the Global Carbon Capture and Storage Initiative in Australia's Department of Resources, Energy and Tourism, provided a brief description of Australia's new Global Carbon Capture and Storage Institute (GCCSI). The GCCSI is expected to bring together industry partnerships, governments and researchers to develop and invest in commercial-scale CCS demonstration projects, track their progress, and provide the expertise to assist in demonstration project implementation. The intent is to support international efforts to meet the G8's goal of commitment to at least 20 fully integrated industrial-scale CCS demonstration projects by 2010 and operating by 2020.

Mr. Yoong stated that the GCCSI would complement and extend existing bodies such as the CSLF, the Asia-Pacific Partnership on Clean Development & Climate, and the IEA Greenhouse Gas R&D Programme. The Australian government has already announced that it will be providing A\$100 million per year in funding for the GCCSI.

Ensuing discussion centered on what the GCCSI hoped to accomplish. Mr. Yoong mentioned that the GCCSI would have high-level activities in three areas: flagship demonstration projects, research & technology, and knowledge sharing & communication. The GCCSI would act as a catalyst to bring government/industry consortia together for realization of large flagship projects while providing full-time, funded expertise for assistance in implementing these projects. On a smaller scale, the GCCSI would also identify and, if necessary, support targeted R&D on the critical path to deploying CCS demonstration projects. Finally, the GCCSI would share all non-proprietary information and lessons from these demonstration projects and help build public awareness and acceptance of CCS.

## **7. Presentation by European Commission**

Derek Taylor, Energy Advisor for the European Commission's Directorate-General Energy and Transport, provided a briefing on the European Union's proposed new legislation related to CCS. These new regulations would set up a legal and regulatory structure for CCS in European Union member states. An emissions cap and trade system is already in use and, after 2012, CO<sub>2</sub> emission allowances will be auctioned for the power and some other sectors. This system would reduce the allowable CO<sub>2</sub> emissions by 1.74% annually, which should both drive up the value of carbon allowances and define how much CO<sub>2</sub> emissions each member state can have in the

year 2020. An additional policy proposal is that after 2020, all new power plants in the European Union must be “capture ready” and that existing power plants be retrofitted for CCS, possibly by 2030. Dr. Taylor mentioned that this plan does have a potential downside, as it might drive some industries to countries that do not yet embrace CCS. However, to combat this, there have been suggestions that trade measures could be instituted to discourage this kind of “carbon leakage”. Another concern is that an emissions trading scheme might not provide compensation quickly enough to fund CCS demonstrations, so it may be necessary to emplace some mechanisms to do this, such as allowing CCS demonstration sponsors extra emissions allowances. In the long run, some organizations believe that a carbon tax might be necessary.

Dr. Taylor also mentioned that the European Commission plans to support CCS in developing countries (mainly in India, China, and South Africa) and will make available funding of €60 million for doing so. The second phase of the European Commission-China NZEC/COACH project will be one of the activities supported by this funding. The remainder could be divided between India and South Africa, based on what projects are proposed and agreed to.

Ensuing discussion centered on possibilities for CCS in India. Chairman Razdan reiterated that it is premature to consider doing a demonstration project in India and that, in his opinion, CO<sub>2</sub> capture technologies must first be proved on a reasonable scale. There should also be a reasonable assessment, maybe plus-minus 20%, of the cost for a demonstration project in India. Dr. Taylor agreed that the proper sequence would be to first determine which developing countries would be willing to host a CCS demonstration then develop an estimate on what costs would be. It would then be necessary to determine which developed countries would support a fund to finance these demonstrations, as public funding would absolutely be needed. The level of financial support would need to be developed, as would a mechanism to collect such funds.

## **8. Presentation by United States**

Justin Swift, Deputy Assistant Secretary for International Affairs in the United States Department of Energy’s Office of Fossil Energy, presented United States perspectives on financing CCS. Mr. Swift outlined several actions the Task Force could do to encourage funding of CCS projects and activities in developing countries. These include:

- Assessing current and potential funding options. These could include targeted clean energy technology fund such as the World Bank Clean Technology Fund and financing instruments available from bilateral and multilateral development banks and funds such as the ADB and the Global Environment Facility.
- Improving understanding of financial instruments for CCS. This could include surveying current banks, bilateral programs and public/private technology funds and their respective investment criteria; evaluating whether current lending/grant practices by international institutions are likely to

support, interfere, or have no effect on CCS deployment; and analyzing cost-sharing limits established by different multilateral development banks.

- Identifying policies that could support or promote CCS uptake. These could include fiscal incentives such as production tax credits, tariff concessions on imported CCS technologies, soft loans, and subsidies for electricity generated from fossil fueled power plants using CCS; new technology or performance standards such as a requirement that new fossil fueled power plants be “capture ready”; and incorporation of CCS into the CDM.

Ensuing discussion touched on what specific financial incentives are likely to be available in the near future. Clement Yoong inquired about a proposed United States fund for CCS. Mr. Swift replied that this proposed legislation (known as the “Boucher Bill”) has not yet been passed; it would provide \$1 billion annual funding for CCS R&D that would be administered by the Electric Power Research Institute (EPRI). Mr. Young commented that Australia’s GCCSI would also provide funding for CCS R&D, while Derek Taylor mentioned that the European Union was considering legislation of this nature as well.

## **9. Discussion by Task Force Attendees**

Chairman Razdan stated that although India was not yet ready to do a CCS demonstration within country, it would be willing to participate in a demonstration outside India. However, cost implications would need to be worked out and the onus would be on developed countries to ensure the funding for such a demonstration would be covered. He also mentioned that India would prefer that any carbon sequestration venture should be highly focused in regards to technology and should work toward carbon capture and fixation into safer and stable compounds that are not hazardous to store, so that we do not have a problem to pass on to next generation to handle. India believes that CO<sub>2</sub> storage passes risk liability to future generations.

Ashok Bhargava provided the ADB view that investment in CCS is somewhat risky at the moment, but demonstration projects are the only way forward to assess and mitigate these risks. He mentioned that ADB is ready to do upfront work, including financing, to make these demonstrations happen. A CCS demonstration in a developing country gives the right signal to put more resources in this area and move forward.

Justin Swift stated that the United States agrees with the ADB viewpoint. Over the next 10 years, the United States will spend \$470 million on CCS with additional substantial contribution from the private sector. Six projects are currently being planned, two of which are very large in scale. The United States Department of Energy has been working closely with the United States Environmental Protection Agency to develop regulatory process for large scale injection of CO<sub>2</sub>. Mr. Swift recommended that the Task Force take up ADB on its previous offer to put together an analysis of all multilateral banks, worldwide, to determine their interest in CCS and to engage the ones that have an interest. He also recommended that the Task Force proceed on addressing intellectual property, perhaps looking at creative policies for incentives to bring CCS technologies to the marketplace in developing countries.

There was consensus to incorporate these proposals into the Task Force's way forward.

Yazid Bensaid provided the AFD view that demonstration projects are a necessity for everyone and that it is willing to have a part in funding such projects in developing countries. Support could be via concessional loans on a case by case basis. AFD already has a mandate to work in India and, as stated earlier, is already involved in the COACH project in China.

Derek Taylor mentioned that the European Commission welcomes ADB involvement in the studies proposed by the United States. Dr. Taylor responded to Chairman Razdan's comments by stating that the European Commission certainly does not have anywhere near the same concerns as India about the safety of CCS. Any leakage of CO<sub>2</sub> should be easily mitigated and underground permanent storage of CO<sub>2</sub> should be considered as a type of fixation. Underground storage is very clearly much better for future generations than simply emitting CO<sub>2</sub> into the atmosphere. Dr. Taylor also stated that it would be valuable to develop a cost estimates for a CCS demonstrations in those developing countries that might someday be willing to consider hosting such a project. These cost estimate studies would be useful in helping to determine what the country-specific and technology-specific costs would be. There was consensus to incorporate this proposal into the Task Force's way forward.

Clement Yoong stated that Australia supports the European Commission comments in respect to underground storage as a type of CCS fixation. CCS is considered safe. Mr. Yoong also agreed with the United States that the Task Force should work with the ADB on assessing multi-national banks and stated that the Task Force should also work with other institutions, such as the Asia-Pacific Partnership, as appropriate.

## **10. Action Items resulting from the Meeting**

The Secretariat agreed to write a letter to ADB to thank it for its continuing interest in the Carbon Sequestration Leadership Forum and to inquire if it would be willing to conduct studies in the following areas:

1. An analysis of all multilateral banks worldwide to determine their interest in CCS.
2. A study that addresses the intellectual property issue by suggesting creative policies to develop incentives to bring CCS technologies to the marketplace in developing countries.
3. Development of cost estimates for "capture ready" power plants, both with and without CCS, in candidate developing countries.