Climate Policy Project

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1. Overview of the project

1.1. Background/objectives

The mission of the Climate Policy Project (formerly Climate Change Project) is to evaluate and recommend pragmatic climate policies for sustainable development in Asia and the Pacific in an era of evolving global climate regime. During the Phase I (1998-2001), the Project focused on the design of the Kyoto Mechanisms, such as the Clean Development Mechanism (CDM) and emissions trading (ET). To emphasize our focus on strategic climate policy research, the name of the project was then changed from the “Climate Change Project” to the “Climate Policy Project”. During the Phase II (2001-2004), the Project focused on three themes: domestic policies, international cooperation, and vulnerability and governance issues. Research on post-2012 climate regime was also initiated in preparation for the third phase.

The third phase (2004-2007) of IGES was characterized by rapid developments in international, regional, and national climate policy. At the international level, Russia’s ratification of the Kyoto Protocol in November 2004 resulted in the entry into force of the Kyoto Protocol in February 2005. The Kyoto Protocol, despite its limited environmental effectiveness especially following the withdrawal of the USA, is ratified by 169 Parties (as of December 2006) and is considered a significant first step in addressing climate change. However, as the first commitment period of the Kyoto Protocol expires in 2012, discussions on the future climate regime have assumed great significance during this phase. At the regional level, Asian interest in CDM as a cost-effective strategy to reduce greenhouse gases (GHG) while contributing to sustainable development in developing countries grew substantially. The Asia-Pacific region now accounts for more than 60% of the total CDM projects in the world. The Phase II was also characterized by the start of a region-wide ET scheme in the EU (EU-ETS) from 1 January 2005, and national or sub-national ET schemes in several countries irrespective their status in ratification of the Kyoto Protocol (e.g., Japan, USA, Australia). At the national level, climate policy remains a low priority in many Asian countries but several countries have begun to adopt policies and measures (e.g. setting energy intensity targets, renewable portfolio standards) with climate benefits and established new institutions (e.g. designated national authorities [DNAs] for approval of CDM projects) to address climate change.

There is ample proof that policy makers worldwide recognize the need for stabilizing global climate. However, international negotiations to implement policies and measures have stalemated over issues such as potential negative implications for the economies, limited progress by developed countries, reluctance of developing countries to accept binding commitments, and so on. Our research in previous phases showed that Asian countries, including Japan, lag behind Europe in designing effective domestic policies to address climate change. It is, therefore, important to compare and evaluate various European policies and identify measures suitable for Asian countries. With regard to the Kyoto mechanisms, our research in Phase II demonstrated that inadequate human and institutional capacities in Asian countries were a major barrier for effective implementation of CDM. Therefore, research and operational support to enhance such capacities is

vital. In view of the growing GHG emissions from the Asia-Pacific region, many researchers and policy makers emphasized that the region must take a more proactive role in designing the future climate regime. Our preliminary research in Phase II, however, showed that Asian countries were not effectively engaged in formulating the climate regime for many reasons. Asian countries often remained on the sidelines of the discussions on climate regime as they faced more urgent/competing priorities (e.g. poverty alleviation, health, education) than climate change. Identification of ways to strengthen the future regime from an Asian perspective, for instance, through assessment of Asian interests, concerns and priorities, is thus crucial to build a more effective and equitable climate regime. Our research in Phase II also revealed that countries in the Asia-Pacific region are already facing severe impacts of climate change, and that research on policies to decrease vulnerability and enhance adaptive capacity within the framework of sustainable development is critically urgent.

In the light of the above background, the research in Phase III was geared towards policy measures both for strengthening the effectiveness of the market mechanisms of the Kyoto Protocol, and for designing more effective post-2012 climate protection architecture. In order to accomplish the above effectively and comprehensively, we set out four sub-themes (viz., domestic policies, Kyoto mechanisms, post-2012 regime issues and adaptation) with objectives as listed below:

(a) To assess climate policies in selected developed countries and their implications for Asia
(b) To propose measures for effective implementation of the Kyoto mechanisms
(c) To identify ways to strengthen the future climate regime beyond 2012 from an Asian perspective
(d) To recommend policies for enhancing adaptive capacity in Asia

1.2. Methodology

Four key guiding principles motivated our research in Phase III:

(a) Foreseeing and guiding domestic and international climate policies through recommending timely and appropriate actions by closely following the progress in UNFCCC negotiations
(b) Conducting climate policy research not solely within the context of climate, but from a larger perspective of sustainable development
(c) Ensuring quality in our research to make it competitive and respectable both in academic and policy circles, and
(d) Making our research to be action-oriented so that it was always coupled with outreach activities such as on-line publications, organization of open forums, international workshops and training activities for various stakeholders.

The methodologies employed for each of the four sub-themes are discussed below:

Domestic Policies

We employed game theory, questionnaire surveys, interviews and qualitative rating methods to assess the pros and cons of Japan's Voluntary Emissions Trading Scheme (JVETS). Using structural time series models (e.g., GHG emission model for Asia [GEMA]), we projected sector-wide energy demands in Japan, China, and Korea. We held two meetings of the Asia Energy Environment Modelling Forum in July 2004 and July 2005 to publicize the findings.

To provide a sound base for effective domestic policy design in Japan and other Asian countries, we examined factors determining success of policies in developed countries, especially Germany

and the USA, through literature reviews and interviews with policy makers and other stakeholders. A comparative analysis of German and Japanese climate policies was made to assess the utility of stakeholder consultations in development of pragmatic climate policies. A joint Germany-Japan workshop was organized in late 2005 to publicize our findings and seek inputs from several Japanese and German stakeholders. A field survey to examine the role of finance and shareholders' litigations in shaping policies of the private sector in USA was conducted in November 2004. In addition, four workshops on domestic policies in the USA and Japan were held in collaboration with Center for Clean Air Policy (CCAP) in March 2005, Resources for the Future (RFF) in May 2005, and the Environmental Protection Agency (EPA) in March 2006, and March 2007 to publicize our findings and accumulate additional information.

In order to assess the current status and future directions of climate policies in the Republic of Korea, we invited a visiting researcher supported by the Environment Management Corporation. In addition, the prospects for introduction of domestic ET in Korea based on experiences in Japan were examined in a workshop jointly organized with Korea Energy Economics Institute (KEEI) in April 2004. To assess implications of policies in Asian developing countries on climate and development, we organized special events such as "IGES special session on mainstreaming climate concerns in Asian development" as part of the IHDP Open Meeting in October 2005, and co-organized an international workshop on "Climate and Development" in September 2006. Interviews and brainstorming sessions were held as part of these events.

Kyoto Mechanisms

The potential and impacts of the EU-ETS on Japan's ability to acquire emission reduction credits (ERCs) from the central and eastern European countries was assessed on the basis of literature reviews and field surveys in Belgium, Czech Republic, Germany, Hungary, Poland, Romania, and Slovakia. Based on the outcomes of consultations with various stakeholders, a desk review was conducted to examine the pros and cons of various options for Japan to acquire ERCs from abroad. An open symposium was organized in February 2006 to update the Japanese public of the recent developments in domestic and regional ET schemes in various parts of the world.

The role of public-private partnerships (PPP) and prospects for technology transfer for effective operation of the Joint Implementation (JI) projects between Japan and Russia was examined on the basis of questionnaire surveys and interviews with selected policy makers and representatives of the private sector.

Through the Integrated Capacity Strengthening for CDM/JI programme (ICS-CDM), we organized nearly 100 provincial/sub-national/national/regional workshops, seminars, and tutorials for building human and institutional capacities in several countries – mainly in Cambodia, China, India, Indonesia, the Philippines, Thailand, and partly in Russia and South Pacific (Table 1). Many of these workshops included personal interviews, questionnaire surveys, focus group discussions, and brainstorming sessions for baseline setting, and determination of additionality. We utilized the case study approach as a core methodology, since the types of CDM project activities in different countries were diverse and participants required information on various approved individual and consolidated methodologies with specific examples. Using pilot projects funded by the feasibility study programme of the Global Environment Centre Foundation Japan, we employed "learning by doing approach" in actual CDM development process. It included (a) presentations by project developers on how they prepared project design documents (PDD), (b) discussions and interactions by workshop participants (e.g. DNA members, private companies, and non-governmental

organizations), and (c) PDD writing sessions for participants. In addition, post-workshop questionnaires were used to identify the needs and priorities on a continual basis. In order to take advantage of the CDM project development experience of the private sector in Japan, we regularly involved private companies such as Kajima Corporation (waste to energy project in Indonesia), Takuma Corporation (small scale biomass project in Thailand) and Marubeni Corporation (small scale hybrid system of wind and photovoltaic power generation project in Cambodia) in our capacity strengthening activities.

Barriers and countermeasures for international funding of the Clean Development Mechanism (CDM) projects were analysed through field surveys and interviews with both project developers and selected financial institutions. A workshop on financing modalities of the CDM was organized in Jakarta, Indonesia in June 2005 to gather the latest information on financing barriers and potential solutions. Upon the request of Pacific island countries, we held an international workshop on “CDM in Pacific Island Countries” in Apia, Samoa in October 2004 to assess the needs and challenges for CDM in those countries. In addition, two region-wide workshops in collaboration with international organizations such as UNEP-RISOE (September 2004) and UNDP (March 2006) were conducted. Two side events focusing on CDM challenges in Asia were held at COP10 in Argentina and at COP12 in Nairobi.

Table 1. Workshops/seminars/tutorials/study meetings conducted through the ICS-CDM in various countries

Country	FY 2004	FY 2005	FY 2006
Cambodia	5	9	1
China	-	2	8 (+2 in Japan**)
India	5	6	6
Indonesia	4	5	4
Thailand	2	5	2
The Philippines	5 + 1*	10	6
Russia	-	1	-
Samoa (South Pacific)	1	-	-
Regional	2	2	-
Others		3*	1
Total	25	43	30

* Invitations from other organizations to assist in their capacity strengthening programmes

** Two CDM investor forums for projects in China

Post-2012 climate regime

As a first step towards more effective participation of Asian countries in formulating the future climate regime, we conducted a series of multi-stakeholder consultations and policy dialogues in this phase. In FY 2005, we ascertained concerns, interests and priorities of the Asia-Pacific region through national consultations in China, India, Indonesia, Japan, Republic of Korea and Viet Nam and through a region-wide seminar. We continued consultations in FY 2006 on a sub-regional basis in East Asia (Beijing, July 2006), Southeast Asia (Bangkok, July 2006) and South Asia (Delhi, August 2006) to discuss specific themes of high priority such as energy security, CDM, technology

transfer and adaptation. In both years, questionnaire surveys, personal interviews with key informants and policy makers, and focus group discussions were held. In this research, both the national interests and the global forces that will continue to shape, or might continue to undermine the international effort against climate change were examined. Side events including panel discussions were held at the Conference of Parties (COPs) to the UNFCCC in December 2005 and November 2006, and at the 14th session of the Commission on Sustainable Development (CSD-14) in May 2006 to publicize the findings from these consultations. Prior to organizing these consultations, an open symposium, followed by an informal expert consultation, on challenges for the post-Kyoto regime was held in Tokyo in FY 2004 to seek the views of international experts and to identify the factors that will shape the future climate regime. In addition, a workshop entitled "Asia-Pacific Dialogue on Innovative Options for Non-Annex 1 Countries' Participation for Climate Change Action" was held in cooperation with UNESCAP in March 2006.

With a view to examine prospects for effective participation of the USA in future climate regime, the role of domestic institutional frameworks for effective implementation of climate policies in the US was first examined on the basis of literature surveys and analysis of similar institutional frameworks for implementing international agreements.

In collaboration with researchers at the National Institute of Environmental Studies (NIES), a three-year research project on incentives and scenarios for the future climate regime was completed in FY 2005. Besides literature reviews, questionnaire surveys and interviews with key informants, scenario analysis was conducted in this study. A new joint project with NIES funded by the Global Environmental Research Fund of the MOEJ on institutional frameworks for the future climate regime was started in FY 2006. This study employed qualitative approaches including regime theory, which focuses on elaboration of principles, norms, rules, and decision making procedures in international climate regime. As part of the commissioned work by MOEJ, legal implications of the future climate regime were examined using questionnaires and interviews with key legal specialists in Germany and Belgium. Both questionnaires and interviews focused on analysis of legal principles in Article 3 of the convention.

While serving as a Secretariat to the MOEJ Working Group on Options for Future Climate Regime, we compiled in FY 2004 the latest information on long-term emission reduction targets of European countries, mainly to assist the Japanese policy makers in visualising long-term emission scenarios and in examining the feasibility of setting long-term emission reduction targets for Japan. In FY 2005, we provided inputs to the development of scenarios of institutional frameworks for the future climate regime. In FY 2006, we provided information on various approaches for more effective participation of developing countries in the future climate regime.

Adaptation

We undertook field surveys, interviews and focus group discussions with local people and policy makers at local and national levels in Bangladesh to assess indigenous coping strategies and suggest options for effectively using local knowledge in designing adaptation strategies. Based on these findings, we proposed the concept of "Proactive Micro-Adaptation (PMA)" at the 14th Asia-Pacific Seminar on Climate Change in FY 2004. We held an expert consultation on this topic in July 2005 to examine the utility of this approach in facilitating adaptation at local levels. In preparing for the consultation meeting, we collected 26 case studies from various parts of the world and identified the key factors in facilitating adaptation at the local level.

South Pacific islands are one of the most vulnerable regions to climate change and sea level rise. In order to share experiences in bridging adaptation research, policy and implementation applicable for this region, we organized an international workshop in Apia, Samoa, in October 2004. Through literature reviews and interviews with key policy makers in India, we identified major barriers and potential countermeasures, and policy incentives for facilitating dynamic adaptation in agriculture and water resources sectors. An expert consultation entitled “Mainstreaming adaptation concerns in agriculture and water sectors: Progress and challenges” was held in February 2007 in Hayama. Likewise, a comparative analysis of approaches for mainstreaming adaptation in ODA is in progress mainly based on literature surveys and interviews with decision makers involved in managing development assistance.

2. Achievements

2.1. Domestic Policies

Analysis of Japan’s Voluntary Emissions Trading Scheme (JVETS) showed that the lack of proactive participation by the Japanese private sector was a major barrier for its effective implementation. We suggested that provision of incentives for active participation of the private sector and development of a solid system for reporting and verification of emission reductions were critical to ensure its success. By applying game theory concepts, we showed that JVETS, in its current design, had low potential for trading of emissions among participating companies, especially because companies set voluntary emission reduction targets solely based on their capacity to reduce emissions. Indeed, by the end of December 2006, only limited transactions took place under JVETS. Our researchers made presentations on the design elements of JVETS and prospects for its improvement at various international conferences, including “Carbon Markets Asia” conference held in Hong Kong in July 2005, the US-Japan conference on climate actions held in March 2006, and the conference on linking emissions trading schemes held in Brussels in May 2006. Using a top-down macro-energy model called GEMA, which was developed at IGES in Phase II, we projected sector-wide seasonal variations in energy demands in Japan, Korea and China. We found that energy demands in residential and transportation sector in Japan would increase further in the near future and that additional measures to reduce emissions growth in these sectors would be crucial for Japan to meet the Kyoto targets. Our researchers also examined Japan’s ODA policy in relation to climate change and reported the findings to the Ministry of Foreign Affairs. We noted that Japan’s ODA administrators should focus on sensitizing the developing country partners regarding the importance of energy conservation through fuel switch and about the cost-benefit potential of different renewable energy options. We suggested that Japanese ODA should focus further on promoting adaptation measures, especially in urban and coastal areas of the most vulnerable countries of the Asia-Pacific region.

Analysis of the factors determining Germany’s success in developing advanced climate policies to mitigate GHG emissions showed that the adoption of the Kyoto Protocol *per se* did not have a direct impact. Instead, domestic factors including the change of government in 1998 leading to the participation of the Greens in the coalition government and linkage of climate policies with policies in other sectors seemed to account for their success. The outcomes of this research were presented at a conference organized by Freie Universitaet Berlin and published in academic journals, including IRES, *Shigen Kankyo Taisaku, and Kikan Kankyo Kenkyu*. Germany was initially opposed to the introduction of ET as a domestic policy mainly due to the reluctance of the German industry.

Analysis of reasons for changing its position from pure voluntary approaches to compliance with policies of the EU ET Directive showed that factors beyond national borders, including institutional factors within the EU and political pressures over time, and proactive initiatives by a few policy makers within the country were responsible. Based on this research, the urgency of initiating multi-stakeholder consultations to develop a domestic consensus on ET within Japan was highlighted. The outcomes of this research were presented at a conference "Climate Policy 2005 and Beyond: Japanese-German impulses" jointly held with the Wuppertal Institute for Climate, Environment and Energy on 1 November 2005 as part of the events of the German Year in Japan, and at annual conference of the Society of Environmental Economics and Political Science. In addition, the results were published in journals such as Climate Policy and Environmental Information Research Quarterly.

Analysis of the reasons for the USA preference of long-term technology-oriented solutions over near-term mitigation actions showed that the political complexity of climate issues, especially at the federal level, led to a policy gridlock. Facilitation of policies at the local and private firm levels is thought to provide a way for optimal re-engagement of the USA in international efforts against climate change. Analysis of selected state-level climate policies in the USA showed that various initiatives were filling the policy vacuum at the federal level for now. However, difficulties in meeting growing demands for electricity and delivering effective transportation policies as well as lack of expertise, institutional capacity and financial resources at the state level remained a challenge. Based on analysis of litigations against the USA clean air act, public nuisance under common law, and the 2004 California global warming act, we concluded that the California act might be the most influential to move climate change discussions forward, through involving other like-minded states in the USA.

The three workshops focusing on domestic policies in the USA and Japan enhanced the understanding of policy-complexities in both countries. Based on discussions at March 2004 IGES-CCAP workshop, it was concluded that certain policies such as regional ET plans in the northeast US, and programmes for emission reductions in transportation sector in California could serve as models for implementing similar schemes in Japan and the rest of Asia. However, the practical feasibility of introducing such policies is yet to be determined. The IGES-RFF workshop held in May 2005 created a great opportunity for experts from USA and Japan to engage in regular information exchange on recent policy developments, economic analyses, and political trends in each country. The USA participants had an opportunity to learn the process through which Japanese technology standards were set and implemented, the subtle evolution of mandatory policy discussions, and details of current policies on voluntary trading and emissions registry. Japanese participants gained an insight into the difficulties of creating a link between different domestic trading markets, the current process for establishing a regional ET system, and the USA Senate debate on climate policies. In addition, it was found that policies in both the USA and Japan reflect a strong emphasis on technology development and commercialization; hence this may be an area where bilateral cooperation could be particularly useful. The two IGES-EPA workshops on climate actions and co-benefits held in Washington, D.C. in March 2006 and March 2007 provided additional opportunities to exchange information on the latest GHG emissions reduction measures implemented in respective countries. The participants discussed ways to strengthen cooperation between Japan and the USA to assist developing countries in taking actions that will simultaneously reduce emissions of GHG and air pollutants. At these workshops, we presented four case studies from agriculture sector in Asia in which integrated development and climate actions would be most

beneficial. We also presented how co-benefits approach can be facilitated through the international climate regime.

Since climate policy is still a low priority in many Asian countries, it is important to integrate climate concerns in development planning. We organized a special IGES session entitled “Mainstreaming climate concerns in developmental policy: Issues and challenges for Asian countries” at the sixth Open Meeting of the International Human Dimensions Programme (IHDP) in Bonn (October 2005) by inviting selected young researchers from China, India, Japan, Nepal, Thailand, and the Philippines. Discussions at the session revealed the existence of significant opportunities for GHG mitigation without adversely affecting development goals. In addition, we held two meetings of the Asia Energy Environment Modelling Forum in Beijing in July 2004 and July 2005 to provide opportunities for furthering collaboration between energy modellers and environmental policy makers in northeast Asia. One of our researchers made a presentation on energy prospects for northeast Asia at “Shanghai Forum on Energy” held in July 2005, and prepared a report entitled “Northeast Asia sustainable development indicators” in collaboration with KEI. In addition, we contributed to the preparation of conference proceedings on ET with KEEI.

A Korean visiting researcher analysed his country’s domestic policies and reported that GHG emissions in Korea continued to increase despite the formulation of three national action plans. He concluded that additional measures to create environmental-friendly energy system, strengthen policies for promoting renewable energy and energy efficiency, and expand energy efficiency standards and labelling program would be crucial in future. At the invitation of UNESCAP, one of our researchers made an overview presentation on climate change actions in different Asian countries in an ESCAP-DFID-DEFRA workshop entitled “mainstreaming policies and investments in low carbon” held in Bangkok in August 2006. In his presentation, he discussed the limited potential of CDM in attracting investment to the region and the need for reducing geographic inequity in CDM within the region. In collaboration with several organizations (e.g., UNEP, the Netherlands Environmental Assessment Agency, IDDRI), we co-organized an international workshop on “Development and Climate” in Paris in September 2006. Our researchers presented the Asian perspectives on formulation of climate policies with developmental benefits, especially with regard to promotion of renewable energy sources and energy efficiency measures. A policy brief based on the outcomes of the workshop was widely disseminated at COP12, and posted on IGES web site.

2.2. Kyoto Mechanisms

Based on an analysis of progressive ET policies in the UK, EU and Canada, we proposed measures to design a mandatory ET scheme in Japan. We suggested that the use of special oil accounts as an incentive to promote the participation of the private sector would be crucial for the success of the domestic ET scheme in Japan. With sponsorship from MoEJ, we organized an open symposium entitled "Emerging Domestic/Regional Emissions Trading Systems: Challenges and Prospects" in Tokyo in February 2006. The symposium attracted more than 250 stakeholders. Our researchers made two presentations on issue mapping of ET schemes and evolution of regional ET system in northeast states of USA. It was suggested that there was little likelihood of a quick federal action on ET in the USA, although experiments with ET design elements were taking place at the various levels.

In collaboration with researchers of the Wuppertal Institute, we published in March 2005 a report on survey of options for Japan to acquire carbon emission reduction credits from the central and

eastern European countries. The report examined the current Japanese policies and measures, identified the difficulties for Japan to achieve the Kyoto target, and assessed the need for acquiring credits from abroad. We assessed five options (JI, CDM, international ET, Green Assigned Amount Units [AAUs], and the establishment of domestic ETS and its linkage with ETS in other countries) based on five criteria; environmental integrity, public acceptance, price, transaction cost, and long-term impact. We concluded that establishment of a reliable domestic ETS in Japan with possible linkages to other systems would be effective and that EU-ETS and its linking directive might have negative impacts on Japan's ability to acquire credits especially from Czech Republic and Slovakia. Based on these findings, one of our researchers published a policy brief in November 2006, in which she proposed a two-step process for Japan including the effective implementation of a national credit-purchasing scheme and the establishment of a mandatory domestic ETS linked with other ET schemes.

Interviews with stakeholders in Russia on the role of PPP for effective implementation of JI between Russia and Japan showed that that it is crucial to organize policy dialogues on concerns and interests with regard to JI, as awareness of opportunities was quite limited in both countries. In view of the current immature status of PPP in Russia, we suggested that the Russian government should provide additional and effective incentives for the Russian private sector as well as Japanese private investors. We recommended that Emission Reduction Unit (ERU) ownership should be clarified further and that transaction costs should be reduced for promoting investment in JI projects. On the other hand, Russian participants expressed frustration with the lack of clarity of Japan's policies on JI. We presented these findings at Japan-Russia Energy Forum of ERINA (Energy Research Institute for Northeast Asia) in April 2006, and published them in IRES in 2006. In addition, one of our researchers participated and contributed actively to discussions of a study meeting on "Kyoto Protocol and Japan-Russia Cooperation in the Far East".

To document the outcomes of the Kyoto Protocol and examine its future prospects, we published a special issue of IRES in November 2004. One of our researchers summarised different articles published in the issue and concluded that the Kyoto Protocol is an important first step but requires adjustments to enhance its environmental effectiveness and economic efficiency in the future. Active use of the Kyoto mechanisms was considered crucial for building a more successful international climate framework. As part of the commissioned work by the MOEJ, we compiled a guidebook on rules of the Kyoto Protocol in Japanese language incorporating all decisions from COP 1 to COP10. Many stakeholders (policy makers, academia, and the private sector representatives) appreciated that the information presented was both clear and comprehensive. Our researchers contributed a few chapters of the guidebook.

In view of the high importance of CDM for Asian developing countries, we allocated substantial resources to CDM implementation and capacity strengthening. Subsequent to the decision of the CDM Executive Board in February 2005 to approve unilateral CDM activities (without participation from Annex I country), there was a rapid growth in the number of such projects, especially in India. We examined options for implementing a bilateral CDM project in Indonesia and a unilateral CDM project in India by studying conceptual implications of the CDM and political and economical endowment in both countries. Through such comparative analysis, we identified five elements as critical for choice between unilateral and bilateral CDM: (1) capacity for development of CDM projects, (2) availability of technology, (3) ability to raise domestic and/or international finance, (4) capacity to implement CDM projects as planned, and (5) ability to operate and maintain the projects. We concluded that host countries could choose policy options to support either bilateral or unilateral

CDM projects depending on their level of economic growth, financial conditions, investment attractiveness, the role of PPP in economy, and other social conditions.

Because many CDM projects suffer from inadequate financing, we held a workshop on 'Financing Modalities of the CDM' in Jakarta, Indonesia in June 2005, in collaboration with UNEP RISØ Centre on Energy, Climate, and Sustainable Development (URC), United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and Japan Bank for International Cooperation (JBIC). About 150 participants from financial institutions such as Asian Development Bank (ADB) and JBIC, private financiers, policy makers and project developers from Asian countries participated. The workshop explored the financial feasibility of CDM projects and considered possible solutions to mitigate existing barriers. It was concluded that three types of barriers discourage CDM investment: country risks, uncertainty in price and volume of CER (Certified Emission Reductions), and institutional and regulatory risks. In order to overcome such barriers, the development of legal systems in host countries and strengthening the capacity of both project developers and financial institutions are considered vital. At the invitation of the Kyoto international business forum, one of our researchers presented various options for mobilizing private investments through promoting synergies among multilateral environmental agreements.

One of our researchers examined the role of ODA and opportunities for involvement of the Japanese private sector in CDM and published the findings in “International Development Journal”. He noted that CDM presented substantial commercial opportunities for the private sector in Japan and he encouraged their further proactive involvement. In an interview with NHK television, one of our researchers examined the CDM status in China and suggested that despite high potential for CDM in China, one should be conscious of various risks, including management risk of small and medium enterprises, lack of CDM awareness and lack of underlying finance for many projects.

The integrated capacity strengthening programme for CDM (ICS-CDM) for Asia was started in October 2003 with the objectives of raising awareness of CDM among stakeholders, assisting institutions in formulating appropriate project approval process, and supporting the formulation, development and implementation of CDM projects. In Phase III, we organized nearly 100 workshops and tutorials to achieve these aims. While we supported all types of projects based on stakeholder needs in different countries, the primary focus was on sectors such as biomass and renewable energy sources, waste for energy generation and small scale projects with large developmental benefits. In implementing ICS-CDM, we collaborated with several Japanese public organizations (e.g., OECC, GEC, NEDO), private companies (e.g., Takuma, Marubeni, Kajima), national research institutes and NGOs in Asian developing countries (e.g., ERI, Tsinghua University, TERI, Winrock International, Development Alternatives, Pelangi, YBUL, CER Indonesia, TEI, and so on), regional agencies (e.g., ADB, UNESCAP) and international organizations (e.g., UNEP-RISO, UNDP, UNIDO, Earth Council). Most of the workshops and seminars under ICS-CDM were held in individual countries. However, we organized a few region-wide workshops to invite representatives from countries, where ICS-CDM was not in operation. A region-wide workshop in collaboration with UNEP-RISO was held in Bangkok in September 2004, where participants from 20 Asian countries attended. Likewise, a region-wide meeting to exchange information among DNAs of Asian countries was held in Tokyo in March 2005. After signing a “Letter of Understanding” with the UNDP, we held another regional workshop entitled "Developing a Regional Strategy for CDM in the Asia-Pacific Region" in collaboration with UNDP Regional Centre in Bangkok in March 2006. The workshop gathered senior government officials from 21 countries to discuss ways of ensuring CDM and other GHG reduction efforts benefit the poor in the region. Participants recommended that Asian

developing countries should set clear poverty reduction criteria for approval of CDM projects, and that industrialized countries should look beyond maximizing carbon credits, and consider adding a premium to CDM projects that hold high development dividends. Our researchers discussed the prospects for enhancing developmental benefits from CDM projects based on case studies from Indonesia and Nepal. In order to publicize our findings and stimulate further discussion on CDM at international level, we organized two side events at COP10 and COP12 of UNFCCC. A side event entitled “Next steps for CDM activities: Gaps and ways to overcome them” was held at COP10 in Buenos Aires, Argentina in December 2004. Another side event entitled “CDM for sustainable development: Dream or reality?” was held in Nairobi, Kenya in November 2006. Both events attracted a large audience with exciting discussions.

Our analysis of capacity building needs for the CDM in four Asian countries – Cambodia, India, Indonesia and Thailand – showed that countries such as Cambodia and Thailand need active assistance in project design and DNA operations, while countries such as India and Indonesia need assistance in raising awareness of financial institutions and in seeking investors. The need for raising awareness of operational entities was noted across the entire region. An international workshop on CDM in Pacific Island Countries held in Samoa in October 2004 also confirmed that capacity strengthening of both institutions and key actors (including decision-makers, researchers, community-based groups and intergovernmental agencies) is crucial. As part of ICS-CDM, we analyzed reasons for rejection of various methodologies for energy efficiency projects submitted to the CDM Executive Board and suggested countermeasures especially in selecting appropriate baseline scenarios and demonstration of additionality. We disseminated our research outcomes to the Japan Consulting Institute (one of the Designated Operational Entities for CDM in Japan) and its partners including project developers based in Japan.

It is too early to judge the success of ICS-CDM in terms of the number of registered and implemented CDM projects. However, judging from the letters of appreciation that we received from various countries, initial signs were surely positive. The programme facilitated the development of a few projects (Cambodia, 1; China, 6; India, 5; Indonesia, 1; Philippines: 2), which are now under validation. One of the unique benefits of ICS-CDM is that its activities were oriented towards meeting diverse capacity building needs of various countries in the region in a flexible manner. Our focus in Cambodia, Indonesia and the Philippines was primarily to assist DNA in enhancing their approval process of CDM projects, including setting criteria for sustainable development, and designing the format of project approval and authorization letters. Based on DNA study meetings conducted through our programme, DNAs modified their project approval process to suit project conditions on the ground. Through such meetings, ICS-CDM also indirectly facilitated synergies among various ministries. In many of these countries, ICS-CDM was indeed instrumental in effective establishment of DNA. In the Philippines, we assisted the Environmental Management Bureau of the Department of Environment and Natural Resources in developing an online CDM evaluation tracking system and in organizing several meetings of technical evaluation committees for energy and waste management in cooperation with Klima Climate Change Center. In Thailand, DNA officials accepted our suggestion to simplify the project approval process through excluding complicated steps such as baseline evaluation of each PDD.

Our focus in countries such as India and China was mainly on project developers and the private sector including financial institutions and investors. In contrast to several other ongoing initiatives, ICS-CDM conducted on-site training programmes for officials of provincial and local governments in India (e.g., Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Rajasthan, and West Bengal),

Indonesia (e.g., Jawa Timur, Sulawesi Selatan, Sumatera Utara) and the Philippines (e.g., Luzon, Visayas, Mindanao). In China, however, we invited several officials from various provinces (e.g., Ningxia) to attend our training activities in Beijing, and facilitated a regular exchange of information among Chinese DNA, MoEJ and JKAP (Japan Kyoto mechanisms Acceleration Programme). In addition, we held a CDM investor forum in Japan in September 2006 to introduce four Chinese projects (three in biomass and one in waste sector) to Japanese investors. ICS-CDM supported project developers in all countries especially in project identification and PDD development. The hands-on-training programmes for project developers focused on issues such as baseline setting, additionality, sustainable development criteria, and project evaluation, financing and accounting procedures. Through organizing three focused technical tutorials in the Philippines, the programme assisted to develop PDDs for projects such as methane recovery, and waste heat recovery. In the Philippines and Cambodia, we published bulletins on baseline emission data for grid-connected power project in order to assist project developers in setting correct baseline scenarios in PDD. The programme also enhanced PDD preparation capacity of many local consultants in India, Indonesia, Thailand and the Philippines.

Another unique contribution of ICS-CDM was the publication of country-specific comprehensive CDM guides in Cambodia, China, India, Indonesia, Thailand and the Philippines, which provided the latest information on national regulations governing CDM, investment opportunities and CDM activities in the pipeline. The guides attracted high publicity not only in the respective countries but also outside the region. Due to popular demand especially at the local level, the guides were translated into Khmer (Cambodia) and Bahasa (Indonesia) languages in order to raise awareness of local institutions in those countries. In countries such as Indonesia, the country guide was posted on the web site of the Indonesia Ministry of Environment. Another significant outcome of ICS-CDM in this Phase was publication of “CDM and JI in Charts”, which again attracted considerable attention for its description of complex issues in simple and lucid terms. The programme distributed more than 5000 copies of this publication worldwide. The book was updated six times so far and was appreciated by members of the CDM Executive Board and several climate negotiators. Due to its popular local demand in Russia, it was translated into Russian language. In view of their high popularity and demand, we posted the electronic versions of CDM country guides and CDM/JI in Charts on the IGES web site.

At the invitation of several organizations, our staff presented findings on CDM capacity strengthening. For example, our researchers attended Carbon Fair in Nepal and made presentations on lessons learned from CDM implementation in Asia, and on Japan’s approaches to utilize CDM as part of its efforts to meet the Kyoto target. At the invitation of the Global Environment Center Foundation (GEC), our researchers discussed progress and challenges for capacity strengthening activities for CDM in Asian countries at the Osaka Carbon Expo event held in Osaka in November 2006. At the invitation of Kyoto International Business Forum, one of our researchers made a presentation on opportunities for the private sector in implementation of multilateral environmental agreements.

With an increasing focus on project implementation and decreasing attention on general awareness raising of CDM, the programme continued to evolve throughout this Phase. Future work would focus on options for enhancing sustainable development benefits of CDM projects, DNA policies on taxation of CDM activities, effective exchange of information between carbon credit sellers and buyers, and on ways to strengthen CDM in the future climate regime.

2.3. Post-2012 Climate Regime

Effective participation of Asian developing countries in the future climate regime is crucial to stabilize global climate. We, therefore, conducted multi-stakeholder consultations in FY 2005 (Round I) at the national level in China, India, Indonesia, Japan, Republic of Korea, and Viet Nam, and at the regional level to identify specific concerns, interests and priorities of the Asia-Pacific region. There was a broad consensus among the stakeholders that previous discussions on the climate regime were held in a non-transparent manner and did not adequately consider Asian concerns and priorities. Participants emphasised that future discussions on the design of the climate regime beyond 2012 should consider such interests and priorities more effectively than before, especially in view of the region's growing influence on energy demands and GHG emissions due to rapid economic and population growth rates. Consultations revealed both similarities and differences in the interests and concerns among countries in the region. Stakeholders shared similar interests on issues such as:

- the need for considering climate concerns in developmental context;
- streamlining of the CDM by reducing its complexities and uncertainties;
- enhanced focus on adaptation through building on existing funding mechanisms;
- facilitation of the development, deployment and diffusion of climate-friendly technologies; and
- further support for strengthening the capacity of negotiators, the private sector and financial institutions in the region.

However, differences were evident in issues such as:

- ways to consider equity in the future climate regime;
- form, time and kind of involvement of developing countries;
- national preferences for climate-friendly technologies; and
- approaches to, and funding for facilitating adaptation, especially regarding the need for a separate protocol and introduction of market-based mechanisms.

Based on the Round I consultations, we published a report entitled "Asian Perspectives on Climate Regime Beyond 2012: Concerns, Interests and Priorities" and distributed at COP11 and COP/MOP1 held in Montreal, Canada in December 2005. After posting the report on IGES web site, we received many positive comments on the report. At the invitation from the Australian Emissions Trading Forum (AETF), we published a summary of the consultations in AETF Newsletter in 2006. The IGES efforts in launching this initiative were highly appreciated by many stakeholders including senior climate negotiators from both developed and developing countries.

We continued our consultations with Asian developing countries in FY 2006 on a sub-regional basis in northeast Asia (Beijing, July 2006), Southeast Asia (Bangkok, July 2006) and South Asia (Delhi, August 2006) to identify options for strengthening the future climate regime based on four key themes: energy security, CDM, technology transfer and adaptation. We made specific recommendations to move forward in discussions on each theme. With regard to technology development and transfer, for example, we identified three priorities – building synergies between UNFCCC and non-UNFCCC initiatives, enhancing flexibility of intellectual property rights (IPR) for low carbon technologies, and improving financial mechanisms to accelerate technology deployment. Based on the Round II consultations, we published a report entitled "Asian Aspirations for the Climate Regime Beyond 2012" and distributed at COP12 and COP/MOP2 held in Nairobi in November 2006.

In March 2006, we organized a meeting entitled "Asia-Pacific Dialogue on Innovative Options for Non-Annex 1 Countries' Participation for Climate Change Action" in collaboration with the UNESCAP in Bangkok, Thailand. Several participants representing the governments, academia, NGOs and leading research institutions participated in the dialogue to discuss options for promoting the participation of Asian developing countries in the future climate regime. Diverse approaches, including the concept of "unilateral CDM linked to the CER discounting scheme", as well as "policy-based CDM" and "the relaxation of CDM additionality", and their feasibility in the context of Asian developing countries were discussed. A summary of outcomes of the workshop was posted on the IGES web site.

In this Phase, we organized three side events focusing on the post-2012 climate regime: at COP10 in Buenos Aires in 2004 (The Kyoto train: Where do we go next?), at COP11 in Montreal in 2005 (Asian concerns on the climate regime beyond 2012: Are you concerned?) and at COP12 in Nairobi in 2006 (Asian aspirations for the future climate regime). In addition, we organized a side event at the 14th Session of the United Nations Commission on Sustainable Development (CSD-14) held in New York in May 2006. All events were highly successful with large attendance and appreciated by several senior climate negotiators from various countries. Panel discussions at all events contributed many new ideas for facilitating discussions on post-2012 climate regime.

In collaboration with researchers at the NIES, we organized an open symposium entitled "International Climate Regime Beyond 2012: Long-term Goals and Near-term Actions" in Tokyo in September 2004. Participants concluded that it is technically feasible to stabilise GHG concentrations at 550 and 650 ppmv CO_2-eq but the latter concentration is unlikely to keep a rise in global mean temperatures below 2°C. A fully effective ETS to achieve stabilisation of the global climate and progressive policies by Japan and Europe to influence the US policies in the future were considered crucial. Several criteria for differentiating developing countries in terms of their participation in the future regime were proposed. Based on our research and outcomes of the symposium, we published a report entitled "Framing Climate Protection Regime: Long-term Commitments and Institutional Options" in December 2004 and disseminated at the COP-10 in Buenos Aires, Argentina.

We, in collaboration with NIES, organized another international workshop and open symposium entitled "Low-Carbon Society Scenario toward 2050: Scenario Development and its Implication for Policy Measures" in Tokyo in March 2005. At the symposium, one of our researchers served as a discussant and made a presentation on perspectives of Asian developing countries on long-term target setting for GHG emission reductions. We suggested that major developing countries should begin to visualize sector-based emission reduction targets while reflecting their developmental concerns. However, it was considered premature or even counterproductive to initiate international negotiations on setting long-term targets without first identifying innovative and pragmatic strategies to reduce emissions by 50-70% by 2050.

In collaboration with researchers at the NIES, we published a report entitled "The Future Climate Regime: Using the Scenario Planning Approach to Develop Options" in October 2005 and disseminated at the COP11 and COP/MOP1. In the scenario planning approach, the development of carbon markets and people's expectation towards innovative technology were considered the most influential driving forces for the future climate regime. Three scenarios – (1) carbon market initiative scenario, where international ET becomes the most widely-used policy; (2) government-led policies and measures scenario, where international ET does not prevail and society is pessimistic about innovative technology development, and the need for concrete commitments to mitigate climate

change was recognised; and, (3) technology optimist scenario, where international ET does not prevail, but the society is optimistic about innovative technology development – were examined. We categorised the existing proposals on post-2012 regime into three groups, based upon the three scenarios, and assessed the common features, strengths and weaknesses of each group. To minimise weaknesses in each scenario, we made several suggestions. The idea of a carbon credit bank, which sets an international "safety valve" and uses revenues for adaptation purposes, was suggested for the carbon market initiative scenario. The notion of the dual-track approach was developed for the government-led policies and measures scenario, to facilitate countries' commitments and implementation of policies and measures for mitigation and adaptation. Finally, the idea of the technology plus compensation funds, where parties to international technology-related agreements set aside a certain amount of their contributions in order to finance the diffusion of new technologies and adaptation in developing countries, was suggested. Based on discussions with key stakeholders and analysis of current trends, we examined the possible future positions of the EU and USA in each scenario. The research findings were published in an academic journal "Environmental Information Research Quarterly".

In a collaborative project with Waseda University and NIES (as part of the commissioned work by MOEJ), we examined definitions and implementation in major countries of legal principles stipulated in Article 3 of the UNFCCC. In FY 2005, we focused on "polluter pays principle" identifying similarities and differences in interpretation of definition and implementation of the principle. In FY 2006, we compiled information on the EU regulations to control air pollutants at national and regional level and analyzed the relationships between compliance and demonstrable progress in the climate regime. We suggested that while compliance and demonstrable progress were closely linked conceptually, the current climate regime did not have a legally-binding framework to discuss such relationships.

The effective participation of USA in the future climate regime is also crucial to stabilize the global climate. Although international climate efforts require long-lasting, credible commitments by the USA and other participating countries, risk of failure to deliver on such commitments rises with the degree of gap that the domestic institutions permit between the executive and the legislature. Our analysis of reasons for the USA withdrawal from the Kyoto Protocol and the congressional politics over budgetary allocation regarding the Bush administration's international technology policies revealed that the USA climate diplomacy was lacking in domestic institutional mechanisms that bring the executive branch's deal at international negotiations, and the legislators' preferences at home, closer together. For the USA to take leadership in international climate cooperation, we suggested that domestic institutional frameworks, which reconcile the interests of the two branches are necessary. We suggested that such domestic institutional frameworks feature two components: regular channels of communication between the two political branches; and, incentive mechanisms for the two branches to swiftly come to terms with each other. We published the above findings in an academic journal "International Environmental Agreements" in 2006. The Japan-US workshop, which was convened with RFF in May 2005, also shed light on important lessons taken from past negotiating experiences. Participants suggested that a small group of national leaders including large emitters of GHG and major economies, addressing not only climate change but also developmental issues, would be a useful vehicle for meaningful international efforts, and that such a small-group process should be carried out in parallel with the multilateral UNFCCC process.

Building effective linkages among regional, national and sub-national carbon markets is crucial to the success of the future climate regime. From this perspective, we examined the problems and

prospects for linking JVETS with EU-ETS and ET in California or northeastern states of USA. Currently the linkage directive of EU-ETS enables linking of regional ETS with carbon credits acquired through JI and CDM, thereby improving the liquidity of carbon market. We identified that the establishment of clear rules for linking project-based transactions with allowance-based transactions in different markets, and a legal definition of carbon credits in various markets are crucial to make progress on this front. For example, while many countries in Europe define credits (EAU – Emissions Allowance Unit) under EU ETS as "commodity, intangible assets, or property", a few European countries define them as "financial instruments" subject to strict financial regulations. On the other hand, credits under JVETS (j-CER/JPA – Japan CER or Japan Allowances) are defined or interpreted as "quasi movable property" and "tangible assets". One of our researchers presented findings from this work at the Environmental Law and Policy Congress held in Tokyo in June 2006.

While serving as a Secretariat for the MOEJ Working Group on future climate regime, we compiled information in FY 2004 on long-term emission reduction targets of selected European countries. We conveyed it to the sub-committee for international climate change strategy of the Central Environmental Council as an input to preparation of two interim reports entitled "Climate regime beyond 2012: Key perspectives" which were published in November 2004 and May 2005 for distribution at COP10 and COP11 respectively. In FY 2005 and FY 2006, our researchers participated as regular members of the working group. In FY 2005, we grouped various proposals on the future climate regime based on three criteria: possibility to achieve the ultimate goal of UNFCCC, acceptability from Japan's point of view, and acceptability from developing countries' point of view. We conveyed the information on proposals satisfying these three criteria and prospects for their implementation to MoEJ. In FY 2006, our researchers in collaboration with researchers at NIES and Tohoku University developed a menu-based approach with multi-stage sector-based targets as a possible architecture for the second commitment period of the Kyoto Protocol. Based on this approach, all countries are grouped into three categories based on certain criteria (economic development, per capita emission, Human Development Index). The current non-Annex I countries are divided into two groups – LDCs without any legally binding targets, and middle-income countries mandated to pledge dual targets, either sector-based targets or policy and measures (but without penalty for non-compliance). To promote participation of the USA and developing counties, this approach should be agreed upon, concurrently with agreements on adaptation, technology and LULUCF. We presented this approach at the World Congress of Environmental and Resource Economists and the annual meeting of Society for Environmental Economics and Policy Studies (SEEPS) held in Kyoto in July 2006.

Upon a request from the Japanese Ministry of Foreign Affairs (MOFA), we summarised discussions at the informal meeting of senior climate negotiators from 19 countries on "Further Actions against Climate Change" in September 2004. In the meeting, the need for conducting in-depth discussions on the future regime in the formal convention process was emphasized. At the invitation of UNU-IAS, our researchers participated in the UNU Round Table on Climate Change held in February 2005 and presented our findings on the post-Kyoto regime. Based on our research on the future climate regime, we received an invitation to participate in the Global Round Table on Climate Change organized by the Earth Institute of Columbia University, USA in December 2006.

At the request of MOEJ, our researchers served as members of the official Japanese delegation to COP/SBSTA/SBI meetings in 2004, 2005 and 2006, and examined issues regarding compliance, the submission of non-Annex I national communications, and reviews on reports submitted by Annex I Parties. We provided relevant inputs on these issues to Japanese negotiators and policy makers.

2.4. Adaptation

We targeted our research and outreach activities on adaptation at local, national and international levels. At the local level, we conducted field surveys in Bangladesh, which showed that local people still depended on indigenous strategies to cope with climate change, while policy makers, in general, did not make proactive efforts to use local knowledge in designing adaptation policies. In certain sectors related to disaster management (e.g., floods), however, some efforts were underway to utilize local knowledge. Our analysis of indigenous coping strategies (e.g., Dapog seed bed preparation and floating agriculture to cope with floods; local salt-tolerant rice varieties to cope with salinity; and building mud houses to cope with droughts) revealed that several such practices could facilitate future adaptation to climate change, and that efforts to publicize and disseminate such practices to other areas are crucial. Based on both field surveys and focus group discussions, six local practices collected in Bangladesh were summarised for inclusion in the Good Practices Inventory. Likewise, two strategic policy options based on local knowledge (integration of indigenous knowledge in facilitating adaptation to climate change, and integration of local knowledge in sectoral development plans) were formulated and included in a database of the RISPO (Research on Innovative and Strategic Policy Options). Optimal integration of such options in planning can provide a 'triple dividend' – decreased vulnerability to climate-related disasters, reduced demand for international humanitarian assistance in disaster response and recovery, and achievement of national and global sustainable development objectives.

Adaptation often requires site-specific considerations, taking into account many local benefits and interests; therefore the involvement of communities in adaptation planning is vital. Using the field experiences in Bangladesh regarding adaptation at local level, we proposed the concept of “Proactive Micro-Adaptation (PMA)” at the 14th Asia-Pacific Seminar on Climate Change in FY 2004. As PMA encompasses anticipatory strategies and measures taken by communities, businesses, governments and other stakeholders at local level, it has significant potential to be a crucial component of strategies aimed at addressing the impacts of climate change. We organized an informal expert consultation on PMA in July 2005 to examine the prospects for this approach in facilitating adaptation. As part of this consultation, we collected 26 case studies from all over the world and identified key factors for enhancing adaptive capacity at local level. Analysis of approaches for facilitating PMA in Bangladesh, for example, showed that community-based initiatives need more proactive support of both national and local governments. The findings were presented at the 15th Asia-Pacific Seminar on Climate Change held in Yokohama in September 2005, and at the Kyoto University Forum for Adaptation and Disaster Management held in February 2006. In addition, we developed a resource package on indigenous knowledge, and prepared a discussion paper on options for integrating local knowledge in adaptation plans and posted them on the IGES web site.

At the national level, we participated as a member of the research consortium on adaptation in Japan led by Prof. Mimura of Ibaraki University. Our researchers contributed to the discussions of the consortium meetings held in July 2006 and made two presentations at an international symposium entitled “Future of the Earth’s environment – Prediction and Countermeasures of Global Warming” held at Mito in November 2006. In addition, one of our researchers analyzed options for enhancing the effectiveness of Japanese ODA in the area of adaptation by critically looking at JICA’s experiences in disaster management, rural development and agricultural sectors. The report identified several examples of current and past ODA projects that indirectly facilitated adaptation to climate change, even though the projects were not designed with the intention of facilitating

adaptation. The research outcomes were communicated the Ministry of Foreign Affairs (MOFA) of Japan for their consideration. It led MOFA to formulate a study group of “ODA and adaptation” in its preparation toward the 2008 G8 summit.

We also examined the national policies for facilitating dynamic adaptation in agriculture and water resources sectors in Bangladesh, India and Viet Nam. Our analysis showed that national and local governments have to be proactive in convincing farming communities and water resource managers of the potential impacts of climate change and provide necessary incentives to adjust cropping systems and water use methods, especially in the arid and semi arid tropics. In February 2007, we organized an expert consultation on mainstreaming adaptation concerns in agriculture and water sectors, and suggested a few options for mainstreaming at both policy and operational levels in both sectors.

At the regional level, we organized an international workshop on facilitating adaptation in the Pacific island countries in October 2004 in association with the Secretariat for the Pacific Regional Environmental Programme (SPREP) and UNEP-RISO. The workshop was partially sponsored by the Governments of New Zealand and Australia. We provided an overview of issues in designing adaptation policies in the context of sustainable development at local, national and international levels, and emphasized the need to strengthen the linkages between adaptation science and policy formulation through:

- Translation of scientific results into understandable and useful information products
- Development of a regional database of vulnerability assessment findings and adaptation projects and focused efforts to share lessons learned
- Enhancing access to emerging tools, technologies and methods for climate vulnerability assessment and comprehensive risk assessment programs, and
- Enhanced programs of education and public outreach

At the international level, we analyzed the merits and demerits of creating a separate protocol on adaptation, prospects for mainstreaming adaptation in development planning and options for enhancing international funds available for adaptation through active promotion of the private sector in adaptation. At the invitation of the UNDP-GEF, one of our researchers contributed to its discussions on formulating guidelines for supporting adaptation projects through the Small Grants Programme at a meeting held in Bangkok, Thailand in September 2004. Our researchers also contributed to discussions on adaptation technology need assessments, and top-up financing mechanisms at GEF. At the invitation of the IUCN Regional biodiversity programme, our researchers suggested various options for building effective linkages among the UN conventions on climate change, biodiversity and desertification. At the invitation of the international START (Global change system for analysis research and training) Secretariat, one of our researchers served as a reviewer for screening various research proposals on adaptation from the Asia-Pacific region for funding. Likewise, at the invitation of Asia-Pacific Network on Global Change Research, our researchers contributed to the discussions at a scoping workshop on capacity building needs for adaptation in Asia and the Pacific. As part of our international information outreach efforts, we organized two side events focusing on adaptation at COP10 in Buenos Aires in December 2004 (Mainstreaming Adaptation in Development: Idealistic or Realistic?) and at COP11 in Montreal in December 2005 (Adaptation to Climate Change: Pathways into the Future beyond 2012). Both events were highly successful with large attendance and appreciated by several stakeholders. Panel discussions at both events contributed several new ideas for facilitating discussions on adaptation in the future climate regime.

2.5. Other activities

Besides the above research and outreach activities, we contributed to IGES-wide publications, promotional materials, capacity building, and fundraising. Project staff contributed a chapter entitled "Mainstreaming climate change concerns in development: Issues and challenges for Asia" to an IGES-wide publication entitled "Sustainable Asia 2005 and Beyond". At the invitation of UNEP, one of our researchers contributed as a lead author to the chapter on "atmosphere" as part of the fourth report of the Global Environmental Outlook (GEO-4), and as a reviewer of various other chapters. The project staff contributed several articles to IGES newsletters, prepared summaries of major events for release to the press, and assisted in many outreach activities through interviews to the media. For example, the project staff contributed Japan country report for the Yearbook on International Environmental Law. Our researchers were invited as reviewers of manuscripts submitted for various national and international journals. The Project hosted two interns from Japan to work on issues of CDM and an intern from Nepal to work on adaptation. The Japan Association for University Women sponsored the stay of the intern from Nepal. We also hosted a visiting researcher from Korea sponsored by the Korean Environmental Management Corporation. In addition, we supported the capacity strengthening activities of organizations such as Keisen University, APN, UNU-FASID, OECC and JICA. We invited more than 10 foreign researchers to give lectures on climate change issues and our staff contributed to more than 10 in-house seminars. On the occasion of the 1st anniversary of the Kyoto Protocol's entry into force, we organized an online question and answer session on 16 February 2006. Several queries from different parts of the world were answered. The Project succeeded in attracting funds both from domestic and international sources, although the majority of funding is from the former. We succeeded in getting funds from the New Zealand Aid for International Development, UNEP Risoe Centre (Denmark), Center for Global Partnership Foundation (USA), Australian Greenhouse Office, KEI, and Environment Management Corporation of ROK. Additional efforts to acquire funding from other sources such as the World Bank are in progress.

3. Self-evaluation

Based on our research and outreach activities during the past nine years, the Project established itself as one of the few active research groups focusing on climate policy issues in Asia. An evaluation of the project outcomes against the criteria of policy relevance, effectiveness and efficiency is given below.

3.1. Relevance

Our project influenced policy formulation in Japan both directly and indirectly through various channels. Prof. Akio Morishima plays a leading role in formation of the Japanese climate policy. Through his participation in various stakeholder consultations and workshops held by the project, he was instrumental in reflecting the results of our research in various policy formulation processes. Professor Hironori Hamanaka, a member of the Board of Directors, participated in various stakeholder consultations organized by the project. He contributed greatly towards the dissemination of our project findings to national and international audiences, through his involvement in various initiatives, for instance as a chairperson of the compliance committee of the Kyoto Protocol and the Japan chapter of the International Council for Local Environmental Initiatives (ICLEI-Japan). As noted before, our staff members served as members of the Japanese delegation to

COP/SBSTA/SBI meetings. Using such opportunities, we conveyed our findings to influence indirectly the policy setting and international negotiation strategies of Japanese negotiators. Our policy-focused assessment of available information on target setting in selected European countries was made available through our contributions in MOEJ Working Group on the future climate regime. It prompted the sub-committee for international climate change strategy of the Central Environmental Council to visualize target setting of 2°C. Likewise, the outcomes of the workshop on CDM financing positively influenced JBIC regarding their strategies for CDM investment in Asian countries. We publicized our research outcomes to senior Japanese policy makers including the Chairman of the Committee on Environment of the House of Councillors. The project regularly held a seminar after each COP and published an update of international climate policy in association with the Global Industrial and Social Progress Research Institute (GISPRI). The project staff participated in a number of study groups and research committees of the different ministries in Japan on various issues (e.g., emissions trading, compliance, CDM in forestry sector, CER acquisition by NEDO) and in meetings of the World Environmental Law Research Group. At the invitation of JBIC, World Bank Tokyo Office, WWF Japan, the project staff participated in various research meetings.

At regional and international levels, our project established a niche and comparative advantage as one of the important environmental policy research units in Asia. Our staff served as chairpersons at several regional and international meetings on climate change. For example, one of our researchers was elected as the Chairperson of the 15th Asia-Pacific Seminar on Climate Change and his contributions to the seminar were widely appreciated. At the international level, our side events at COPs are well known to the global community. Several key stakeholders appreciated the IGES for launching unique initiatives such as the Asia-Pacific consultations on the climate regime beyond 2012 and integrated capacity strengthening for the CDM. The consultations have not only deepened the understanding of policy makers in developing countries but also contributed to strengthening their capacity on various critical issues of climate change. We received positive queries on this initiative from Africa and Australia. Negotiators and researchers from developed countries found our initiatives useful in their work. For example, an expert delegation from Sweden invited us to visit the Swedish embassy in Japan to present our findings on Asian perspectives of the future climate regime. Several stakeholders throughout the region, including policy makers, climate negotiators, project developers, NGOs and academia, appreciated our initiative on capacity strengthening for CDM/JI, as evidenced by the letters of appreciation we received from policy makers and numerous requests for extending our programme to countries not covered by ICS-CDM. In our research, we took utmost care to respect the boundary between policy-focused assessment and policy formation. Our goal is only to inform decision makers in the region of various policy choices and not to make specific policy recommendations for each specific situation in each country. Our staff participated in several capacity building initiatives of other organizations such as UNU-FASID and JICA, and contributed their expertise in launching of new projects such as “Community-based adaptation” by international agencies such as UNDP-GEF. The project staff members also served as lead authors and reviewers of international publications such as GEO-4, and contributed extensively to discussions in various international electronic conferences on climate change issues.

3.2. Effectiveness

Despite high staff turnover during this phase, the Project achieved most of the objectives set out for various components of Phase III plan. The project was quite effective by promptly providing practical information for policy formulation on cutting-edge and sometimes controversial issues. To

the extent possible, we recommended only those policies that have potential for adoption and implementation through an effective analysis of various barriers and potential countermeasures. For example, our work on options for Japan to acquire carbon emission reduction credits from abroad specifically focused on criteria such as public acceptance, price and transaction cost with a view to judge the practicality of our recommendations. Internationally, the project followed the discussions at COP/SBSTA/SBI meetings, and set up future-oriented research topics in consultation with policy makers. Our research included a sufficient range of topics of concern (from domestic policies to Kyoto mechanisms and post-2012 regime issues) to Asian stakeholders within the field of climate policy. For example, in our consultations on climate regime beyond 2012, we not only considered the major concerns of large developing countries such as China and India in relation to energy security and restructuring of the CDM, but also the concerns of small island states in the Pacific region in relation to adaptation and appropriate technologies. Our staff presentations on German and Japanese policies raised the interest of a few Japanese accounting firms in climate policy research. We have thus established a system to facilitate quick follow-up in response to new research needs.

Our project activities were reported in the form of more than 150 presentations at national and international conferences, publications in academic journals, press releases, and articles in popular magazines and newspapers. We produced a CD-ROM containing our publications and updated it every year. Our staff contributed many interviews with newspapers such as Japan Times, Asahi, Yomiuri, Sankei Shimbun, Nikkei Shimbun, electronic newsletters such as those of Point Carbon, magazines such as International Development Journal, and to broadcasting services such as NHK (Japan) and KBS (Korea). At the invitation of a Spanish television company, one of our researchers contributed to the preparation of a DVD “2050: How soon is now?” which was translated into three languages – English, Spanish and French. Our staff members organized mini-dialogues on climate change as part of the Shonan Village festival,

The main characteristic of our project’s research is its integrative, strategic and action-oriented research style, which takes into account the rapidly changing trends and developments in international climate policy. The proposals made by our team either by ourselves or in collaboration with other like-minded institutions such as NIES were considered original by many stakeholders. For example, our initiative on holding stakeholder consultations on the post-2012 climate regime in Asia was considered pioneering by many organizations as no other organization in Asia has attempted a similar initiative in this region. We also promoted activities to advance policy formulation and identify new research needs through organising various interactive meetings and workshops.

As far as possible, we tried to adopt a wide range of methodological approaches not only in conducting research but also in our consideration of diverse groups of stakeholders. In research, for example, we depended on not only empirical studies such as questionnaire surveys, literature research, interviews, etc. but also methods such as scenario planning and game theory. In terms of inclusion of stakeholders, although our focus has primarily been policy makers, we considered the views of private sector, NGOs and academia especially when we look at sustainable development aspects of market-based mechanisms. In our workshops, we encouraged the participation of several ministries of Japan and other countries so as to get a balanced view of concerns and interests. To the extent possible, we ensured that our research is complementary with other initiatives so as to avoid duplication of efforts. For example, we collaborated with institutions such as NIES in work on incentives for the post-2012 regime, and with several organizations in different Asian countries in holding consultations on Asian perspectives on future climate regime. In Japan, we are a member of the consortium on adaptation to climate change, which is funded by the Ministry of Education,

Culture, Science and Technology, through which we complement our research on adaptation policies with the work of other institutions focusing on adaptation science.

Our efforts and outputs to date are totally consistent with the IGES mandate – to provide strategic and pragmatic policy options for sustainable development in the Asia-Pacific. However, one drawback of our action-oriented research is the lack of enough time and opportunities to evaluate our research outputs in the academia. It is suggested that researchers submit academic papers for publication in international journals twice a year in order to ensure that our research is always based on sound methodology. Our efforts in raising the profile of climate policy in Asia through holding multi-stakeholder consultations and information outreach have been highly appreciated but our contributions to capacity building of young researchers in Asia have been limited to date. We wish to improve upon this area in the fourth phase, if resources permit.

3.3. Efficiency

The project used all available human and financial resources in an efficient manner. It is important to note that the project suffered from a high staff turnover during this phase, as the project lost seven staff members including a principal researcher. At some point, the Project had as many as 14 staff members but only seven members are left now. Four of these seven remaining members had in fact joined after the project plan was approved hence their views were not entirely reflected in the design phase. In terms of utilization of financial resources too, the Project paid utmost attention to efficiency through adopting many cost-cutting approaches without adversely affecting the quality of our research. The Project staff also made several efforts to raise external funds from various domestic and international organizations with a view to reduce our dependence on core funding. However, we realize that further proactive efforts to attract external funding in the future are necessary to maintain the momentum gained during this phase.

4. Concluding remarks

Despite a high staff turnover during this phase, the project achieved several objectives set out initially through effective and efficient management of available human and financial resources. Our analysis of domestic policies in developed countries such as the US and Germany and assessment of their implications for policies in Japan were widely recognized both in Japan and other countries. Our efforts in gathering researchers from various Asian developing countries to discuss options for mainstreaming climate concerns in development and to identify integrated development and climate actions were appreciated by several stakeholders across Asia. Our enhanced focus during this phase on capacity strengthening for Kyoto mechanisms in general and CDM in particular received considerable attention of our stakeholders. Likewise, our initiative to ascertain Asian concerns and priorities for strengthening the future climate regime and our efforts toward developing a climate regime that adequately reflects Asian interests were highly appreciated by the international community. Our efforts to find options for integrating adaptation concerns in local and national plans and to enhance the focus of discussions on adaptation at the international level from an Asian perspective were also commended.

Based on the above achievements and through active involvement in operations of the IGES Programme Management Office, we contributed to the development of our Phase IV plan. Based on many brainstorming sessions, we had initially proposed 18 ideas for consideration, and then

prioritized five themes for further research in Phase 4 (2007-2010). Through further deliberations, we developed a comprehensive proposal with four sub-themes. In brief, our research in Phase 4 will aim at strengthening climate change-related governance in Asian developing countries with a major focus on policies to implement CDM and to facilitate adaptation to climate change. Identification of ways and means to enable the Asia-Pacific region to play a more proactive role in designing a post-2012 climate regime that is responsive to concerns and developmental aspirations of the region will be another major focus. In addition, we will identify measures to facilitate the spread of effective environmental policies by assessing the developmental co-benefits of climate policies in key sectors with energy implications such as transportation, agriculture and waste management with the ultimate goal of mainstreaming climate concerns in national development planning.