Climate Policy Dialogue in Asia

-Voice from Asian Countries-

Institute for Global Environmental Strategies

July 2002

Introduction

IGES Climate Policy Project has organized a series of international workshops to facilitate in-depth analysis and discussion on climate change issues with the focus on the Asia pacific region. The workshops has been jointly organized with UNEP Collaboration Center of Energy and Environment (UCCEE), Denmark, Energy Research Institute(ERI) of China, and Korea Environment Institute (KEI) of Korea, TATA Energy Research institute(TERI), Thailand Environmental Research Institute(TEI) and National Environmental Agency of Vietnam.
Five workshops were held in China, Korea, India, Thailand and Vietnam.
The objectives to hold this series of workshops is;

1) to discuss the relevant issues to cope with climate change issues,
2) to find common issues to cope with climate change for Asian countries, which will be expected to be the largest CO2 emission areas,
3) to highlight different situations and needs among Asian countries,
4) to elaborate further collaboration among Asian countries.

Through the five workshops, the followings are realized as common issues for developing countries to cope with climate change issues.

- The heterogeneous nature of the Asian region with distinct separate interests should be acknowledged.
- Integration of climate change policies into other policy objectives, especially into sustainable development is important for long-term.
- Linkage between climate policy and energy policy should be required, such as effective implementation of energy conservation and energy efficiency programs, restructuring the energy related institutions.
- Utilizing existing policies effectively such as urban land use planning to control green house gas (GHG) emissions in the transportation sector is required.
- Dedicated political will and public awareness on climate change are especially important for implementing climate policy in developing countries.
- Inclusion of market forces along good government regulations in climate change policies
- CDM is one key mechanism to achieve both the GHG mitigation and sustainable development, however there are some obstacles.
- The necessity of capacity building on the basics of climate change and CDM for politicians and ministry officials, who play an important role in creating and implementing policies, is very large.
- A leadership role on climate change in the Asian region is required to Japan.
- Regional approach, such as organizing regular forums/workshops at national, regional and global level on climate change is useful.

Although the above mentioned factors were realized as common issues, different situations and needs of each country were also highlighted.

With regards to China, CDM was regarded as an instrument to attract international financial flows to China and to identify new attractive areas and priority for CDM projects within China was required. As barriers for using CDM, the lack of common understanding between the supply side and demand side of CDM, and institutional aspects, such as baselines and tracking systems were identified.

With regards to Korea, voluntary and active participation of Non-Annex 1 countries was a main issue. For the participation, unilateral CDM was regarded as one option.

As for India, the possibility of renewable energy to mitigate GHG emission was discussed, since India has implemented a big project of renewable energy. Equitable rights and equitable responsibilities for climate change were required from Indian participants.

With regards to Thailand, improvement of energy efficiency was identified as a key issue. Especially lignite was identified as one of main issues to be improved in the future for the further reduction of GHG emission.

With regards to Vietnam and Cambodia, the importance of capacity building for government officers was required. It was pointed out that supports from donor countries tend to focus on few big developing countries because of a market driven perspective. The equity of support allocation was also required.

IGES has also provided an informal meeting to explore the international collaboration against climate change following the COP7 Marrakesh Accords which opened the way for entry into force of the Kyoto Protocol.
This booklet is a summary of the above workshops and symposium with the objective to send the voices of Asian countries.
Based on the results of the workshops, we are planning to hold capacity building seminars in some countries for the next step, in order to explore the possibility of collaboration in the Asia Pacific Region on the climate change issue.

July 2002
Climate Policy Project
Institute for Global Environment Strategies (IGES)

Climate Policy Dialogue with China

International Workshop on Social-Economy Assessment for CDM and Other Mechanisms in China

15-16 March 2001
Xindadu Hotel, Beijing, China
Organizers: Energy Research Institute (ERI), China
Institute for Global Environmental Strategies (IGES), Japan
UNEP Collaborating Centre on Energy & Environment (UCCEE), Denmark

March 15 (Thu.)
Welcoming by Dr. Li Junfeng (ERI, Deputy Director General)
Session I: Issues on FCCC - focusing on the Kyoto Mechanisms
Chair: Dr. Myung-Kyoon Lee (UCCEE, Denmark)
Presentation*:*
Dr.Erik Haites (Margaree, Consulting, Canada)
Ms. Aki Maruyama (IGES, Japan)
Prof. Liu Desun (TsingHua Univ., China
Dr. Kim Olsen (UCCEE, Denmark)
Discussions:
Dr. Naoki Matsuo (IGES, Japan), Dr. Jorge Rogat (UCCEE, Denmark), Dr. Kejun Jiang (ERI, China)
Session II: Policies & Measures on Climate Change
Chair: Dr. Li Junfeng (ERI, China)
Presentation:
Dr. Naoki Matsuo (IGES, Japan)
Dr. Peng Ximing (Electricity Power Research Center, China)
Dr. Jorge Rogat (UCCEE, Denmark)
Ms. Zhu Li (ERI, China)
Dr. Myung-Kyoon Lee (UCCEE, Denmark)
Discussions:
Madam Xu Huaqing (ERI, China), Dr. Tae Yong Jung (IGES, Japan), Dr. Kim Olsen (UCCEE, Denmark),

March 16 (Fri.)
Session III: Panel Discussion
Chair: Prof. Shuzo Nishioka (IGES, Japan)
Panelists:
Dr. Lee and Dr. Rogat (UCCEE, Denmark), Dr. Matsuo and Dr. Jung (IGES, Japan), Dr. Haites (Canada), Dr. Shi Han (Clean Technology Center, China), Prof. Zhou Ji (Ren Min Univ., China), Prof. Lin Drda (Chinese Academy for Agriculture, China), Madam Hu Xiulian (ERI, China)
Concluding Remarks
Dr. Li Junfeng (ERI, China), Prof. Shuzo Nishioka (IGES, Japan) and Dr. Myung-Kyoon Lee (UCCEE, Denmark)

Summary

The Institute for Global Environmental Strategies (IGES), Japan, Energy Research Institute of China (ERI), and UNEP Collaborating Centre on Energy & Environment (UCCEE), Denmark jointly organized an international workshop on social economy assessment for the CDM and other mechanisms on March 15 - 16, 2001 in Beijing, China. At the opening session, Dr. Li Junfeng who is Deputy Director General of ERI made welcoming remarks. He pointed out that China has much interest in the discussions on UNFCCC and Kyoto Protocol. As one of the Non-Annex I Parties, it is necessary to have an opportunity to discuss with experts from Annex I Parties on the issues of social-economy assessment for CDM and other mechanisms. He sincerely hoped that on this occasion Chinese experts and participants from abroad would have a chance to exchange their views and ideas for a better understanding of each other and to develop further opportunities for collaboration.

Session I: Issues on FCCC - focusing on the Kyoto Mechanisms

This session was chaired by Dr. Myung-Kyoon Lee of UCCEE, Denmark.
Presentations
-Dr. Erik Haites of MARGAREE Consulting, Canada made the first presentation. His topic was major influences on the global demand for CDM. He examined how the rules for all Kyoto Mechanisms affect the size of the market for the CDM. He estimated the total market would be at 625 to 1,350 MtC per year with no sinks and no restrictions. CDM market would be 65 to 725 MtC per year. He pointed out that his estimates were sensitive to economic growth, elasticity of demand for fossil fuels, technological change and the rules for mechanisms. Supplementarity has a big impact followed by hot air, liability and Annex I sinks. The CDM administration needs to process large volumes of projects with low costs for small projects.
-Ms. Aki Maruyama of IGES, Japan focused on issues in financing mitigation projects in China. She identified barriers to CDM investment, comparing the existing financial transactions between Japan and China. She also suggested how to reduce barriers to CDM. International consensus on CDM, domestic policies and measures in Annex I countries and other supportive funding for creating enabling environment and enhancement of capacity in host countries were suggested. It is necessary to maximize energy efficiency programs and renewable energy projects, but there is also a need for a balanced approach, taking account of country specific energy situations. Further improvement of domestic policy measures to remove barriers to FDI/CDM should also be considered.
-Professor Desun Liu of TsingHua University, China proposed a conceptual framework for CDM implementation to meet Chinese demand. The commitments of Annex I countries and the sustainable development of Non-Annex I countries should be achieved. He touched on many legal issues in developing various aspects of the CDM. He concluded that Non-Annex I Parties need an integrated framework to implement the CDM, under which the spirit of UNFCCC and sustainable development and environmental integrity could be ensured. There were some gaps in the political negotiation at COP6 and some Annex I Parties shall make efforts in reaching consensus in accordance with the major principles under the Conventions and Kyoto Protocol.
-Dr. Kim Olsen of UCCEE made his presentation on the opportunities and challenges of developing countries in international cooperation related to climate change. He introduced his theory of decision making for a long-run strategy, developing feasible simulations on Kyoto Mechanisms, based on his model. He summarized that 'Cartel' gains are larger, where modest CDM participation is preferred to large scale CDM participation. CDM participation is always preferred if prices are competitive.

Session II: Policies & Measures on Climate Change

This session was chaired by Dr. Li Junfeng, who is Vice-Director of ERI, China.

-Dr. Naoki Matsuo of IGES made a presentation on technology transfer of energy saving institutions as good practice in Japan. He analyzed why Japan's energy efficiency is so high. He pointed out that the energy price in Japan is high, since most energy is imported. The Japanese government has technology-oriented policies and supporting institutions such as the Energy Conservation Law. Lessons we can draw from the Japanese experience include that government should initiate self-capacity building, promote rational use of energy and provide competitive market conditions. The industrial sector can facilitate regulatory frameworks for capacity building. For example, qualified energy managers and factory designation systems may provide a solution. In the transportation sector, a well-planned railway strategy provides a solution to meet energy demands due to economic growth.
-Dr. Peng Ximing of the Electricity Power Research Center, China made a presentation on possible electricity technology options to reduce CO2 emissions in China. First, he described the basic situation of the power generation sector in China. A total 277.3 Gw of power generation facilities were installed in 1998, of which 69 % were coal fired, oil and gas fired took 6% shares, and hydro covered 24%. In terms of power generation, 1157.7 Thw was generated in 1998, out of which coal covers 77%, while hydro covers only 18%, since coal fired power generation is for base load. It is worth mentioning the China Renewable Energy Scale-up Programme (CRESP), which is financed by the World Bank and GEF. The objectives of this programme are to give an overview of the national impacts of CRESP, to design the Mandated Market Share (MMS) programme and to study Green Certificates Trading System.
-Dr. Jorge Rogat of UCCEE made a presentation on the economic and environmental effects of reforming fuel and coal subsidies in Latin America. He introduced the case of Chile, which has many implications on China, whose main energy base is coal. He developed an economic model (Computable General Equilibrium Model) to evaluate such effects, provide an overview on energy pricing policies in Latin America and to validate the model by comparing its outcomes with real effects. He produced the following findings. 1) Macroeconomic impacts are more significant when fuel subsidies are removed. 2) The environment benefits the most when both subsidies are removed and considerable emission reductions are achieved. 3) This model has limitations that should be overcome in order to improve its analytical capacities.
-Dr. Shi Han, who is the director of the Centre for Environmentally Sound Technology Transfer, China introduced case studies on potential AIJ/CDM projects in China. One example is energy efficient demonstration building, which is funded by the US Department of Energy to achieve measurable, cost effective GHG emission reductions by using replicable, integrated energy design and technology. Another is the case of straw bale housing building in Northern China, where heating demand is most important in energy use. The objective of this program is to improve the housing situation of rural areas by increasing insulation and reducing coal consumption, resulting in the reduction of CO2 emissions.
-Dr. Myung-Kyoon Lee of UCCEE wanted to show the conceptual relationships between Foreign Direct Investment (FDI), economic development, and the environment. First, the relationship between economic growth and environmental quality can be expressed by 'Kuznets Curve', which is an inverted U-curve. Depending upon studies and pollutants the turning points of emissions of local air pollutants are between $3,000 and $25,000 per capita. The relationship between FDI and environmental quality is that FDI is an important factor for the economic development of developing countries, so that we may derive policy implications for the better use of FDI and not repeat the mistakes made by conventional development strategies. Then, he introduced his model that considers FDI as one important determinant for CO2 emissions in China. His tentative findings were as follows. 1) With respect to CO2 emissions, it is hard to find the existence of the Environmental Kuznets Curve. 2) Analyzing FDI from an environmental point of view would have important

implications for developing countries. 3) FDI as a tool to achieve sustainable development has a double dividend in terms of both economic and environmental performance. 4) Most CDM projects are expected to come from the private sector in the form of FDI.

Panel Session

In the second day of the workshop, a panel session was held to focus on issues related to CDM. This session was chaired by Professor Shuzo Nishioka, who is a project leader at IGES, Japan and a professor at Keio University, Japan. He initiated this session by mentioning that institutional issues, such as funding and evaluation, international agreement are the most important. Hot air, international mechanisms, emissions trading and domestic policies can belong to the evaluation framework. Among funding mechanisms (CDM, ODA, ET), CDM should be located among the opportunities, to compare its benefits. It is important to consider the co-benefits of CDM. Japanese soft-type technology (capacity building) should be transferred. In this above-mentioned framework, the "chance of CDM" and "definition of CDM" should be considered.

-Dr. Kejun Jiang of ERI briefly introduced collaboration activities with NIES on the AIM model in China. He showed the CDM potential in China sector by sector with three scenarios; 1) no improvement scenario, 2) market case and 3) policy case; introduction of advanced technology. He found that in the transportation sector, the price for a car is high although the price for fuel is low. There is potential for the introduction of advanced technology. In the chemical sector, the "whole-set" type of technology has been being imported for the last 10 years and in building sector, there has not been much advance in technology.

-Ms. Zhu Li of ERI also made a short presentation on the potential in China for renewable energy (RE) opportunities, which is helpful in understanding the energy situation in China. She argued that RE programs in China are fairly necessary not only to reduce GHG emissions in China, but also to provide business opportunities in China. The existing RE programs are the International Assistant Program of the World Bank, UNEP/GEF (largest capacity building for renewable energy in the world), ADB/GEF and bilateral programs, most of which are from ODA programs. She pointed out that there is a huge market for RE in big cities: for example solar integrated buildings (ADB program) and buildings for Olympics. Some RE has been commercialized, but wind- power still relies heavily on subsidies.

-Professor Lin Erda of the Chinese Academy for Agriculture raised the issue of sinks of GHG's. The fundamental question is whether the sink issue should be involved in CDM or not. He pointed out that there are two large uncertainties. A feasible methodology for sinks is necessary. According to IPCC methodology, there is still potential for a 100 million ton reduction in carbon in China. However, there are still problems of definition, database, model, and linkage to additionality. On this matter, it is necessary for China to focus on national strategies.

-Dr. Jung of IGES discussed CDM issues from a developing country's perspective. Maybe Dr. Haites can talk from the demand side and the Chinese participants from the supplier side. Their approach as suppliers is to focus more on the concept of sustainable development, focusing on the economic benefit of inviting CDM projects. For example, such questions as how much more employment can be created, and the issue of international competitiveness. The demand side would seek cheaper possibilities to minimize the cost for CER. Concerns of developed and developing countries are different. A longer-term perspective, not only the UNFCCC framework, is needed to handle the global environmental issues.

-Ms. Zhu Li mentioned that as an example to define sustainable development (SD), RE is a typical case both economically and socially. There is no access to electricity in rural areas in China. Infrastructure is the priority in the next 10-20 years, especially in the western part of China. It is a kind of bargaining that the Annex-I countries seek for lower cost, while developing countries are looking for higher return. It is important to define what we want.

-Dr. Jiang argued that better understanding of the issues is important in introducing CDM. China is facing serious environmental problems, so cleaner technology transfer is important. We don't want to

reduce the potential of domestic technology development by introducing technology transfer. So not only hard but also software technology transfer is important. When it comes to implementing CDM projects, the lack of common understanding between the supply part and demand part would become a problem.
-Dr. Haites of MARGAREE, Canada commented that from the demand side of CDM, the main concern when buying CER is price. Buyers are not concerned about the definition of CDM. China is working hard on modernization. Some aspects of this could be a priority for CDM projects. Maybe the infrastructure will be less suitable for CDM. The areas of air pollution, buildings, automobiles, and residential developments could be good candidates for CDM projects.
-Dr. Jiang pointed out that air pollution in Beijing is so bad that government officials have much to do before introducing carbon taxes. Also, it is difficult to collect tax in China. As for the removal of subsidies, China has been successful.
-Dr. Matsuo of IGES suggested that a national development plan for China should come first. It is necessary to identify priorities. The CDM can be a cleaner tool for taking such a sustainable path. Institutional aspects such as baselines and tracking systems are also important.
-Dr. Nishioka informed the workshop that a GEF/STAP meeting had been held the previous week. Indicators for technology transfer were shown. Also there was discussion on forestry replanting, mono-cultural types of management and good forest management.
-Dr. Jung raised the issue of general financial movement from developed to developing countries. According to our study, ODA and FDI from Japan to China have been decreasing since 1995. FDI for China is no more attractive. The Japanese FDI for Vietnam and Laos has been increasing. That means China loses opportunity and attractiveness. CDM might be another chance to return international financial flows to China.
-Dr. Li of ERI pointed out that technology transferred from ODA or FDI is traditional technology. The market develops much faster than the demand. Now we should identify new attractive areas and priority for CDM projects.
-Dr. Haites mentioned that there are few projects where CO2 reduction can be the major output of the project. Red tape and ownership restrictions may make it unattractive to carry out the CDM project. In reality, easier arrangement of CDM projects is better. As a strategy of supplier, in the 1970s and '80s, Japan had good negotiation processes with Canada or Australia on the issue of coal. China should be careful about what they want from CDM.
-Dr. Li concluded by saying that there is new information regarding the CDM that the Chinese government is setting up a committee, a CDM management system and an institutional system to receive CDM. Since CDM is at the stage of actual implementation, we need a different point of view. How should the actual CDM project be implemented? The government should have a clear picture. Business people should be aware of the business opportunities. Enough incentive is needed. Linkage among international and national business is necessary.

Climate Policy Dialogue in Korea

May 31- June 1, 2001
The Ritz Carlton Hotel, Seoul, Korea
Organizers: Korea Environment Institute (KEI), Korea
Institute for Global Environmental Strategies (IGES), Japan
UNEP Collaborating Centre on Energy & Environment (UCCEE), Denmark
Supported by: Environment & Economy Forum (EEF), National Assembly, Korea
National Institute for Environmental Studies (NIES), Japan
Asia Pacific Energy Research Centre (APERC), Japan

May 31(Thu.)
Welcoming Remarks/Opening Speech
Dr. Suh-Sung Yoon (President, KEI, Korea)
Dr. Akio Morishima (President, IGES, Japan)
Dr. John Christensen (Head, UNEP, UCCEE, Denmark)
Mr. Yeo-Joon Yoon (Member, National Assembly, Korea, Former Minister, Ministry of Environment, Korea)
Session I: Issues on UNFCCC - focusing on the Kyoto Mechanisms
Chair: Prof. In-Hwan Kim (Dean, Kyemyung Univ., Korea)
Presentations
Dr. Wha-Jin Han (KEI, Korea)
Dr. Naoki Matsuo (IGES, Japan)
Dr. Myung-Kyoon Lee (UNEP, UCCEE, Denmark)
Discussions
Dr. Boo-Shik Shin (EEF, Korea), Dr. Tae Yong Jung (IGES, Japan), Dr.Seunghun Joh (KEI, Korea)
Session II: Policies & Measures Related to Climate Change Issues
Chair: Dr. John Christensen (Head, UNEP, UCCEE, Denmark)
Presentations
Dr. Toshihiko Masui (NIES, Japan)
Dr. Yong-Gun Kim (KEI, Korea)
Dr. Jae Kyu Lim (Korea Energy Economics Institute, Korea)
Ms. Naoko Doi (APERC, Japan)
Dr. Dong-Soon Lim (Korea Institute of Economy and Technology, Korea)
Discussions
Dr. Naoki Matsuo (IGES, Japan), Dr. Myung-Kyoon Lee (UNEP, UCCEE, Denmark), Dr. Yonghun Jung (APERC, Japan), Dr. Jin-Taek Whang (Samsung Env. Institute, Korea)

June 1 (Fri.)
Session III: Panel Discussions
Chair: Dr. Akio Morishima (President, IGES, Japan)
Panelists:
Dr. John Christensen (Head, UCCEE, UNEP, Denmark), Mr. Keiichi Yokobori (President, APERC, Japan), Dr. Tsuneyuki Morita (Director, NIES, Japan), Dr. Hoesung Lee (President, Council on Energy Environment Korea), Dr. Hyun-Joon Chang (President, KEEI, Korea), Prof. In-Hwan Kim (Dean, Kyemyung Univ., Korea)
Concluding Remarks
Dr. Yoon (KEI, Korea), Dr. Morishima (IGES, Japan), Dr. Christensen (UNEP, UCCEE, Denmark)

Summary

The Institute for Global Environmental Strategies (IGES), Japan, Korea Environment Institute (KEI), Korea and the UNEP Collaborating Centre on Energy & Environment (UCCEE), Denmark jointly organized an international workshop on climate policy dialogue on May 31 - June 1, 2001 in Seoul, Korea. This workshop was supported by the Environment & Economy Forum (EEF), the National Assembly, Korea, the National Institute for Environmental Studies (NIES), Japan and the Asia Pacific Energy Research Centre (APERC), Japan.
At the opening session, the heads of the organizing institutes made short welcoming remarks. All of them pointed out that the Kyoto Protocol is now in a very difficult situation, since the Bush administration announced that the US government would retire from the Kyoto regime. All of them also thought that this workshop was very important because UNEP, Japan and Korea will discuss how to cooperate on these difficulties and how to develop the Kyoto Mechanisms for that purpose. In particular, Mr. Yoon Yeo-Joon, member of the National Assembly, Korea made remarks on this workshop. He was formerly a Minister of Korea who attended the Kyoto Conference. He hoped that experts from UNEP, Japan and Korea would have sincere discussions and exchange experiences, ideas and knowledge in order to search for positive ways to tackle complicated and contentious issues in climate change.

Session I: Issues on UNFCCC - focusing on the Kyoto Mechanisms

This session was chaired by Professor In-Hwan Kim, who is the Dean of the Graduate School of Environment, Kyemyung University, Korea.
Presentations
-Dr. Wha-Jin Han, who is the director of KEI, Korea made a presentation on Korean Perspectives on the Kyoto Mechanisms. She briefly summarized the issues and discussions on UNFCCC and Kyoto Protocol. Her main discussion was about the stance of Korea on the issue of climate change. Korea strongly supports the position that immediate action is necessary to prevent global climate change. For the Kyoto Mechanism, economic, environmental and social principles are important in implementing specific policy measures. It is worthwhile to note that Korea emphasizes early actions by Non-Annex I countries through CDM activities, which is called unilateral CDM. The argument is that in order to mitigate GHG emissions on a global scale, the voluntary and active participation of Non-Annex I countries is crucial. Under the current framework of CDM in the Kyoto Protocol, Non-Annex I countries will play a passive and limited role in reducing GHG emissions, relying on investment from Annex I countries. Thus, it is necessary to arrange some mechanism which will encourage voluntary activities of Non-Annex I countries
-Dr. Naoki Matsuo, who is a senior fellow of IGES, raised the question of how the Kyoto mechanisms can be coupled with domestic schemes. He first pointed out the importance of the Kyoto Mechanisms, which provide the most cost-effective opportunity for emissions reduction for Annex B countries through appropriate incentive setting. He described the incentive setting in detail, linking the international convention and domestic market and regulations. He specified the role of government and each economic agent in developing an efficient domestic emissions trading market to mitigate GHG emissions. Ultimately, he argued that we develop a dual economy where we need to refine the conventional monetary economy further to encourage carbon trade. More importantly we have to develop a carbon economy where carbon emissions are evaluated, and facilitate several necessary systems.
-Dr. Myung-Kyoon Lee, who is a senior economist at the UNEP/UCCEE, brought the conference up to date on negotiation issues under the title of 'Perspectives of Selected Countries on the Kyoto Mechanisms and Updating President's New Text'. He explained the main negotiation issues and current status and positions of major negotiation groups in the run up to COP6. His observations and tentative conclusions on this matter are as follows. 1) The bringing into force of the Kyoto Protocol by 2002 is uncertain due to the failure of COP6. 2) The position of the Bush administration makes the

survival of the Protocol more unlikely. 3) The reaction from EU and other parties needs to be followed. 4) More active participation of parties from developing country is expected. 5) A drastic compromise is required to reach an agreement.

Session II: Policies & Measures Related to Climate Change Issues

Dr. John Christensen, the Head of UNEP/UCCEE, chaired this session, in which the discussion was somewhat technical.
Presentations
-Dr. Toshihiko Masui of NIES, Japan showed recent AIM (Asia-Pacific Integrated Model) results to support environmental policies in Japan. He first introduced the activities of the AIM Team in brief. He explained the new module of AIM to include material flows and balances, which is part of linking the 'top-down' component in AIM with the 'bottom-up' part. Then, he set up several recycling scenarios for Japan. For example, the economic and environmental implication of promoting the demand for recycled materials in production sectors and the enhancement of demand for low emission vehicles. His findings were that GHG emission reduction policy can affect solid waste problems and vice versa. In addition the introduction of low emission vehicles will negatively impact on economic activities while the constraints on CO2 emission are not severe.
-Dr. Yong-Gun Kim of KEI designs market instruments to facilitate early action for greenhouse gas control under the game theory framework, including some empirical analysis. His discussions are were as follows. 1) The incentive bidding mechanism, together with emissions trading, is applicable to a wide variety of regulatory environments. 2) An option for baseline determination is grandfathering based on carbon intensity. 3) A large amount of money can induce more participants and strong commitment by guaranteeing the voluntary participation incentives of players. 4) We mast consider the trade-off between stricter baselines and wider participation.
-Dr. Jae Kyu Lim of KEEI made a presentation on the impact of GHG abatement on the Korean economy and energy industries. He introduced an economic model for his analysis. He designs various scenarios, which are the combination of domestic policies and measures and Kyoto Mechanisms to reduce GHG emissions in Korea. He has found that the introduction of carbon tax in Korea results in higher economic costs. The domestic policy and measures solely are insufficient to achieve emission targets in Korea. Emission trading should be included as a major policy instrument in the GHG abatement policy package.
-Ms. Naoko Doi of APERC presented a specific situation analysis between Japan and China under the title of 'Making the Clean Development Mechanism Workable'. She showed the potential of CDM projects in China, identifying the issues and barriers on implementation of CDM projects. She reported several findings. 1) Kyoto Protocol and CDM are still in the process of being designed. 2) CDM could play a catalytic role with respect to technology transfer and GHG abatement cost reduction. 3) Multiple factors will determine the shape and size of CDM projects as a form of FDI. 4) Underdeveloped economies often suffer high discount rates and fluctuating exchange rates, which may constitute major obstacles to investment. 5) Electricity sector regulatory reform requires appropriate environmental policies and measures to support CDM investment.
-Dr. Dong-Soon Lim of the Korea Institute of Economy and Technology raised major issues regarding the CDM and GHG mitigation potential and policies in Korea from the perspective of industries. In particular, he pointed out various barriers on technical cooperation with the CDM. 1) Uncertainties regarding outcomes on investment and a lack of accurate information on the performance of new technology makes it difficult to develop the CDM project. 2) Institutional barriers in host countries and limited local capacity are also major factors to consider when CDM projects are implemented. He emphasized the technological aspects in regional environmental cooperation to mitigate GHG emissions. He suggests that we may draw some lessons from international initiatives such as AIJ projects in East Asia, the Climate Technology Initiative (CTI) and World Bank programs.

Panel Session

In the second day of the workshop, a panel session was held to discuss general issues related to climate change policy and expectations on future negotiations. This session was chaired by Dr. Akio Morishima, who is president of IGES, Japan.

-Mr. Yokobori, president of the Asia-Pacific Energy Research Center (APERC), points out some problems of the Kyoto Protocol. For example, the stringency of Kyoto targets; an inflexible approach; a lack of solid databases (e.g. Chinese data, US statistics); difficult public acceptance; no long-term vision (just up to 2012) and the lack of an institutional basis to secure compliance (difficult to enforce the commitment; penalty to non-compliance is not enough). He emphasizes the need for a balance between what we should do and what is achievable. From the example of advanced technology for power generation, the CDM itself is not easy to implement and its potential may not be as large as people expect.

-Dr. Chang, the president of the Korea Energy Economics Institute (KEEI), asked if we can conclude that the size of the CDM market is not big enough, from a couple of charts of China. The answer was "not really". He suggested some ideas regarding GHG emission control. These included a proposed a breakthrough, accepting jointly with the Kyoto Protocol (KP) and setting 2020 emissions targets not higher than 2008/2012 targets. Furthermore, he proposed carrying over unachieved 2008/2012 targets with an appropriate premium (this is reflected in non-compliance regime and also banking is allowed); asking developing countries for no-regrets commitments and reviewing and improving the Kyoto Mechanism (KM).

-Dr. Lee, the president of the Council on Energy & Environment Korea, brought up common issues on climate change policies, negotiation issues on climate change, and domestic issues on climate policy in Korea in sequence. He referred to sustainability as a fundamental challenge for future policy consideration. He raised a question regarding the substitutability of manmade capital for natural capital. The answer seems to be negative. He suggested that future research is needed in the area of threshold (safe minimum standards) with respect to climate change and its impacts. Energy consumption and emissions from developing countries will exceed those of developed countries within 20 and 10 years respectively. A decoupling of GDP growth and carbon emissions has been shown in developed countries but it has been the other way in developing countries. Developing countries' fast growth of carbon emissions depends on their fast population and economic growth rates: not energy intensity or carbon intensity. Regarding the downward shift of EKC for developing countries, public awareness has played an important role in this downward shifting. Pollution intensity has been falling. Development expands environmentally sound industries. Favorable balancing of cost and benefit is necessary.

-Dr. Morita and Dr. Masui of the National Institute for Environmental Studies (NIES), Japan show some results of simulation, using the Asia Integrated Model (AIM). Without Emission Trading (ET) and with sinks, the GDP loss of Japan to meet the Kyoto target will be 0.26% compared with 0.25%in the EU and 0.34% in the US. With ET, marginal abatement cost will decrease from 233 dollars to 36 dollars per ton of carbon. The cost saving will be 6.7 billion dollars for Japan and 7.8 billion dollars for EU.

-Dr. Chang (KEEI) spoke on the National Energy Policy on the KP. He mentioned the strengths and weaknesses of the KP. The strengths were as follows: the fact it is market-based, its full carbon accounting, its six-gas basket and the CDM. Weaknesses included: its complexity, the fact it only has Annex I targets, the fact that it lowers emissions not concentrations and the possibility of extra-sovereign enforcement. He introduced institutional frameworks for climate change and efforts to mitigate global warming in Korea. The basic policy priority of Korea is to make an adaptation in the international movement. The framework for the FCCC Interministerial committee on FCCC comprises related government agencies, academia and industry under the chairmanship of the Prime Minister. A Presidential Commission on Sustainable Development advises on domestic implementation schemes and corresponding strategies to major international conventions on environment including FCCC.

-Professor Kim of Kyemyung University, Korea pointed out that the rise of carbon dioxide concentration is not directly related to risks to human health. It means it has long-term indirect effect, in contrast to other local air pollutants. That is why we have difficulties in dealing with global warming issues. If CO2 had direct and immediate impact on health, the US would not have tried to walk away from the KP. There exist difficulties in compromising long-run effect with short-sighted interests. There also exists a time lag between the activities to reduce emissions and the benefits of the reduction. KP targets GHG emissions, not atmospheric concentrations of GHG. There should be a good understanding of physical and chemical characteristics. The KP is trying to deal with this very comprehensive and complex problem. It demands changes in lifestyle and production processes, and it attacks the most fundamental issues such as regulating ozone-depleting substances. Those facts make the implementation of the KP much more difficult. What, then should be done? UNFCCC should be kept alive through more fruitful and productive negotiations.
-Dr. Christensen, director of the UNEP Collaborating Centre on Energy and Environment raised the fundamental question of why we have not been working on the linkage between domestic and international systems. We need a solid back-up through negotiations for Pronk's paper to make COP6 successful. National policy framework and institutional set-up has not been done in many countries, including the EU, Japan, and Korea. The US stepped back from the KP because they have not done anything in the last four years. Extending the time scale does not necessarily mean more chance of success. Regional balance and distribution may not be important in terms of emissions, but it is in terms of the political process. He explains developing countries' circumstances and interests and the issues regarding the KM: the CDM; general issues and LULUCF. Taxing other mechanisms should be dealt with. Discussion was opened to the floor after panelists made their presentations and comments.
- Dr. Jung Tae Yong of IGES asked Dr. Chang of KEEI why if Korea has such good energy conservation programs, the energy intensity has been rebounding in the past decade. He pointed out that there are various reasons such as price subsidy and people's lifestyle, etc. Dr. Jung, Yonghun of APERC also commented that energy demand is inelastic and has a low share in production cost. Once you start using one type of energy you will stick with it for a fairly long time due to infrastructural characteristics. Mr. Son, Sungwhan of the Ministry of Foreign Affairs and Trade, Korea asked about US ideas on technology transfer. Finally, Mr. Yokobori of APERC raised the issue of climate change, in particular in relation to international public goods, which is a typical problem of free riding. Who is a free-rider and who is a burden-bearer in the climate change regime?

Climate Policy Dialogue in India

North-South dialogue on climate policy: the way forward

26–27 November 2001
Casuarina Hall, India Habitat Centre, New Delhi
Organizer: TERI, India
Institute for Global Environmental Strategies (IGES), Japan
UNEP Collaborating Centre on Energy & Environment (UCCEE), Denmark

Nov. 26
Opening Session
Welcoming remarks: Dr. R K Pachauri, Director-General, TERI
Prof. Akio Morishima, President, IGES
Inaugural address: Mr. P V Jayakrishnan, Secretary, Ministry of Environment and Forests, Government of India
Vote of Thanks: Ms. Ulka Kelkar, Area Convener, Centre for Global Environment Research, TERI

Session I: Analysis of COP-7
Chair: Prof. Akio Morishima, President, IGES, Japan
Presentations
Ambassador C Dasgupta, TERI "Analysis of COP-7"
Mr. A K Mehta, Ministry of Environment and Forests, Government of India
Dr. Naoki Matsuo, IGES
Dr. Jyoti Painuly, UCCEE
Discussions:
Dr. V Raghuraman, Confederation of Indian Industry, Mr. Yasushi Ninomiya, IGES, Ms Ulka Kelkar, TERI, Dr Tae Yong Jung, IGES

Session II: Technology Options and Renewable Energy
Chair: Mr. A K Mangotra, Joint Secretary, Ministry of Non-conventional Energy Sources, Government of India
Presentations:
Mr. S Padmanaban, United States Agency for International Development
Mr. Yasushi Ninomiya, IGES
Ms. Akanksha Chaurey, TERI
Discussions:
Ms. Maki Sato, IGES, Mr. M A J Jeyaseelan, Federation of Indian Chambers of Commerce and Industry, Dr Tae Yong Jung, IGES, Mr. Pradeep Kumar Dadhich, TERI

Nov. 27
Session III: Panel Discussion – Beyond COP-7: Longer term issues in climate policy
Chair: Dr. Prodipto Ghosh, Additional Secretary, Prime Minister's Office, Government of India
Panelist: Dr Naoki Matsuo, IGES, Ambassador C Dasgupta, TERI, Prof P R Shukla, Indian Institute of Management, Ahmedabad, Dr Anand Patwardhan, Indian Institute of Technology, Bombay

Session IV: Panel Discussion – North-South dialogue on climate policy: The way forward
Chair: Dr Tae Yong Jung, IGES
Panelists: Dr. Jyoti Painuly, UCCEE Denmark, Mr. A Gopinathan, Ministry of External Affairs, Government of India, Ms Preety Bhandari, TERI, Mr. Kalipada Chatterjee, Development Alternatives

Concluding remarks
Dr. R K Pachauri, TERI
Dr Tae Yong Jung, IGES

Summary

Inaugural Session

-In his welcome address, Dr. R K Pachauri, Director-General, TERI expressed his gratitude to IGES for joining hands with TERI at an appropriate juncture, not only because there has been some progress in the field of climate change with the completion of COP–7, but to meet the challenges in the times beyond.
-Professor Akio Morishima, President, IGES expressed his appreciation to TERI for co-organizing the Climate Policy Dialogue, the third in the series organized by IGES. The first one was held in March in Beijing, and the second in Seoul. He acknowledged the importance of dialogues between developed and developing countries and also among the stakeholders at this stage.
-Mr. P V Jayakrishnan, Secretary, Ministry of Environment and Forests, Government of India in the inaugural address, hoped that these policy dialogues would help look beyond COP-7 and address longer-term issues. Mr. P V Jayakrishnan, Secretary, Ministry of Environment and Forests, Government of India in the inaugural address, hoped that these policy dialogues would help look beyond COP-7 and address longer-term issues.

Session I: Analysis of COP-7

-Mr. C Dasgupta, TERI said that the year 2001 is significant in terms of international developments as the details of the Kyoto Protocol were finalized at COP-7 in Marrakech. He presented a balance sheet highlighting the positive and negative aspects of the negotiations.
-Mr. A K Mehta, Ministry of Environment and Forests presented an overview of the outcome of COP-7. He evaluated COP-7 in terms of its contribution towards achieving the objective of the FCCC and sustainable development, fulfillment of commitments under Article 4, progress made with respect to the Buenos Aires Plan of Action, ratification of the Protocol and the paving of a path to move forward.
-Dr. Naoki Matsuo, IGES discussed the issues raised at COP-7 that paved the path for the implementation of the Kyoto regime. He indicated that the Marrakech Accord was a step forward from the design to the implementation stage.
-Dr. Jyoti Painuly, UCCEE discussed the CDM's rationale and its evolution. The issues of CDM, Agenda 21 and global partnership for sustainable development have been discussed since the Stockholm Conference in 1972.
-Mr. V Raghuraman, CII presented the viewpoint of private investors regarding opportunities for investment. He said that the industry had been following up on the subject for three years, understanding issues related to it and differences in the positions of both developing and developed countries.
-Ms. Ulka Kelkar, TERI pointed out that the Marrakech Ministerial Declaration recognizes that economic and social development and poverty eradication are the overriding priorities of developing countries and stresses the need for building capacity for private and public sector investments.
-Mr. Yasushi Ninomiya, IGES, said that from the presentations made in the morning, the role of the US in determining the size of the market is clear. He agreed with Mr. Mehta on the size of the CDM market depending largely on the future scenario.
-Dr. Tae Yong Jung, IGES, said that on issues related to climate change, national interest should be overcome in favour of global interests, though it would be a challenge for each government to integrate the policies.

Session II: Technology options and renewable energy

-Mr.AK Mangotra, Ministry of Non-conventional Energy Sources began the session saying that India has a big programme on renewables, biogas, cook stoves, and solar PV. He highlighted key

developments at Bonn and Marrakech, and expressed India's interest in membership of the CDM Executive Board.
-Mr.Padmanabhan, USAID argued that to promote renewable energy projects, reconfiguring the roles of key institutions as well as an understanding of the market fundamentals and strategic planning of policy elements, are required.
-Mr.Yasushi Ninomiya, IGES focused on the relationship between energy consumption and Japan's economic development, and concluded with the observation that the Japanese experience has proved that energy-using economies can well become energy- saving economies with energy-efficient technological changes.
-Ms. Akanksha Chaurey, TERI made a presentation on the scope of renewables in CDM. She outlined the industrial manufacture of renewable energy equipments and hoped that, with the increase in demand more manufacturing units would come up.
-Ms. Maki Sato, IGES discussed the huge potential that exists in India for the commercial utilization of biomass.
-Mr. Jayaseelan, FICCI spoke on the need for effective and consumer-oriented marketing of renewable energy sources, programmes, and products.
-Dr. Tae Yong Jung, IGES held the view that the future energy consumption pattern will be governed more by technological changes rather than historical consumption pattern of energy and the relationship between the level of development and energy consumption.
-Mr. Pradeep Dadhich, TERI discussed the technological options available to meet the demand of power in the country. He spoke about the technologies towards which R&D activities should be directed and the technological options available for transmission and distribution of power.

Session III: Panel Discussion – Beyond COP-7: longer- term issues in climate policy

The session chairman Dr Prodipto Ghosh, Government of India raised important issues for research and implementation in the post-COP-7 scenario, and stressed that developing countries should take the lead in setting the agenda for COP-8.
-Dr. Naoki Matsuo, IGES, described the differing time scales of climate phenomena, and the possible scenarios of global development, over the next 100 years. He discussed the future of the Kyoto policy regime, and expressed the hope that new business opportunities created under this regime would induce US participation.
-Mr.C Dasgupta, TERI discussed two short-term issues, viz. hot air and sinks, and two medium-term issues related to the participation of the US and of developing countries. He demonstrated how nearly half the required Kyoto emissions reduction could be met through trade in hot air, and pointed out that the country ceilings on forest management were adopted on a questionable scientific basis at Bonn and Marrakech.
-Professor P R Shukla, Indian Institute of Management, Ahmedabad, said that the principle of the FCCC is to look back from 2100 to 2000 and see where we want to reach, rather than where we are today. He discussed key issues such as India's participation in the Kyoto regime, development of regional energy markets, and integration of renewables.
-Dr. Anand Patwardhan, Indian Institute of Technology, Bombay stressed the importance of formulating an adaptation policy, which is integrated with mainstream development policy, as we are already committed to some climate change irrespective of the stabilization path we choose. He highlighted the importance of non-marginal changes and the notion of differential impacts with tropical countries bearing the brunt of climate change.

Session IV: Panel Discussion — North-South dialogue on climate policy: the way forward

-This panel discussion was chaired by Dr Tae Yong Jung, IGES. Dr Jung talked about the entry into force of the Kyoto Protocol, with Japan likely to ratify the Protocol by early next year, and Korea in the first half of 2002.

-Dr. Jyoti Painuly, UCCEE highlighted some of the areas of conflict that have risen in the process of negotiations including high CDM transaction costs, adequate transparency in project evaluation, and credibility of technology transfer. Retaining projects for a later period to earn more credit would stand in the way of technology development.
-Mr. Gopinathan talked about the increasing pressure on developing countries to undertake meaningful participation and voluntary commitments. He stressed on the review of adequacy of implementation of commitments of Annex I countries.
-Ms. Preety Bhandari, TERI discussed the need for a long-term vision based on equity, efficiency, and sustainable development priorities. She said that non-ratification by the US should not overwhelm the process, and identified a significant role for the scientific community and corporate sector.
-Mr. Kalipada Chatterjee, Development Alternatives, traced the history of international climate change negotiations, particularly over the last decade. He expressed pessimism about the potential market for CDM.

Discussion
-Professor Shukla, Indian Institute of Management, Ahmedabad, argued that the developing countries' call for equal rights to the atmosphere also implies equal responsibility for bearing adaptation costs.
-Mr. Gopinathan responded that it is important to have equitable rights, and hence, equitable responsibilities.
-Mr. Jayakumar, Tata BP Solar, put forward a proposal for an allocation for renewable energy projects in the CDM.
-Mr. Sandeep Sengupta, Winrock International India, argued that since the asymmetry of political power is reflected in negotiating strengths, India should concentrate on economic development to gain bargaining power. He questioned whether developing countries should not take credit for domestic action, but the need to be cautious was highlighted as recognition could soon be followed by demands for binding commitments.

Concluding remarks

-Dr. R K Pachauri, TERI, re-emphasized the need to focus on issues beyond Kyoto. Countries are realizing the merits of energy efficiency, and India has much to learn from Japan's stellar example in energy management. He talked about the need to foster technological cooperation and the possibilities for future collaboration.
-Dr. Tae Yong Jung described IGES series of climate policy dialogues, with the next workshops scheduled to be held in Thailand and Vietnam. He talked about the importance of having a wrap-up meeting to crystallize the Asian perspective and provide policy inputs to the eighth Conference of Parties to the UNFCCC, which is expected to be held in New Delhi.

Climate Policy Dialogue in Thailand

Agenda

May 27-28, 2002
Sofitel Central Plaza Hotel, Bangkok, Thailand
Organizers: Institute for Global Environmental Strategies (IGES), Japan
UNEP Collaborating Centre on Energy & Environment (UCCEE), Denmark
Thailand Environment Institute (TEI), Thailand

May 27
Welcoming Remarks/Opening Speech
Ms. Boontipa Simaskul (Member of the Board of Directors, TEI, Thailand)
Dr. John Christensen (UNEP, UCCEE, Denmark)
Dr. Tae Yong Jung (IGES, Japan)
Session I: Issues after COP7 - focusing on the Kyoto Mechanisms and Global Participation
Chair: Prof. Ram Shrestha (AIT, Thailand)
Presentations:
Dr. Naoki Matsuo (IGES, Japan)
Dr. Myung-Kyoon Lee (UNEP, UCCEE, Denmark)
Dr. Chamniern Vorratchaiphan (TEI, Thailand)
Mr. Sanya Charoenwerakul (EGAT, Thailand)

***Discussions*:**
Dr. Tae Yong Jung (IGES, Japan), Mr. Sanya Charoenwerakul (EGAT, Thailand)

Session II: Policies & Measures Related to Climate Change Issues
Chair: Dr. Tae Yong Jung (IGES, Japan)
Presentations :
Dr. Vute Wangwacharakul (Kasetsart University, Thailand)
Dr. Jorgen Fenhann (UNEP, UCCEE, Denmark)
Dr. Yasushi Ninomiya (IGES, Japan)
Prof. Ram Shrestha (AIT, Thailand)

***Discussions*:**
Dr. Naoki Matsuo(IGES, Japan), Dr. Myung Kyoon Lee (UNEP, UCCEE, Denmark), Mr. Masahi Miyazaki (NEDO, Thailand), Dr. Heuk Jin Chung (AEETC, Thailand)

May 28
Session III: Panel Discussions
Chair: Dr. John Christensen (UNEP, UCCEE, Denmark)

Panelists: Dr. Sitanon Jesdapipat (Chulalongkorn University, Thailand), Dr. Tierry Lefevre (CEERD, Thailand), Dr. Tae Yong Jung (IGES, Japan), Dr. Naoki Matsuo (IGES, Japan), Dr. Jorgen Fenhann (UNEP, UCCEE, Denmark), Dr. Myung Kyoon Lee (UCCEE, UNEP, Denmark),

Concluding Remarks by
Dr. Tae Yong Jung (IGES, Japan)
Dr. John Christensen (UNEP, UCCEE, Denmark)
Prof.Dr. Thongchai Panswad (TEI, Thailand)

Summary

The Institute for Global Environmental Strategies (IGES) in collaboration with the UNEP Collaborating Centre on Energy & Environment (UCCEE) and the Thailand Environment Institute (TEI) organized an international workshop on climate policy dialogue with Thailand on May 27 – 28, 2002 in Bangkok, Thailand. Various experts from government, private and non-governmental organizations in Thailand along with experts from IGES, UCCEE and TEI contributed their valuable experience on climate policy in this workshop. The experts expressed hope that the Kyoto Protocol will come into force by next year irrespective of US ratification. It was acknowledged that Asia's role in the mitigation of climate change is equally important as industrialized countries; such as EU, USA, Japan etc. The workshop was divided into three components: Session I: Issues after COP7–focusing on the Kyoto mechanisms and global participation, Session II: Policies and measures related to climate change issues and a panel discussion. In these sessions, outlook of Clean Development Mechanism (CDM) in developing nations and operating rules for the Kyoto mechanisms were presented by experts from IGES and UCCEE.

Mitigation of Climate Change in Asia

In order to mitigate climate change effectively, the participants and the organizers raised various important issues to be considered in climate change policies in Asian countries. The issues are as follows

- Integration of climate change policies with other policy objectives
- Positive contribution of activities related to sustainable development on climate change
- Integration of climate change issue in environmental education related programs
- Linking climate policy and its related activities with economic development programs
- Inclusion of market forces along good government regulations in climate change policies
- Dedicated political will and public involvement in using renewable energies
- Clear policy and continuity with political stability in using renewable energies
- Capacity building on the basics of climate change and CDM
- National awareness on impacts of climate change
- A leadership role on climate change for Japan in the Asian region
- Restructuring the energy related institutions based on lessons learned in different countries
- Using CDM as an instrument both in trade links as well as climate change mitigation mechanisms
- Organizing regular forums/workshops at national, regional and global level on climate change
- Effective implementation of energy conservation and energy efficiency programs
- Bringing climate change issues to the local level for mitigation
- Utilizing existing policies effectively such as urban land use planning to control green house gas (GHG) emissions in the transportation sector
- Regional approach through Asia Climate Policy Dialogue on a regular basis
- Capacity building for politicians and ministry officials who play an important role in creating and implementing policies
- Acknowledgement of the heterogeneous nature of the Asian region with distinct separate interests
- Follow the contractions and conversion proposal
- Put pressure on US for the ratification of the Kyoto Protocol

Energy & Climate Change Scenario in Thailand *

Thailand has been active in environmental issues for long time in this region. To implement the requirements established under the Constitution of 1997, the present government has set up a

number of new ministries, including the Ministry of Natural Resources and Environment Conservation. The role of this new ministry will be improving the quality of environment locally, regionally and globally. Thailand has revised all national plans in order to improve the conservation of the natural resources and the environment. The energy sector is one of the major culprits in causing GHG emissions that result in climate change, which is why this sector has given specific importance in the national plans. The strategies included for the energy sector development in the 8th National Plan (1997 –2001) were to:

- Provide adequate amount of energy to satisfy demand at reasonable prices while ensuring quality and security of supply.
- Promote efficient and economical use of energy
    - Maintain current market-based oil price setting mechanism
    - Improve electricity tariff structure to reflect costs
    - Speed up DSM program, establishment of energy efficiency standards
    - Launch energy conservation campaigns
- Promote competition in the energy supply industry and increase private sector role
- Prevent and solve environmental problems resulting from energy development and utilization, as well as improve the safety of energy-related activities.

A lot of changes have occurred in the energy sector in Thailand, which affected the climate change mitigation. During 1986 – 1996, the 9.5 % growth in GDP caused an 11.1% increase in primary energy demand, where as from 1996 – 1999 (the economic crisis period), there was a negative growth of 2.7% in GDP, which leaded to a 2.3% reduction of the primary energy demand. In 1999, the total primary energy demand (crude oil 50%, natural gas 21%, biomass 18%, coal 10% and electricity 1%) reached 78.3 Mton, growing 7.4% p.a. from 41.2 Mtoe in 1990, whereas the total primary energy production (natural gas 41%, biomass 34%, coal 14%, crude oil 4%, hydro-power 2% and condensate 5%) reached 41 Mtoe, growing 6.4% p.a. from 23 Mtoe in 1990.

The transport sector accounts for the largest share of total energy demand, growing slightly from 39% in 1990 to 40% in 1999 (transport 40%, industry 35%, residential 15%, commercial 5% and agriculture 5%). But the industry sector accounted for the largest share of final electricity demand (industry 49%, commercial 26%, residential 25%). The state enterprise, the Electricity Generating Authority of Thailand (EGAT) supplies electricity to customers through various means such as the Metropolitan Electricity Authority (MEA), the Provincial Electricity Authority (PEA) etc. Electricity production is the responsibility of various agencies such as EGAT (68.08%), independent power producers (IPPs) (22.36%), small power producers (SPPs) (8.02%) and others (1.54%). By March 2002, the total existing electricity generation capacity was 2,004 MW. Nearly 33% of the electricity is being produced using natural gas, where as only 17% of electricity is produced using lignite by EGAT.

The major energy indicators of Thailand (1999) were as follows:

- Total primary energy supply: 70.42 Mtoe (1.17 toe/capita).
- Electricity consumption 84.62 TWh (1405 kWh/capita).
- CO_2 from fuel combustion: 155.72 Mt (2.59 kg/capita).

The net total of GHG inventory (1994) of Thailand was 202 million tons of CO_2. In this figure, energy sector contributed 125.5 million tons of CO_2. In 2001, natural gas contributed 19,648 tons of CO_2 release (lignite 15,820 tons, fuel oil 2,385 tons, and diesel oil 121 tons). The share of the power sector in total CO_2 emissions had decreased in 1999 as compared to 1990.

EGAT has been implementing various programs to reduce GHGs such as through demand side management (DSM), power efficiency improvement, biomass co-generation plants, reforestation,

repowering/renovation and fuel switching/renewable resources. During 1994-1998, 2720 tons of CO_2 release was reduced by DSM mechanism. By upgrading the operations management at the South Bangkok Thermal Plant, there has been an annual reduce of 4800 tons of CO_2 emissions.

32 approved non-firm SPPs (758 MW installed capacity) have been producing 252 MW using bagasses, wood chips, black liquor, or biogas as fuel, where as 32 approved firm SPPs (3666 MW installed capacity) have been producing 2,057 MW. Under the reforestation program of EGAT, trees were planted in 48,000 hectares of deforested land in 22 provinces. There are various power plants (e.g. 235 MW oil fired power plant in North Bangkok Power Plant 626 MW, and the 1300 MW oil/gas fired power plant in South Bangkok Power Plant), which have much potential for renovation. For Thailand, various technologies needed to meet the CO_2 reduction targets during 2002 –2017 are as follows.

Annual CO_2 Emission Reduction Target	Technologies	Marginal Abatement Cost, $/ton C at 1998 prices
0%	Combined Cycle (CC)	-
5%	Biomass Integrated Gasification Combined Cycle (BIGCC)	15.7
10%	BIGCC, CC	20.7
20%	Wind, BIGCC, CC	NA (Not available)
30%	Wind, BIGCC, CC, Integrated Gasification Combined Cycle (IGCC)	43.0

As a non-Annex party to the UN Framework Convention on Climate Change (UNFCCC), no GHG reduction is required during the first commitment period (2008 –2012) by Thailand. Still, Thailand has been voluntarily reducing GHGs by various programs in order to address the global environmental issue. A representative of EGAT from the environment division, mentioned that EGAT has plans not to allow any more new lignite-based power plants in the future. The ratification of the Kyoto Protocol by Thailand is under consideration. There is still a lot of potential to implement energy efficiency programs in Thailand based on lessons from Japan's and other national energy efficiency programs.

- The facts and figures are from the presentations and discussions made in this workshop

Climate Policy Dialogue in Vietnam/Cambodia

Further International Cooperation for promoting P&Ms for Climate Change

May 30-31,2002
Metropol Hotel, Ho Chi Min City, Vietnam
Organizers: National Environmental Agency, Vietnam
Institute for Global Environmental Strategies (IGES), Japan
UNEP Collaborating Centre on Energy & Environment (UCCEE), Denmark
Supported by: Ministry of Environment (MoE), Cambodia
National Institute for Environmental Studies (NIES)

May 30(Thu.)

Welcoming Remarks/Opening Speech

Dr. Akio Morishima (President, IGES, Japan)
Dr. Myung-Kyoon Lee (Senior Economist, UNEP, UCCEE, Denmark)
Dr. Truong Manh Tien, (Vice Director, National Environmental Agency, Vietnam)
Dr. Tin Ponlok (National Project Coordinator, Cambodia Climate Change Enabling Activity Project (CCEAP), Minstry of Environment, Cambodia)

Session I: Issues after COP7 – focusing on Capacity Building and the Kyoto Mechanisms

Chair: Dr. Jorgen Fenhann (UNEP, UCCEE, Denmark)

Presentations:

Dr. Naoki Matsuo (IGES, Japan),
Dr. Myung-Kyoon Lee (UNEP, UCCEE, Denmark),
Dr. Tran Duy Binh (Director of IMH, Vietnam),

***Discussions*:**

Dr. Tae Yong Jung (IGES, Japan), Dr. Tin Ponlok (CCEAP, MoE, Cambodia),

Session II: Policies & Measures Related to Climate Change Issues

Chair: Dr. Tae Yong Jung (IGES, Japan)

Presentations:

Dr. Toshihiko Masui (NIES, Japan)
Dr. So won Yoon (IGES, Japan),
Mr. Thy SUM (CCEAP, MoE, Cambodia),
Mrs. Chu Thi Sang (NEA, Vietnam),
Dr. Nguyen Tien Nguyen(National Office for Climate Change & Ozone Protection)

D*iscussions*:

Dr. Naoki Matsuo (IGES, Japan), Dr. Jorgen Fenhann (UNEP, UCCEE, Denmark), Dr. Tran Hong Ha (Head of policy and legislation division NEA, Vietnam), Mr. Heng Chan Thoeun (CCEAP, MoE, Cambodia)

May 31(Fri.)

Session III: Panel Discussions

Chair: Dr. Akio Morishima (IGES, Japan)
Dr. Truong Manh Tien (NEA, Vietnam)

Panelists:

Dr. Tae Yong Jung (IGES, Japan), Dr.Jorgen Fenhann(UCCEE, UNEP, Denmark), Dr.Toshihiko Masui (NIES), Dr.Tran Hong Ha (National Environmental Agency, Vietnam), Mr.Va Chanmakaravuth(Ministry of Industry, Mines and Energy, Cambodia)

Concluding Remarks

Prof. Akio Morishima (IGES, Japan), Dr. Myong Kyoon Lee (UNEP, UCCEE, Denmark), Dr. Truong Manh Tien (NEA, Vietnam), Dr. Tin Ponlok (CCEAP, MoE, Cambodia)

Summary

Session I: Issues after COP 7 –Focusing on Capacity Building and the Kyoto Mechanisms

Chair: Dr. Jorgen Fenhann (UNEP, UCCEE Denmark)

-Dr. Matsuo made a presentation on issues after COP7, emphasizing Capacity Building in the Kyoto Mechanisms. He overviewed the development of international treaties, UN framework convention on climate change (UNFCCC), Marrakech Accord implication.
-Mr. Nguyen Tien Nguyen asked about the additionallity of CDM. Dr. Matsuo replied that some kind of benchmark might be useful for estimating the additionallity from baselines.
-Dr. Tin Ponlok asked the opinion of Dr. Matsuo on mechanisms to enhance the investment from abroad for future CDM projects. Dr. Matsuo said that technologies other than ordinary financing technology would be useful for supporting sustainable development.
-Mrs. Chu Thi Sang asked about Japanese experiences of CDM. Dr. Matsuo answered that Japan has not established a good incentive scheme for CDM implementation, but is going to in the near future.
-Prof. Nguyea Trong Hier asked about the development of monitoring system and lessons for implementing monitoring in Vietnam. Dr. Matsuo introduced UNFCCC's review program and Japanese three steps for implementing the monitoring. He added that there are two important for barrier removal, which are to identify the barrier and then to remove it.
-Dr. Myung kyoon Lee (UNEP, UCCEE, Denmark)
-Dr. Lee made a presentation on examples of promoting climate change policies and measures. He gave a brief explanation on the background of the Bonn agreement and the Marrakech declaration. Then he introduced the major decisions taken at Marrakech, such as Articles 5, 7 d 8, LULUCF, the mechanisms, Article 7.4, compliance and other issues. He observed that it is more likely that Kyoto Protocol will come into force even without the US participation. He expected that the next stage of negotiations would start in 2005 on the issue of new commitments for Non-Annex I Parties. He also noted the importance of leadership of Annex I parties and stressed the necessity of new strategies for Non Annex I parties for linking CC with SD strategy.
-Mr. Sum Thy asked the reason why afforestation and reforestation were not eligible for the CDM.
-Dr. Lee replied that they were decided as not eligible in the first commitment period, and thus it would be necessary to negotiate with other developing countries to make them eligible.
-Mr. Heng Chan Thoeun asked about the influence of the decision on LULUCF in Bonne agreement on developing countries that have much carbon sequestration capacity. Dr. Lee replied that the decision on LULUCF of the Bonn agreement mainly related to Annex B countries, not to developing countries.
-Dr. Tran Duy Binh (Director of Institute for meteorology and hydrology, Vietnam)
-Dr. Tran Duy made a presentation on clean development mechanism and capacity building. He explained the objectives and general terms of the clean development mechanism (CDM), and opportunity to reduce emission through CDM. He illustrated the prospect for CDM, capacity building and implementation process in Vietnam. He highlighted that CDM provides a good opportunity to attract foreign investment and move toward a SD, which means improving the living standard on one hand and protecting the environment for Vietnam on the other hand.

Discussion
-Dr. Tin Ponlok emphasized that for establishing capacity building, different specific approaches for each country were necessary due to different circumstances in developing countries. He also explained Cambodia's viewpoint on CDM, which is that it may not be attractive for investors as this country presents a relatively small potential for CDM projects. He presented the situation of developing countries, especially least developed countries, on their weak negotiation skills related to

UNFCCC negotiation processes.
-Dr. Tae Yong Jung illustrated the importance of understanding CDM and climate policy for achieving sustainable development. He also totally agreed with Dr. Tin Ponlok's opinions.
He stressed the importance of CDM (which is WIN-WIN strategy) and of competitive measures such as hosting country competing with the other hosting countries
In concluding his comments, He stressed that CDM is progressing on a market base and needs the competitive mechanism, and that investment in Vietnam and Cambodia has to be made to make specific decisions.
-Dr. Nguyen Dac Hy (Vietnam) made comments on the necessity of setting up mechanism to reduce GHGs in developing countries. And also he explained the Vietnam's situation on CDM.

Session 2 Policy and Measures related to Climate Change Issues

Chair: Dr.Tran Hong Ha

-Dr. Toshihiko Masui introduced AIM (the Asian Pacific Integrated Model) as integrated assessment model. He showed results of the estimation of future GHG emissions and climate change using the AIM model. Based on the results, he concluded that climate policy could contribute to reducing other environmental burdens such as air pollution. Moreover, he said that appropriate environmental policies can help to achieve sustainable development, both enhancing economic activity and solving environmental problems, because of the activation of related activities and mitigation of environmental constraints. After the presentation of AIM, he introduced the application of the AIM end use model to Vietnam, which was conducted by AIT.
-Responding to the presentation of Dr. Masui, Mr. Heng Chan Thoeun, from Cambodia stressed the importance of the Climate Model for Cambodia, and asked Dr. Masui the criteria for selecting the model and the way to use the result of model for forecasting, if the output from GCM model is different from observation data.
-Regarding the latter point, Dr. Masui replied that the AIM team has ideas to use its results but implementation is difficult at the moment. At the current situation, the best approach is to provide neutral information, he said.
-Dr. So won Yoon drew attention to the growth of GHG emission from the transportation sector in every country, and emphasized the measures to mitigate the emission from this sector.
She took the case of Korea as an example, where the road passenger transportation sector has become the main cause of environmental problems, including GHG emissions. She showed the results of her analysis, using the LEAP model, in order to provide useful information for establishing a desirable energy policy in the RPT sector. She concluded that energy demand, air pollutants and CO2 emissions would continuously increase in the future if appropriate policy interventions were not made. Then she showed the results of introducing different policies, such as CNG buses, compact cars and a carbon tax. Among these, she recommended carbon tax. She emphasized the importance of using this revenue wisely.
-Many questions were raised concerning the presentation made by Dr. Yoon.
Dr. Nguyen Trong Hieu asked about the impact on public transportation of introduction a carbon tax. Dr. Ponlok asked about the efficiency of the introduction of a carbon tax. He said that buying hot air from Russia was more cost-efficient. Dr. Bui Van Quyen asked about the reaction of Korean Policy makers to her thesis. Responding the question by Dr.Bui Vana Quyen, Dr. Jung said that their thesis is based on the fact that the Korean government is now considering the introduction of a carbon tax. He added that a carbon tax is more preferable, since it provides more options.
-Mr. Thy Sum explained GHG emissions and projections for Cambodia, and introduced the National Action Plan on Climate change (NAPCC) developed in 2001. He said that reduction of GHG emission was not an easy task, since it is directly tied to economic sectors, particularly the energy, industry, agriculture, forestry and waste management sectors. He also said that although most developing countries recognize the seriousness of climate change issues such as the limitation or

reduction of GHG emissions, these are not given priority among various policy objectives.
Concerning Mr. Thy's presentation, Dr. Lee asked in more detail about the forestry sector, since it is usually considered as a sink, but in the Cambodian case it is a major emission source.
Mr. Thy replied that the LULUCF still remains the main source as carbon sink. However, what I am presenting here is in term of carbon emission not carbon uptake.
-Mrs. Chu Thi Sang introduced national regulations and national plans related to environmental protection in Vietnam. She concluded that there have been considerable achievements in environmental protection during the past decades, such as a sharp increase in people's environmental awareness, the establishment of an environmental legal system, an increase in financial investment in environmental protection via state budget and other funds, and so on. These achievements contribute to the prevention of air pollution and environmental degradation.
-Dr. Nguyen Tien Nguyen: Vietnam explained the abatement potential of Vietnam and evaluated the CDM supply potential. He said that the current CDM rules were too complicated to realize the potential of the CDM project, and that criteria for CDM projects, the approval process and domestic prerequisites need to be considered. As next steps, he suggested 1) refining existing study, 2) identifying and refine means of capturing the market, 3) capacity building development at all political levels, and 4) an implementation schedule.

Discussion
-Dr. Naoki Matsuo commented on the presentation of Dr. Masui by saying that the way to select the BAU baseline is really important for considering these kinds of scenarios. He also told to Dr. Yoon that the choice of development path is important, since it is very difficult to change the way once a particular course has been selected.
-Dr. Jorgen Fenhann introduced the policy related wind power station in Denmark, comparing to Vietnam case. He said that half of wind power stations are private owned, and that wind power can compete natural gas in a very few years.

Session 3: Panel Discussion

-Dr. Tae Yong Jung explained the history and objectives of this series of workshops. He said that the main objective was to listen to the voices of developing countries, and that the workshops highlighted that these voices varied between each country. He considered specific collaboration as a next step, such as capacity building style workshops. In the case of Vietnam, a better planning for urban transportation system will be one candidate. He added that he would expect to hear more specific needs from Vietnam and Cambodia during the discussion.
-Dr. Jorgen Fenhann said that UNEP conducted capacity building programs, and that Vietnam is one of the target countries. He said that UNEP needs more input from each developing country for implementing its program more effectively. He added that one thing that should not be forgotten is not to pay too much attention to efficiency. Regulations as well as the market basis instruments are important for establishing and implementing climate policy.
-Dr. Toshihiko Masui firstly replied to the final question on his presentation. He said that the model result is dependent on the model structure and data. One result shows only one possibility. Then, he raised the policy priority issue, and said that climate change is not considered as a top priority issue, but it can contribute to some aspects of solving other environmental policies.
He said that the model is useful for prospecting the effect of the introduction of one measure in the country.
-Prof. Morishima asked Dr. Masui and Mr. Arai to explain NIES and IGES activities, respectively.
-Dr. Nguyen Trong Hieu explained the measures to mitigate GHG emissions in main three sectors in Vietnam, i.e. energy, forestry, agriculture. Then he emphasised the importance of capacity building as a basis of these measures.
-Mr. Va Chanmakaravuth explained about the Cambodian goals to cope with climate change, such as technical and institutional capacity building, technology transfer, cleaner and renewable energy

and so on. He said that Cambodia wish to study on potential projects for CDM, expanding collaboration with potential donors such as UNDP, GEF, ADB, WB, and Japanese government, and analysing the GHG emission mitigation on Forestry, Agriculture and Energy sector, in order to reach the goal. However, there are still many constraints. To overcome the constraints, he proposed future cooperation, such as information and experience exchange network, regional training on climate change policy, joint research activities, awareness raising project, assessment of potential CDM projects, study tours for policy makers and climate change staff, and additional fellowships for advanced staff.

Discussion

-Dr. Hieu again emphasised the importance of in-house capacity building. He proposed concluding an MOU with Cambodia and Japan.

Then Dr. Lee said that P&M has country specific aspects, not only in climate change but also in all policies. He said that from his experience conducting capacity building programs in many countries the model of one country is not always useful in other countries, since cultural aspects may differ completely.

-Mr. Chanmakaravuth explained that the Cambodian government is trying to reach a goal to cope with climate change, receiving support from UNDP, GEF, WB, and the Japanese government. To cope with climate change issues, Cambodia also made a national action plan. Nevertheless, there are also constraints, such as that CC is very new for Cambodia.

-Prof. Morishima pointed out that the situation of Cambodia and Vietnam is a little bit different. Thus, he proposed that the discussion should be specified to each country.

Then discussion was opened to the floor.

-Dr. Hieu said that in Vietnam the first priority was capacity building and the second priority was the implementation of small size projects, especially for co-generation.

-Dr. Ponlok said that donor countries would support climate change initiatives from a market driven perspective. In such a case, the allocation of supports had been unfair, focusing on countries like Brazil, India or China. Therefore, the equity of the allocation should be considered. He also said that Cambodia had a number of proposals, but there is not enough to refine all of them. Thus, he hoped that the same kind of workshop would be held again to talk about proposals more in detail.

-Mr. Chanmakaravuth explained that the Cambodian government is trying to get funds from WB and GEF. He also mentioned that the macro plan is necessary to cope with climate change. In order to cope with the common issues effectively, he said that Cambodia and Vietnam should hold a seminar together and exchange views.

-Dr. Jung said that this workshop was a good opportunity to have a better understanding of the Vietnamese and Cambodian situation. He mentioned his wish for further collaboration, and that inputs from Vietnam, Cambodia and UNEP are necessary.

-Dr. Matsuo mentioned that the discussion was focused on GHG mitigation, however, the essential part is not to mitigate GHG emissions, but to choose the underlying path. He emphasized the importance of selecting the developing way, utilizing bad experiences in Japan and Korea.

-Mr. An proposed the collaboration between Cambodian and Vietnam authority for establishing the legal framework of climate policy.

Concluding remarks

-Dr. Lee said as a representative of UNEP-UCCEE that this dialogue would lead to further collaboration among countries and more concrete activities. For developing countries, capacity building is the first priority.

He concluded that there is a tendency to forget to take action after promising things at this kind of workshop, but he and Dr. Jung have always kept their promises to take action.

-Dr. Ponlok mentioned that when Cambodians finished civil war about 10 years ago, new environmental problems were waiting for them. He said that developing countries like Cambodia are the ones who suffer most from climate change although they are the least responsible for it because

of a lack in capacity and resources for adaptation. He added that the participation in the UNFCCC is more symbolic, since Cambodia does not get benefit from the carbon market. Further collaboration should be established, taking this situation into account.
-Dr. Nyugen Trong Hieu of Vietnam said that Vietnam is a poor country and a big victim of climate change. He added that coping with climate change is really burdensome for Vietnam and the reduction of the impacts of climate change is desirable.
-Prof. Morishima summarized that climate change is a new issue which the two countries are going to face. Even though this is the new issue, the countries would be worse affected if the results of climate change really appeared. Thus, it is very important to prepare well on this issue. He said that raising and enhancing the awareness of policy makers and establishing the partnership between these countries was really important. Lastly he concluded the workshop by saying that many common issues had been observed, although approaches should be taken which are specific to each country.

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IGES has been collecting worldwide experiences on realizing sustainable development through multilevel activities. In doing so, IGES is seeking a new paradigm for a global civilization—a paradigm that transcends conflicts of interest between national and social sectors. IGES is developing new policy measures and is establishing concrete countermeasures for regional environmental problems. These ideas are promoted as policymaking issues in nations, governments, local governments and international organizations. Ultimately, these detailed measures and strategies developed by IGES will be applied to concrete environmental activities carried out by companies, NGOs and other stakeholder bodies.

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