CTI Industry Joint Seminar Bulletin

A report of the Climate Technology Initiative (CTI) Industry Joint Seminar on Diffusion of Climate-Friendly Technologies in Asian Countries

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CLIMATE TECHNOLOGY INITIATIVE INDUSTRY JOINT SEMINAR ON THE DIFFUSION OF CLIMATE-FRIENDLY TECHNOLOGIES IN ASIAN COUNTRIES: 21-22 FEBRUARY 2008

The Climate Technology Initiative (CTI) Industry Joint Seminar on Diffusion of Climate-Friendly Technologies in Asian Countries took place from 21-22 February 2008, at the Friendship Hotel, Beijing, China.

Organized by the CTI in cooperation with the Bureau of International Cooperation, the Chinese Academy of Sciences (CAS) and the International Center for Environmental Technology Transfer (ICETT), the seminar was attended by 170 participants from the private and public sectors, as well as from multilateral organizations and academia, representing project and technology developers, technology providers, finance providers, and policy makers. The Seminar aimed to bring attention to technical and financial aspects of project development to realize the full potential of existing technologies and financing opportunities for climate-friendly technologies. Successful case studies from the Asian region were presented.

The Seminar was organized into three thematic sessions, each with a panel discussion. On Thursday, 21 February, the sessions on energy efficient technologies in industrial sectors and renewable energy technologies were held. On Friday, 22 February, the session on project financing took place. The Seminar concluded with a panel discussion on cooperation among key sectors for technology transfer.

A BRIEF HISTORY OF CLIMATE CHANGE POLICY AND TECHNOLOGY TRANSFER

THE UNFCCC AND KYOTO PROTOCOL: Climate change is considered one of the most serious threats to sustainable development, with adverse impacts expected on the environment, human health, food security, economic activity, water and other natural resources, as well as on physical infrastructure.

The international political response to climate change took shape in 1992 with the adoption of the UN Framework Convention on Climate Change (UNFCCC). The UNFCCC sets out a framework for action aimed at stabilizing atmospheric concentrations of greenhouse gases to avoid "dangerous anthropogenic interference" with the climate system. Controlled gases include methane, nitrous oxide and, in particular, carbon dioxide. The UNFCCC entered into force in March 1994 and now has 192 parties. The parties to the UNFCCC typically convene annually in a Conference of the Parties (COP) and twice a year in meetings of its subsidiary bodies – the Subsidiary Body for Implementation (SBI) and the Subsidiary Body for Scientific and Technological Advice (SBSTA).

In December 1997, delegates met in Kyoto, Japan, and adopted the Kyoto Protocol to the UNFCCC. The Kyoto Protocol commits developed countries and countries with economies in transition (Annex I parties) to achieve quantified emissions reduction targets. These countries agreed to reduce their overall emissions of six greenhouse gases by an average of 5% below 1990 levels between 2008 and 2012 (the first commitment period), with specific targets varying from country to country. The Kyoto Protocol also establishes three flexible mechanisms to assist the parties in meeting their national targets cost-effectively: an emissions trading system; joint implementation (JI) of emission reduction projects between Annex I parties; and the Clean Development Mechanism (CDM), which allows for emission reduction projects to be implemented in developing countries (non-Annex I parties). The Kyoto Protocol entered into force on 16 February 2005 and has been ratified by 177 parties.

TECHNOLOGY TRANSFER UNDER THE UNFCCC AND KYOTO PROTOCOL: Technology transfer is considered to be a key element in combating climate change. Article 4.5 of the UNFCCC states that "developed countries… shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally-sound technologies and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention." Article 10c of the Kyoto Protocol contains a similar commitment.

IN THIS ISSUE

The *CTI Industry Joint Seminar Bulletin* is a publication of the International Institute for Sustainable Development (IISD) <info@iisd.ca>, publishers of the *Earth Negotiations Bulletin* © <enb@iisd.org>. This issue was written and edited by Alexandra Conliffe and Hal Kane. The Editor is Pia M. Kohler, Ph.D. <pia@iisd.org>. The Director of IISD Reporting Services is Langston James "Kimo" Goree VI <kimo@iisd.org>. Funding for coverage of this meeting has been provided by the International Center for Environmental Technology Transfer (ICETT). IISD can be contacted at 161 Portage Avenue East, 6th Floor, Winnipeg, Manitoba R3B 0Y4, Canada; tel: +1-204-958-7700; fax: +1-204-958-7710. The opinions expressed in the *Bulletin* are those of the authors and do not necessarily reflect the views of IISD.

In 2001, parties to the UNFCCC adopted a framework for actions to enhance implementation of Article 4.5 (technology transfer framework). The framework contains five key activities relating to technology: needs assessments; technology information; enabling environments; capacity building; and mechanisms for technology transfer. Funding to implement the framework is provided through the climate change focal area of the Global Environment Facility (GEF) and the Special Climate Change Fund.

In 2001, parties to the UNFCCC also established the Expert Group on Technology Transfer (EGTT) to help advance the UNFCCC's technology-related goals. Since then, workshops have been held on needs assessments (Seoul, Republic of Korea, April 2002 and Bangkok, Thailand, June 2007), technology information (Beijing, China, April 2002 and Bonn, Germany, March 2007), enabling environments (Ghent, Belgium, April 2003), innovative financing (Montreal, Canada, September 2004 and Bonn, Germany, October 2005), and adaptation technologies (Tobago, June 2005). For more information on recent UNFCCC events, visit: http://ttclear.unfccc.int/ttclear/jsp/

At the eleventh Conference of the Parties (COP 11) to the UNFCCC, serving as the first Meeting of the Parties (MOP 1) to the Kyoto Protocol, held in Montreal in November-December 2005, delegates, *inter alia*: endorsed the EGTT's 2006 Work Programme; requested a side event on the issue of public technologies; took note of pilot networking between UNFCCC's Technology Transfer Clearing House and regional technology information centers; and asked the UNFCCC Secretariat to organize a high-level roundtable on lessons learned, technology transfer and deployment, and technology-based cooperation and partnerships.

At COP 12 and MOP 2 in Nairobi in November 2006, delegates extended the EGTT for one year, and forwarded text to the 26th meeting of the Subsidiary Body on Scientific and Technological Advice (SBSTA 26) in Bonn in 2007 for its further consideration. The text, which remained bracketed pending further negotiation, included references to: the five themes listed in the framework for technology transfer; reconstitution of the EGTT; establishment of a Technology Development and Transfer Board (TDTB); establishment of a Multilateral Technology Acquisition Fund (MTAF) to buy intellectual property rights; and development of indicators to monitor implementation of the technology transfer framework. The text remained largely bracketed following SBSTA 26, with divisions remaining regarding the form of a new or reconstituted body following termination of its current mandate, and whether or not it should report to both SBSTA and the Subsidiary Body for Implementation (SBI) or only to SBSTA, with certain relevant items being forwarded to the SBI. SBSTA 26 conclusions and bracketed draft decision and annexes were forwarded to COP 13.

At COP 13 and MOP 3 in Bali in December 2007, delegates reconstituted the EGTT for a further five years. The COP, *inter alia*: agreed that the EGTT shall make recommendations to the subsidiary bodies; agreed that the EGTT should assess gaps and barriers to the use of, and access to, financing resources; requested the GEF to elaborate a strategic programme to scale up the level of investment for technology transfer; requested the EGTT to elaborate a set of performance indicators to be used by SBI; and agreed that technology needs assessments (TNAs) will continue under the Convention. The COP further requested the Secretariat to: implement a regional training programme, followed by regional training workshops in 2008 and 2009; organize a meeting on technologies for adaptation; update the UNDP handbook on conducting TNAs; and organize a special meeting of the EGTT. Enhanced action on technology development and transfer to support mitigation and adaptation is included in the Bali Action Plan, which is intended to enable the full, effective and sustained implementation of the Convention through long-term cooperative action.

CTI INDUSTRY JOINT SEMINARS ON TECHNOLOGY DIFFUSION: The Climate Technology Initiative (CTI) is a multilateral initiative established in 1995 at the first Conference of the Parties to the UNFCCC. The CTI operates as an Implementing Agreement under the International Energy Agency (IEA). Its mission is to bring countries together to foster international cooperation to accelerate the development and diffusion of climate-friendly and environmentally-sound technologies and practices. The CTI works with the UNFCCC Secretariat, the EGTT, relevant IEA Implementing Agreements and other international organizations and initiatives. Its activities are designed to be consistent with UNFCCC objectives, in particular the technology transfer framework. The CTI has an ongoing programme of seminars and workshops designed to support the UNFCCC process and facilitate the diffusion of appropriate technologies and practices.

The CTI also organizes a series of Industry Joint Seminars. The first CTI Industry Joint Seminar on technology diffusion for the Asia and Pacific Region was held in Beijing in May 1998. In subsequent years, the CTI has organized or co-organized various other Industry Joint Seminars on technology diffusion for: Latin America and the Caribbean (San Salvador, El Salvador, March 2000); Eastern Europe and Central Asia (Vienna, Austria, October 2003); ASEAN and Small Island States of the Pacific Region (Jakarta, Indonesia, February 2004); Central and Eastern Europe and the CIS (Vienna, October 2004); and Asia (Beijing, China, February 2005).

The CTI has arranged Industry Joint Seminars on other topics, including: financing for climate change projects in Latin America (Madrid, Spain, September 2000); technology transfer in Asian countries (Hanoi, Viet Nam, March 2006 and New Delhi, India, March 2007); and energy efficiency and renewable energy technologies in CIS countries (Kiev, Ukraine, September 2007).

These meetings have often been arranged in partnership with other organizations, such as the UN Industrial Development Organization (UNIDO). For more information on these past events and others, visit: http://www.climatetech.net/events/ and http://www.iisd.ca/process/climate_atm.htm

REPORT OF THE SEMINAR

OPENING SESSION

The Climate Technology Initiative (CTI) Industry Joint Seminar on diffusion of energy efficient and renewable energy technologies in Asian countries began with opening speeches on the morning of Thursday, 21 February.

Elmer Holt, Chair of the CTI Executive Committee, welcomed participants and commemorated the tenth anniversary of the CTI's first Industry Joint Seminar on technology diffusion in Asia, which was also held in Beijing. He described the CTI's history and goals and discussed its ability to provide information and data on climate-friendly technologies and guidance to organizations pursuing relevant projects. Emphasizing the importance of finance through the private sector, he described the CTI Private Financing Advisory Network's (PFAN) work in this regard.

Lu Yonglong, Chinese Academy of Sciences (CAS), welcomed participants to the Seminar on behalf of the CAS. He emphasized the CAS' long-standing commitment to addressing climate change issues. He stressed the need to follow the principle of common but differentiated responsibilities and highlighted the roles that

international cooperation and support from developed countries for technology transfer can play for mitigating and adapting to climate change.

Takehiro Kagawa, Japanese Embassy in China, noted that Japan will host the July 2008 G8 meeting and intends to make climate change a key priority. He cited the value of a sectoral approach to improving energy efficiency, similar to sectoral approaches discussed at COP 13. He emphasized the need for greater international cooperation, especially between more developed and less developed countries. He highlighted progress that has resulted from the bilateral relationship between Japan and China, stating that the two countries consider environmental cooperation to be a key component of the relationship.

Xiao Yunhan, CAS, gave the first keynote speech on sustainable development and energy efficiency in China. He outlined China's efforts to reduce energy intensity while allowing GDP growth, and noted key challenges, including that: China's primary energy source is coal; China's energy use remains inefficient; China is industrializing and urbanizing quickly; and globalization places pressure on China to generate energy to make products for export. He emphasized the need to mobilize finances for climate-friendly technologies immediately, noting that it takes twenty years to realize the benefits of basic research. He forecast increased growth in energy production from nuclear, agricultural biomass and other renewable sources.

Wanna Tanunchaiwatana, UN Framework Convention on Climate Change (UNFCCC), presented the second keynote speech on challenges for technology transfer under the UNFCCC and its future process. She emphasized the attention that technology transfer received at COP 13 in Bali and outlined relevant outcomes for technology transfer. Tanunchaiwatana highlighted the complexity of linking the work of the Expert Group on Technology Transfer (EGTT) to the Bali roadmap, and the challenge that the EGTT faces in maintaining its ongoing activities while also considering the role that technology transfer will play in an as-yet undefined post-2012 regime. She noted the new emphasis on a sectoral, rather than broad, approach to technology transfer under the Bali roadmap.

Morihiro Kurushima, CTI, argued that industries must be key players in addressing climate change because they are the suppliers of energy. He emphasized the need to secure "win-win opportunities" for technology transfer, and presented three examples of technology transfer projects under the CTI that simultaneously meet energy needs in developing countries and reduce greenhouse gas emissions.

SESSION 1: ENERGY EFFICIENT TECHNOLOGIES IN THE INDUSTRIAL SECTOR

This session was moderated by Liu Zhongliang, Beijing University of Technology, and included presentations on different aspects of energy efficiency as well as a panel discussion on the potential of energy efficient technologies in industrial sectors in Asia.

Tokuya Sakurai, Chubu Electric Power Co., Inc. (CEPCO), described how CEPCO has improved energy efficiency in existing power plants in Thailand and Indonesia. He detailed modifications that CEPCO has made to reduce waste and emissions and increase power output and efficiencies with little or no increase in operating costs. In response to a question, he reported that modification costs are small, decrease over time and repay themselves with future cost savings.

Katsuhiko Kotani, Nippon Steel Corporation, presented on Nippon's coke dry quenching (CDQ) projects in China, noting that approximately half of China's 60 CDQ facilities are built through joint venture projects using Nippon's technology. He said this technology was approved under the Clean Development Mechanism (CDM) in 2007. In response to questions, he suggested that, as opposed to China's domestic technologies, Nippon's CDQ technology leads to improved operations and maintenance. He stated that revenues from certified emission reductions (CERs) under the CDM are small relative to the reduction in energy costs that result from using Nippon's CDQ technology.

Koji Okuhara, Osaka University, and Haruhiro Fujita, Toyo University, presented on life cycle assessments (LCAs). They said that LCA encompasses extraction of raw materials, production, recycling and disposal. They described the need for LCAs and for certification of products to make LCA results visible to consumers, and highlighted government and private sector support for such assessments. They said that, in order for LCA to become widely used in a meaningful way, the following are essential: transparency, common inventory data, low costs, user-friendly presentations, web-based user interfaces, accessibility for developing countries, and strong promotion, standardization and public participation. They described a system they have created to facilitate comparisons of LCA data among different products.

PANEL DISCUSSION: Following the presentations, Liu Zhongliang moderated a panel discussion on the potential of energy efficient technologies in the industrial sector. Chirasak Boonrowd, The Energy Conservation Center of Thailand, suggested that low-cost improvements in operations and maintenance can be a first step to reducing carbon emissions from production plants, and that more costly, process-related improvements can follow. Lim Cheng Guan, Ministry of Energy, Brunei, said that progress should be made in the transport sector and in improving the efficiency of appliances.

Artemio Habitan, Ministry of Energy, the Philippines, noted that international financial institutions could, *inter alia*, lead in the promotion of clean-energy technologies, initiate partnerships with local banks and energy service providers and provide affordable interest rates for loans. Puneet Katyal, Winrock International India, stressed that policy and financing should be directed at small- and medium-sized enterprises (SMEs), rather than organized sectors, as they offer a major opportunity for reducing greenhouse gas emissions in economies in transition. Kangbin Zheng, Asian Development Bank (ADB), suggested that ways to use wasted coal in China should be explored further, and cited the high cost of wind power technology and the lack of political will to transfer it from developed to developing countries.

SESSION 2: RENEWABLE ENERGY TECHNOLOGIES

This session took place on Thursday afternoon, and was moderated by Daniel Bilello, National Renewable Energy Laboratory. It included presentations on a variety of renewable energies and a panel discussion about the potential of renewable energy technologies in Asia.

Zhao Daiqing, CAS, stated that the Chinese government is preparing new laws to promote renewable energies, including wind, solar and biomass. She highlighted the government's goal to meet 15% of primary energy consumption with renewable energies by 2020. Zhao described the potential role of biomass in China given the country's extensive agricultural sector. Stressing that China will not use grain to produce biofuels or ethanol because of a shortage of agricultural land and because grain is needed for food, she listed other exploitable biomass sources, including rice husks, sawdust, straw, forestry residues, sugar cane and cassava.

Natee Sithiprasasana, A.T. Biopower Co., Ltd, presented on a 22MW rice husk power thermal power plant that his company built in Thailand. He explained that the project can generate revenues from power generation, rice husk ash and CERs under the CDM. He identified as a major project barrier the doubling

of the price of rice husks since the project feasibility study was conducted in 2002, and stressed that governments must consider the balance of demand and supply for biomass when promoting the development of such projects. In response to questions, Sithiprasasana suggested that the ideal size for single-fuel biomass power plants is less than 10MW, noting the difficulty in supplying fuel for plants larger than this.

Ellen Zanoria, Philippine Bio-Sciences Co., Inc., detailed work done by her company to develop biogas energy. She described technologies that convert wastewater into methane gas, which is then used to supply power to generators. She showed how these technologies reduce greenhouse gas emissions and the need for diesel fuel and high-density fuel oil. She pointed to several difficulties in developing biogas, including delays of six to eight months in importing technologies from Australia and the US, and bureaucratic inefficiencies in Filipino government agencies. She said that transfer of knowledge, a secure supply chain, and good managers are helpful in responding to these challenges.

Lucy Jiang, on behalf of Charlie Dou, Beijing Bergey Windpower Co., presented on barriers to the transfer and diffusion of wind power technologies in China. Regarding large-scale wind farms, she noted that more than 55% of China's capacity is generated using foreign technology. She argued that foreign technologies are not always suited to Chinese conditions, clarifying that they are not designed to withstand typhoons. Regarding wind power for distributed generation, Jiang noted the success of small wind turbines in the US and Europe, stating that similar successes in China require government incentives and effective metering policies. Regarding off-grid wind power generation, she highlighted barriers, including: high initial cash investments; poor availability of technical support; and issues related to reliability, safety and security.

PANEL DISCUSSION: Following the presentations, Daniel Bilello moderated a panel discussion on the potential of renewable energy technologies in Asia.

Ji Zou, Renmin University of China, noted that both international and domestic mechanisms are needed to promote technology transfer. Nguyen Tien Long, Ministry of Industry and Trade, Viet Nam, lamented that, in spite of his country's long coastline and many islands with high winds, only one small wind project in these areas exists. He said that over 10 wind projects have passed feasibility studies but have not been implemented due to barriers such as the lack of an energy policy. Hamdan Mokhtar, Standard and Industrial Research Institute of Malaysia, described 10-year tax exemption that his government has introduced to promote investment in renewable energies.

Faizul Ishom, Ministry for the Development of Disadvantaged Regions, Indonesia, noted the challenge of providing energy access to all people on all 18,000 islands that comprise his country, and discussed a new project that produces biofuels from palm oil and cassava in rural areas. Amit Kumar Nigam, The Energy and Resources Institute, India, said that energy efficiency should be given priority over renewable energies in climate change mitigation. He stressed the need for realistic energy pricing to reflect external environmental costs, and said that subsidized prices of fossil fuels should not be compared to non-subsidized prices of renewable energies when judging which is more expensive.

Mike Allen, ReEx Capital Asia, argued that while financing and support for renewable energies have historically focused on individual projects, a focus on companies is needed to expand the market. He stressed that the public sector, donors and international financial institutions must work together to integrate the private sector into financing activities for renewable energies. Peter Storey, PFAN, underscored that the elevated capital cost of renewable energies relative to carbon-intensive fuels, as well as price risks on the input side of renewable energies, must be acknowledged.

Lukman Adanan, Department of Environment, Parks and Recreation, Brunei, highlighted the challenge of implementing renewable energy projects without strong national environmental policies. Puneet Katyal stressed that lack of integrated energy policies at the national level and "lackluster" attitudes of financial institutions are major barriers to renewable energy development. He argued that successful projects must be marketable and that government incentives alone are insufficient.

Seiichiro Nishida, Mitsubishi UFJ Securities, emphasized that consistent host government policies are critical to obtaining financing for CDM and energy efficiency projects. He said that CDM and renewable energy projects are new to banks and that capacity building for bankers would be helpful in this regard. He suggested that local banks could help to finance small- and medium-scale projects, while support from international financing institutions and the public sector could help to reduce perceived risks.

Summarizing Thursday's sessions, Daniel Bilello emphasized that practical examples show that the renewable sector is a viable and major market of US$50 billion-US$100 billion globally. He highlighted that renewable energy not only contributes to climate change mitigation, but also has co-benefits for agriculture, water quality, air quality, and energy security. He added that key needs include: reliable information on technology costs and performance; clearer and consistent policies and pricing to "level the playing field" between fossil fuels and renewable energies; and reliable access to power grids.

SESSION 3: PROJECT FINANCING

On the morning and afternoon of Friday, 22 February, Elmer Holt moderated the session on project financing.

Wanna Tanunchaiwatana, UNFCCC, explained that in their technology needs assessments, parties to the UNFCCC identified economic and market factors as the main barriers to implementing climate-friendly technologies. She informed participants that innovative funding was added as a new work area under the technology transfer framework at COP 13. She outlined the contents of a practitioner's guidebook that the UNFCCC Secretariat and EGTT developed in 2007, entitled: "A guidebook on preparing technology transfer projects for financing," and noted that parties at COP 13 agreed to run three regional training programmes on this topic, the first of which will take place in Africa in 2008. She stressed that developing countries must be ready to present strong project proposals to take advantage of new funding that has become available for technology transfer since COP 13.

Peter Storey, Private Financing Advisory Network (PFAN), explained that PFAN is a public-private partnership initiated by the CTI to facilitate access to finance for clean technology projects. He emphasized that public-private partnerships, capacity building and technology transfer are critical for obtaining financing for clean technology projects and ensuring project success. He said that PFAN has reviewed 50 projects, of which one has already received financing, and forecast that the long-term capacity for this initiative could soon surpass US$700 million, with individual projects receiving between US$1 million and US$50 million each. He stressed the importance of arranging financing early in a project's life cycle.

Hirobumi Takaoka, Japan Bank for International Cooperation (JBIC), highlighted the potential of carbon trading to contribute to sustainable growth in Asia. He presented case studies of JBIC's

involvement in greenhouse gas emission reduction projects, and highlighted the development of a carbon credits trading platform that will broaden participation in the carbon market by supporting the secondary carbon market. He introduced the Facility for Asian Cooperation and Environment, a new JPY¥15 billion facility, to provide equity financing and guarantees for energy conservation and environmental projects.

Mike Allen, ReEx Capital Asia, spoke about his company's work to bring capital to clean energy projects in Asia. He said that investors are looking for clean energy projects that can pass due diligence and that have high-quality business plans and feasibility studies. He estimated that the value of the global market for clean energy was US$117.2 billion in 2007. He stressed the importance of hands-on engagement in local markets by investors and partners. Allen also introduced the Renewable Energy and Energy Efficiency Partnership (REEEP), another organization that facilitates financing for, and promotion of, climate-friendly technology transfer.

Kangbin Zheng, ADB, presented on financing opportunities for climate-friendly technologies from the ADB. He described how, under ADB's Carbon Market Initiative (CMI), developers can obtain up to 50% of the net present value of their project's CER revenues up-front rather than upon delivery of emission reductions. He estimated that the CMI can provide between 8% (for hydropower) and 66% (for coal mine methane/ coalbed methane) of a project's cost through its upfront financing mechanism. He also introduced the ADB's Energy Efficiency Initiative and its proposed Clean Energy Financing Partnership Facility. In response to questions, Zheng said that a lack of technical expertise often results in high maintenance costs for technology investments, and emphasized the need to support energy service companies, who can help in this regard.

Qiu Yanwen, China Development Bank, highlighted China's significant reductions in sulphur dioxide emissions, despite the country's rising use of coal. He described plans to further reduce emissions from power plants and expressed support for increased use of renewable resources. He discussed the potential of wind power and the importance of biomass generation, particularly using straw. He outlined internal procedures that the Bank follows to process applications for new projects. In response to a question, he agreed that support for SMEs is critical.

Seiichiro Nishida, Mitsubishi UFJ Securities, said that China is promoting CDM projects heavily and has the second largest number of registered projects and volume of issued CERs, after India. He outlined risks that are unique to the CDM, noting that price risks are higher for CERs than for tangible products because CERs are an artificial, legal concept. He also highlighted process risks, including methodology changes and uncertain approval for monitoring and verification reports, and said that a lack of monitoring know-how presents challenges for CDM projects. Noting that investors hedge risks by heavily discounting CER prices, he recommended that project developers sell some CERs up-front and some at the time of issuance. Responding to a question, he argued that while CERs provide some additional cash flow for projects, it is not significant.

Kathleen Wu, US Agency for International Development, introduced the Development Credit Authority (DCA), which facilitates public-private partnerships for risk sharing in developing countries. She said that the DCA is a guarantor of last resort, working where capital markets are unwilling to invest because of risk. She stressed that the DCA is most effective when linked to public policy reform and technical assistance. She argued that the perception of risk is sometimes larger than the actual risk faced by investors, including for renewable energy projects in developing nations. She said that the DCA works only in regions of highest risk and pays claims in local currencies.

Magda Hanna, US Department of State, provided an overview of the Asia-Pacific Partnership on Clean Development and Climate (APP), which is a voluntary public-private partnership among seven countries that takes a sectoral approach to accelerating investments in clean and energy efficient technologies. She emphasized that public funds can be used to accelerate private investments, and described how APP pilot projects can be learning tools that subsequently facilitate up-scaling, which she said is often a barrier for renewable energy projects. She said the US Department of State will release a solicitation for US$6 million in grants for China in April 2008.

PANEL DISCUSSION: COOPERATION AMONG KEY SECTORS FOR TECHNOLOGY TRANSFER

Following the presentations on project financing on Friday afternoon, participants engaged directly in the concluding panel discussion on cooperation among key sectors for technology transfer. The discussion was moderated by Elmer Holt.

Daniel Bilello emphasized the importance of providing unbiased information to the financial community to make it aware of the opportunities and risks of investments in clean technologies. Ha Dang Son stressed the importance of encouraging private sector investments in climate-friendly technologies through policies conducive to technology transfer, and with finance from international financial institutions. Elmer Holt added that private sector investment is essential for the long-term sustainability of climate-friendly projects.

Mike Allen said that solar power may be more important for off-grid regions than for on-grid ones, and recommended differentiating between on- and off-grid projects. Seiichiro Nishida remarked that while the finance industry benefits from agencies that rate credit worthiness, there are no such agencies to rate technologies, meaning that bankers lack neutral assessments of technologies. He stressed the value of local banks that know local economies and lend in local currencies.

Miao Hong, China Renewable Energy Scale-up Program, highlighted the importance of SMEs in China, and suggested that international partners can help them to learn to prepare funding proposals. Wanna Tanunchaiwatana emphasized that the UNFCCC is looking for ways to help organizations and companies, particularly in the poorest countries, to attract projects that are climate-friendly and meet their energy needs and highlighted the role that good networking can play in this regard.

Peter Storey emphasized that while technical assistance is a pressing need, this should be offered as free of conditions as possible. Kathleen Wu stressed that investment by the public sector should attract, rather than displace, private sector investment, and that once private financing is available, the public sector should focus on policy and technical assistance.

CLOSING SESSION

Elmer Holt summarized key lessons on technical, policy and financial aspects of implementing environmentally-friendly technologies. Regarding technical aspects, he highlighted the enormous potential of technology to facilitate energy conservation, but cautioned that energy sources such as biomass, while renewable, are not unlimited. Regarding policy aspects, he said that energy pricing policies and regulations must serve the needs of both technology users and investors and stressed that governments must provide the necessary enabling environment to encourage domestic and international investment. Regarding financial aspects, he concluded that investors must

have confidence in the performance of technologies, stating that dissemination of information can build confidence in new technologies.

Holt expressed his hope that the Seminar had provided useful information as well as networking opportunities and thanked the organizers and participants. The Seminar ended at 3:53pm.

UPCOMING MEETINGS

WASHINGTON INTERNATIONAL RENEWABLE ENERGY CONFERENCE (WIREC) 2008: This conference will be held in Washington, DC, from 4-6 March 2008. The event, organized by the US Department of State, will aim to advance goals on energy security, climate change, air quality, and sustainable development, including agriculture and rural development. It will also seek to demonstrate global leadership in renewable energy research, policy development, technology innovation, commercialization and development, and to foster industry and government collaboration. For more information, contact: American Council on Renewable Energy; tel: +1-202-393-0001; fax: +1-202-393-0606; internet: http://www.wirec2008.org/

GLENEAGLES DIALOGUE ON CLIMATE CHANGE, CLEAN ENERGY AND SUSTAINABLE DEVELOPMENT: This dialogue will take place in Chiba, Japan, from 14-16 March 2008. The Gleneagles Dialogue is a multi-year, multi-government, public-private policy dialogue on climate change and clean energy issues, the findings of which will be submitted to the G8 summit process at this meeting in Japan. For more information, contact: internet: http://www.do-summit.jp/en/about/summary02.php

FIRST SESSION OF THE *AD HOC* WORKING GROUP ON LONG-TERM COOPERATIVE ACTION UNDER THE UNFCCC AND FIFTH SESSION OF THE AWG UNDER THE KYOTO PROTOCOL: The first meeting of the *Ad Hoc* Working Group on Long-Term Cooperative Action, a new body established at COP 13 in Bali, will take place from 31 March - 4 April 2008, in Bangkok, Thailand. The purpose of the meeting will be to develop the Group's work programme. The fifth session of the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol will be held at the same time. For more information, contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.int; internet: http://www.unfccc.int

28TH SESSION OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE: This meeting will take place in Budapest, Hungary, from 9-10 April 2008. The Panel will make recommendations on key elements of the future IPCC work programme, in particular working group structure, main types of reports and timing of future reports. For more information, contact: IPCC Secretariat; tel: +41-22-730-8208; fax: +41-22-730-8025/13; e-mail: IPCC-Sec@wmo.int; internet: http://www.ipcc.ch/

INTERNATIONAL GEF WORKSHOP ON EVALUATING CLIMATE CHANGE AND DEVELOPMENT: RESULTS, METHODS AND CAPACITIES: This workshop will take place in Alexandria, Egypt, from 10-13 May 2008. The GEF Evaluation Office is organizing this workshop, during which participants will share experiences in evaluating projects and programmes that target the nexus between climate change and development. Special attention will be paid to the results reported and whether there is convergence in findings throughout agencies. The workshop aims to realize the potential of project and programme evaluations to contribute to climate change mitigation and adaptation. For more information, contact: Secretariat of the International Workshop, Evaluation Office of the Global Environment Facility; tel: +1 202 458 8537; e-mail: IntWorkshop@thegef.org; internet: http://www.esdevaluation.org

G8 ENVIRONMENT MINISTERS' MEETING: This meeting will take place in Kobe, Japan, from 24-26 May 2008. The meeting will convene in preparation for the 2008 G8 Summit, to be held 7-9 July 2008 in Hokkaido, Japan. For more information, contact: internet: http://www.do-summit.jp/en/about/summary02.php

28TH SESSIONS OF THE UNFCCC SUBSIDIARY BODIES: The 28th sessions of the Subsidiary Body for Implementation and the Subsidiary Body for Scientific and Technological Advice are scheduled to take place from 2-13 June 2008, in Bonn, Germany. It is expected that the second meeting of the *Ad Hoc* Working Group on Long-Term Cooperative Action under the Convention and the resumed fifth session of the *Ad Hoc* Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol will also be held. For more information, contact: UNFCCC Secretariat; tel: +49-228-815-1000; fax: +49-228-815-1999; e-mail: secretariat@unfccc.int; internet: http://www.unfccc.int

GLOSSARY

ADB	Asian Development Bank
APP	Asia-Pacific Partnership on Clean Development and Climate
CAS	Chinese Academy of Sciences
CDM	Clean Development Mechanism
CDQ	Coke Dry Quenching
CEPCO	Chubu Electric Power Co., Inc.
CERs	Certified emission reductions
COP	Conference of the Parties
CMI	Carbon Market Initiative
CTI	Climate Technology Initiative
DCA	Development Credit Authority
EGTT	Expert Group on Technology Transfer
GEF	Global Environment Facility
IEA	International Energy Agency
JBIC	Japan Bank for International Cooperation
JI	Joint Implementation
LCA	Life cycle assessment
PFAN	Private Financing Advisory Network
REEEP	Renewable Energy and Energy Efficiency Partnership
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SME	Small- and medium-sized enterprises
TNA	Technology needs assessment
UNFCCC	United Nations Framework Convention on Climate Change