

Integrative Strategic Research Programme of IGES for the Fifth Phase

Appendix

The Appendix (proposals) was prepared as of February 2010. As such, the information on financial and human resources has not yet been fixed. Since IGES strategic research is expected to be agile in response to the changes in external environment and policy needs, the research proposals will be implemented with sufficient flexibility.

Climate Policy Group

Title: (1) Sustainable, low carbon development in Asia

I. Research Outline

1. Background (Relevance to Asia-Pacific)

Climate change poses serious challenges to Asian developing countries. Although this problem is largely caused by greenhouse gas (GHG) emissions from industrialized countries over the past two centuries, Asian developing economies began to increase their GHG emission very rapidly, and are projected to become the largest contributor to these emissions unless they are able to move away from their current path of development. At the same time, Asian developing countries are among the most vulnerable to climate change. There is growing agreement that it is in the best interest of Asia to move toward sustainable low carbon development paths, although there is a lack of consensus over how to achieve the shift.

2. Objectives

The main goals of this research project are to assess opportunities, potentials and limitations of developing Asia for taking sustainable low carbon development pathways, and to enable developing Asia to realize such opportunities by influencing policy processes through policy recommendations and policy options.

The objectives of this research are to:

- Determine how domestic institutions and policies promote or inhibit sustainable low carbon development;
- Analyze enabling conditions which promote low-carbon technology leapfrogging;
- Review and identify traditional values and practices in Asia, which promote low carbon and sustainable development; and
- Provide international and domestic policy recommendations related to domestic institutions, technology leapfrogging, and consumption patterns (values and practices).and options for strengthening developing countries' capacities to overcome barriers and take low carbon and sustainable development pathways

This research will focus on selected developing Asian countries of China, India and Indonesia. Domestic low carbon measures in Republic of Korea will also be addressed because of its strong

emphasis on green growth.

3. Major components

This research project consists of three components.

- Development patterns
- Mechanisms for technology leapfrogging
- Traditional values and practices

4. Research questions

Overarching question

- Can Asia be placed in a good position for low carbon and sustainable development?

4.1 Component 1: Development patterns

- General questions
 - What are the current trends, and likely developmental paths in Asia?
 - How can we facilitate the shift to low carbon and sustainable development in Asia?
 - What are the driving forces (external and internal), which will impact the shift to sustainable low carbon development in Asia? How can domestic institutions and policies influence such a shift?
 - What are effective and equitable development pathways for Asian countries? And, what policies and frameworks can achieve such equitable pathways?
- Sector-specific questions
 - How have different socio-political institutions affected the design and implementation of low carbon policies in the key GHG mitigation sectors?
 - How do different institutional structures of financial systems (e.g., indirect finance vs direct finance) matter?
 - How do domestic financial systems promote or inhibit energy efficiency investments?
 - What are effective and equitable development pathways for Asian countries?

4.2 Component 2: Mechanisms for technology leapfrogging

- General questions
 - How could low carbon technologies be incorporated into current energy/water/resource infrastructures/systems, and how should these infrastructures/systems be evolved and regulated to better accommodate such technologies?
- Sector-specific questions

- What are the opportunities for the energy system to interact with other systems (water/waster/resources/etc) to minimize material and energy flows? What technologies are needed to realize these gains and how should it supported by policies and the market?
- How do we realize the potential of utility scale technologies like Clean Coal Technologies (CCTs) and geographically dependent resources like geothermal power?
- Learning from the experience of some successful private sector firms in developing countries, what were the enabling conditions present and the strategies employed which helped them leapfrog to low carbon technologies?
- Is IPR an issue or a barrier in technology leapfrogging in developing countries? If yes, what kind of policy reform would be necessary to address this problem?
- What are the current financing mechanisms available at the national/local level which assist private firms engaged in the transfer (as a component of leapfrogging) of low carbon technologies?
- How can the agriculture sector in the region contribute to low carbon society? What are the bottlenecks and opportunities to low carbon society? What are the means of identifying agriculture technologies for their suitability to low carbon society? What are the policy and technical gaps in maximising the mitigation potential of available technologies?

4.3. Component 3: Asian values and practices

- What are essential values & practices on which sustainable lives of the communities in Asian countries have been maintained?
- What are possible political support for maintaining and/or facilitating values and practices enabling sustainable livelihoods?
- How we can apply such values and practices in the context of low carbon and sustainable development of Asian countries?

5. Methodologies

5.1 Component 1: Development patterns

- Literature review and interviews
- Comparative approaches focusing on the role of institutions and policies
- AIM models

5.2 Component 2: Mechanisms for leapfrogging

- Literature review and interviews
- Case study approaches
- Delphi survey/expert elicitation and multi-criteria methodologies

- Regression analysis, model analysis utilizing DER-CAM (Consumer adoption model)

5.3 Component 3: Traditional values and practices

- Observation, interview, and literature review on values and practices of indigenous communities in selected countries in Asia.
- Workshops to review the values and practices studied, and to examine their policy implications

6. Value Added (including “Relationship with IGES Core Competence”)

Many studies on developing countries’ climate policy have been conducted in the context of sustainable development, and several studies assess the technical potential of developing Asia to reduce their emissions drastically. However, little work has been done on assessment of Asia’s potential for achieving low carbon and sustainable development in the context of domestic institutions, mechanisms for technology leapfrogging, and values systems. This research fills the gap on previous research by analyzing low carbon and sustainable development paths through the aforementioned perspectives.

(Relationship with IGES Core competence)

IGES has developed the following core competence in relation to the theme of low carbon society:

- 1) Research focus on global environmental issues over Asia-Pacific region, under which climate change remains to be one of the core research focal areas and strengths of IGES;
- 2) Understanding of low-carbon priorities of developing Asia through a series of Asia-Pacific consultations. Such consultations provided opportunities for IGES to extract and build knowledge on Asian perspectives;
- 3) Diverse expertise and backgrounds of researchers enables IGES to cover diverse topics of developmental patterns, technology leapfrogging and values and practices; and
- 4) The network of policymakers, researchers, research institutions, and international organizations in climate change-related areas.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

This research will be conducted in FY2009-2011, with expectation of the 2-year extension. FY2009 will focus on the case of Indonesia, and FY2010/11 will examine the cases of China and India.¹ A

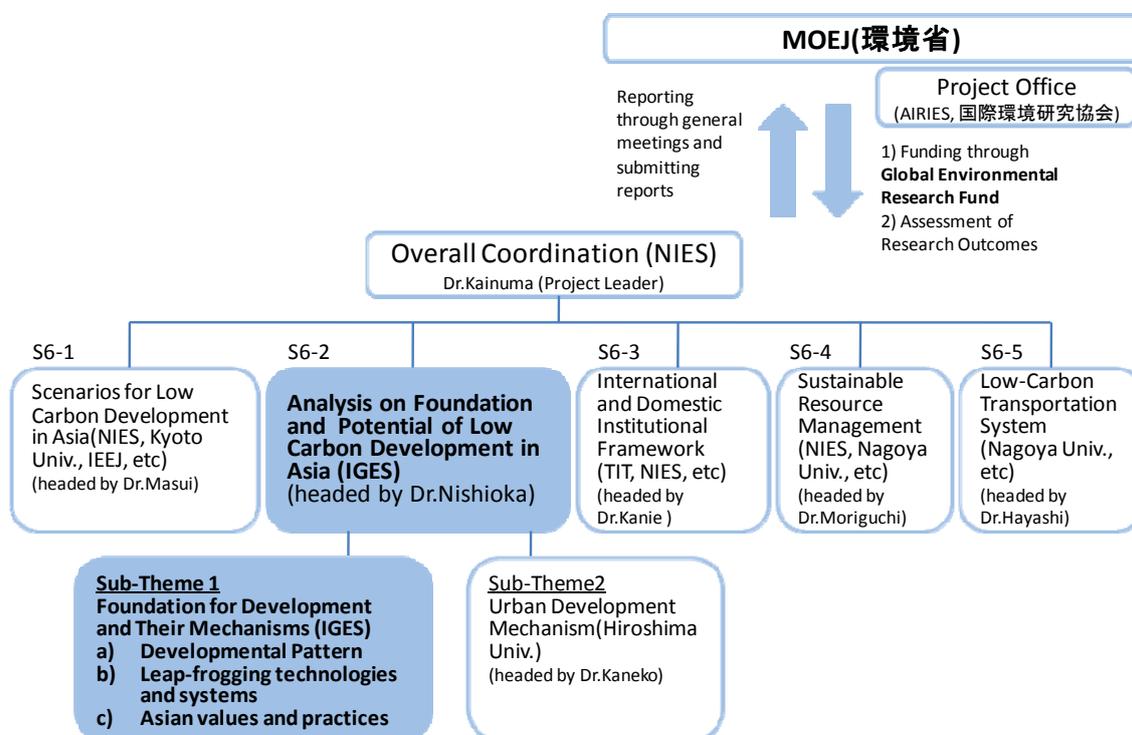
¹ Researchers from those other than the three countries (Korean researchers, for example) will be invited to regional workshops to be organized in the course of this research.

draft report, which will be published as an edited book, is expected to be ready by October 2010 (interim assessment).

FY2009	FY2010	FY2011
Indonesia		
↓	China and India	
	↓	↓
	Interim Report	Synthesis Report

2. Implementation framework

IGES' research activities constitute part of the larger project on low carbon and sustainable development in Asia, as seen in the following figure, and are expected to provide basic analysis of the possibility of low carbon and sustainable development in Asia. As the National Institute for Environmental Studies (NIES) plays the role of an overall coordinator, close contact with NIES is essential.



Research will be conducted in cooperation with partner institutes, such as Bogor Agriculture

University (Indonesia), the Energy Research Institute (ERI) (China), and the Energy and Resources Institute (TERI) (India), where there is local expertise.

(II) Allocation of Human Resources

Each component (i.e. development pattern, leapfrogging mechanisms, and Asian values) of this project would involve two IGES full-time researchers. For the development pattern component, those researchers who are familiar with developmental and equity issues and institutional analysis would be required. For the leapfrogging mechanisms component, those researchers who have good understanding of policy and institutional issues related to technology development, transfer and diffusion in the energy, and transportation sectors would be required. For the Asian values components, those researchers who have expertise in sociological and ideational analysis would be required. The fund resource for this project provides an opportunity to hire a part-time assistant for three years.

Research Component	Human Resources Requirement	Pre-requisite
1) Developmental Pattern	2 full-time researchers (Effort rate: 30%)	Familiar with developmental issues and institutional analysis
2) Mechanisms for Technology Leapfrogging	2 full-time researchers (Effort rate: 30%)	Good understanding of policy and institutional issues related to technology development, transfer and diffusion in the energy and agricultural sectors
3) Traditional Values and Practices	2 full-time researchers (Effort rate: 30%)	Expertise in sociological and ideational analysis
4) Others	Fund source provides opportunity to hire a part time assistant for 3 years	-

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 15 million yen

2. External funds obtained/to be applied

MOEJ Global Environmental Research Fund (Already secured for FY2009-FY2011)

III. Impact Generation

1. Major outputs (research papers and policy papers)

An edited book, peer-reviewed articles, policy papers, discussion papers and policy briefs on following issues are expected.

- Policy recommendations for strengthening select Asian countries' capacities to realize opportunities for achieving sustainable low carbon development in key GHG mitigation sectors.
- Policy options to reform the future climate regime so that it can support sustainable low carbon development in Asia.

2. Influence strategy

The outputs of this research can contribute to the following policy processes in which IGES plays a major role.

- Annual meetings of the Low Carbon Society Research Network (LCS-RNet), for which IGES acts as the international secretariat, would be used as a forum to exchange findings made by researchers in the region on this topic. Details of the LCS-RNet are provided in the project sheet of this Appendix, titled (6) International Low Carbon Society Research Network.
- Asia Pacific Consultation on Future Climate Regime
- US-Japan workshop on Climate Change between MOEJ and US EPA
- Bilateral Climate Change Program Loan (CCPL) operations implemented by the Government of Japan.

The major policy processes to which the outputs of this research are useful include the following:

- International negotiations under the auspices of UNFCCC
- Scientific Assessment Special Study Groups of the Intergovernmental Panel on Climate Change (IPCC) and Global Environmental Outlook (GEO)
- The MoEJ working group on future climate regime

Title: (2) Post-2012 climate regime

I. Research Outline

1. Background (Relevance to Asia-Pacific)

The Copenhagen Accord contains several key provisions with significant implications for sustainable development in the Asia Pacific region. First, non-Annex I Parties (developing countries) commit to implement mitigation actions, which are subject to domestic measurement, reporting, and verification (MRV), reported through National Communications, with international consultation and analysis. Mitigation actions seeking international support are subject to international MRV. The concrete framework of such MRV systems, however, has not been clarified yet. For Asian developing

countries to proactively participate in and feel ownership of the post-2012 climate regime, it is crucial to design an MRV system which is implementable in Asian developing countries. Second, developed countries pledge to approach \$30 billion for the period 2010-2012 and jointly mobilise \$100 billion annually by 2020. Since the credibility of the Accord depends on if developed countries could deliver on their financial pledges, it is critically important to design and operationalise an innovative international financial mechanism. Third, Parties agree to establish a Technology Mechanism to accelerate technology development and transfer. However, the details of the Mechanism have yet to be determined. Fourth, the urgency of enhanced action and cooperation on adaptation, targeting vulnerable countries, is also recognised. However, again, institutional arrangements for prioritising the scope of support and actual implementation need to be clarified. In designing the institutional structure of the post-2012 climate regime, therefore, it is critically important to make timely policy recommendations to shape a climate regime that adequately reflects the concerns and developmental aspirations of the region, and mainstreams climate concerns into development planning.²

2. Objectives

The main objectives of this research are:

- To review the negotiation positions of Asian developing countries³ as to essential building blocks of a future climate regime (e.g., mitigation actions, adaptation, technology and finance, MRV etc.)
- To examine how domestic factors and international negotiations are interlinked
- To consider what kind of international institutions (mechanisms and rules) can be acceptable to and be implemented in Asian developing countries
- To make timely and pragmatic policy recommendations as to the institutional design of the post-2012 climate regime that adequately reflects the concerns and developmental aspirations of the region, and mainstreams climate concerns into development planning.

3. Major components

This research consists of two components:

- Component 1: Comparative/country-case studies of China and India, which can be broken down to the following sub-components:
 - Review of domestic institutional arrangements in issue-areas such as mitigation

² Other than these four, the Copenhagen Accord contains provisions on adaptation and REDD-plus with significant implications for the region. These issues will be addressed by the Natural Resources Management Group. Please refer to Appendix II.

³ The target countries are mainly focused on China and India, but important policies of other developing countries could also be reviewed by inviting experts to the consultation. In collaboration with other partner organizations, negotiation positions of major developed countries should also carefully be watched, as it influences the position of developed countries.

- actions/MRV, technology transfer, finance and adaptation
- Identification of key barriers and potential measures to address such barriers in each issue-area
- Comparative analysis of how different domestic institutional arrangements affect negotiating positions?
- Component 2: Proposals for international mechanisms for MRV, technology transfer and finance (Such proposals will be made, reflecting the outputs of Component 1)
 - Institutional design of international MRV/consultation and analysis system
 - Institutional design of the Technology Mechanism
 - Fund raising and the governance structure of the Copenhagen Green Climate Fund
- Component 3: Contribution to domestic and international policy processes
 - Secretariat for the IGES Working Group on Future Climate Regime (domestic policy process)
 - Asia Pacific Consultations on Future Climate Regime (international policy process)
 - US-Japan Workshop on Climate Change (international policy process)

4. Research questions

- How did the negotiation positions of Asian developing countries with regard to mitigation actions, adaptation, technology finance and MRV evolve over the past negotiations?
- What factors affected the formation of their negotiation positions and preferences?
- What will be domestic obstacles to the implementation of developing countries' mitigation and adaptation actions required by a future climate regime? What would be countermeasures to overcome such obstacles?
- What is the institutional design of international financial mechanisms? How should funds be raised and governed? What should be funded and how? How should finance be MRVed?

5. Methodologies

- Literature review and interviews
- Country case study analysis and international comparative analysis
- Expert consultations

6. Value-added (including “Relationship with IGES Core Competence”)

IGES is one of the foremost institutions already well known for its contributions in bringing Asian concerns to national and international forums. Especially, the analysis of Asian perspectives on post-2012 climate regime is a topic that no other organisation in Asia has attempted to date. Previous work done by IGES took a theme-based approach, but the proposed research will take a country-case

study approach, which is expected to provide more nuanced policy recommendations.

(Relationship with IGES Core Competence)

Core competence IGES has developed so far is the analysis of a future climate change regime from Asian perspectives. This has been very reflected in the second IGES White Paper.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

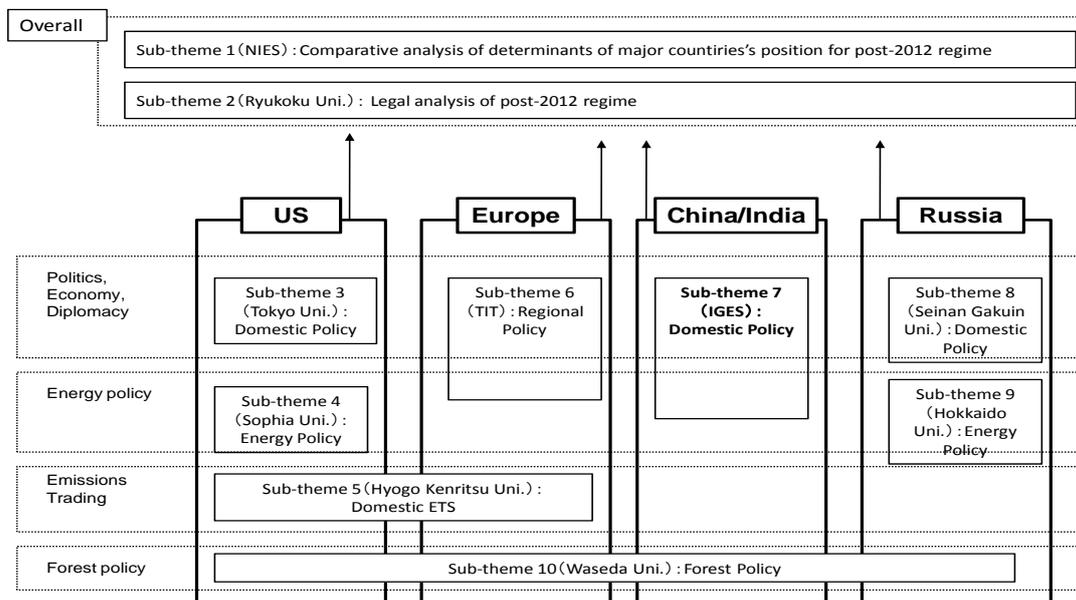
The research will be conducted in FY 2009-2011⁴.

	FY2009	FY2010	FY2011
Component 1	Country case studies (China and India) Issue Briefs	Country case studies (China and India) Issue Briefs Academic papers	Comparative analysis Synthesis Report
Component 2	Int'l regime design Issue Briefs	Int'l regime design Issue Briefs Academic papers	
Component 3	Working groups/ Workshops/ Consultations	Working groups/ Workshops/ Consultations	Working groups/ Workshops/ Consultations

2. Implementation framework

With regard to components 1 and 2, the overall coordination will be conducted by NIES/Ryukoku University, and IGES is responsible for case studies of China and India

⁴ The likely timeframe should be kept in mind depending on the several scenarios after Copenhagen.



With regard to component 3, IGES has been closely working with the Energy Research Institute (ERI), the Energy and Resources Institute (TERI), and the U.S. Environmental Protection Agency (EPA) to organise workshops and policy dialogues.

(II) Allocation of Human Resources

For components 1 and 2, two regular staff and one part-time staff experienced in international relations, political science, legal studies and/or development studies are necessary. They should have climate change related knowledge and Asian features in terms of bureaucracy and diplomacy etc. Effort rate for each is 30%. (The involvement of one expert on adaptation from the Natural Resources Management Group is also expected.)

For components 3, four regular staff and one part-time staff, who have good understanding of future climate regime issues and experience in organising international workshops, are necessary. One administrative staff is also needed. Effort rate for each is 30%.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 27 million yen

2. External funds obtained/to be applied

For components 1 and 2, MOEJ Global Environmental Research Fund is secured until FY2011. For

component 3, effort will be made to obtain contract with MOEJ.

(IV) Impact Generation

1. Major outputs (research papers and policy papers)

Peer-reviewed articles, policy papers, discussion papers and policy briefs on following issues are expected.

- Policy options to make the future climate regime more responsive to Asian concerns and developmental interests
- Guidelines for strengthening the legal, political and institutional frameworks for the climate regime beyond 2012 from an Asian perspective
- Analysis of interlinkage between domestic and international factors on negotiating positions

2. Influence strategy

The outputs of this research can contribute to the following policy process in which IGES plays a major role.

- Asia Pacific Consultations on Future Climate Regime
- US-Japan workshop on Climate Change between MOEJ and US EPA

The major policy processes to which the outputs of this research are useful include the following:

- International negotiations under the auspices of UNFCCC
- Scientific Assessment Special Study Groups of the Intergovernmental Panel on Climate Change (IPCC) and Global Environmental Outlook (GEO)
- The MoEJ working group on the future climate regime

Title: (3) Effective market mechanisms for developing countries in Asia

I. Research Outline

1. Background (Relevance to Asia-Pacific)

Market mechanisms (MMs⁵) for the climate mitigation is an emerging policy framework for the most of the countries in the world, including Asia.

Asia is the region of the fastest growth of GHG emissions as well as the region of the biggest GHG emissions. Mitigating GHG emissions in Asia is crucial for the entire world. At the same time, Asia is the biggest region in terms of the number of clean development mechanism (CDM) projects, designed and implemented under the Kyoto Protocol. The period of the 5th phase is the last three years of the first commitment period of the Kyoto Protocol, and therefore, it is very important for the full implementation of existing MMs, especially in Asia, for the success of the Kyoto Protocol. But it should be also pointed out that the period of the 5th phase will be a preparation stage for the new MMs under the post-2012 climate regime. It is important that the new MMs will be designed so that countries in Asia can participate in a meaningful manner to contribute to the global GHG mitigation.

2. Objectives

There are two major objectives.

Firstly, to facilitate implementation of, and further improve existing MMs for the current commitment period of the Kyoto Protocol in countries in Asia.

Secondly, to propose the new MMs for the post-2012 climate regime.

Thirdly, to facilitate countries in Asia to prepare the implementation of the new MMs.

3. Major components

Identification of problems associated with the existing MMs through consultation with project proponents and policy makers.

Continued updating / development of existing MMs related databases and analysis based on the databases.

Recommendations to improve the existing MMs, based upon above, and suggestions to new MMs operational and effective, drawing upon lessons emanating from the current practice of existing MMs.

4. Research questions

⁵ MMs, in this paper, has two definitions. Existing MMs means Kyoto Mechanisms under the Kyoto Protocol and new MMs means market mechanisms which are discussed under international negotiations for the post-2012 climate regime such as sectoral crediting mechanism, sectoral trading mechanism, NAMA trading, and/or NAMA crediting.

- (i) How can the new MMs contribute to sustainable development in this region, in comparison with the current CDM as being practiced in Asia.
- (ii) How the governance of the new MMs should be strengthened with introduction of effective rules and procedures, based on the experiences of the CDM?
- (iii) How each developing country's government should utilise the new MMs established by the international negotiation into their domestic policies?
- (iv) Can Asia utilise not only project-based MMs but also sector-based mechanisms, policy-based mechanisms, and emissions trading schemes in order to reduce GHG emissions cost-effectively as well as to achieve other political purposes?
- (v) What are the obstacles to utilise the new MMs especially developing countries in Asia and what are measures to overcome such obstacles?

5. Methodologies

Empirical analysis of the real CDM projects in Asia by directly involving project development process.

Consultations with government officials in CDM authority in Asian countries.

Statistical analysis by utilizing IGES CDM related databases.

Direct and indirect involvement in international climate negotiation process.

6. Value-added (including Relationship with IGES Core Competence)

IGES will play a catalytic role among three dimensions, namely international policy making, domestic policy making, and implementing under those policy, which requires expertise for policies and understanding of real projects, and neutral position.

IGES will interpret and facilitate understanding of international negotiation of MMs to domestic policy makers for formulating domestic policy of MMs, and also facilitate understanding of international and domestic policy of MMs to private entities for implementation of projects under MMs. On the other hand, IGES will propose new and/or revised policies of MMs to international negotiators and domestic policy makers based upon the experience gained from project implementation under MM.

(Relationship with IGES Core Competence)

IGES researchers have top level expertise related to the CDM, which have been accumulated by implementing IGES CDM capacity building programme which is the longest CDM capacity building activity in the world.

IGES has established various CDM/JI related databases and continuously been updating and improving, and those databases can be fully utilised for the analysis.

IGES has institutional and human networks which were build upon last seven yeas accumulation of CDM capacity building activities.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

FY2010 Capacity building activities for implementing the existing MMs, and identification of problems associated with the existing MMs.

Continued updating of existing MMs related databases and analysis based on the databases.

FY2011 Capacity building activities for implementing the existing MMs, and proposing new and/or revised policies of MMs.

Continued updating / development of existing MMs related databases and analysis based on the databases.

Assisting preparation of the new MMs in Asia.

FY2012 Capacity building activities for implementing the existing MMs, and suggestions to new MMs operational and effective, drawing upon lessons emanating from the current practice of existing MMs.

Continued updating / development of MMs, including new MMs, related databases

Assisting preparation of the implementation of the new MMs in Asia

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

Overall team structure: One director, two researchers and three visiting researchers, plus two research assistants, two project assistants.

Partner institutes: Yayasan Bina Usaha Lingkungan (YBUL), Carbon and Environmental Research Indonesia (CERI), Winrock International India(WII), the Energy & Resources Institute (TERI), Carbon Finance Solutions Inc (CaFiS), Ateneo de Manila University, Ateneo School of Government (ASoG), Thailand Environment Institute (TEI), Tsinghua University, Cambodian Ministry of Environment, Lao PDR's Water Resources and Environmental Administration of the Prime Miniser's Office, etc.

Role of IGES: Designing overall and implementing plans in consultation with partner institutes. Implementing the plans together with partner institutes.

(II) Allocation of Human Resources

Knowledge on market mechanisms such as the CDM and emissions trading.

Flexibility to accept and conduct, with respect, any miscellaneous tasks which are necessary for the project.

Ability to perform mathematics including matrix calculation using MS excel for statistical analysis.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 211 million yen

2. External funds obtained/to be applied

Effort will be made to obtain a contract from MOEJ.

(IV) Impact Generation

1. Major outputs (research papers and policy papers)

Series of MMs related databases, booklets and tools which can be the infrastructure to facilitate existing MMs and they can be developed as essential tools to propose new ideas for new MMs.

Articles related to existing and new/revise MMs

2. Influence strategy

Proposing policy ideas directly into international negotiation fora and international rule making process (i.e. UNFCCC, CDM Executive Board).

Proposing policy ideas directly to national policy makers in countries in Asia (i.e. Designated National Authorities (DNA) and relevant Ministry staff)

Disseminating and outreaching policy ideas through organising conferences and seminars, and utilizing IGES web site (i.e. CDM workshop, COP seminar, Emission Trading Seminar)

Writing articles in academic journals and IGES publications (i.e. Climate Policy Journal, IGES Policy Brief).

**Title: (4) Institutional Design of an MRV (Measuring, Reporting and Verifiability) System
(On-hold)**

I. Research Outline

1. Background (Relevance to Asia-Pacific)

The Bali Action Plan stipulated that nationally appropriated mitigation actions by developing countries as well as the support provided by developed countries should be measurable, reportable and verifiable (MRV). Under the Copenhagen Accord, non-Annex I Parties (developing countries) commit to implement mitigation actions, which are subject to domestic MRV, reported through biennial National Communications, with international consultation and analysis under clearly defined guidelines that will ensure that national sovereignty is respected. Mitigation actions seeking international supports are subject to international MRV. This concept of MRV has become central to the international negotiations on the post-2012 climate regime, although the concrete framework of an MRV system has not been clarified yet. For Asian developing countries to proactively participate in and feel ownership of the post-2012 climate regime, therefore, it is crucial to design an MRV system which is implementable in Asian developing countries.

2. Objectives

The main goal of this research project is to make an MRV system adequately reflect Asian concerns and interests, and help developing countries in Asia to implement their MRV mitigation actions, which can also be financially and technically supported by developed countries in an MRV way. For case studies, countries will be selected to represent three groups: large emitting countries, middle countries, and least developed countries.

The main objectives of this study are:

- To identify the areas of convergence and divergence in international negotiations over an MRV system, as well as questions that are remained unaddressed, and recommend next steps for negotiators **[if no detailed final agreement will be reached by April 2010]**
- To analyze the operational aspects of an MRV system, and recommend how to implement an MRV system at international, national, and local levels, with special reference to Asian developing countries, and
- To analyze the way through which inventories can support and facilitate mitigation actions in developing countries

3. Major components

The proposed study has three components.

- Delineation of negotiation positions on an MRV system

- Operational and implementation aspects of an MRV system
- Roles of inventories in an MRV system

4. Research questions and activities

- Delineation of negotiation positions on an MRV system
 - What are the negotiation positions with regard to design elements of an MRV system?
 - Where are the areas of convergence and divergence?
 - How we can find compromises in the key elements of an MRV system?
- Operational and implementation aspects of an MRV system
 - Which actions should be measured, reported and verified, and how?
 - How will the support be measured, reported and verified?
 - What should be the function and governance structure of an MRV system (a matching arrangement for mitigation actions and financial support in an MRV way) at international level?
 - What kinds of institutional arrangements are necessary for implementing a MRV system at the national and local levels? What would be obstacles and challenges to implement such a system in selected countries?
- Roles of inventories in an MRV system
 - How could inventories be used to facilitate NAMAs and other mitigation actions in developing countries?
 - What would be major gaps for developing more robust national inventories? How can such gaps be filled?

5. Methodologies

- Literature review
- Case studies with stakeholder interviews

6. Value-added (including “Relationship with IGES Core Competence)

Once an agreement is made on an MRV system, significant demand will arise for policy studies for how to make the MRV system operational and implementable at the international, national and local levels. It is possible for IGES to be the leading research institute in this emerging policy-issue area in the context of Asian developing countries.

- Defining the role of inventories in the concept of MRV will have significant implications for the effectiveness of a post-2012 climate agreement for stakeholders in Asian developing countries.

(Relationship with IGES Core Competence)

- Core competence IGES has developed so far is the analysis of a future climate change regime from Asian perspectives.
- IGES is also in a good position to carry out this kind of studies, as IPCC National Inventory Technical Support Unit is located in IGES.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

	FY2010	FY2011	FY2012
Negotiation positions	●(subject to progress in the negotiations)		
Operational aspects	●	●	●
Roles of inventories	●	●	●

2. Implementation framework

This study is likely to require collaboration with NIES, and other research institutes in Japan responsible for development of Japanese national inventory.

(II) Allocation of Human Resources

This research can be conducted by three researchers (effort rate 30%) and one part-time research assistant. Two researchers should have good understanding of the international climate negotiations over the post-2012 climate regime and mitigation actions in developing countries in particular. One researcher should have good understanding of the negotiation process on GHG inventories as well as technical aspects of GHG inventories. A part-time researcher good writing and communication skills (both Japanese and English) and should be familiar with climate change negotiations in general.

(III) Funding

1. Cost estimate

Cost for future study is not yet estimated.

2. External funds obtained/to be applied

Not yet secured. Although a preliminary study is being conducted in fiscal 2009 mainly on a sub-contract basis as well as in the abovementioned “Post-2012 climate regime” research, adequate external funds have not been obtained for this study. Thus, this study cannot be implemented from the start of Fifth Phase. Given the fact that IGES has accommodated the IPCC TSU for GHG national inventories and has been working with ASEAN Secretariat to make a proposal for an MRV

study to the Japan ASEAN Integration Fund (JAIF), however, this study is hopefully started in the second year of the Fifth Phase, when external funds are secured and appropriate implementation arrangements are made.

III. Impact Generation

1. Major outputs (research papers and policy papers)

Policy papers, discussion papers and policy briefs on following issues are expected.

- Analyzing and overcoming barriers to producing more robust and more frequent inventories in selected developing countries

2. Influence strategy

The outputs of this research can contribute to the following policy process in which IGES plays a major role.

- Asia Pacific Consultations on Future Climate Regime
- US-Japan workshop on Climate Change between MOEJ and US EPA

The major policy processes to which the outputs of this research are useful include the following:

- International negotiations under the auspices of UNFCCC

Inventory capacity-building programs under the Kobe Initiatives.

Title: (5) A Co-benefit Approach in Asia

I. Research Outline

1. Background (Relevance to Asia-Pacific)

Many policymakers in developing countries in Asia confront the same problem. On the one hand, they recognize that early climate actions are needed to achieve steep reductions in greenhouse gases (GHGs). On the other hand, they are reluctant to invest in those actions because they face more imminent developmental challenges. For the past few years, research has emerged as a recommended solution, namely a co-benefit approach. A co-benefit approach involves implementing projects and policies that mitigate GHGs while simultaneously addressing other development needs such as reductions in urban air pollution. A co-benefit approach can also involve securing support from the future climate regime to address development concerns or re-orienting development assistance to address climate concerns.

Because of developing Asia's rapidly increasing GHGs and closely correlated development challenges, a co-benefits approach has drawn a growing amount of attention in the region. Most of this attention has been reflected in calls for mainstreaming climate change into national development planning or studies estimating co-benefits of GHG mitigation. But neither those advocating mainstreaming nor estimating co-benefits have carefully analyzed the barriers to realizing the results they hope to achieve. This component will conduct policy-oriented research that 1) estimates co-benefits; 2) analyzes the technical, financial and institutional barriers against realizing those benefits; and 3) propose reforms at multiple levels to overcome those barriers. The component will focus on cases in the transport, waste management and building sectors due to their potential for a co-benefit approach as well as the barriers against realizing it.

2. Objectives

The main objectives of this component:

- To estimate the developmental and climate co-benefits of policies and projects in the transport, building and waste management sectors;
- To analyze technical, financial and institutional barriers to realizing co-benefits in those sectors;
- To propose reforms to institutional arrangements and incentive structures at multiple levels to overcome those barriers (with particular attention to the future climate regime and development assistance).

3. Major components

- Co-benefits in the transport, buildings and waste management sectors;

- Co-benefits and the future climate regime.

4. Research questions

- What are the estimated values of co-benefits of key transport, building and waste management projects and policies in developing Asia?
- What are the chief technical, financial and institutional barriers against realizing those co-benefits?
- What reforms to institutional arrangements and incentive structures at multiple levels can help overcome those barriers (with particular attention to the future climate regime and development assistance)?

5. Methodologies

- Cost benefit analysis (CBA)
- Case studies with stakeholders interviewers and field surveys

6. Value-added (including “Relationship with IGES Core Competence”)

There is an emerging consensus that a co-benefit approach has considerable potential to reduce GHGs and deliver other developmental benefits. This consensus has led organizations to advocate mainstreaming climate change into development planning and researchers to estimate co-benefits of GHG mitigation. Few studies, however, have carefully examined the barriers to realizing co-benefits. The value added of this research is that it will not only estimate co-benefits but also identify barriers and propose countermeasures at multiple levels.

(Relationship with IGES Core Competence)

IGES has been conducting research on co-benefits for nearly three years. Several research teams are conducting studies on co-benefits, including ongoing work on co-benefits in the transport, waste management, and transboundary air pollutants (including short term warming agents). The study will also overlap with work in the white paper on the multiple linkages between climate change and sustainable development.

Moving forward greater facility with estimation tools and techniques will be needed, and will hopefully be acquired through a recently initiated project on transport co-benefits with Nihon University.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

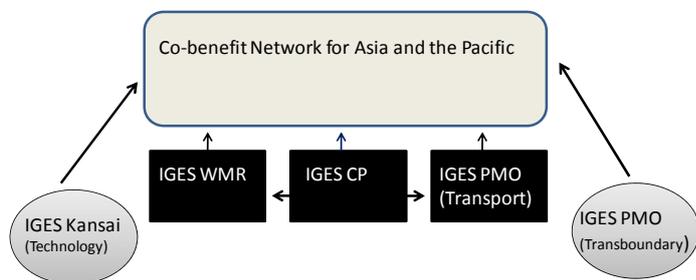
1. Time frame

- The research will be conducted in FY 2009-2011. The research will spend approximately one year on the transport, waste and buildings respectively. For the entire three year period, research will relate findings to developments in the international climate negotiations and development aid (see chart below).

	FY 2009	FY 2010	FY 2011
Component 1	Transport		
		Waste Management	
Component 2			Buildings
	Future Climate Regime		

2. Implementation framework

The component will work closely with researchers in other projects where there is a substantive expertise; there will also be collaborations with partner institutes in host countries and technical support from researchers in Japan (such as an ongoing project with Nihon University).



(II) Allocation of Human Resources

The project would ideally provide for two researchers (effort rate 30%) and a part-time research assistant meeting the following qualifications.

Researcher 1

1. familiarity with co-benefits, policy analysis, climate change negotiations (especially market mechanisms) and development assistance;
2. experience conducting field work on climate, development or another relevant policy areas in Asia.

Researcher 2

1. familiarity with estimation techniques such as cost benefits analysis or multi-criteria analysis;
2. familiarity with energy and GHG modeling.

Part-time Research Assistant

1. good writing and communication skills (both Japanese and English);
2. familiarity with climate change negotiations and sustainable development.

(III) Funding

1. Cost estimate

Budget for activities of FY2010: 15 million yen

2. External funds obtained/to be applied

- Possible funding from MoEJ for the creation of a co-benefits network;
Possible funding for continued support of MoEJ-USEPA co-benefits workshop

III. Impact Generation

1. Major outputs

Peer-reviewed articles, policy papers, discussion papers and policy briefs on following issues are expected.

- Analyzing and overcoming barriers to co-benefits in key sectors

2. Influence strategy

The outputs of this research can contribute to the following policy processes

- Asia Pacific Consultation on a Future Climate Regime
- US-Japan workshop on Climate Change between MoEJ and US EPA

The major policy processes to which the outputs of this research are useful include the following:

- International negotiations under the auspices of UNFCCC

In addition, IGES is currently proposing setting up an Asia Co-benefit Forum, involving major stakeholders in the region. Findings of this study are expected to be fed into this new forum.

Title: (6) International Research Network for Low Carbon Societies (non-research activity)

I. Outline

1. Background (Relevance to Asia-Pacific)

To realize long-term goals of large-scale GHG mitigation that is necessary to stabilize the atmospheric concentration of GHG with the acceptable level, it is necessary to change the current socio-economic structures and transition to low-carbon societies. In so doing, it is necessary for all the countries to have a clear vision of their own low-carbon societies. With the general recognition on this, International Research Network for Low Carbon Societies (LCS-RNet) was set up with G8 and outreach countries to promote research on low-carbon societies as a part of Kobe Initiative which was agreed at the G8 Environment Ministers Meeting (G8 EMM) held on 24-26 May 2008 in Kobe, Japan.

The network was set up to be a part of international initiatives aiming to solve the most urgent global issues of climate. At Kobe, it was also agreed to set up the Secretariat of the Network in IGES which is one of the participating research institutions to the Network from Japan.

In April 2009, the first researchers' meeting was held in Trieste, Italy that holds G8 presidency in 2009. Summary of the Meeting was forwarded to the G8 Forum that was held as a part of the G8 process and subsequently, to Italian G8 EMM held in April 2009. G8 EMM welcomed the successful launch of the Network and requested to report its findings and progress in future G8 EMM processes. The Inaugural Meeting (the 1st Annual Meeting) of the LCS-RNet was held on 12-13 October 2009, organised by the CMCC with the support of the Ministry of the Environment, land and Sea. The Synthesis Report of the main findings and the discussion of the Meeting was published by the OGES for the LCS-RNet and presented at the Side Event of the COP15 in December 2009.

2. Objectives

The overall objectives of the LCS-RNet were set as follows.

- Promote information exchange and research cooperation that covers various issues relating to low carbon societies (LCS).
- Promote understanding of LCS dialogues between researchers and various stakeholders including policy-makers, businesses, citizens, and others to share national and sub-national visions on low carbon societies.
- Contribute to international policy-making processes on climate change such as G8 and other high level policy processes by providing research outcomes and recommendations.

The Secretariat of the LCS-RNet will provide a secretariat function for a smooth and efficient operation of the Network. The Secretariat will also oversight the time schedule of the activities of the Network and the timely delivery of its products.

Separately from the activities directly related with the LCS-RNet, LCS-RNet will provide opportunities of capacity building for LCS related research in developing countries,

Research activities to gather and analyse LCS related information over the globe are also one of the objectives of the LCS-RNet Secretariat in Japan provided that the necessary resource is to be made available.

3. Major components

1) Activities directly related with LCS-RNet

- Activities, publication, and promotion of LCS-RNet
- Contribution to international policy processes for the climate change including G8 and the UNFCCC
- Organising Stakeholders dialogues with wider communities including businesses to provide substantive input to the LCS-RNet

2) Promotion of LCS related research in Asia and other developing countries

3) Collection and analysis of LCS related research and relevant information in various countries and regions

4. Major activities

1) Activities directly related with LCS-RNet

- Annual Meetings of the LCS-RNet
 - International symposia and stakeholders meetings relating to LCS
 - Reporting findings from above to G8 EMM and in UNFCCC COP side events
 - Steering Group meetings of the LCS-RNet
 - Publication: Reports of annual meetings, symposia, special issue journal on LCS research
 - Maintenance of LCS-RNet website
 - Development and maintenance of database of LCS research
 - Promotion materials of LCS-RNet including news letters
- 2) Promotion of LCS related research in Asia
- Local workshops on LCS in developing countries
 - LCS-RNet internship for researchers and government officials of developing countries to learn methodologies of LCS related research
- 3) Promotion of LCS related research in developing countries over the globe
- Encourage more research institutions and researchers of developing countries over the globe to participate in the LCS-RNet
 - Promotion of various research collaborations including dialogues with research institutions and researchers in Asia and other developing countries
- 4) Research cooperation and capacity building in developing countries, that includes internship and IGES/NIES and other LCS-RNet research institutions

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

LCS-RNet activities: five years (FY2009 - FY2013)

2. Implementation framework

Partner institutes:

Research institutions registered through governments:

e.g.: member institutions as of April 2009; ADEME, IDDRI, and Academie de Technologie (France), ENEA and CMCC (Italy), Wuppertal Institute (Germany), NIES and IGES (Japan), NIER (Korea, Republic of.), UKERC (UK) Steering Group of LCS-RNet that consists of some of member research institutions.

Steering Group:

Research Focal Points (representing each participating country) from G8 countries and from some more countries forms the Steering Group of the LCS-RNet to be responsible for the management of activities. The Steering Group has a Bureau consists of two or three Co-Chairs.

Role of IGES:

IGES provides Secretariat of the LCS-RNet, who is responsible for the smooth operation of the activities and the management of timeframe, assisting the Steering Group and Co-Chairs.

(II) Allocation of Human Resources

The Secretariat of the LCS-RNet consists of secretary general (part time), researchers (1 or 2 full time and 1 half time), and are needed to cover;

- Expertise of technical and policy related fields of GHG mitigation
- Experience of international research collaborations and technical support to research activities on climate change
- Knowledge of/experience dealing with political sensitivities of climate change and international processes
- Technical knowledge on database operated on the website.

In addition, one visiting researcher (full time), and research assistant (1 full time) are needed to be responsible, or to assist, assigned tasks including;

- Organizing meetings,
- draft/prepare the reports and promotion materials,
- develop/maintain database and the website,
- and other administrative affairs including the budgetary matters, travel arrangements, etc.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 56 million yen

2. External funds obtained/to be applied

Core fund :

Effort will be made to obtain a contract from MOEJ.

Costs necessary for LCS-RNet activities to be held in developed countries such as annual meetings will be covered by host countries.

III. Impact Generation

1. Major outputs (chair's summary and other synthesis documents, database, good practice etc.)

Annual Meeting report

Stakeholder's Meeting report

LCS-RNet Annual reports

Database on LCS research

Special issue journal on LCS research aiming to publish in 2011-12.

LCS-RNet Interns

2. Influence strategy

(How the network/process related activity is linked to IGES research projects, and how the proposed activity is related to other important regional/global processes.)

LCS-RNet can provide opportunities of information/knowledge exchange with wider research communities to IGES research projects, especially to projects whose scope includes the GHG mitigation and pathways to achieve low carbon societies. LCS-RNet can also provide the access to the international political processes, such as G8/G20.

Natural Resources Management Group

Title: (1) Payment for Ecosystem Services

I. Research Outline

1. Background (Relevance to Asia-Pacific)

Conservation and sustainable use of world's biodiversity is the most serious challenge as well as climate change in the world. The biodiversity hotspots hold especially high numbers of endemic species, but each hotspot faces extreme threats and has already lost at least 70 percent of its original natural vegetation. Over 50 percent of the world's plant species and 42 percent of all terrestrial vertebrate species are endemic to the 34 biodiversity hotspots

Biodiversity in Asia and the Pacific region is one of the world's richest. This region, with much of the unique and rich fauna and flora, has 14 hotspots including Himalayas, Japan and Pacific Ocean of 34 global hotspots. But there are many threats to the biodiversity in the region and the known impacts on the biodiversity are likely to be just the tip of the iceberg, owing to the paucity of research report and data, as MEA (Millennium Ecosystem Assessment) and TEEB (The Economics of Ecosystem and Biodiversity) report pointed out.

For biodiversity conservation, countries have designated many types of protected areas and regulated many kinds of species in the world but the world is still losing species and ecosystems so far due to mainly lack of the government budget and governance, low political priority within the government, non-economic incentives for conservation. Modern global consumption and production patterns by the private sector are underpinned and depend on ecosystems all over the world. Since there are no markets for most of the public goods and services from biodiversity and its services, their costs and benefits often fall to different actors or different levels, as with all externalities. The main guardians for nature have been the public sector or local people so far, thus, there is little private compensation and reinvestment in maintaining and conserving natural resources. There is a recognition that social and economic injustice persists in the world among those who lose, and those who benefit from biodiversity. Innovative economic tools together with regulative and other policy instruments for the conservation of biodiversity could provide possibilities by which such injustice is to be corrected at least to partially.

In the CBD process, many policy tools for the conservation of biodiversity have been proposed and discussed. Innovative economic and financial mechanisms have been explored to resolve above mentioned challenges, and this research proposed for the fifth phase will be a part of international effort being made under CBD. Toward CBD/COP10 in 2010 in Nagoya, any sound analysis and effective design of the Green Development Mechanism (GDM) and/or Biodiversity Offsets are considered useful. Innovative economic mechanisms will be negotiated together with a multidisciplinary strategy such as the Post 2010 Target, to come up with political, socioeconomic and scientific decisions by all major stakeholders at COP 10.

2. Objectives

The overall objective is to help address the loss and degradation of biodiversity by coming up with innovative economic instruments as applied internationally through international conventions like CBD, in addition to designation of protected areas and regulation of species under CBD and other MEAs processes.

Research objectives are:

- To identify policy measures including economic instruments to promote sustainable biodiversity conservation, and
- To clarify the cooperation mechanisms for biodiversity conservation in the use of economic instruments mainly in the CBD process.

3. Major components

♦ The major components are:

Component 1: Baseline study of biodiversity situation, its evaluation of ecosystem services to utilize economic instruments and its governance in Japan and Asia and the Pacific.

Component 2: In-depth study on policy measures for better biodiversity management (The theme(s) of the in-depth study will be identified/selected through the discussion with governments and cities.)

<Theme 1> Comparison of economic tools and other tools such as regulative, voluntary tools in more effective conservation of biodiversity based on PPP and BPP

<Theme 2> International/Regional/National Innovative Financial Mechanisms as Payment for Ecosystem Services (PES), Biodiversity Offsets, Certification Systems

<Theme 3> Good management practices to protect water resources for drinking water between upstream and downstream watershed area as payment for ecosystem services and its possible application to Asian countries.

<Theme 4> Utilization of economic instruments to promote sustainable production and consumption of bio-products including assessment of the impacts to the poor (including a case study in Thailand).

<Theme 5> City and Biodiversity: Trans movement of ecosystem services between city and other areas including overseas.

4. Research questions

Component 1.

1. What are essential ecosystem functions and services at various geographical scales, from global, regional, national, and local?

2. What are essential elements of sound governance for ecosystem conservation at the global, regional, national and local levels?

* JISE has much experience and knowledge.

Component 2.

1. What kinds of indicators are considered appropriate for medium/long term biodiversity policies and targets (e.g. Post 2010 biodiversity targets)?

2. How can we measure, evaluate and price ecosystem functions and ecosystem services?

3. Do economic instruments including international innovative financial mechanisms such as GDM promote rational biodiversity conservation and sustainable use and equitable allocation of benefits from biodiversity and ecosystem services? What are the enabling conditions to implement such economic instruments?

4. What kind of economic instruments are more effective in conserving biodiversity and its sustainable use?

5. What should be appropriate regional/sub-regional cooperation on biodiversity in Asia and the Pacific? What kinds of inputs are considered useful in merging policy forums in the region, including the East Asia Summit, and the ASEAN Environmental Ministers Meeting?

5. Methodologies

- Literature survey
- Interviews/questionnaire survey with international/country/local experts
- Case studies and situation analysis
- Meta-analysis
- Cost-benefits/economics analysis (when necessary)

6. Value-added (including “Relationship with IGES Core Competence”)

International as well as national economic policies have not yet internalised external diseconomy associated with biodiversity and other ecosystem services. This contrasts with at least partial internalization realized by the Kyoto protocol for carbon emissions/sequestration. Given this imbalance, an idea of GDM, an innovative financial mechanism like CDM, is now under consideration in CBD process. This study is intended to examine

such new policies, thus considered as a frontline study in Japan and Asia.

(Relationship with IGES Core Competence)

The Institute for Global Environmental Strategies (IGES) – current FC, FW, EA and JISE have experience and knowledge in biodiversity and biodiversity economics.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

FY2009: Literature survey,

Interviews/questionnaire survey with international/country/local experts.

Case study of wetland evaluation.

Contribution to TEEB activities and CBD process.

FY2010: Case studies (cont.).

Interim report

Case study fact sheets preparation (for CBD/COP10)

FY2011: Compilation and synthesis

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

IGES team (5-6 persons)

- A person with enough knowledge of biodiversity economics issues in Asian countries: Dr Managi/IGES research fellow in cooperation with EA group
- Persons with the expertise of legal studies/political science.
- A person with the expertise of economics (especially pricing issues): one from EA
- A person with the expertise of financial economics: to be employed
- Short-term local consultants in target countries will be hired in the first year for the baseline survey: to be sub-contracted

Partner Institutes:

- Nagoya University, Kyoto University etc.
- TEEB Secretariat
- CBD Secretariat
- IUCN
- UNU/IAS
- ASEAN Biodiversity Center
- TEI and other Research Institutes in Asia

(II) Allocation of Human Resources

A senior staff with the expertise on economic valuation of ecosystem services, and also on economic instruments applied to the sound management of natural resources. Other experts are also needed who are specialized on forest management, freshwater management and restoration of degraded ecosystems.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 14 million yen

2. External funds obtained/to be applied

The above cost is expected to be covered by MOEJ Project budget, “Environmental Economy Study Project”.

III. Impact Generation

1. Major outputs (research papers and policy papers)

- Research papers to academic societies and international societies
- Policy papers
- Synthesis report (research report)
- Case study fact sheet

2. Influence strategy

Outputs of the research will be shared with various international/national stakeholders. In particular, they will be submitted to TEEB and the CBD Secretariats for help formulate and discuss relevant international schemes. The research result will be expected to be useful inputs into other international conferences and processes such as the East Asia Summit, and the Japan-ASEAN Environmental Ministers Meeting.

(2) Adaptation: Research on adaptation policies, adaptation metrics, and identifying win-win adaptation options

I. Research Outline

1. Background (Relevance to Asia-Pacific)

The Asia Pacific region has been projected to face a broad range of climate change impacts and more significantly on agriculture, water, forests and coastal areas. The factors that make this region vulnerable to climate change impacts include:

- high livelihood dependence on climate sensitive primary sectors such as agriculture, water, forestry, and animal husbandry;
- poor development of security nets such as crop and asset insurance against climatic vagaries;
- poor availability and access to resources including quality land and water for livelihood activities, dwelling etc;
- urban and rural infrastructure that is either in the high vulnerable geographical areas or are made vulnerable due to poor structural standards, or are simply near-non-existing consideration of climate change impacts;
- poor governance and institutional mechanisms to plan and implement policies and actions; and
- lack of dependable climate projections and early warning information and decision making tools for vulnerability assessment and adaptation decision making.

These vulnerability factors often reflect in terms of high economic and life losses during disasters, poor coordination in responding to vagaries, or in taking preventive actions, and long time to recover to normal developmental course. This multidimensional problem requires an equally multidimensional and robust approach to build adaptive capacity in the region.

There are several opportunities for adaptation, both within and outside the climate regime under UNFCCC. The future climate regime could offer significant opportunities such as finance including risk spreading instruments, technology transfer, and institutional mechanisms that support efficient utilization of resources for adaptation by helping identify and prioritize adaptation actions. Bali Action Plan stressed that such opportunities be explored and promoted through international cooperation. Other opportunities could be made available by a variety of means including risk insurance, price incentives including pricing of water and ecosystem services, especially those services related to adaptation etc through innovative public private partnerships and other means. Even if financial and technical supports are made available, as emphasized by the Nairobi Work Program, Asia Pacific region may largely be unable to utilize the support effectively due to lack of institutional and human resource capacity which means that there is a need for capacity building to effectively utilize the vast growing opportunities for adaptation.

While there are immense opportunities for adaptation, the same calls for an effective monitoring and evaluation

system that tracks the progress in adaptation, and answer the questions such as how effective particular adaptation options are and what makes certain policies effective for adaptation while others not. Immense financial and other resources invested in adaptation calls for an objective measurement and reporting of progress an inevitable eventuality.

2. Objectives

- (a) Adaptation metrics: To prioritize metrics those will help in identifying best adaptation actions in agriculture sector including freshwater for agriculture,
- (b) Decision making frameworks for identifying win-win adaptation options: to develop a decision making framework using the above metrics for helping decision makers for identifying win-win adaptation actions, and
- c) Networking: to disseminate the knowledge generated using the UNEP Asia Pacific Adaptation Network.

Relationship between objectives: The prioritized adaptation metrics (objective a) will help in developing a decision making framework (Objective b). This knowledge will be disseminated through a network (objective c).

3. Major components

- a) Component 1: Measuring progress in mainstreaming adaptation through adaptation metrics
 - Case studies to evaluate climate change adaptation in the Gangetic basin (There is a possibility that the case study locations may be subject to change during the approval process of S8 (*Suishinhi*) application).
 - Characterizing adaptive policies and identify enabling conditions for these policies.
 - Identification of barriers to mainstreaming climate change adaptation and development of guidelines for mainstreaming.
- b) Component 2: Identification of win-win solutions (adaptation policies and actions) to reduce climate change risks by taking into consideration the uncertainty aspect of the projected climate change impacts.
- c) Component 3: Dissemination of adaptation policy advocacy and related services via the Network.

4. Research questions

- a) What are the means of measuring progress in adaptation including to assess the extent to which mainstreaming has been done? What are the methods available and what is the way forward to operationalize the same?
- b) What are the characteristics of win-win adaptation options? How win-win adaptation options be identified? What framework can help in identification of such options? How these frameworks be developed and operationalized? What are the limitations to identify such win-win adaptation options?
- c) What are the characteristics of adaptive policies? How these policies can be made and implemented? What

is our current understanding in this and how to further the same?

- d) What are the technical, institutional and regulatory barriers to mainstreaming adaptation in agriculture and water sectoral planning?

5. Methodologies

- 1) Literature review, surveys including participatory appraisals.
- 2) Conduct case study in Nepal, Bangladesh, India in Gangeic basin (There is a possibility that the case study locations may be subject to change during the approval process of S8 (*Suishinhi*) application).
 - a) Comparative assessment of available adaptation policies and actions including water storage options, through comparative case studies
 - b) Multi-criteria analysis/Analytical Hierarchical processes/Delphi Surverys/Cost-benefit analysis of adaptation actions/projects/programs wherever necessary
 - c) Cost-benefit analysis (CBA) of adaptation actions (mostly projects and individual technologies) will be assessed to see if CBA can be used as a multi-criteria method to identify successful adaptation options at different levels. For the CBA of adaptation policies, sector wide analysis would have to be done.
 - d) Expert consultations and research-policy dialogues to identify win-win options and for dissemination of outputs.
 - e) Survey of adaptation practices to see if win-win adaptation options framework can be evaluated

6. Value-added (including Relationship with IGES Core Competence)

- 1) The project would further develop our understanding of mainstreaming adaptation at the sectoral level planning by identifying the bottlenecks to adaptation and identifying solutions for effective mainstreaming.
- 2) Measuring progress in mainstreaming adaptation and conditions necessary for it have not received much attention so far in the region and this project would contribute to the same.

(Relationship with IGES Core Competence)

IGES has been working on identification of barriers for adaptation as a part of its Post 2012 regime work as well as its recent work on adaptation metrics project of the World Bank. The staff involved has deeper understanding and expertise on mainstreaming adaptation in natural resources and disaster risk reduction sectors and understands a broad range of issues hindering adaptation decision making and mainstreaming in the region including several publications on this subject.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

Component 1: Adaptation metrics: Measuring effectiveness of adaptation and progress in mainstreaming adaptation

Year I: Identification of case study locations and identification of adaptation measures:

- Three case study locations one each in Western (India), Central (Nepal) and Eastern Gangetic Basin (Bangladesh) (There is a possibility that the case study locations may be subject to change during the approval process of S8 (*Suishinhi*) application) will be identified.⁶ Presence of such diversity of case study locations is important for the study for checking the relevance of identified metrics under broad range of social, economic and environmental conditions.
- The case study locations within east, central and western Gangetic Basin (There is a possibility that the case study locations may be subject to change during the approval process of S8 (*Suishinhi*) application) will be identified by using criteria such as presence of adaptation practices, access to local collaborators and prevalence of specific conditions such as presence or absence of improved agricultural technologies, presence or absence of assured freshwater supply for agriculture.
- Identification of adaptation measures: A list of adaptation measures being implemented in agriculture and freshwater for agriculture in the study locations will be prepared.

Year II: Prioritization of metrics:

- A group of economic, social and environmental metrics, including cost-benefit analysis, will be identified for the above adaptation measures through literature survey, expert consultations, and field survey techniques.
- These groups of metrics will further be prioritized using multi-criteria decision analysis (MCDA) methodologies such as analytical hierarchy process (AHP) using tools such as Decision Lab. Qualitative data from participatory processes such as focused group discussions (FGDs) will be analyzed using tools such as NVIVO or similar concepts whenever necessary. Stakeholder consultations and expert elicitation processes will be employed for identifying weights for each metric during prioritization process. A comparison of metrics prioritized in the three case study locations will be done to see if any of the metrics are common across three locations. This will help in identifying some common metrics as effective under broad range of conditions such as seen in the Gangetic Basin.

Year III: Operationalization of metrics:

- Operationalization involves taking into consideration the prevailing conditions of institutional capacity, decision making processes including reporting procedures, capacity to collect data required

⁶ Different parts of Gangetic Basin differ in terms of spread and access to agricultural technologies, institutional capacity, agricultural infrastructure, economic development and availability of production resource such as freshwater. Western Gangetic Basin represents a region of wellbeing and the Eastern Gangetic Basin as a region of poverty and impoverishment. The central region is transitional in nature. Such diverse conditions help in identifying a similar metrics those are effective under broad range of conditions as seen in Gangetic Basin.

for regular monitoring purposes etc.

- The operationalization process may further involve simplification of already identified metrics with the help of consultations with local administration and development professionals.

Component 2: Decision making framework for identification of win-win adaptation options:

- Year I: Review of existing decision making frameworks: Literature review will be carried out to identify different approaches for adaptation decision making. Some prominent adaptation decision making frameworks available include UNDP Adaptation Policy Framework and United Kingdom Climate Change Impacts Program Adaptation Decision Framework.
- Year II: Identification of strengths and weaknesses:
 - Available frameworks will be compared and assessed for their suitability to decision making in the case study locations. Comparison of framework will be done by setting a criteria that include aspects such as target groups addressed, capacity needs to implement, financial needs, informational needs etc.
 - Expert elicitation/consultation processes such as Delphi surveys will be used to judge and arrive at a consensus on the framework elements suitable for the region. For this purpose, a panel of peers comprising of those involved in developing these frameworks as well as those have better understanding of the study region will be established.
- Year III: Development of better decision making framework based existing decision frameworks: Better decision making framework will be proposed that uses the above identified metrics. This requires matching of above identified strengths and weaknesses with circumstances in the study region, and modify the framework. Then, the final framework will be introduced to the decision makers, in a feedback workshop, for their feedback on its operationality.

Component 3: Networking (UNEP Asia Pacific Climate Change Adaptation Network)

- Year I-III: Dissemination of research outputs through the network by conducting regional adaptation forum in the third year and 5th year of the project

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

This study will comprise a part of a comprehensive study on adaptation. The comprehensive study is composed of (i) Down-scaling of climate change impacts, (ii) Response strategies by local governments in Japan, and (iii) Response strategies in selected sub-regions in Asia. The IGES study belongs to the third component of the overall study. The third component will be coordinated by Ibaraki University in Japan. Ibaraki University will conduct a similar study on Mekong sub-region. Specific responsibility of IGES is outlined below.

Case study countries: Proposed countries could include Indo-Gangetic Plain countries such as Bangladesh,

India, and Nepal (There is a possibility that the case study locations may be subject to change during the approval process of S8 (*Suishinhi*) application).

1. **Sectors:** Water and agricultural sectors
2. **Collaboration:** Potential collaborators could include ICIMOD, Nepal; Ibaraki University, Japan; TERI, India (These collaborators are subject to change if the geographical location of the study would be changed during the approval process of the *Suishinhi* application).

(II) Allocation of Human Resources

- Three Policy Researchers.
 - One researcher familiar with the adaptation metrics, agriculture and water sectors, disaster risk reduction and institutional analysis; and another researcher providing support on economic aspects of adaptation metrics component including economy-/sector-wide cost-benefit analysis of adaptation options.⁷
 - One researcher who has enough expertise in water management to implement and coordinate the Himalayan water storage options case study (to be implemented by the freshwater group). Details will be further reviewed in the process of securing the external funds.
- The APN project provides opportunity to hire a part-time assistant for part of the time for three years. In addition, a project assistant/intern help would be necessary during the times when part time assistant couldn't be hired.

Note: Efforts would be made to use the opportunity of JSPS postdoctoral fellowship program to get a postdoctoral fellow or find possibilities of bringing students in Japanese universities onboard to do part of their thesis work on some components of the proposal.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 8 million yen

2. External funds obtained/to be applied

- APN would support IGES for approximately 7,100,000 yen for 3 years for data collection and analysis and research-policy dialogues. No permanent staff costs would be covered under APN funded components. Additional finances would be necessary, to the tune of about 15000 USD or more as promised in the APN project proposal as a means of matching funds, for organizing AP Regional Research Policy Workshop in third year of APN project for which a concerted effort would be made along with other project partners.

⁷ It is expected that this economist will also participate in other adaptation related proposals and partly in the co-benefits related work.

- Effort will be made to obtain from the Global Environment Research Promotion Fund of MOEJ.
- For the water storage options related case study in Himalayan region, financial resources will be explored.

III. Impact Generation

1. Major outputs (research papers and policy papers)

- Adaptation metrics: a set of ranked metrics for choosing adaptation options in agriculture sector including freshwater for agriculture.
- Decision making frameworks for identifying win-win adaptation options.
- Guidelines for policy makers, non-governmental organization, etc. for application of the developed methodology.
- Peer reviewed journal papers (e.g. Climatic Change, Climate Policy, Mitigation and Adaptation Strategies for Global Change, Natural Hazards) book chapters, conference papers, policy briefs and research reports would be published.

2. Influence strategy

Findings of this study will be fed into the Asia Adaptation Network, in which IGES plays the role of overall coordination. The Asia Adaptation Network is linked to the Global Adaptation Network of UNEP.

Title: (3) Forest Conservation through REDD and the Forest Products Trade

I. Research Outline

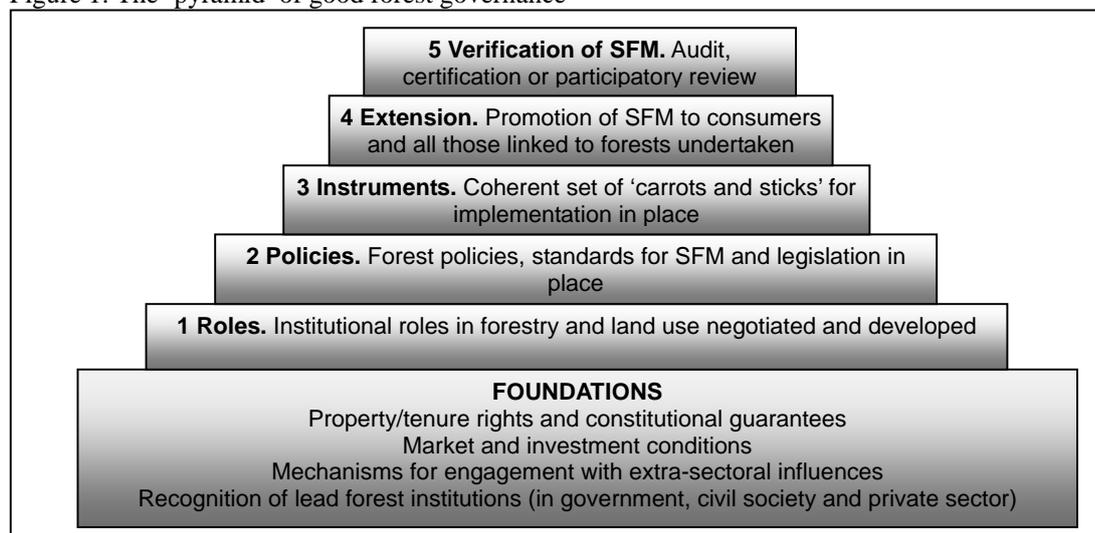
1. Background (Relevance to Asia-Pacific)

The FAO estimates that globally about 13 million ha of forest are lost every year, the consequences of which include loss of livelihoods, cultural assets and knowledge; rising inequality associated with the concentration of forest resources in fewer hands; loss of the forest asset base for national development; and loss of a broad range of ecosystems services including climate protection, biodiversity, and stable landscapes for agriculture and human settlement.

In any one locality there are usually combinations of underlying drivers (e.g. poverty, weak governance) and proximate causes (e.g. forest clearance for land development, shifting agriculture) of deforestation to which policy solutions must be tailored. One fundamental observation is that achieving sustainable forest management will continue to be difficult unless the incentives to conserve forests are raised to at least match the incentives to degrade or clear forests for other land uses. Deforestation is driven by both local people who have no other economic alternative but to convert forests for agriculture as well as by land developers who stand to gain more financially by converting forestlands to palm oil, pulp wood and rubber plantations, cattle farms, and other types of industrial agriculture. Forest degradation, which is also a major environmental problem in many Asia-Pacific countries that can lead to complete land-use change, is driven by the over-extraction of forest products by local people for their subsistence as well as by logging companies that seek profit through harvesting beyond their annual allowable cuts, felling in environmentally sensitive areas, etc.

Incentive instruments can contribute to forest conservation and sustainable forest management, but they alone will be insufficient. They are likely to be most effective when constructed upon the foundations of a strong legal and policy framework, including policy coherence within the forestry sector and between sectors, a transparent process of rights allocation, effective forest law enforcement, fair treatment of customary claims to forest lands and resources, accountability at local and national levels, cross-sectoral planning, etc. (Fig. 1).

Figure 1: The 'pyramid' of good forest governance⁸



The proposed research considers both incentive and regulatory instruments for sustainable forest management.

⁸ From Higman, S., Mayers, J., Bass, S., Judd, N. and R. Nussbaum. 2005. *The sustainable forestry handbook*. London, Sterling, VA: Earthscan.

It focuses on (i) the concept of a new global scheme – reducing emissions from deforestation and forest degradation in developing countries (REDD) – to promote the role of forests in mitigating climate change, and (ii) reforming the trade in forest products to support legal forestry operations and sustainable forest management.

REDD

There is optimism that REDD could succeed where other approaches to forest management have failed because it (i) promises extensive performance-based financing, (ii) directs political attention to the issue, and (iii) it promises alignment of the interests of multiple constituencies that may be able to counterbalance what the World Bank has termed the “concentrated interests of forest degradation”⁹. Viewing natural forests merely as stores and sinks of carbon poses significant risks however, just as viewing forests narrowly as commercial stands of trees. Forest management only with a view to carbon sequestration and storage could encourage fortress-style conservation that would deny local communities access to forests, forcing them to endure greater economic hardship and to resort to extralegal activities. An escalation of social conflict, and distorted payment distribution that favours more powerful actors, are other anticipated outcomes. REDD is unlikely to be sustainable under these conditions and must be positioned within the broader perspective of sustainable forest management to achieve positive climate, conservation and developmental outcomes.

Research challenges

The research challenge for REDD includes providing direction on how forest management can (1) achieve real (measurable, verifiable and reportable) and long-term emissions reductions and enhancement of carbon stocks, and (2) ensure that forests committed for REDD serve a broad range of environmental, social and economic functions.

Trade in forest products

Forest conservation objectives will be difficult to achieve unless the forest products trade is significantly reformed.¹⁰ Several reasons explain why trade has contributed to forest loss. First, consumers have “imperfect” knowledge and are unable to distinguish between sustainable and unsustainable forest products. Second, international markets mostly only value forests for their products, not for their wide range of ecological, economic, and social functions. Third, forest law enforcement is often weak in tropical producer countries because of weak governance and inadequate enforcement capacity. These observations are particularly relevant to the Asia-Pacific region where:

- Countries with rich forest resources continue to experience high rates of unregulated forest clearance and illegal logging (e.g. it is estimated that forests were lost in Indonesia at a rate of 1.2 million ha/year during 2000-2005 due, inter alia, to encroachment, unsustainable levels of logging in authorised concessions, and small and large scale illegal logging).¹¹
- Consumption of forest products driven by population and economic growth is increasing with most logs now processed domestically (89.9% in 2007) and 60% of the global trade in sawnwood taking place in Asia.¹²
- China has become the world’s largest importer of forest products, accounting for 61% of tropical log

⁹ Chomitz, K.M., P. Buys, G. de Luca, T.S. Thomas, and S. Wertz-Kanounnikoff. 2006. *At loggerheads? Agriculture expansion, poverty reduction and environment in the tropical forests*. Washington, DC: World Bank.

¹⁰ The Philippines provides a striking example of how the forest products trade has driven deforestation. Forest cover declined progressively from 15 million ha in 1950 to only around 7 million ha in 1987. Logging for export was a major cause of this deforestation. The Philippines provided the international market with 30% of its timber in 1965 but from 1986 onwards has been a net importer of timber.

¹¹ Forestry Research and Development Agency. 2009. R-Plan: Indonesia. Ministry of Forestry Indonesia.

¹² ITTO. 2008. Annual review and assessment of the world timber situation 2008. ITTO, Yokohama.

imports within the ITTO in 2008.¹³

- There has been a rapid expansion in the volume of wood materials imported for processing into final products for export to the EU, US and Japan, particularly in China and Viet Nam.¹⁴
- Other countries are emerging as important actors in the timber trade, e.g. India is now ITTO's second largest importer of tropical logs.

Research challenges

The challenges for research on the forest products trade include clarifying the implications of the transformations in trade that are taking place for forests and forest management, and contributing to the development of policies and instruments that will ensure these transformations are a driver of sustainable forest management, not a driver of forest destruction.

2. Objectives

- To extract lessons from existing REDD demonstration activities and to provide analytical input from field studies for the development of climate forestry management models appropriate to Asia-Pacific contexts;
- To provide critical analytical inputs for the development of effective, efficient and equitable national REDD administration and strategies;
- To identify the challenges to and opportunities for reforming the forest products industry in China, Vietnam, and other emerging consumer countries towards a sustainable forest products trade;
- To deepen understanding of the strengths and weaknesses of regulatory initiatives in consumer countries to curb the import of illegal forest products.

3. Major components

(i) REDD demonstration activities

UNFCCC Decision 2/CP.13 encourages Parties to build capacities in the forest sector for i) data collection, ii) emissions estimations and monitoring, and iii) to undertake demonstration activities. The proposed research has two components: (i) assessment and comparison of the design, implementation, and impacts of contrasting REDD demonstration activities in the Asia-Pacific region, (ii) field surveys, including action research, to provide analytical input into the design of REDD models appropriate to Asia-Pacific contexts. The research sites proposed for the field surveys are lowland forests in Papua New Guinea, which are threatened by mechanised logging and shifting agriculture, and peat forests in Indonesia, which have large carbon stocks and are threatened by oil palm and timber plantation development, cash cropping, shifting agriculture, etc.

(ii) National REDD readiness

With support from the World Bank's Forest Carbon Partnership Facility, UN-REDD, and bilateral donors, tropical countries are now developing their national REDD plans. While some progress can be observed, these generally lack critical analysis of the performance of current forest management policies and administration, and the analysis behind their proposed solutions for reducing emissions is inadequate. In addition, while it is clear that reducing national emissions from the forest sector requires a coordinated response from all government departments whose policies impact forests (forestry, agriculture, and others), in some countries the forestry departments have claimed control of the REDD issue. There is thus a risk that there will be insufficient coordination amongst departments to develop a comprehensive national REDD strategy and that this will result in non-forestry departments continuing to make decisions that lead to deforestation. The proposed research is a (i) critical review of national forest management policies to better understand which policies have performed well and which have not, and the reasons for different performance levels, and (ii) a critical assessment of national forest and land administration to contribute to designing the cross-sectoral policy and administration framework that countries require to achieve sustained national reductions in forest sector emissions. The

¹³ Ibid.

¹⁴ China is now the world's largest exporter of secondary processed wood products, and Viet Nam's exports of the same expanded 31% by value from 2006 to 2007 (ITTO 2008).

countries proposed for the review are Indonesia, Papua New Guinea, Laos, Cambodia and Viet Nam.

(iii) Forest products trade

The Eliasch Review – Climate Change: Financing Global Forests (2008) – argued that significant policy changes are required to achieve a sustainable system of global production, including “demand side policies in consumer countries – for example, through preferential procurement of sustainably produced products and increased consumer awareness.” The proposed research focuses on the involvement of Chinese and Vietnamese businesses and traders in the global forest products trade and regulatory instruments in consumer countries to curb the import of illegal forest products, specifically the US Lacey Act and the proposed EU due diligence regulation. Consolidation of, and building on, previous IGES research on forest certification, customs authorities, and public timber procurement policies will also be considered as opportunities arise.

4. Research questions

REDD demonstration activities

- What forest management models to achieve emissions reductions are appropriate to Asia-Pacific contexts?
- What processes can contribute to developing effective and locally accepted measures to reduce deforestation and forest degradation within REDD projects?
- What approaches to address technical issues (reference emissions level; measuring, monitoring, reporting and verifying emissions reductions) at project level are robust and cost-efficient?
- How can transparent and accountable REDD project management suited to local contexts be established?
- What steps should be taken to ensure net positive impacts on livelihoods and equitable payment distribution under REDD projects?

National REDD readiness

- What is the past performance of forest administration and policies that are now proposed to reduce national emissions reductions? How can administration and policies be strengthened?
- How can an effective national administrative framework for forest and land-use management to reduce national emissions from land use change and forestry be established?

Forest products trade

- What are the challenges and opportunities for engaging Chinese and Vietnamese industry on the issues of wood legality and sustainability? To what extent are policies developed by end consumer countries to promote legal and sustainable timber having an impact on processed timber re-exports from China and Viet Nam, and what potential exists to enhance this impact?
- Under which conditions are regulatory instruments in consumer countries an appropriate action to curb the import of illegal forest products? Are current initiatives likely to be effective and what are their relative strengths and weaknesses?

5. Methodologies

REDD demonstration activities

Review of existing demonstration activities

- Document and literature review (i.e. project design documents and literature on policy, planning, social, economic and environmental contexts in which the projects are located);
- Semi-structured interviews (project proponents, local and central governments, local communities and other key stakeholders) to identify major challenges, problems and good practices;
- Group meetings to share initial findings and encourage feedback;
- Comparative analysis of project designs, design process and impacts;
- Maintenance of online database of REDD demonstration activities.

Field surveys on forest management models for REDD

- Papua New Guinea – lowland forests
 - Action research to quantify the impacts on forest carbon stocks and to assess economic and social impacts of three forest management and land-use scenarios: (i) large-scale, mechanized logging by companies and no community controls on shifting agriculture, (ii) certified forest management with communities undertaking low volume logging, and community controls on shifting agriculture, (iii) communities place part of their forests under protection status as wildlife management areas.
- Indonesia – peat forests
 - Assessment of existing community-based peat forest conservation, restoration and management projects in Kalimantan and Sumatra, where most of Indonesia’s peat land is found;
 - Analysis of whether Indonesia’s REDD strategy has the potential to convince local farmers to engage in protecting and/or restoring peat lands;
 - Assessment of how current land use policies are driving the destruction of peat forests in Indonesia.

National REDD readiness

- Literature and document review (R-PINs, R-Plans, forest and land-use management strategies, national climate roadmaps, etc.);
- Semi-structured interviews with forest, planning, agriculture, and other related Ministries, as well as with key experts
- Comparative analysis between the research countries.

Forest products trade

- **China and Vietnam industry**
 - Trends review and projections on transformations in regional forest products trade;
 - Literature review and secondary data analysis on industry trends for import-processing-export (wood material types and sources, key products, markets);
 - Policy analysis (i.e. public policy on timber industry, e.g. privatisation, reform of SOEs, promotion of domestic plantations, etc.);
 - Industry survey (procurement policies and CSR);
 - Analysis of the development of verification instruments (legal origin, legal compliance, sustainable forest management) and their uptake;
 - Impact assessment (i.e. (1) impact of consumer country government actions, including regulatory instruments and political engagement, on the Chinese and Vietnamese industry, (2) impact of buyer requirements and initiatives by timber trade associations in consumer countries on the Chinese and Vietnamese industry);
 - Comparative analysis (China and Vietnam).
- **Regulatory instruments in consumer countries**
 - Literature review;
 - Documentary analysis of existing and proposed regulatory instruments;
 - Comparative analysis (US Lacey Act and proposed EU Due Diligence Regulation).

6, Value-added (including Relationship with IGES Core Competence)

REDD demonstration activities and national REDD readiness

IGES would be the only policy institute in the Asia-Pacific undertaking a comprehensive structured assessment of REDD demonstration activities in the region, and assessing and comparing the progress of Asia-Pacific countries in developing their national REDD systems.

Forest products trade

IGES would build upon existing research to provide a comprehensive review of challenges and opportunities for engaging the Chinese and Vietnamese industries in a legal and sustainable forest products trade, movement within the industry towards legal and sustainability verification, as well as the causal factors for this. The development of regulatory instruments in consumer countries to curb the import of illegal wood is a new development. There is a clear need to review the robustness of these instruments as well as the challenges facing their implementation.

(Relationship with IGES Core Competence)

IGES has used its Strategy Fund to build expertise on REDD demonstration activities, national REDD readiness activities, and the international negotiations, and it has co-organised several workshops on REDD in Japan and abroad. IGES has undertaken major studies on innovative forest certification models, public timber procurement policies, chain-of-custody guidelines, and on frameworks for collaboration between Customs agencies to curb the trade in illegal wood.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

FY 2010	FY 2011	FY 2012
REDD demonstration activities		
Regional survey of demo. activities; contract partners; maintenance of online database; field studies in PNG and Indonesia	Field research; maintenance of online database; field studies in PNG and Indonesia	Completion of field work; comparative analysis; maintenance of online database; field studies in PNG and Indonesia; publication
National REDD readiness		
Monitoring and analysis of the development of national REDD systems	Monitoring and analysis of the development of national REDD systems	Comparative analysis; publication
Forest products trade		
China and Vietnam: Literature review and preliminary surveys	Industry and public policy surveys; analysis of consumer country engagement	Completion of country studies; comparative analysis; publication
Regulatory instruments: Literature review and documentary analysis	Comparative analysis and publication	

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

IGES: Responsible for designing the research, fund sourcing, organizing collaboration, participating in the research, conducting comparative analysis, editing, publishing and disseminating reports, and maintaining the online database on REDD demonstration activities.

Collaborators:

REDD demonstration activities/projects: Kyoto University, Foundation for People and Community Development, Regional Community Forestry Training Centre, Community Carbon Forestry PNG, PNG Eco-Forestry Forum, Pact Cambodia, Eye on Aceh, Lembaga Alam Tropika Indonesia (LATIN)

National REDD: Tsukuba University, Regional Community Forestry Training Centre, National Council of Forestry of Indonesia, South Pacific Regional Environment Programme

Forest products trade: Friends of the Earth Japan, Global Environmental Forum

Other partners: International Tropical Timber Organisation, Centre for International Forestry Research, Chatham House, Forest Trends, International Union for the Conservation of Nature, The Nature Conservancy, TRAFFIC, European Forest Institute

Overall team structure:

Leadership - leadership of components by selected researchers (does not require one leader)

Research implementation and management - 4 researchers to provide expertise to cover all topics (on average 70% time commitment per person); 1 IGES senior fellow

Administration - project assistant (~50% time commitment necessary)

(II) Allocation of Human Resources

Approx. person months

Component		person months
REDD demonstration activities		2 staff (50% time)
National REDD readiness		1 staff (50% time)
Forest products trade	China, Vietnam	1 staff (30% time)
	Regulatory instruments	1 staff (20% time)

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 15 million yen

2. External funds obtained/to be applied

Effort will be made to obtain a contract from Mitsui Environmental Fund or Global Environment Research Promotion Fund of MOEJ.

III. Impact Generation

1. Major outputs (research papers and policy papers)

Component	Outputs (tentative titles and timing)
REDD demonstration activities	--Policy report: "REDD demonstration activities – Lessons from the Asia-Pacific region" --Research report: "Climate implications of alternative forest and land management models in PNG" --Research report: "Strategies for effective peat forest management in Indonesia for climate change mitigation, resource conservation and sustainable development" --Policy brief: "Good practices for REDD demonstration activities" --Updated online database <i>All outputs will be timed for publication before the 18th UNFCCC COP, and the online database will be continuously updated</i>
National REDD readiness	--Policy report: "Effective policies and administration for LUCF sector emissions reductions in selected Asia-Pacific countries" --Policy brief: "REDD progress and challenges in the Asia-Pacific region" <i>Outputs will be timed for publication before the 18th UNFCCC COP</i>
Forest products	China, Vietnam --Policy report: "Engaging industry in China and Viet Nam for trade in sustainable tropical wood products"

trade		<i>Publication before International Tropical Timber Council 48th Session</i>
	Regulatory instruments	--Policy report: "Regulatory measures to restrict the import of illegal wood products: Lessons from the EU and US" --Policy brief: "Consumer country actions to curb the trade of illegal/unsustainable wood products" <i>Outputs will be timed for publication before International Tropical Timber Council 47th Session</i>

2. Influence strategy

(Policy processes, networks, forums etc. in which IGES plays a major role, linkage to key regional and global political processes. How IGES research will be inputted into such processes to generate influence.)

For research on demonstration activities and national REDD readiness, close communication will be maintained with forestry officials at national and subnational levels in the study countries, and the research results will be reported to them through workshops, meetings, etc. The research results will be presented to regional and international audiences through the Asia Forest Partnership, and the Asia-Pacific Network for Sustainable Forest Management, and side events will be targeted for the CBD 10th COP, the UNFCCC COP, the AWG-LCA and SBSTA.

For research on the trade in forest products, the research results will be shared with ASEAN initiatives (e.g. ASEAN Social Forestry Network, Pan-ASEAN Certification Initiative, ASEAN Customs Network); East Asia Forest Law Enforcement and Governance process; biannual Forums on China and the Global Forest Products Trade; Chatham House Illegal Logging Multi-stakeholder process; and at FAO Asia-Pacific Forestry Week.

Title: (4) Groundwater Governance for Sustainable Development

I. Research Outline

1. Background (Relevance to Asia-Pacific)

Groundwater is important resource for livelihoods and food security of billions of people, especially in developing countries of Asia. Although detailed information on trends on abstraction and use in each country are not available, globally groundwater is estimated to provide approximately 50% of current potable water supplies, 40% of the water demand of self-supplied industry and 20% of water use in irrigation.

In Asia and the Pacific, about 32% of the population uses groundwater as a drinking water source (Morris et al. 2003). Groundwater also contributes to economic development in the region by providing water for irrigation in area such as India, Bangladesh, Nepal and the Northern China Plains and for industrial production. In Asia and the Pacific, most of the water is extracted for agriculture which in 2002 accounted for 79 per cent of total withdrawals. In urban areas, groundwater tends to be used more for industrial use than human consumption. Industrial use in total groundwater abstraction accounts for 80% in Bandung and 60% in Bangkok. There is a strong correlation between groundwater use and gross domestic product (GDP) in these cities (IGES 2007). Compared to surface water, groundwater use often yields larger economic benefits per unit volume, due to its availability at local level, drought reliability and good quality requiring minimal treatment.

Despite the significance of groundwater for sustainable development in Asia, it has not always been properly managed and utilized, which often has resulted in depletion, degradation and underdevelopment of the resource. At present, some major concerns on groundwater use are: i) depletion due to overdraft; ii) waterlogging and salinization due to inadequate drainage and insufficient conjunctive use mostly; iii) pollution due to agricultural, industrial and other human activities and iv) needs of developing groundwater resources for poverty alleviation and rural development where groundwater potential exists. In addition to these existing problems, groundwater management now confronts a new challenge i.e. from climate change. Climate change impacts may add to existing pressure on groundwater resources by (i) impeding recharge capacities in some areas; and (ii) being called on to fill eventual gaps in surface water availability due to increased variability of precipitation.

The most serious groundwater challenge facing the world is the current development practices of the resource without considering the sustainability of resource and integrity of management/development practices of other resources such as land including forest. In the business-as-usual scenario, problems of groundwater will only become more acute, widespread, serious and visible in the years to come. Therefore, front line challenge is to put into operation a range of preventive mechanisms before the problem becomes either insoluble. This requires a shift from the present strategy of resource development to the integrated and sustainable resource management.

A major barrier that prevents transition from the uncontrolled groundwater development to sustainable use of the resource is lack of information. Most developing countries have only a limited or no background information on groundwater resources, such as availability, quality, withdrawal and other variables in the format useful for resource planning. The first step in managing the resource is to understand it through appropriate systems for groundwater monitoring, both in quantity and quality terms, on a regular basis, and incorporating the monitoring data in planning the use of this valuable and limited resource. As the first step to address this issue, it is necessary to identify the availability of groundwater related information.

In current groundwater management, direct and indirect economic instruments are recognised as possible measures to effectively control and/or rationalise groundwater use. They are also recognised as a measure to realize rational allocation of groundwater. However, introduction and implementation of economic instruments is often difficult because of opposition of water users, possible negative impacts to the local economies and inadequate institutional arrangement for implementation. Negative impact to economically weak social group

(low income groups, small and marginal farmers, and small and medium enterprise) is also a big concern. To make economic instruments implementable and more effective as the measures to promote sustainable groundwater use, more knowledge should be developed. To make the economic instruments effective, governance system of groundwater should be also addressed.

IGES was approved as the knowledge hub on groundwater management for the Asia-Pacific Water Forum Water KnowledgeHubs in June 2009. As the groundwater management knowledge hub, IGES is expected to take a leading role in enhancement of groundwater management research. Having the firm connection of the Asia-Pacific Water Forum, the biggest policy process related to water in the region, findings and outputs of IGES groundwater research would contribute to sustainable water management in the region. This research component is conducted as an integral part of the knowledge hub activities of IGES.

2. Objective

Creating, harnessing and accumulating knowledge for policy makers to enable them to develop/facilitate better groundwater management strategies with which more equitable and sustainable groundwater use will be ensured.

3. Major components

Component 1: Baseline study of groundwater use and its governance in Asia: *What is really happening on groundwater in Asia?*

Baseline information and data will be collected through intensive literature review and questionnaire survey to governmental officials and experts engaged in groundwater management in Asian countries. Interviews will be also conducted in some countries. The number of target countries will be decided based on the availability of financial resources, however at least two countries in each sub-regions (Northeast Asia, Southeast Asia, South Asia) will be covered. In designing of the survey, potential climate change impacts are also considered.

In addition, a few case studies will be conducted at a few particular groundwater basins to further explore the real situation of groundwater resource and its management. The case studies will be conducted with close linkage with Component 2.

Component 2. In-depth study on enabling environment for introduction/effective implementation of economic instruments for sustainable groundwater management

To explore how economic instruments can promote rational groundwater uses in what way, the following elements will be studied through case studies and comparative analysis. The sites of case study will be explored through discussion with knowledge hub partners and funding organisations.

- a. Overview of existing economic instruments that aim to control groundwater abstraction/use.
- b. Enabling environment to introduce/implement economic instruments. The enabling environment will include such as
 - regulatory setting
 - groundwater rights
 - governance scheme (participatory mechanism of water users in decision making and implementation)
 - coordination of other water charging scheme
 - cross-sectoral policies such as land use, agriculture, trade policies
- c. Impact assessment of the economic instruments introduced to the society, especially impacts to the low-income water users.
- d. Effectiveness of economic instruments introduced. Cost-benefit analysis of mid- and long-term effectiveness would be conducted.

Others:**♦ Management and coordination of the knowledge hub activities**

In the research activities mentioned above, activities as the water knowledge hub on groundwater management should be implemented by this research group. In addition to research, such as capacity development and knowledge management, information dissemination will be conducted in close collaboration with potential knowledge hub partners. The details on the plan of such activities will be developed. Regular communication with groundwater management hub partners and participation of Asia-Pacific Knowledge Hub related meetings are also the required activities as the groundwater knowledge hub.

4. Research questions**Component 1.**

What is really happening on groundwater in Asia? Do the current groundwater management policies address groundwater problems and accommodate any future problems?

Component 2.

1. Do economic or legal instruments promote rational use and equitable allocation of groundwater resources? What impacts of economic instruments are observed in the area where economic instruments introduced?
2. What are the factors/elements to be considered to promote groundwater management by utilizing economic instruments? What kind of governance system should be to promote equitable use of groundwater by utilizing economic instruments?
3. What measures should be prepared to minimize negative impacts of economic instruments?

5. Methodologies

Literature survey
Interviews with international/local experts
Case studies and situation analysis
Workshops
Cost-benefits analysis (when necessary)

6. Value-added (including Relationship with IGES Core Competence)

Groundwater is a missing part of the current international and regional dialogues on water, although it is widely recognised as an important source of water. The study will explore the true picture of the state of groundwater and its policy issues through the regional network on groundwater.

(Relationship with IGES Core Competence)

The Institute for Global Environmental Strategies (IGES) - Freshwater (FW) Project has been involved in groundwater related research in Asian region since 2004 and has already a meaningful products and service delivery. Based on the achievement of the project, IGES was approved as the knowledge hub on groundwater management in Asia and the Pacific region.

II. Allocation of Human/Financial Resources**(I) Implementation arrangements****1. Time frame**

FY2010:

- Baseline survey (groundwater availability, use, governance structure, availability and use of other water resources and others)
- Case study design and implementation in a few areas in one country, if possible)

FY2011:

- Summary of baseline survey and additional survey if necessary
- Case studies (cont.).

- Interim report and case study fact sheets preparation (for the world water forum)

FY2012:

Compilation and synthesis of base line survey and comparative study. The final reports will be prepared.

2. Implementation framework

IGES team takes a leading role in implementation of research. In implementation of case studies, IGES will collaborate with knowledge hub partners.

Potential Partners:

- International Water Management Institute (IWMI) – partner for the study in the South Asia, especially in the rural context
- International Center for Excellence on Water Resource Management (ICE WaRM) partner for capacity development and comparative studies
- Asian Institute of Technology (AIT) – partner for technical aspects of groundwater
- Japan Association of Groundwater Hydrology – partner for technical aspects of groundwater

Additional partner institutes will be identified according to the research needs.

(II) Allocation of Human Resources

IGES RESEARCH STAFF

Affiliation	Task	man/month
Senior Researcher	-Management of the research team -Management of knowledge hub network - Provision of guidance to researchers - Conduct research on a specific topic (analysis and synthesis)	50% time
Researcher	- Analysis and synthesis, report writing (with expertise of economics)	50% time
Researcher	- Analysis and synthesis, report writing (with expertise of water management) - Work as the hub network coordinator	full time

[Outsourcing]

Short-term local consultants will be hired in the first year for the baseline survey.

Local partners will be identified to collection information and data for case studies, when necessary.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 43 million yen

2. External funds obtained/to be applied

Funding is being negotiated with the knowledge hub secretariat (ADB and UNESCO).

III. Impact Generation

1. Major outputs (research papers and policy papers)

2 Research papers (2nd and 3rd year)

Interim report of case study and baseline survey (2nd year)

Report on groundwater in Asia (as an output of the baseline survey) (2nd year)

Final report (research report) (3rd year)

Case study fact sheets (2nd year)

2. Influence strategy

The outputs of the research will be shared with various stakeholders through the Asia-Pacific Water Forum Water Knowledge Hub Network. The findings of the research will be expected to be an input to the publications of the international organisations such as “Asian Water Development Outlook” by ADB and “World Water Development Report” by UN.

Title: (5) Water Environment Partnership in Asia (non-research activity)

I. Outline

1. Background (Relevance to Asia-Pacific)

Water quality and water ecosystems are under severe pressure in many areas of the Asian region because of increase of pollution loads generated from agriculture, industrial and domestic water use. Water Environment Partnership in Asia (WEPA) is a partnership program of the Japanese Government initiated in FY2004 to strengthen water environmental governance in Asian countries through knowledge and information sharing and capacity development. With participation of 11 Asian countries (Cambodia, China, Laos, Indonesia, Japan, Korea, Malaysia, Myanmar, the Philippines, Thailand, Vietnam), WEPA developed WEPA database as an information platform for knowledge sharing and conducted series of symposiums and workshops. In FY2009, the second phase of WEPA started with more emphasis on policy dialogues among partner countries, with focus of climate change adaptation and integrated water resource management as emerging areas need knowledge sharing among partner countries.

IGES has been served as the secretariat of WEPA since its establishment in FY2004. It was endorsed by partner countries for IGES to continue to be the WEPA secretariat in the second phase of WEPA (FY2009 -2013)

2.Objectives

The overall objectives of the WEPA.

- Enhancement of water environmental governance in Asian countries through knowledge development and sharing.
-

The Secretariat of WEPA will provide a secretariat function for a smooth and efficient operation of the WEPA activities. The secretariat should coordinate and manage WEPA activities such as bilateral dialogues, regional workshops, and case studies in close communication with partner countries and also deliver necessary publications for WEPA workshops and other regional/international meetings such as the World Water Forum.

3.Major components

1) Activities directly related with WEPA

- Organisation of WEPA related meeting, including meeting document preparation
- Maintenance of WEPA database (update)
- Coordination and conduct of case study (3 sites)
- E-mail WEPA news dissemination (5 times/year)
- Draft WEPA report
- Collection and analysis of water environmental governance issues in WEPA countries based on the collected information through WEPA activities

Activities related to WEPA

- conduct a training course (2 weeks) in Japan commissioned by JICA. This training course was developed in collaboration with JICA and WEPA.

4.Major activities

(1) WEPA related meetings

- Organisation of advisor meetings in Japan (2 times/ year) (including the preparation of meeting documents)
- Organisation of annual meeting
- Organisation of workshops (1 – 2 times/year)
- Organising bilateral meetings (1 or 2 country/year)

- WEPA Symposium (for outreach in Japan)

(2) Coordination/conduct case study

- Coordination of case study with WEPA partners and Japanese advisors
- Compilation of case study
- Preparation of summary report

(3) Knowledge management

- Maintenance of WEPA database (update)
- E-mail WEPA news dissemination (5 times/year)
- Collect the relevant information on other dialogues on the water environment in Asia

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

2nd phase of WEPA (FY2009 - FY2013)

2. Implementation framework

Advisor meeting (consist of Japanese expert): providing guidance and advise to the WEPA activities

WEPA partner countries: Cambodia, China, Laos, Indonesia, Japan, Korea, Malaysia, Myanmar, the Philippines, Thailand, Vietnam: focal point persons are appointed by each country.

Role of IGES:

IGES provides Secretariat function for WEPA for all WEPA activities, including draft and synthesis of the meeting reports.

(II) Allocation of Human Resources

- 1 researcher for overall management (30 percent of time)
- 1 research for case studies (20 percent of time)
- 1 full time program coordinator (to be hired. 100 percent of time)

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 38 million yen

(IV) External funds obtained/to be applied

Effort will be made to obtain a fund “Water Environment Partnership in Asia” of MOEJ.

(V) Impact Generation

1. Major outputs (chair’s summary and other synthesis documents, database, good practice etc.)

Workshop summary and report

Bilateral meeting summary

Synthesis of case study

Case study profile report

WEPA database (updated)

Commission work report

2. Influence strategy

WEPA is a network of Asian countries and it is expected to have direct impacts to the water governance in each country. By leading the discussion on emerging issues on water environmental governance, WEPA intends to

take a lead of regional policy dialogue for better water environmental governance in Asia.

Title: (6) Asia Pacific Climate Change Adaptation Network

I. Outline

1. Background (Relevance to Asia-Pacific)

The Asia-Pacific region is one of the world's most vulnerable regions to climate change due to its high population density, high dependency of climate-related sectors, poor development plans, and capacity development. Therefore, there is a need to strengthen adaptation research and policy-making capacity in many developing countries in the region. In response to recognise its importance of enhancement of adaptation actions and development of network, the Global Climate Change Adaptation Network was developed and implemented in Asia and the Pacific, as well as in other regions, led by UNEP.

This Asia Pacific Adaptation Network aims to help vulnerable countries in Asia and the Pacific and to enhance their adaptive capacity by mobilising knowledge and technology.

2. Objectives

The overall objective of the Network is to help build climate resilience of vulnerable human systems, ecosystems and economies through the mobilisation of knowledge and technologies to support adaptation capacity building, policy-setting, planning and practices. This objective will be achieved through the execution of the core Network functions suggested below;

- Improve availability and accessibility of knowledge relevant to adaptation, and enhance dissemination of information on good adaptation practices.
- Strengthen target knowledge support and advisory services to governments, planners and practitioners.
- Enhance capacity of developing country institutions working on adaptation.

3. Major components

- i) Establishment of institutional arrangement for the Network
- ii) Research activities (e.g. developing tools and methods for assessing “ good adaptation practices”)
- iii) Capacity development activities (e.g. trainers training for policy-makers)
- iv) Knowledge sharing activities (e. g. web portal, publications and seminars)
- v) Outreach activities

4. Major activities

- Anticipated Activities (2009-2010 Inception Phase)

In addition to establishing the Network institutions and the governance structure, the following 6 priority activities will be focused on in the inception phase

<Research activities>

- 1) Develop climate vulnerability and adaptive capacity assessment framework and decision support products.
- 2) Undertake knowledge gap analysis and needs assessment at the sub-regional level or national level.

<Capacity building activities>

- 3) Scientific capacity development of trainers and policy-makers for climate change adaptation planning in Asia and the Pacific.

<Knowledge sharing activities>

- 4) Production and dissemination of knowledge products at a regional or sub-regional level.
- 5) Strengthen knowledge-sharing and joint learning through regional and sub-regional seminars, workshops and training.
- 6) Establish and operate the on-line Asia Pacific Climate Adaptation portal as a regional knowledge sharing mechanism.

< Outreach Activities >

- 7) Create the Network brochures and conduct other relevant activities

II. Allocation of Human/Financial Resources Implementation arrangements

1. Time frame

- Inception phase (Oct.2009-Dec.2010)
- Implementation Plan (Year 2011)
- Full Operation Phase (Year 2012-)

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

One coordinator at the Regional Hub of Asia –Pacific Adaptation Network at AIT/UNEP RRC AP in Bangkok
Under his/her coordination, IGES will provide intellectual inputs into the Network as well.

Partner institutes:

UNEP, AIT/UNEP RRC AP, Ministry of the Environment of Japan, Stockholm Environment Institute, Sweden
International Development Agency, Asian Development Bank.

Role of IGES:

IGES has co-hosted the Regional Hub of the Network with AIT/UNEP RRC AP. IGES provides personnel contribution (1 full time staff) to the Regional Hub and is expected to provide intellectual inputs to the Network.

(II) Allocation of Human Resources

- 1 coordinator (AIT/UNEP RRC AP)

Funding

1. Cost estimate

Budget for activities of FY 2010: 56 million yen

2. External funds obtained/to be applied

Core fund :

- JPY 91,000,000 from Ministry of the Environment of Japan to establish and operate the Regional Hub and for overall activities in inception phase (anticipated).
- US\$ 350,000 from ADB for Research and Knowledge sharing activities in inception phase. (anticipated)
- US\$ 30,000 from APN for capacity development activities in inception phase (proposing)
- US\$ 60,000 from Stockholm Environment Institute for Knowledge sharing activities in inception phase (anticipated).

III. Impact Generation

1. Major outputs (chair's summary and other synthesis documents, database, good practice etc.)

- Working papers relevant to the understanding of climate change adaptation
- Synthesis reports, technical paper, policy brief (e.g. packaging the extending sub-regional level information based on the IPCC 5th Assessment Report
- Online knowledge portal for adaptation

2. Influence strategy

IGES will be fully involved in the operation and implementation of activities of the Asia-Pacific Regional Adaptation Network. IGES is not only limited to facilitate the Network activities, but also to provide substantial research findings and outcomes for sharing knowledge and information related to adaptation policies.

Sustainable Consumption and Production**Title: (1) Sustainable consumption in developing Asia**

I. Research Outline**1. Background (Relevance to Asia-Pacific)**

Two recommendations by experts at the ISAP Conference in June 2009 reiterated that, for research by IGES to make substantial contribution to the SC(Sustainable consumption) debate, it should facilitate planning and policy making (top-down approach) to encourage “radical innovation” to support “socio-technical system innovation”, and transform social innovations on the micro level (bottom-up approach), e.g. local communities, to the macro level. Especially in developing Asia which is undergoing fast changes and contradictions in lifestyles, research should contribute towards an understanding of SC in an Asian context, and to redefine contemporary understanding of prosperity and quality of life towards human and societal well-being. Such research would also look at some traditional Asian practices that are sustainable, as well as emerging local actions that embody elements of sustainability while challenging the paradigm of growth-by-resource-consumption.

This component looks at **policies to encourage a shift towards sustainable household consumption** in general. To be specific it uses **two case studies: food and air conditioners**. A combination of these two studies highlights how SC can be applied to a sector (food) as well as to a specific product group (air conditioners); and how the tension between the consumer class and the poor is reflected in patterns of consumption of basic necessities (food) and lifestyle products (air conditioners).

Trends in the Asia-Pacific showing a combination of continuous increases in population, urbanization and the consumer class would have strong effects on food demands and patterns of consumption in the region. In a review of the Asian and Pacific development context and environmental sustainability challenges, UNESCAP highlights “food consumption patterns”¹⁵ as a priority area. In an earlier review, the International Food Policy Research Institute stated that direct per capita consumption of cereals as a staple food has declined over the past three decades in rapidly growing Asia-Pacific economies while consumption of meat, fish and dairy products has increased dramatically.¹⁶ On the one hand, as reported by UNESCAP and the Asia Development Bank, there are issues of “intensification of pockets of poverty, resource depletion/degradation as well as environmental pollution” affecting large segments of the population, stemming from problems of availability, inequities in access, and poor distribution.¹⁷ A sudden rise in the price of staple foods like rice, maize and wheat in the first half of 2008 triggered riots and hoarding in some parts of the world. This brings issues of self-sufficiency to the fore. On the other hand, changing lifestyles in keeping with economic growth and urbanization has seen trends in developing Asia move closer to those observed in western industrialized countries. The need for more convenience food requires more food processing, which is energy-demanding; needs packaging, which adds to the waste issue; and, paradoxically, increased food processing preserves more food for a longer time but also leads to different types of waste. Consumer education, fairly traded products, organic food, etc. are examples of ways of satisfying consumer needs while reducing negative impacts on the society and environment. The OECD¹⁸ observes that current food policy mostly deals with issues of access, safety, nutrition and quality; there are few “sustainable food consumption” policies per se. However, in several

¹⁵ See report: “Greening Growth in Asia and the Pacific”, UNESCAP, 2008. Other priority areas mentioned are: green mobility, sustainable housing, promoting eco-efficiency in resource use; sustainable “green” procurement in the public sector.

¹⁶ “Structural Changes in the Demand for food in Asia”, Jikung Houang and Howarth Bouis, International Food Policy Research Institute, 2020 Brief 41, 1996.

¹⁷ See report “State of the Environment in Asia and the Pacific 2000”, United Nations, New York, 2000

¹⁸ See report “Towards Sustainable Household Consumption? Trends and Policies in OECD Countries”, OECD, 2002

countries growing concerns over food security and environmental health are forging stronger links between traditional nutrition guidance, consumer safety and environmental policy. Similarly, Asia is experiencing increasing household energy consumption from wider use of home appliances. Along with economic growth, increasing urbanization as well as high humidity and temperature, increase in energy consumption from air conditioners is foreseen in Asia. An April 2009 survey by JRAIA shows a 37.6% increase in demand for air conditioners between 2000 and 2008; this is supported by a 2006 JEMA study which puts Asia's demand for conditioners at 53% of total world demand. Sustainable consumption concerns related to such patterns are increasing total energy consumption in households, inefficient energy use, Freon from waste, and management of bulky waste of ACs after consumption. Thus, ACs are a suitable product case study for analyzing the applicability of SC policy in Asia. This would benefit from the work of WMR in the fourth phase on second-hand WEEE as well as EPR on electronic products.

From a sustainable consumption perspective, policies addressing food consumption and household energy consumption and other environmental issues associated with wider usage of air conditioners in developing Asia should therefore address social, economic and environmental impacts resulting from the contrasting duality of a) inadequate consumption by the poor (for sustainable livelihoods); while b) simultaneously addressing the more assertive consumption patterns of the growing consumer class (sustainable lifestyles). A careful balance of policies and instruments can empower consumers to, while behaving in a sustainable manner, reduce the direct impact of their consumption on the environment and create impetus for positive changes in production patterns. While designed to stand alone, collaboration with other partners is intended for this component, in order to cover other areas of household consumption which put together with IGES' component will give a more rounded picture of SC in the region.

2. Objectives

This research component is divided into three separate, but closely linked, study themes: (i) current patterns, trends and drivers of consumption, including the environmental impact caused by consumption, (ii) current policy approaches to sustainable consumption and, more generally, the influence of government policies on consumer behaviour, and (iii) grass-root and civil society initiatives towards sustainable lifestyles. These three themes have the following objectives:

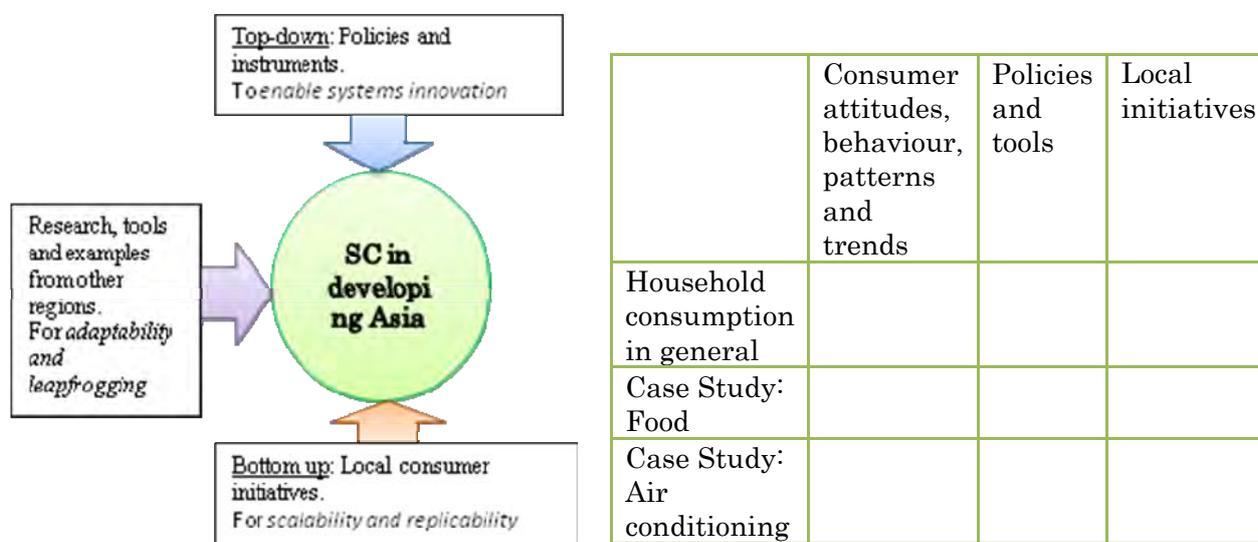
- i. Consumer attitudes, behaviour and patterns. To understand how the dual trend of an increasing consumer class and increasing number of poor is reflected in patterns of consumption in developing Asia, and the environmental impacts associated with Asian consumption.;
- ii. Policy and tools for sustainable consumption. To identify tools and instruments that can empower consumers through their actions to influence more sustainable production and products, and reduce the direct impact of their behaviour on the environment, recommend government policies that can enable large scale (systems) innovation for sustainable consumption; and to examine the applicability in developing Asia of sustainable consumption research and concepts from other regions of the world.
- iii. Local initiatives for sustainable consumption. To study sustainable local initiatives in Asia-Pacific that are indicative of a new paradigm of development; where increase in well-being is decoupled from environmental degradation and resource consumption. And to analyse characteristics of such initiatives that can allow them to be replicated, or scaled up.

3. Major components

i. Consumer attitudes, behaviour and patterns. There is a rapidly growing consumer class in developing Asia with consumption tendencies towards those observed in the west. Increased disposable income, changes in household sizes, increasing time pressure, sedentary lifestyles, urbanization, etc, all affect consumption patterns and resulting negative environmental impacts. In contrast, increasing pockets of poverty see large populations with consumption still below recommended subsistence levels. This highlights a divergence in both patterns and drivers of consumption. Using household food consumption as a sector example, raw data will be collected to understand these patterns and to see concrete variations or divergences; and with air conditioners as a product example, an analysis of different incentives for sustainable household consumption will be done. Possibilities to work together with the Low Carbon Society component of the Climate Policy Group on consumption patterns, trends and scenarios will be explored.

ii. Policy and tools for sustainable consumption in developing Asia. This will look at policy frameworks and tools affecting household consumption in developing Asia, including economic, regulatory and social instruments. This mapping of SC would clarify what has been done so far in the region, identify missing links and gaps as well as effective policy initiatives. This component will further critically examine the relevance to Asia of SC research and policy tools from other regions, mainly the EU. The possibilities of applicability, adaptability and leapfrogging need to be critically evaluated. Europe has been at the forefront of SC research, but instead of “wholesale” transfer of findings and policies, selective and adaptive methods should be used. Since one of the available policy tools is education, collaboration is expected with the PMO-PG component on education for sustainable consumption.

iii. Local initiatives for sustainable consumption. With a view to how consumer action can contribute to large scale changes, this component will examine possible contributions from Asia-Pacific, studying sustainable local practices that are indicative of new paradigms of development, with a view to scaling them up or replicating them elsewhere. The component will be looking at communities where a high quality of life is achieved with a very low environmental impact, including both traditional lifestyles and more modern, technology-intensive communities, and various mixes of these two. The work is intended for collaboration with the APFED team that has been working with a number of case studies on sustainable local action. Some of their cases, which are especially interesting from an SC perspective, will be analysed more in-depth than is usually done with such projects.



Research frameworks for the SC component

4. Research questions

- i. What are patterns of consumption in developing Asian countries and what are the main policies affecting quantity and quality of such consumption? How is the co-existence of a fast increasing consumer class and widespread poverty reflected in patterns and characteristics of consumption?
- ii. What policies and tools can facilitate sustainable consumption patterns that will cascade both “upstream” and “downstream” to positive changes in the system? How can the benefits of SC policies be highlighted and how can policy-makers be made interested in taking action towards SC? What policy approaches are suitable for addressing both unsustainable consumption patterns among the rich and the unmet consumption needs of the poor? How applicable/adaptable are research and instruments from other regions like Europe to fostering sustainable consumption in developing Asia?
- iii. What are examples of sustainable local initiatives in Asia-Pacific and what are the characteristics of these initiatives that could allow them to be replicated elsewhere or implemented at a larger scale?

5. Methodologies

Consumer attitudes, behaviour and patterns. a **survey of household consumption** will be carried out in four-five countries. Tentatively the countries are Japan (industrialized country); India (fast developing country); Thailand (middle-income developing country); Cambodia or Laos (low-income developing country). Selected countries represent the different development stages of countries in the region and countries in which the IGES research team already has projects and/or partners. Tools to influence sustainable consumption can only be effective if they reflect both the conditions and the attitudes of the target population. The survey will be designed for, among others, attitudes of consumers, expressed patterns of consumption, and contextual understandings of consumer impact on the environment. **Secondary data from authoritative sources** will be used for macro level factors in each country affecting sample units: Policy (information, safety regulations), Demographics (household size and composition, employment, education), culture (gender, religion, age), the Economy, Technology (food production, preparation, conservation, waste practices). As the OECD observes, income and prices are only a few of the factors among several, such as available technologies, social practices, cultural beliefs that motivate consumer behaviour. A combination of the survey results and analyses of data from secondary sources will give a more general picture of consumer attitudes, expressed patterns of behaviour and factors influencing consumption. The survey study aims to generate general knowledge on consumption behaviour in different social groups.

To get a more specific understanding of why households consume in the way they do, the survey will be followed by **field studies** looking at households in three countries. Selected samples will be

among those that had already taken part in the general regional survey and live in countries where policy analyses had been done. The lack of raw data usually limits policy research, and because policy needs to take into account the reality around consumption to be effective data is needed to be put against existing policies in order to analyse how effective they can be as well as to recommend effective policies and tools to intervene in unsustainable patterns. This component will generate raw data on consumption patterns by middleclass families and low income families in different environments in developing Asia. It is proposed to: select three countries to focus on (India, Thailand, and Laos?); find 5-10 samples of household units in each country (representing low-income, average-income, and consumer class); and collect data on their consumption and waste disposal over a period of four weeks. These observations will be complemented by interviews with all household members. It is expected that this field work will be done by contracted consultants, maybe university students.

The team will use the NOA (Needs, Opportunities, Abilities) model for qualitative consumption analyses.¹⁹ The model analyses consumer behaviour from their needs, opportunities to satisfy those needs, and their abilities to access those opportunities. For this analysis, using food as a case study, it is modified approximately thus:

- Needs of sample unit: nutrition and health (e.g. basic nutritional foods, “functional foods” or lifestyle foods), convenience and variety (meal preparation times, women in the workforce, time budgets)
- Opportunities: food prices (subsidies, balances between nutritional food categories), food supply (including distribution, availability and access), advertising
- Abilities: Per capita disposable income (including percentage of income spent on food), education and information

For food, choice of selected items will show both quality and quantity of consumption. Examples of major food categories to be measured: meat, eggs, fats and oils, fruits, vegetables, rice, flour/cereals, sugary foods. Data is expected to reveal divergent patterns between the low income consumers and the consumer class, but also to reflect how macro factors influence consumer choices.

Results from detailed household consumption data will be put against the outcome of the general survey for a comparison between attitudes and behaviour, and for generalisation on patterns of consumption. In the following stage, these will in turn be used to analyse how much current policies reflect conditions on the ground and to understand why tools have either been effective or ineffective. Such knowledge will be invaluable to recommending more targeted policies.

¹⁹ Gatersleben, B and C Vlek 1998. “Household Consumption, Quality of Life and Environmental Impacts”. In Noorman, KJ and AJM Schoot-Uiterkamp (eds.) *Green Households? Domestic Consumers, Environment and Sustainability*. London: Earthscan, 141-183.

Policy and tools for sustainable consumption in developing Asia. In addition to understanding consumer attitudes, patterns in consumption and macro factors influencing consumption, through **literature review and interviews** the policies of the above selected countries will be collected, and analyzed for tools influencing consumption behaviour. Such policies might not have been designed expressly for sustainability but they do influence consumption, and, in fact, are enabling infrastructure through which consumption is carried out. As mentioned above by first understanding factors influencing consumption, incentives, consumer attitudes and behaviour, policy can then be directed to intervene where there are gaps and where meaning would have the most impact in changing behaviour. Governments have the role of providing the framework conditions within which sustainability objectives can be met.

A possible analytical framework for policies will scope for some²⁰ of the following aspects:

- general policy objectives of sustainable lifestyles, access to food and energy for the poor, and reduced environmental stress resulting from patterns of household food and energy consumption;
- reducing environmental impacts from food transportation, including modes of transportation (private cars or public transport), length to food access point/shop, “food miles”, distribution systems e.g. food delivery, e-shopping, etc;
- reducing environmental impacts from source of energy, include promotion of renewable energy in urban areas or solar energy generation in the public buildings etc;
- improving energy efficiency, including such aspects as efficiency standards, energy labels, financial and other incentives, information campaigns, etc;
- increase source reduction and recycling of packaging;
- preventing/reducing/recycling waste, including economic and other incentives, information campaigns, regulatory measures, technologies, etc.
- access to and availability of food and energy to the poor;
- reducing GHG emissions from household behaviours;
- influencing upstream impacts of food consumption patterns or design for the environment of ACs through information, including labelling, information campaigns, toxic release inventories of chemicals, advertising;

This research can learn and borrow from others that have already done similar research or experimented with SC tools. A **comparative analysis** will then be done between policy instruments in other parts of the world and those in the selected Asian countries. Three sample countries will be selected in Asia– these would be countries whose policies have already been analyzed as indicated above. The OECD and European Environment Agency have done extensive analyses of the

²⁰ Although the list as presented is rather extensive, a preliminary analyses should indicate which aspects are most critical and thus should be focused on in the research

European Economic region's sustainability policy tools; in addition the Sustainable Consumption Research Exchange Network has a library of academic articles analysing national policies and tools towards sustainable consumption. These materials can be readily accessed for purposes of this study. A framework of analyses would then be developed and, giving preference to instruments that have been objectively demonstrated to be effective, the European and Asia-Pacific contexts will be analysed for adaptability of identified instruments.

Local initiatives for sustainable consumption. For this sub-component, there shall be collaboration with the APFED team to study local sustainability initiatives. The groundwork for great systemic changes, for macro-transformations, is done by micro-transformations, i.e. by the radical innovations introduced into local systems. Recognizing and observing these micro-transformations make it possible for us to get a first hand glimpse of the new systems that could stem up from these changes.²¹ Working with APFED to choose case studies in three countries selected for in-depth studies, the team will further collaborate with local partners to identify local (either emerging or traditional) sustainability practices that enhance human well-being without following the paradigm of resource consumption. They would be classified into categories of activities with a potential for radical system changes that could serve as models for a sustainable society²²:

- Different consumption/consuming differently – changing Institutional infrastructure, material infrastructure and creating new choices (e.g. through alternative measures of development, such as happiness, or through product system services)
- Conscious consumption – using information and education to choose more consciously, using community services, developing skills for conscious use
- Appropriate consumption – questioning levels and drivers of consumption, paying attention to quality of life issues, etc

These initiatives will then be observed for how they operate, analyze them for common patterns and highlight possible characteristics that could allow them to be replicated elsewhere or to be initiated at a much larger scale.

²¹ Ezio Manzini, Francois Jegou, Lara Penin, “Creative Communities for Sustainable Lifestyles: Promising Cases of Social Innovation for sustainable ways of living in Brazil, India, China and Europe” in SCORE conference proceedings, 2007

²² This is adapted from the UNEP report, *Consumption Opportunities* – UNEP; “Consumption opportunities: Strategies for Change, A Report for Decision Makers” UNEP, Geneva, 2001 - that highlights practical opportunities for sustainable consumption as a strategic approach to systems change. It divides sustainable consumption activities into two strategic categories: Dematerialization and Optimization. Dematerialization refers to efforts to reduce resource inputs and waste outputs at every stage of a product or service's life cycle and is strongly associated with production. Consumer behaviour with a potential for radical system changes will fall under Optimization, the framework of which could be used to analyze local initiatives that could serve as models for a sustainable society.

Value-added (including Relationship with IGES Core Competence)The research carried out in this component addresses a key issue for sustainable development in Asia since it looks at how social development (meeting human needs and aspirations) can be made compatible with environmental protection. The proposed studies are an extension of the work done by the WMR team in the 4th phase and have the potential to be linked with activities of other units of IGES:

- IGES's involvement in the Regional 3R Forum in Asia provides a platform to discuss some aspects of SC with Asian policy makers.
- IGES has worked on SC of electronics, focusing on material use and recycling in different life cycle stages except for household consumption. A case study on sustainable household consumption on air-conditioner will be complementary to other on-going research focusing on second-hand trade and end-of-life treatment of home appliances.
- IGES can utilize the wide existing networks in relation to sustainable development and local initiatives such as Kitakyushu Initiative or APFED.
- The Governance and Capacity Group has a component on "Governmental Mechanisms for Capacity Development and Education to Advance Sustainable Consumption" with which collaboration is planned.
- The white paper chapter for WMR unit is on preventing packaging waste.
- In relation to energy issues and consumption, IGES can draw some lessons in collaboration with climate change unit as well as knowledge accumulated through the LCS network

The research outlined in this proposal is expected to generate value in a number of ways, both by strengthening IGES's position as a regional research establishment on sustainability, and for Asia as indicated below:

- i. **A framework for integrated SC in Asia:** Policy research on SC in Asia tends to be limited to waste management or energy consumption in urban settings. Therefore, there is no clear direction of research yet developed besides that in the EU. This will give opportunities for IGES to take a lead in dialogue on SC in collaboration with international organisations in Asia-Pacific by providing an integrated understanding of SC in the context of the region.
- ii. **Ongoing collaboration:** IGES has been involved in several policy-relevant networks which are very relevant to contextualizing consumption issues under major policy processes in relation to sustainable development of Asia.
- iii. **The high potential for collaboration with APRSCP:** The Asia Pacific Roundtable on SCP is intended as a forum/expert meeting to facilitate regional collaboration in SCP. Although it has some limitation in coming up with a clear policy direction for SCP in the region, the APRSCP has been in close collaboration with IGES before. The Chair of APRSCP recently invited IGES

to take part in discussions to revitalize their activities as a basis of collaboration in the region for better quality, integrated and effective policy.

- iv. Our preliminary research shows a limited availability of hard **data on consumer behaviour** in the region. Using food and ACs as examples, data will be generated that should highlight trends and drivers of consumption. Such data will be invaluable to several researches and policy design, both for IGES and other stakeholder groups;
- v. Case studies will highlight **good practices** and adaptive models which can utilize the existing network of IGES such as APFED show case and
- vi. Once **successful factors on local actions in SCP** are identified, IGES can develop a feasibility study of local project implementation in close collaboration with funding agencies such as ADB or local NGOs identified through the IGES's existing networks.

II. Allocation of Human/Financial Resources

(I) Implementation Arrangements

1. Timeframe

FY2010	Partnership/consortium arrangements Design and collaboration with national partners for general survey on consumption; Survey Design of tools for in-depth data collection on household consumption Training of collaborators and data collectors Household consumption data collection
FY 2011	Analyses of consumption data Develop analytical framework for policy analyses Scoping national policies and instruments for sustainable consumption Categorization and initial analyzes Comparison of EU and Asian tools and concepts, analyses of adaptability of EU tools and methods in developing Asia
FY 2012	Identifying and observing local sustainability initiatives Developing characteristics for replication or larger scale implementation Policy recommendations

2.Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

- IGES SC activities will set up an interdisciplinary consortium of researchers and collaborating institutions for SC that will facilitate expert dialogue on SC in Asia. Although IGES SC research is designed to be carried out independently, possibly as a component of a joint study, a consortium is envisaged in which, having similar objectives as outlined above, other stakeholders will develop and work on components of SC (e.g. housing, mobility) which together with IGES' component will give a more complete picture of SC in the region. A joint proposal with other institutes will be explored.
- Consumers International (CI), the largest international federation of consumer groups will be a part in both the consumption policy and consumer behaviour aspects. Through CI, IGES can then work with its member organisations in targeted countries.
- The UNEP/Wuppertal Institute Collaborating Centre on Sustainable Consumption and Production (CSCP) has been active in promoting a shift in production and consumption towards sustainable patterns, advocating policy, institutional and individual approaches. They also form the network facility for the EU-funded programme SWITCH Asia, which includes a large number of SCP projects in the AP region. They will be partners of this component, for policy analyses and recommendations.
- We are involved with the Consumer Citizenship Network/ Partnership for Education and Research about Responsible Living (PERL) funded by the European Commission. It is one of the few platforms that bring together hundreds of researchers on sustainability issues and especially on sustainable consumption from Asia, Europe and North America. For the 2009-2012 phase of PERL, the International Task Force on Sustainable Lifestyles under the Marrakech Process which ends this year has encouraged its members to join PERL. It would therefore be a useful partner, especially as within our team is a coordinator for one of the test forces.
- UNEP, besides working on Sustainable consumption and production, has already done some surveys and two reports (together with Consumers International) on implementation of the chapter on sustainable consumption in the revised UN Guidelines on Consumer Protection. UNEPRoAP will be a partner in consumption policy analyses.
- We have also been in contact with individuals with leading research on SC (e.g. Maurie Cohen, Editor of *Sustainability: Science Practice and Policy*, and director of the New Jersey Institute's Director Graduate Program in Environmental Policy Studies; Prof. Shun Fung "Anthony" CHIU, one of the key organizers of the Asia-Pacific Roundtable on SCP, and Research Scientist at the Center for Engineering & Sustainable Development Research (CESDR), De La Salle University, Manila, Philippines).

(II) Allocation of Human Resources

- 1 researcher on sustainable consumption policy frameworks and instruments, partnership collaboration, and outreach;
- 1 researcher with background in social science, preferably with experience on questionnaire/survey design, data analyses; this could be coordinated with the Governance and Capacity Group.
- 1 external expert on sustainable food policy for regular consultation (Consultant or IGES Fellow)
- A number of short-term (2 months each) assistants for data collection, preferably university students/graduates from target partner countries

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 11 million yen

2. External funds obtained/to be applied

At the moment, specific funding for this component is limited: only small funds from ADB (secured until FY2011). It is expected that some of the MOEJ funding for research related with the Regional 3R Forum can be allocated to this component. Additionally, the PERL network and the International Task Force on Sustainable Lifestyle have committed to funding one IGES staff participation in their meetings for the 2009 – 2012 period.

One of the activities in the first year of the 5th phase will be to develop a research proposal (most likely in collaboration with an external partner) to obtain additional funding.

III. Impact Generation

1. Major outputs (research papers and policy papers)

- i. Policy briefs.
- ii. Depending on time and resources, 2 potential journal articles using food/air conditioners as case studies: one on the influence of the growing consumer class on resource consumption in developing Asia; and another on attitudes versus behaviours towards sustainable consumption in developing Asia.
- iii. At least one, potentially two reports: one outlining SC policies in Asia along with recommendations; a second one on changes in infrastructure that would enable SC in developing Asia-Pacific.

iv. Raw data sets on resource consumption and consumer behaviour in Asia

2. Influence strategy

(Policy processes, networks, forums etc. in which IGES plays a major role, linkage to key regional and global political processes. How IGES research will be inputted into such processes to generate influence.)

- A collaborative resource network for researchers and policy makers.
- An SC researcher-policy maker meeting once every year for three years (possibly integrated with ISAP), as well as seminars and workshops with practitioners and collaborating partners.
- Close collaboration with APRSCP by responding to the request of IGES's active involvement.
- Participation in the Marrakech Process to develop frameworks of programmes in support of regional efforts to shift to SCP where IGES research could be used as input.
- Collaboration with major regional organisations (such as UNEP, ADB, ESCAP etc) as co-publishers and/or sponsors of publications. This will ensure strategic level distribution and use.
- National policy processes on food consumption in countries participating in survey and field studies

Marrakech Process on sustainable consumption and production, with contributions towards sectoral policies and development of frameworks of support to influence consumer behaviour

Title: (2) Chemicals Management for Sustainable Product and Material Life-Cycles

I. Research Outline

1. Background (Relevance to Asia-Pacific)

The markets for consumer goods in developing Asian countries are expanding rapidly. Both the quantity and the diversity of products are increasing, and the chemical composition of many kinds of products is becoming more complex. However, for the majority of chemicals used in products or added to products there is currently insufficient knowledge on the potential environmental and health impacts. In developed countries there is a growing awareness on these issues, and policy makers are developing mechanisms aimed at identifying and controlling potentially harmful substances and applications. The European REACH Regulation is an example of such policy measures. In contrast, developing countries in Asia have very weak regulatory frameworks for chemicals – especially for substances in products. It is commonly the case that not even the most basic data on what substances are used, in what amounts and in what applications is available.

The negative impacts of hazardous chemicals in products can occur at different life-cycle stages, including production, use and end-of-life treatment. Among these stages, the upstream ones are usually to some extent regulated, through occupational health and consumer protection laws and guidelines. However, hazards associated with the post-consumer stages of reuse, recycling and waste treatment are typically receiving less attention. Aiming to achieve sustainable resource utilization in Asia, this component will explore policy integration for sound chemicals management and effective resource management with emphasis on chemicals in products and information system. More concretely, the component will conceptualize management system for chemicals in products and develop information system for the end-of-life products. The research outcomes will be applied for international or regional chemical-related policy processes.

Chemicals in products

Mercury and its compounds are well known toxicants responsible for a variety of documented adverse effects on human health and the environment. However, mercury has also a range of useful properties and is used in a number of commercial products and industrial processes. Mercury is one example of a chemical that can cause problems when used in products; in contrast to emissions from production facilities, the emissions at the use and waste treatment stages are diffuse and difficult to control. UNEP established mercury programme to reduce the risks to human health and the environment posed by mercury in products and production processes. As a result of UNEP mercury programme, negotiations on an international legally binding agreement on mercury have been decided. The treaty and ongoing voluntary initiatives targeting mercury have important implications for the Asia-Pacific region. Mercury emissions into the environment in the Asia-Pacific are more

than in any other region in the world and the emissions may continue to increase.²³ Asia-Pacific contributes to a high mercury demand for manufacturing batteries, fluorescent lamps etc.

There are several approaches to manage chemicals in products from life cycle perspectives such as restrictions (e.g. chemicals control law, PRTR, REACH, RoHS, etc), product policy promoting substitution (e.g. CPP, IPP, Design for Environment), EPR/Product Stewardship, information (e.g. risk/hazardous information, GHS, Green purchase, Recycle information, etc.), , capacity development and knowledge transfer, etc.

Information System for the End-of-life Products

In the recycling chain, end-of-life products are often treated based on the market value of materials without proper consideration of hazards. Availability of proper information on product contents is a necessary precondition for improved treatment. However, availability of information as such is only likely to lead to minor improvements. This indicates a need for additional measures. First of all, since it can be assumed that only proper (formal) recyclers will actually be using product information for improvements, it must be assured that all end-of-life products are taken care of by such companies. This requires that increased efforts be made to close the loop-hole in the Japanese EPR system for electronics by stopping the export of end-of-life products driven by informal collectors and traders. However, it cannot simply be assumed that the formal recycling companies will make full beneficial use of increased product information to reduce risks and improve recycling effectiveness. Their demand for product information may need to be stimulated and their incentives for using such information for improvements may need to be strengthened.

2. Objectives

The main theme of this study is the safe management of hazardous substances and products through life-cycle. More specifically, the research looks at chemicals in products from a life-cycle perspective and gives special attention to the intersection between safe chemicals management and sustainable resource circulation. Specific objectives of this study are:

- (i) To suggest improvement of management systems and policies for safe handling of chemicals in products
- (ii) To explore better information system for the end-of-life treatment through proper recycling and waste treatment.
- (iii) To facilitate regional cooperation for sustainable resource circulation integrated with sound management of hazardous chemicals.

3. Major components

23 Document UNEP(DTIE)/Hg/OEWG.2/INF/12 “Issues to be addressed by Asia-Pacific countries on global mercury management”

[http://www.chem.unep.ch/mercury/OEWG2/documents/w23_12\)/English/OEWG_%20INF12.doc](http://www.chem.unep.ch/mercury/OEWG2/documents/w23_12)/English/OEWG_%20INF12.doc)

- 3.1 Management of chemicals in products in the Asia-Pacific region (Chemicals in Products).
- 3.2 Information system for sound hazardous materials management and effective resource utilization at the end-of-life stages (Information Systems for End-of-life).
- 3.3 Regional cooperation on the hazardous material management for safe production and consumption and the sustainable resource utilization in Asia (Regional Policy Process).

4. Research questions

4.1 Chemicals in products

- a. Chemicals in products in developing countries

What capacity do developing countries have to safely manage chemicals in products throughout their life cycle? How can this capacity best be strengthened – what are the critical components of such capacity development?

- b. Contamination of recycled materials

How to effectively prevent contamination with hazardous chemicals in recycled materials?

- c. Case study: Mercury

What products contain mercury and how are they treated at the post-consumer stages in countries in the Asia-Pacific region?

Among these products, which ones should be prioritized for regulation and what policy interventions are likely to be the most effective?

What are the requirements for mitigation of mercury risks by promoting safe disposal of mercury in products and promote substitutions in the products in Asia-Pacific region?

4.2 Information Systems for End-of-life

What inefficiencies (pollution, health risks, unnecessary costs, unrealized recycling potential etc.) occur in the recycling chain due to a lack of information on product contents?

What information (e.g. information on hazardous contents, valuable contents, or both) would be needed for the actors at the different stages of the formal recycling chain to achieve a safe and efficient resource recovery?

What tools or systems would be suitable for providing information on product contents at the end-of-life stages, and how could the information system at the production stages be extended to the end-of-life stages?

What policy measures, in conjunction with the improved information system, are necessary in order to make the recycling sector utilize such information and improve the treatment of end-of-life composite products from the perspectives of both hazardousness and resource value.

How to prevent that end-of-life articles escape from the Japanese EPR system through export?

How can relevant information on chemical substances in components and materials be made available internationally, and what benefits could that have?

Regional Policy Process

What kinds of policy coordination would be necessary in order to increase effective resource utilization by promoting safe handling of chemicals through the product life-cycle in Asia and the Pacific? What are the obstacles to create harmonized hazardous material management in Asia and how to overcome them?

5. Methodologies

(i) Chemicals in Products;

This study focuses on hazards caused by chemicals in products and appropriate policy approaches to improve the management of such hazards. The study will investigate in particular how developing countries can respond to these issues and try to outline how improved management of chemicals in products can be achieved in the Asia-Pacific region.

To do so, firstly, this component will carry out a case study of products containing mercury in the Asia-Pacific region. It will assess emissions from mercury in products through their life-cycles in order to identify prioritized products. It will also review related regulations, technologies for substitution and disposal, and collection system. The aim of this research is to identify products that are likely to cause substantial emissions but are currently not sufficiently regulated. The target countries could be Japan, China, Korea, Thailand (Could be the Philippines or Viet Nam) and Laos (or Cambodia).

Secondly, this research will develop possible elimination/reduction scenarios of mercury in products in Asia-Pacific region, by considering 1) reduction of man-caused emission to atmosphere, 2) safe disposal of mercury in waste products, 3) reduction of demands at products and production process, 4) reduction of mercury supply, included primary production, 5) safe long term storage, 6) reparation of polluted place, and 7) knowledge increment.

The study will also examine management systems and policies for chemicals in products more in general in developing countries, including e.g. POPs, ODS, the RoHS substances, and Asbestos. Needs and priorities for capacity development will be identified mainly through interviews and workshops with government officials, NGOs, IGO staff, academics and other experts.

Finally, the study will look into potential problems caused by contamination of recycled materials and possible ways of preventing such problems from occurring. Literature studies and desktop research will be complemented by interviews as needed. The details of this work will be developed later.

(ii) Information Systems for End-of-life

Focusing on composite products, which contain both hazardous chemicals and valuable metals, the study investigates how improved availability of information on product contents could ensure safe handling and efficiency of recycling for the end-of-life products. The hypothesis is that improved availability of information on the material contents could make recycling and waste management operations 1) safer and 2) more efficient and 3) make recycled materials less contaminated in the formal recycling activities. In addition, policy measures in conjunction with the improved availability of information could stop outflows of the end-of-life products to

informal collectors and traders who export waste for hazardous recycling abroad.

First, the study will examine the existing information management system at recycling chain (e.g. limitations and potential advantages of waste manifest, labelling, and waste data sheet) from literature reviews and interview survey, and we will identify inefficiencies or systematic failures of transaction of the end-of-life products due to a lack of information on product contents. Then, the study will review how the economic theory tries to solve inefficiencies of the market due to a lack of information (e.g. information asymmetry). The contents and forms of shared information will be analyzed using a few case studies (e.g. PCs) considering potential harmonization with the current information system and a possibility of extending the information system at the production and consumption stages to the end-of-life stages. In addition, in order to avoid the environmental issues and serious health impacts as a result of end-of-life products treated by the informal sector, the study will propose policy measures in conjunction with the improved availability of information on product contents (e.g. setting clear standard for categorization of the end-of-life composite products based on its hazardousness and resource value). In this analysis, we will organize several expert workshops and discuss the effects of monitoring system and economic driving forces.

(iii) Regional Policy Process

Toward policy integration for resource efficiency and sound chemical management in Asia and the Pacific, it is necessary for developing countries to increase the capacity of sound chemical management. This study focuses on capacity development and knowledge transfer in developing countries. SCP programme will contribute policy development by facilitating the transfer of experiences for sound chemical management in Asia-Pacific region. At the same time, working as a steering committee member for chemicals in products, SCP programme will promote safe handling of chemicals through product life cycle with a special emphasis on: a) developing countries in Asia and the Pacific, and b) hazards and risks at the end-of-life stages.

6. Value-added (including Relationship with IGES Core Competence)

IGES WMR project has done several activities related to this component in the 4th phase such as the Recycle Information Sharing System (RISS) research project, Chemical management workshops for the Tripartite Environment Ministers Meeting (TEMM), involvement in Strategic Approach to International Chemical Management (SAICM) meetings, Chemicals in Products including risks in the recycling process, and a report on printed circuit board.

The proposed component is expected to generate value in a number of ways:

By being one of members of the steering committee for chemicals in products, this research is expected to provide more relevant information to decision makers.

(ii) By improving the availability of information on product contents, this research is expected to make the end-of-life composite products be treated based on both perspectives of its potential

hazardousness and resource value along the formal recycling flow.

(iii) The research outcomes from the above two components will contribute to chemical-related regional and international policy processes, including SAICM, steering committee on chemicals in products, and ICCM3.

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II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

Sub-components	Activities		
	FY2010	FY2011	FY2012
- Chemicals in Products	<ul style="list-style-type: none"> • literature review to identify the current production and use patterns of mercury in products • Initial work on developing countries' capacity to safely manage chemicals in products 	<ul style="list-style-type: none"> • Development of possible elimination/reduction scenarios for mercury in products. • Identification of the necessary tools for safer resource circulation in plastics, glass, concrete and metals. 	<ul style="list-style-type: none"> • Policy proposals towards safe management of chemicals in products in developing Asia.
- Information System for End-of-life	<ul style="list-style-type: none"> • Evaluate existing information systems at the end-of-life stages • Estimate the benefits and value of additional product information 	<ul style="list-style-type: none"> • Propose ways to improve information availability for the end-of-life stages • Assess necessary policy measures in conjunction with the improved available information 	<ul style="list-style-type: none"> • Analyzing the potential of regional policy coordination for managing trans-boundary movement of the end-of-life composite products

<p>- Regional Policy Process</p>	<ul style="list-style-type: none"> • SAICM and Committee on Chemicals in Products 	<ul style="list-style-type: none"> • SAICM and Committee on Chemicals in Products • Contribute the research results into TEMM process. 	<ul style="list-style-type: none"> • SAICM and Committee on Chemicals in Products • Regional cooperation for integrated policy for safer resource circulation and sound chemical management in Asia • (Side event about regional cooperation on the information system for safe management of chemicals in products at ICCM3)
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2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

- The research will be mainly carried out by IGES-SCP staffs, including IGES Fellows.
- Some local consultants may need to be hired for data collection in target countries.
- Some activities are expected to be carried out in collaboration with UNEP chemical and UNEP /IETC
- Research collaboration with AIT, other local institute or other local university is expected.
- The research will be also collaborated with Tohoku University, Kanto Gakuin University, and National Institute for Environmental Studies under the research project of scientific research fund from Ministry of the Environment, Japan (Information System for End-of-life).

(II) Allocation of Human Resources

- 2 full-time staff required
- Substantial knowledge on chemicals management and related policies is needed. Additional knowledge on risk assessment/communication and international environmental law would be highly beneficial.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 14 million yen

2. External funds obtained/to be applied

- SAICM-related activities are expected to raise external funds for several research activities and working as secretariat of SAICM seminar.
- RISS project will be expected to be funded under Scientific Research Fund from Ministry of the Environment, Japan until FY2010. 12M Yen per year (application planned)

III. Impact Generation

1. Major outputs (research papers and policy papers)

- 1.1. One policy brief and presentations at workshops, seminars, and conferences.
- 1.2. One policy report and one final project report for “Information System for the end-of-life products”. One peer-reviewed journal paper.
- 1.3. One policy report for regional policy integration for chemical management and resource

utilizations.

2. Influence strategy

- SAICM has initiated a steering committee on chemicals in products (UNEP acts as the secretariat), where an IGES staff (Magnus Bengtsson) is serving as the expert representative from the Asia-Pacific region. This committee will explore information needs on chemicals in products and analyse systems for information management. The work will be reported to the ICCM3 in 2012.
- Integrated research outcomes on regional policy cooperation for harmonized hazardous materials management can be nominated as possible topics for several policy processes, such as TEMM and Asia 3R Forum.

Title: (3) Governance for Sustainable Resource Circulation in Asia

(Please remove repetition and overlapping.)

I. Research Outline

1. Background (Relevance to Asia-Pacific)

The global economy in the 21st Century continues to experience increasing resource consumption. This can result not only in the global challenges of resource scarcity/depletion but also in decreasing environmental carrying capacity due to environmental impact throughout the whole life cycle of products. On the one hand, environmental problems have started to be realized as a consequence of over-consumption in developed economies. On the other hand, developing economies have continuously increasing resource demands due to rapid urbanization and industrial development. Resource and environmental challenges continue to be a critical issue in the Asia-Pacific region because the region develops as one of the driving force of economic development in the world.

To achieve sustainable consumption and production in the region, it is necessary for the economies to increase resource productivity in industrial activities and decouple economic development from resource consumption as well as to establish a stable resource circulation system which can contribute to both economic development and environmental protection. For the establishment of sustainable resource circulation in Asia, some of the main challenges include: drastic increases in resource use efficiency, establishment of appropriate systems and infrastructure for safe reuse, recycling and waste treatment, elimination of environmental and health impacts from improper treatment and recycling conducted by the informal sector in developing countries, establishment of controlled and beneficial international trade in secondary materials/secondhand goods. Meeting these challenges requires a strengthening of governance structures, both at national and sub-national level. It also requires international collaboration in various forms including legally binding agreements as well as information exchange, support for capacity development and technology transfer.

Since the early 2000s, at the several occasions of policy dialogues and expert meetings, policy makers, international organizations, researchers, and NGOs have discussed substantially the needs for establishment of a sustainable resource circulation system both at the national as well as the regional levels in Asia. Through these dialogues, a wide spread recognition has emerged that international cooperation between developed and developing economies is necessary to realize stable, economically efficient and environmentally sound resource circulation.

As a policy process, the 3R Initiative was initiated in 2005 to promote international cooperation in the field of the 3Rs. Also, a regional facility for international cooperation for implementing policies for sustainable resource circulation, the Regional 3R Forum in Asia, has been

established. Under this Forum, an international collaborative research for policy proposal for the regional economy is now being conducted. International collaboration on the 3Rs such as National 3R Strategy Development has facilitated developing economies in Asia to develop waste management and recycling policies with consideration of resource circulation. The Institute for Global Environmental Strategies has been involved in these processes with a close collaboration with Japanese government as well as international governmental organizations such as UNCRD, UNEP and ADB.

However, there is currently a significant gap between the ideas expressed in national strategies on the 3Rs, and the actual policy implementation. To facilitate the actual implementation of policies expressed in the form of legislation in developing Asia, it is necessary to evaluate environmental, economic, and social impact of the 3Rs and waste management policies, benefits related to the national social and economic development, and to transfer knowledge and experience for the successful implementation properly to the countries experiencing difficulties in policy implementation.

This component tries to respond to such needs for facilitating international cooperation in strategic implementation of the 3Rs and establishing sustainable resource circulation in this region by conducting policy relevant researches through combining qualitative and quantitative methods.

As a prelude for this component, IGES has identified several major challenges and priorities towards the strategic implementation of the 3Rs as a further step from National 3R Strategy Development in collaboration with UNCRD and UNEP²⁴. Also, IGES has pointed out in its work on “Extended Producer Responsibility in Asia” that there is often a gap between the policies and actual requirements of institutions, finance and infrastructure to make such policies workable.

Under RISPOII project (FY2005-2007), by focusing on environmental and economic impact of regional economic integration, IGES has conducted an international collaborative research on better management of difficult-to-manage end of life products such as e-waste and ELV in the context of the future economic integration in the region. RISPOII has conducted qualitative regional and national-level policy analysis focusing on Viet Nam, China and Thailand as well as ASEAN+3 countries. RISPOII project has identified policy options for regional recycling mechanisms as well as several possible responses to improve resource circulation and waste management at the national level. However, the expected collaboration between quantitative economic modeling and qualitative policy analysis was limited to the analysis of potential environmental impacts in relation to metal recycling at macro-level. Therefore, with the proposed three sub-components as well as in close

²⁴ See the forthcoming report by IGES, UNCRD and UNEP “Towards Strategic Promotion of the 3Rs in Developing Asia - A progress report of National 3R Strategy Making in Bangladesh, Cambodia, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam-“.

collaboration with component 1 “sustainable waste management and multi-benefits”, this study will try to come up with policy-relevant advice on governance of sustainable circulation by facilitating mutual communications between more national specific knowledge created from national case studies in sub-component 1 by national experts of resource circulation policies in Asia and more theoretical knowledge created from sub-component 2 and 3 by integration of qualitative and quantitative policy analysis of resource circulation and waste management policies.

Along this line, this component has secured two research funding: MOEJ’s 3 year commissioned project titled “Asia Resource Circulation Research Project” and “Policy Research on Environmental Economics”. In other words, as a research funding, Asia Resource Circulation Research Project represents the qualitative analysis part and Policy Research on Environmental Economics represents the quantitative analysis part. To assure the good collaboration between qualitative analysis and quantitative analysis, the workshops will be held jointly for these research funds.

2. Objectives

- (i) To promote systematic implementation of resource circulation and waste management policies for sustainable consumption and production in developing Asian countries.
- (ii) To come up with policy-relevant advice on improved governance of sustainable circulation in Asia by facilitating exchange of experts on nationally specific and theoretical knowledge created by international collaborative research on resource circulation and waste management policies.

3. Major components

(i) Improved governance for implementation of resource circulation and waste management policies in developing Asia (allocation of efforts in this component: 30%): International collaborative research on improved governance (improved coordination of institutions, finance, infrastructure, and human resources) for implementing the 3R policies in Asia will be conducted to generate country-specific studies which will help to shift from the National 3R Strategy to actual implementation of the 3R policies as well as accumulate policy-relevant lessons on significance of institutional settings, enabling source separation, efficient collection mechanisms and infrastructure building, for other countries in the region rather than focusing on end-of-life technical treatment. Also, this sub-component aims to establish a group of experts on resource circulation policies in Asia, consisting of IGES and non-IGES experts who can provide specific advice/needs/interpretation for fine-tuning the analysis of subcomponent 2 and 3.

(ii) Assessment of social, economic and environmental impacts and trade-offs of different national resource circulation and waste management scenarios (allocation of efforts in this component: 45%): By identifying several material flows such as scrap iron, scrap copper, scrap plastics, rare metals, or e-waste by categorizing them by resource value, potential hazardousness, or quantity, this component will develop different policy scenarios (policy mix) on resource circulation and waste management and evaluate their social, economic and environmental impacts and trade-offs in several

selected participating countries of the Regional 3R Forum in Asia. Assessment tools of national resource circulation and waste management policies will be developed to analyze social, economic and environmental impact.

(iii) Implications of international resource circulation in Asia (allocation of efforts in this component: 25%): This sub-component will examine policy options on international resource circulation focusing on composite types of end of life products such as e-waste under different scenarios of resource restriction, and supply and demand of different resource flows and stocks, by taking into account issues on resource security as well as externalities associated with informal recycling activities. By doing so, this subcomponent tries to identify possible incentives to reroute the current material flows going to improper recycling activities or treatment in the context of international resource circulation between developed and developing countries.

4. Research questions

(i) Improved governance for implementation of resource circulation and waste management policies in developing Asia: Considering industrial and economic structures of selected countries from developing Asia, can we link challenges associated with waste management and resource circulation in wider context of sustainable development in addition to health and sanitation? How can we facilitate better coordination of institutions, financial sources, infrastructure and human resources for strategic implementation of the resource circulation and waste management policies to achieve SCP?

(ii) Assessment of social, economic and environmental impacts and trade-offs of different national resource circulation and waste management scenarios: What sorts of 3R policies are effective for developing Asia to achieve sustainable resource circulation and better waste management? How social, economic, and environmental impacts and trade-offs are evaluated in relation to different sets of integrated resource circulation/waste management policies for different flow of materials? Given the lack of reliable and consistent data in relation to SCP and waste management in developing Asian countries, what kinds of methods/indicators can properly evaluate social, economic and environmental impacts of resource circulation policies?

(iii) Implications of international resource circulation in Asia: What are the advantages and disadvantages of international resource circulation under different scenarios of resource restriction and supply? What kinds of policy packages can make more sustainable international resource circulation?

5. Methodologies

(i) Improved governance for implementation of resource circulation and waste management policies in developing Asia: By focusing on how to match the policy directions and institutions/infrastructure required to facilitate source separation, environmentally sound collection and treatment including recycling, this component conducts a study on various policy tools and improved coordination between infrastructure, financial mechanisms, human resource development, and technology transfer for more effective implementation of resource circulation policies at the

national level.

In collaboration with 4-5 research institutes (Chinese Academy of Science, Della Salle University in the Philippines, Malaya University of Malaysia, Hanoi Institute of Technology, AIT, Taiwan University) in Asia, policy analysis will be conducted with specific focus on challenges o come up with appropriate policy directions, effective policy tools, and better institutional settings.

While IGES will provide the overall framework, the collaborating institutes are expected to develop each research plan in consultation with the working group which discusses governance of resource circulation in Asia consisted of a group of experts on resource circulation policies in Asia, both IGES and non-IGES experts. The collaborating research institutes will pick up objectives or targets specified in their current or planned 3R policies such as the Circular Economy Law in the case of China or the SWMPC Bill 2007 in the case of Malaysia or National 3R Strategy. Then, they will investigate the issues in relation to institutional arrangements or more coordinated implementation of various policy tools in achieving targeted goals.

In this research, the studies conducted by the collaborating institutes shall emphasize lifecycle perspectives and policies to fill gaps between 3R-related legislation, actual practices and infrastructure. By considering the proposals from national collaborating institutes of this research, the studies by the collaborating institutes should respond to the policy needs identified by “Regional 3R Forum in Asia” including “mainstreaming of the 3R policy”, “mobilization of financial resources”, “development of human resources”, “better understanding of co-benefits of the 3Rs”, “development and implementation of effective policy mechanisms”, “capacity development for collection and treatment of hazardous wastes”, “development of organizational framework to support informal sector”, or ”technology transfer”. The results will be published in the form of policy report in time for the annual meetings of Regional 3R Forum in Asia. Coordination and monitoring of progress of the collaborative research will be done in the occasion of annual meetings of Regional 3R Forum in Asia and additional annual Workshops. Thus, the working groups will gather twice a year.

(ii) Assessment of social, economic and environmental impacts and trade-offs of different national resource circulation and waste management scenarios: The research will first identify several material flows such as scrap iron, scrap copper, scrap plastics, rare metals, or e-waste by categorizing them by resource value, potential hazardousness, or quantity. Then, this study will develop different policy scenarios (policy direction rather than specific policy tools) on resource circulation and waste management. By identifying different technical approaches and end of life treatment and its relations to social, economic and environmental impacts, it will try to highlight the benefits and trade-offs of different policy scenarios in several selected participating countries of Regional 3R Forum in Asia. To this end, this component will examine possible indicators, which

combine MFA and environmental economics, to evaluate resource circulation from three aspects: social, economic and environmental impacts recognizing trade-offs between these three perspectives. By taking into account the limited availability of statistics and data on material flows of the participating countries to Regional 3R Forum in Asia, the study will develop estimation of resource productivity, resource circulation rates, environmental impact, and social impacts such as employment. Relevant previous work will be examined, which include a study by IFF in Austria, which has conducted environmental, economic, and social impact assessment of resource use at global and national level as well as a modeling study by Taiwan University, which has linked waste management approaches and social and environmental impacts at national and local levels. The investigation will try to estimate these indicators by combining qualitative or quantitative approaches in collaboration with research partners in selected Asian countries.

(iii) Implications of international resource circulation in Asia: In collaboration with Economic Analysis Team of IGES as well as researchers of resource economics of University of Tokyo and Kansai University, this component will combine quantitative economic analysis of the material resource market and MFA to examine possible resource restriction/supply scenarios in Asian economy. Using the same or selected flows identified in sub-component 2, various policy options for international resource circulation as well as domestic policies will be identified. Also, IGES's economic analysis team and resource economists from University of Tokyo will try to integrate resource restriction and resource price change issues into the modeling. By doing so, this sub-component try to identify how changes in resource prices affect material flows and possible policy intervention points in life cycle of recyclable materials to stabilize recycling activities in the region. Also, taking the case of PC (new, secondhand and scrap), theoretical models (such as comparative static analysis) to analyze elements affecting international resource circulation and simulate different policy options will be developed. By using the theoretical models, the options such as ban of e-waste trade, ban of trade of secondhand usages of e-products, or increased tax/tariff for e-waste will be simulated under different level of resource prices. By using the result of this analysis, possible policy options/packages of international resource circulation in Asia to respond such scenarios will be developed. The progress of this component will be shared with a group of experts on international resource circulation and used for policy analysis and recommendations for sustainable resource circulation to give scientific advice to Regional 3R Forum in Asia.

6. Value-added (including Relationship with IGES Core Competence)

- This component is developed from the core policy research activities of Waste and Resources Project of the 4th phase of IGES with MOEJ's continuous expectation of policy research inputs to the 3R-related process.
- Involvement to the 3R Initiative and Regional 3R Forum in Asia: Since 2005, IGES has been involved in the 3R Initiative; G8-related interantional process to promote the 3Rs.

IGES has been involved in planning and coordinating Regional 3R Forum in Asia; a regional cooperation facility for the strategic implementation of the 3Rs. IGES can utilize the network established through involvement in the 3R Initiative and Regional 3R Forum in Asia both in terms of information gathering as well as outreach activities.

- **RISPOII (2005-2007):** Under RISPOII project, IGES has conducted international collaborative research on strategic environmental assessment and policy package development in relation to the future economic integration of Asia. One of the components of the RISPOII study dealt with international resource circulation issues. This study will further develop a policy research on international resource circulation with better collaboration with environmental economics approach by utilizing the experience and networks developed from RISPOII

Overall: This research is expected to generate positive effects among developing Asian countries to promote more prioritized and comprehensive implementation of resource circulation policies at the national level by raising awareness of waste issues as a significant burden for sound economic development.

(ii) Improved governance for 3R implementation in developing Asia: This research is expected to give better understanding on significance of implementation arrangements of resource circulation policies as an aspect of national resource strategies as well as economic and social benefits in addition to sanitation.

(iii) Assessment of social, economic and environmental impacts and trade-offs of different national resource circulation and waste management scenarios: By identifying the positive social, economic or environmental impacts of resource circulation policies, this research is expected to raise overall policy priorities of resource circulation in Asia.

(iv) Implications of international resource circulation in Asia: This research is expected to shed a new light on the relations between resource restrictions and price, effectiveness of 3R policies and waste management, since economic modeling on resource circulation policies has not been developed well in relation to resource restriction so far. By doing so, it is expected to contribute to better-informed policy dialogues on international resource circulation.

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II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

	Improved governance for 3R implementation in	Assessment of social, economic and	Implications of international resource circulation in Asia
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	developing Asia	environmental impacts and trade-offs of different national resource circulation and waste management scenarios	
April 2010- March 2011	Decide the focuses of country specific case studies. Report of inauguration of international collaborative research at Regional 3R Forum in Asia Analyze the gap between challenges for implementation of 3R-related policy and actual situation of countries which started to develop EPR or circular economy policies.	Identify several material flows such as scrap iron, scrap copper, scrap plastics, rare metals, or e-waste by categorizing them by resource value, potential hazardousness, or quantity. Identify different mixture of policy responses in relation to waste reduction, reuse, recycling, and treatment to be used for the analysis Examination of methodology for development of indicators. Summarizing the major social, environmental, and economic challenges in relation to resource circulation in the countries participating to Regional 3R Forum in Asia	Start a review of economic model reflecting resource restriction scenarios. Develop a proto-type of material flow stock model Estimation of material flow on new products, secondhand goods, scraps of e-products.
April 2011- March 2012	Focus on collaboration of stakeholders for establishing mechanisms for source segregation, collection and treatment Collaborative studies on effective technology	Development of indicators along data collection Further modification of policy packages for specific recyclable resource flow to be evaluated in model.	Reflecting MFA datas to economic model which reflects resource restriction Scenario analysis for different trade policy options to control secondary material flows

	transfer together with AIT.	Integrate environmental/social impact evaluation module with integrated policy assessment model	Draft a proposal in relation to “East Asia Sound Material Cycle Society Vision”.
April 2012- March 2013	Improve analysis of the result and reflect to Regional 3R Forum in Asia	Improve analysis of the result and reflect to Regional 3R Forum in Asia	Improve analysis of the result and reflect to Regional 3R Forum in Asia

2. Implementation framework

- The research will be carried out with close collaboration with the current IGES-EA staff.
- Country case studies of “improved governance” will be carried out by six partner institutes: Chinese Academy of Science, Della Salle University in the Philippines, Malaya University of Malaysia, Hanoi Institute of Technology, AIT, and Taiwan University.
- Examination of international resource circulation in Asia will be carried out in collaboration with two researchers from University of Tokyo and one from Kansai University as well as Taiwan University.
- Involvement to ERIA working group on the 3Rs will assure the results of policy research will inform policy dialogues for regional economic integration in Asia.
- IGES, as a coordinator of international collaborative research on the 3Rs, will closely coordinate with and inform MOEJ, UNCRD, UNEP and ADB.

(II) Allocation of Human Resources

2 regular and 1 supporting researchers will be required. Close collaboration with EA team including one researcher who can contribute to economic modelling and indicator development is required.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 23 million yen

2. External funds obtained/to be applied

- For the component of “improved governance” and “implications of international resource circulation”, this component is confirmed to be supported by 3 years policy research programme of MOEJ (Asia 3R research) in relation to Regional 3R Forum in Asia. (FY2009-2011)
- Other fund will be raised for “assessment of policy scenarios” and “implications of

international resource circulation” from 3 years policy research programme of MOEJ Policy Research on Environmental Economics. This will be shared with Economic Analysis Team. (FY2009-2011)

- Other possible fund is a policy survey commissioned work which is related to the 3Rs and Clean Asia Initiative of MOEJ.
- Additional funds will be raised from ADB RETA on Regional 3R Forum in Asia.

III. Impact Generation

1. Major outputs (research papers and policy papers)

- 1.4. One policy report on improved governance (compiled work of collaborating institutes and IGES)
- 1.5. One policy report on sustainable resource circulation in Asia (compiled work of collaborating institutes and IGES)
- 1.6. One policy report on evaluation methods/indicators development on 3R policy (Taiwan and IGES)
- 1.7. Several research papers from IGES and collaborating institutes

2. Influence strategy

Since MOEJ is sponsoring international network of researchers to give inputs in relation to international resource circulation as well as on improved governance for implementation 3R policies to the Regional 3R Forum in Asia, the results from this study can be inputs into the policy process of the Regional 3Rs Forum in Asia, in which IGES plays a major role in collaboration with MOEJ, UNCRD and ADB, especially those on “East Asia Sound Material Cycle Society Vision Making” expected in FY 2012.

In collaboration with CSIRO, IGES/WMR and EA team will contribute to UNEP report on resource efficiency for MCED 2010. Initial findings from this component can be presented in this report. Also, this research is expected to give active inputs to working group on sustainable materials management in OECD or UNEP international panel on sustainable resource management.

Title: (4) Sustainable waste management with multiple benefits

I. Research Outline

1. Background (Relevance to Asia-Pacific)

Resource consumption and waste generation in developing Asian countries is in rapid growth. These changes have led to degradation of a wide range of natural resources and ecosystems. The impact has extended to scarcity of resource, especially those available to indigenous people, peasants and low-income groups which lack monetary power and thus rely heavily on ecosystem services (e.g. fish and indigenous vegetables).

Waste management in developing Asian countries still relies much on external support, such as from international aid agencies and subsidies from central governments. Many governments are very interested in implementation of end-of-pipe technologies such as sanitary landfill. Many countries have tried to promote public participation but its implementation is still low and mostly limited to specific project areas.

In developing countries, food and energy security and poverty reduction are urgent areas that national governments need to deal with. Therefore, national budget allocation for waste management is lower than priority sectors. Furthermore, the national budget allocation for waste management is mainly towards construction of large scale disposal sites proposed by large cities. Smaller cities/towns which generally lack both personnel and investment capacities need to seek other sources of financial support. As a result, waste management, particularly in small cities, is not environmentally sound, induces public nuisance, releases pollutants, and increases conflict between the authorities and local residents.

To achieve sustainable waste management, we need to consider how to integrate the waste management issue into the country priorities such as poverty reduction, food and energy security. For instance, design a waste management system that could provide benefits to reduce waste flow to disposal site, create income for residents and disadvantage groups in the society, increase food productivity and improve access to fuel by promoting separation of organic waste for small scale anaerobic digestion.

Furthermore, we need to realize that no single technology is suitable for all cities. We need to consider local factors like socio-economic conditions and environmental benefits in order to select the most suitable technology for waste management in target cities. For instance, anaerobic digestion technology of food waste is a complicated and expensive technology compared to composting, but it could provide more diverse benefits than composting. Therefore, there is a need to develop capacity of local authorities in choosing the most suitable technology for the city.

2. Objectives

- (i) To promote sustainable waste management systems that could provide multi-benefits to diverse

groups of stakeholders (e.g. residents, private sector, local government, and national government) in developing Asian countries.

- (ii) To encourage public participation from diverse groups of stakeholders such as community, informal sectors, and private sector in order to achieve sustainable waste management, and
- (iii) To promote sustainable use of biomass, the largest source of waste composition in this region, in particular, which can contribute to national development goals of food security, energy security as well as their climate change action plan.

3. Major components

- (i) Multi-benefits and trade-offs of selected waste management technologies.
- (ii) Waste separation and integrated resource management.
- (iii) Public participation for sustainable waste management.
- (iv) Biomass utilization for multi-benefits.

Each component is important to achieve sustainable waste management. In the early stage, this research will focus on multi-benefits approach of waste management. After identifying appropriate technologies for target cities, waste separation at source and public participation are key factors to enhance successful implementation of such technologies. Research activity on biomass utilization is an exercise to promote implementation of sustainable waste management practices in target cities. Finally, results of all components will be integrated to develop models promoting sustainable waste management in developing Asian countries.

4. Research questions

(i) Multi-benefits and trade-off: What kind of waste management technologies (e.g. landfill, incineration, recycling, and composting) are being promoted by either governments or non-government organizations in developing Asian countries? What benefits can be obtained by implementing these technologies? What is trade-off between these practices (e.g. if composting is promoted, can it decrease economic profit of landfill gas recovery because organic waste flows to landfills will decrease)?

(ii) Waste separation and integrated resource management: To what extent can waste generated in developing Asian countries be converted to resources? Waste composition is different among the cities, how can the number of and categories for waste separation (e.g. food, papers, plastics, and glass and metals) be decided in order to enhance efficient collection and utilization? What collection system should be introduced and how can they be introduced? How we can enhance cooperate management of waste that has similar characteristics but is generated from different sectors (urban, agriculture, industry)?

(iii) Public participation: Is there any encouragement of public participation for sustainable waste

management by national authorities? And if any, to what extent? Does public participation influence successful implementation of a waste management program? What are the drawbacks of and obstacles to successful promotion of public participation? Is involvement of the public (e.g. community based waste management, 3Rs [reduce, reuse, recycle], and privatization) less costly than typical waste management system in which the local authority takes full responsibility for waste disposal and treatment?

(iv) Biomass utilization for multi-benefits: This component is an ongoing activity which is partly supported by the Asia-Pacific Network for Global Change Research (APN) for FY2009 - 2010. In FY2009, this research will be carried out in Cambodia, Laos and Thailand. An implementation guideline and a decision tool will be developed based on the research findings. In FY2010, the main activity is to provide a capacity building program for local authorities in these countries in close collaboration with national authorities and local experts. In addition to this project, a further study will analyze benefits of biomass towns being implemented in Asia (e.g. Japan and Viet Nam). In order to carry out the latter study, research questions are raised as follows: How can biomass town which is being promoted in Japan provide benefits to relevant stakeholders and could it provide benefits to various sectors? If so, how? How does biomass town initiative enhance waste biomass management? What are the advantages and disadvantages of biomass towns (e.g. job creation, investment, personnel capacity) for sustainable waste biomass management in Japan and in other Asian countries? And what factors should be considered in transferring the concept and good practice of biomass towns for sustainable waste biomass management in Asian countries?

5. Methodologies

(i) Multi-benefits and trade-off: A multi-benefits approach for sustainable waste management should be promoted to contribute to the national agendas and development goals of developing countries. For this study, technologies being promoted in this region by either governments or NGOs will be listed. Further, potential benefits and trade-offs of selected waste management technologies being promoted in target countries (e.g. Thailand, Malaysia, Laos, Cambodia, Viet Nam, Philippines, and Indonesia) will be analyzed based on various perspectives of stakeholders. A preliminary list of technologies that are being promoted in this region are i) sanitary landfill, ii) mechanical biological treatment, iii) composting, v) anaerobic digestion, and vi) refused derived fuel. The data input for this analysis will be obtained from literature reviews, previous data sources obtained by IGES staff, and face-to-face interviews plus the distribution of a questionnaire to national governments, local authorities and a few beneficiary and non-beneficiary groups of selected projects in target countries. Further, dialogues with donor agencies (e.g. GTZ) will be organized to reveal their perspectives on technologies that they are willing to promote in order to contribute multi-benefits to target cities. The multi-benefits and trade-off analysis will cover, for instance, greenhouse gas emissions reduction, poverty reduction, environmental

impact (e.g. soil and water contamination, ecological change, air pollution, land use), health issues, and funding opportunity (e.g. national government, international aid agencies and Clean Development Mechanism). Local conditions will also be considered as a factor in considering benefits and trade-off of each technology.

(ii) Waste separation and integrated resource management: Waste separation is an important factor to enhance utilization of valuable resources discarded from production and consumption stages. However, many local authorities still do not know well how to deal with this issue. Therefore, in this study, we will review waste composition in a small number of selected cities that have available data of waste composition. And then quantity of valuable resources (e.g. food, biomass, paper, plastics, glass and metals) in the waste stream will be estimated based on waste generation and waste composition data in order to identify potential of resource utilization. Furthermore, we will identify suitable numbers of categories for waste separation as well as design appropriate waste collection systems suitable for local conditions – such as waste composition, business opportunities, personnel and investment capacities, and so on. In order to promote implementation of waste separation, a simplified cost-benefit analysis will be applied to compare economical viability between typical waste separation and collection systems in selected cities and new system scenarios (e.g. between collection of all types of waste every day and designated date and time for collecting specific types of waste).

The investigation will further explore potential to integrate use of valuable resources from urban, agricultural and industrial sectors in order to enhance efficient resource utilization. For instance, composting could utilize biomass generation from urban, agricultural and agro-industrial sectors, but cooperation is still weak. From a preliminary observation, food waste (high moisture content) could reduce water use for composting of agricultural biomass (dry matters).

(iii) Public participation: Public participation is a significant tool to achieve successful waste separation and implementation of sustainable waste management. However, it is not given that the introduction of public participation will be successful in all the cities due to various factors such as legal instruments, forms and quality of participation. In this study, we will explore whether public participation is officially promoted by national authorities by reviewing Constitutions, Acts and Regulations at both national and local levels in developing Asian countries. Later on, the forms of involvement of relevant stakeholders in the selected countries will be analyzed to identify levels (e.g. receiving information, participation in decision making) and results of participation (e.g. how participation influences successful implementation or obstructs the implementation?) This activity will be carried out by interviewing target groups (e.g. national government, local government, NGOs, private sector and residents). And then ways to improve public participation will be recommended.

In addition, this study will conduct a simplified cost-benefit analysis between the typical waste management systems in which the local authority takes full responsibility for waste disposal and treatment, and new scenarios that enhance public participation. In-depth data collection for this analysis

will be carried out in selected cities where the local authorities are willing to cooperate.

(iv) Biomass utilization for multi-benefits: The successful implementation of efficient resource utilization cannot be achieved without efforts of local authorities. However, many local authorities in developing countries do not have enough capacity to design suitable waste management system by themselves. Therefore, this component will provide an implementation guideline and a decision tool to the local authorities as well as organize training programs for them. According to the funding, this activity will be conducted in Cambodia, Laos and Thailand. The activity may be extended to other countries once funding is secured.

In addition, building on result from Component 1 (multi-benefits and trade-offs of selected waste management technologies), we will investigate benefits of selected biomass towns being promoted in Japan and other Asian countries (e.g. Viet Nam) from various perspectives. We will further identify whether this practice is efficient to promote use of waste biomass in terms of socio-economic and environmental benefits (e.g. GHG reduction, poverty reduction, urban immigration prevention, reinforcement of local economy). In addition, this activity will identify who are beneficiary groups of biomass towns and how to expand numbers of beneficiary groups. The advantage and disadvantage including obstruction of implementation of biomass towns in developing Asia will be investigated based on field data obtained and literature reviews. Further, potential to transfer the biomass town practices from one to other cities will be identified based on a comparative analysis of local conditions of host cities and target cities. Potential influencing factors for success and failure of technology transfer and implementation will be identified in order to avoid failure of project implementation.

(v) Overall integration: Findings of the above research activities as well as valuable results of other components of WMR and other IGES teams will be integrated to develop models for promoting sustainable waste management for multi-benefits in developing Asian countries. The applicability of these models will be tested with selected experts and local authorities. Their comments will be applied for improvement of these models.

6. Value-added (including relationship with IGES Core Competence)

(i) This study will provide useful information for decision makers at both national and local levels to decide the most suitable waste management system for their local needs (e.g. poverty reduction, food and energy security) as well as contribute to global emerging issue (e.g. climate change).

(ii) The research results will contribute to the Regional 3R Forum in Asia of which IGES is expected to play a major role. This research would also contribute to climate policy process and low carbon society project.

(iii) Japan Organic Recycling Association (JORA) has a network for biomass towns in Japan but its international network is weak. Hence, IGES may play a role in introducing the biomass town concept established in Japan to other developing Asian countries. At the same time, Japan may also learn from

other biomass towns in developing Asian countries.

(Relationship with IGES Core Competence)

- IGES has been intensively involved with the policy process for establishment of the Regional 3R Forum in Asia. As a part of this contribution, we have already received funding from the Ministry of Environment, Japan (MOEJ) and the APN.
- IGES has strong networks with institutes in Asia through various international platforms such as Kitakyushu Network, APFED, UNEP, UNCRD and so on.
- WMR is already working on climate co-benefits for waste management and we could make good reputation to the academic society and one of the evidence is that we are invited to be an invited speaker for an international conference on climate change and developing countries.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

Components	Activities		
	FY 2010	FY 2011	FY 2012
Multi-benefits and trade-off	<ul style="list-style-type: none"> • Exploring multi-benefits and trade-offs of waste management strategies 		<ul style="list-style-type: none"> • Integrated model for sustainable waste management
Waste separation and integrated resource management		<ul style="list-style-type: none"> • Analysis of waste separation and collection models • Integrated use of valuable resources from urban, agriculture and industrial sectors 	
Public participation		<ul style="list-style-type: none"> • Investigating legal instrument for promoting public participation • Analysis of public participation in target 	

		countries • Cost-benefits analysis in selected cities	
Biomass utilization for multi-benefits	<ul style="list-style-type: none"> • Estimating biomass and utilization potential • Provide training to local authorities in Cambodia, Laos and Thailand 	• Analyzing advantage and disadvantage of biomass town	• Assess possibility to transfer technologies and management systems of biomass town

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

- This research will be mainly carried out by IGES-WMR staff
- Some research activities will be collaborated with Thammasart University (Thailand), *Cambodian* Education and Waste Management Organization (Cambodia), National University of Laos (Lao PDR), Asian Institute of Technology (Thailand) and United Nations Environment Programme/Division of Technology, Industry and Economics (UNEP/DTIE).
- Collaboration opportunities with other organizations and other units of IGES will be further explored.

(II) Allocation of Human Resources

- 1 fulltime regular researcher and 1 supporting researcher are expected to be involved in this proposal.
- Currently, IGES-WMR staff (1 researcher, 1 visiting researcher) have developed expertise on climate co-benefits from municipal solid waste management and biomass utilization.
- A supporting researcher should be high qualified in academic society. S/he should be capable to conduct independent research on at least one of the component, preferably on multi-benefits and public participation. It is preferable, if s/he used to work with local stakeholders, being involved in policy oriented research as well as having good skill in writing project proposal for fund raising. A person holding PhD degree is preferable, however a high qualify master degree is also accepted.

(III) Funding

1. Cost estimate

- Budget for activities of FY 2010: 10 million yen

2. External funds obtained/to be applied

- This component is partly financially supported by APN and MOEJ (3Rs research). Additional support is expected from ADB.
- Additional fund for biomass towns is expected to be obtained from the New Energy and Industrial Technology Development Organization (NEDO).

III. Impact Generation

1. Major outputs (research papers and policy papers)

- One policy report and one policy brief from each major components (eight in total)
- One implementation guideline and decision tool for waste biomass utilization in developing Asian countries
- One academic papers published in international peer reviewed journal
- Presentations at academic society, expert meeting and international forum
-

2. Influence strategy

- This research results will be input to the policy process of the Regional 3R Forum in Asia which IGES is expected to play a major role along with MOEJ, UNCRD and ADB.
- The activity on capacity building will contribute to the APN and this activity will influence politicians and stakeholders in developing Asian countries on improving waste management to meet their national agenda and global priority.

Economy and Environment

Title: (1) Integrated policy impact assessment for sustainable development

I. Research Outline

1. Background (Relevance to Asia-Pacific)

Asia-Pacific region has experienced both rapid economic growth and rapid environmental destruction. The former has contributed to reduction of absolute poverty, though still more than 700 million people have no choice but to subsist on less than 1 dollar per day. The latter has endangered the sound basis of human survival such as forest ecosystems, soil and water systems.

Against this background, it is very important to formulate sustainable development policies based on integrated policy assessment that can reflect complex interactions of economy and environment. Economic policies to strengthen economic growth and poverty alleviation on the one hand might have negative impacts on the environment, while environmental policies to address pollution control, ecological conservation and change in path of business-as-usual on the other hand might exert profound influences on economic development. Careful and accurate policy analysis from both economic and environmental viewpoints is required to ensure designing of environmentally sound and cost-effective policies that properly reflect economic valuation of environmental costs and benefits, and their effective implementation.

The importance of such analysis is well recognised internationally and domestically. For example, the Ministry of the Environment, Japan has launched several environment-cum-economic studies projects this fiscal year. The recent COP-15 also highlight the importance of quantitative assessment of cost-benefit of low carbon policies including co-benefits of such policies like employment generation and poverty alleviation. Contribution to development of integrated policy assessment tools is highly policy relevant and consistent with the IGES mission.

2. Objectives

To develop integrated policy assessment tools for sustainable development based on a few economic models that have been already developed by IGES, including computable general equilibrium (CGE) models and multi-region input-output (MRIO) models.

3. Major components

- (1) Development of macroeconomic models (incl. dynamic multiregional CGE and MRIO models)
- (2) Modeling of resource constraints (water, land, forest, etc.)
- (3) Modeling of unemployment and income distribution

4. Research questions

The fundamental research question is how to assess overall contribution of policies to sustainable development. Specific research questions include: (i) how to reflect general equilibrium interactions of various sectors and regions within a policy assessment framework based on forward-looking dynamic analysis; (ii) how to reflect issues of resource constraints into the policy assessment framework; and (iii) how to reflect employment and poverty aspects into the policy assessment framework.

5. Methodologies

Development of macroeconomic models: During 4th phase several prototype models have been developed such as the REPA model (a multiregional static CGE model), a single country dynamic CGE model, and a multi-region input-output (MRIO) model. Based on them, multiregional dynamic CGE models will be developed. To address green investment issues, it will be desirable to treat the government sector explicitly. Such distinction between the private sector and the government sector with separate objective functions may facilitate quantitative assessment based on clearly defined social welfare. In addition to such conceptual contribution, further data collection and improvement of parameter estimation using econometric techniques will be conducted. A main database will be developed based on the existing databases such as the GTAP database (Center for Global Trade Analysis), 3EID (NIES), world development indicators (World Bank) and so on.

Modeling of resource constraints: Conventional macroeconomic models tend to assume unlimited supply of natural resources such as water, land, forest or fossil fuels. To reflect resource constraints to the policy assessment, it is necessary to treat these resources as factor endowments and modify production functions of relevant sectors accordingly. Through literature review and interaction with outside experts we will develop such methodology and collect necessary data.

Modeling of unemployment and income distribution: Unemployment is one important aspect of poverty but conventional macroeconomic models normally assume full factor employment. This component will try to introduce unemployment issues into the assessment tool, or will develop a side module to address this issue. Another important aspect of poverty is inequality such as distorted income distribution. This component will develop methodology to reflect income distribution issues into the assessment tool.

6. Value-added (including Relationship with IGES Core Competence)

This research intends to develop original tools to conduct integrated policy assessment for sustainable development with particular focus on the Asia-Pacific region. There are high demands in this region to conduct such integrated quantitative analysis, but so far there is no ready-made assessment tool for such purpose. This research will develop useful policy analysis tools in formulating sustainable development policies addressing emerging policy issues.

(Relationship with IGES Core Competence)

IGES is now building its capacity in economic analysis and applications to policy assessment. This research will strengthen the capacity of IGES in conducting integrated policy impact assessment in

various sustainable development studies. Demands for quantitative policy impact assessment from policy makers and regional/international policy processes are increasing and this research will also contribute to IGES competence in this field.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

Components	Activities		
	FY 2010	FY 2011	FY 2012
Development of macroeconomic models	<ul style="list-style-type: none"> • Development of dynamic multiregional CGE model • Data collection for improvement of parameter estimation 	<ul style="list-style-type: none"> • Calibration and validation of the model against observation 	<ul style="list-style-type: none"> • Documentation
Modelling of resource constraints	<ul style="list-style-type: none"> • Literature review • Conceptual design 	<ul style="list-style-type: none"> • Data collection • Model development 	<ul style="list-style-type: none"> • Further improvement
Modelling of unemployment and income distribution	<ul style="list-style-type: none"> • Literature review • Conceptual design 	<ul style="list-style-type: none"> • Data collection • Model development 	<ul style="list-style-type: none"> • Further improvement

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

This research will be conducted mainly by IGES in collaboration with other Japanese and overseas institutions. Components 1 and 3 will be conducted by IGES Economy and Environment Group with informal opinion exchange with external experts. Component 2 will be conducted as a part of the Environmental Economics project on resource circulation policy funded by MOEJ in collaboration with IGES SCP Group and external partner institutions (The University of Tokyo and Prof. Shinkuma of Kansai University).

(II) Allocation of Human Resources

- 1) Required expertise: macroeconomic modelling such as CGE, MRIO or national accounting, econometric analysis, economics dealing with energy, resource and poverty, microeconomic approaches to ecosystems and resource constraints

2) Number of staff: 5 (30% time)

3) Required person-months (for 3 years)

- Development of macroeconomic models: 20 person-months
- Modeling of resource constraints: 15 person-months
- Modeling of unemployment and income distribution: 15 person-months

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 11 million yen

2. External funds obtained/to be applied

- This research is mainly financed by the Environment-cum-Economic Studies on resource circulation policy and on ecosystem services (MOEJ).
- It is expected to raise external funds related to quantitative assessment of climate policy, green investments and so on.

III Impact Generation

1. Major outputs (research papers and policy papers)

This research corresponds to the tool development component of policy research to be conducted by this group. Developed models will be the most important output of this research. Documentation of tools developed will be published as research paper(s).

2. Influence strategy

Presentation of developed tools at academic conferences will be the first step to generate influence. Once tools are recognised as valid and useful, we will promote the tools to key regional and global political processes through application to empirical policy analysis explained in (3) Green growth through economic instruments and green investment.

I. Research Outline

1. Background (Relevance to Asia-Pacific)

International trade contributes to the international and national economic growth and influences the re-location of manufacturing centers and other sectors in the world. Under the current trade system however, due to the absence of environmental requirements such as emissions control, the environmental costs embodied in the internationally tradable commodities are not sufficiently internalized into the price system and therefore remain as the externalities to either the residents of an exporting country or to the global habitants. Estimation of embodied emissions is necessary to help address the hidden environmental costs associated with international trade.

Discussions on the accounting rules for embodied emissions and any eventual changes in the accounting rules have many policy implications. First, under the current UNFCCC regime, only a subset of emitting countries is committed to mitigate. Therefore carbon leakage can happen and may increase through trade in carbon-intensive commodities from non-Annex I countries to Annex I countries, because emissions will be accounted to the inventory of the exporting countries. To address this issue and to internalize the environmental costs, some academia and countries proposed consumer responsibility and shared producer and consumer responsibility as alternatives to the producer responsibility. The advantages and disadvantages of different responsibility allocation schemes and their impacts on carbon mitigation and on economic growth at both the global level as well as at the national level of specific countries in concern need in-depth assessment.

Second, trade measures such as Border Tax Adjustment and other non-tariff environmental measures are employed by industrialized countries (e.g. US) to address the competitiveness of domestic firms in facing different requirements on energy and carbon intensity of similar commodities produced in developing countries, in particular China and India. How these measures comply with WTO principles such as national treatment and the most favored nation treatment need further study.

In addition, there are recent developments in the process of UNFCCC, such as discussions on the crediting mechanisms for Nationally Appropriate Mitigation Actions (NAMA) and global fund for mitigation especially the mechanisms to promote financing the investment in low-carbon economic development in developing countries. What will be the implications of these new trends for the measures to address embodied carbon and carbon leakage issue?

As trade has twofold contributions to both economic growth and environmental damage, the optimal goal is to achieve both economic growth objectives and national and global environmental objectives synergistically. Accounting for embodied emissions and study on their policy implications under both international climate regime and the trade regime is therefore very important.

2. Objectives

The purpose of this study is to elaborate methodologies for the estimation of carbon embodied in traded goods and to provide relevant information to policy makers on the policy implications.

Estimation and policy analysis will be conducted based on quantitative approaches such as the Multi-Region Input-Output model (MRIO) and the Computable General Equilibrium model (CGE). Analysis on different responsibility allocation schemes will be based on political science.

3. Major components

There are three major components. Component 1 is to conduct the estimation of embodied carbon based on the Multi-Region Input-Output Model (MRIO). Different methods will also be tested for their robustness. Component 2 is policy assessment based on scenarios developed to address embodied emissions and related issues. Quantitative policy analysis tools, such as multi-nation Computable General Equilibrium Model (CGE), will be developed and applied for assessing the economic impacts of different environmental policies at national level and beyond. Component 3 is an analysis on the advantages and disadvantages of different policy measures based on a political science approach.

4. Research questions

The fundamental research question is how to achieve both economic growth objectives and national and global environmental objectives synergistically through regional and international cooperation. Specific research questions include: (i) How to account for embodied emissions; (ii) What are the economic and environmental impacts of policies addressing embodied emissions at national as well as international levels.

5. Methodologies

Multi-Region Input-Output Model (MRIO) will be applied to calculate embodied emissions for Component 1.

Single-region and Multi-region Computable General Equilibrium (CGE) Model will be applied to assess the economic and environmental impacts of national policies for Component 2.

Econometrics and others will be applied to estimate the economic costs of alternative technologies and policies supporting Component 1 and Component 2.

A political science approach will be applied to Component 3.

6. Value-added (including Relationship with IGES Core Competence)

- (i) This will be a comprehensive study including the calculation of embodied carbon based on multi-regional trade scenario and policy assessment based on policy packages addressing the issue of embodied emissions.
- (ii) Methodologically, the analytical framework will include quantitative approaches such as MRIO and Multi-region CGE model and a qualitative analysis based on political science.
- (iii) The results of this research will be tried to inform relevant policy process in the climate regime and the trade regime.

In summary, it will help national policy-makers and international organizations to set up regional/international cooperation to address the issue of embodied carbon.

(Relationship with IGES Core Competence)

IGES is now building its capacity in economic analysis and applications to policy assessment. This research will strengthen the capacity of the Environment and Economy Group of IGES in methodology development, especially the MRIO and CGE modelling and their applications to policy assessment. In addition, IGES is involved in several regional/international policy processes related to the environment and trade, such as UNFCCC. This research will also contribute to IGES competence in contributing to these policy processes.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

This research will be conducted for FY2010-2012.

Work contents	FY2010	FY2011	FY2012
Com.1	(i) Literature review; (ii) Selection of appropriate calculation methods; (iii) Calculation of embodied emissions.	(i) Test of the robustness of calculation methods.	Outreaching activity to inform relevant policy process.
Com.2	Literature review for CGE model and its application in this area.	(i) Development of policy scenarios; (ii) Model development and customization.	Policy impact assessment of low carbon policy addressing embodied carbon
Com.3	(i) Literature review; (ii) Establishment of analytical framework.	Analysis on the disadvantages and disadvantages of different measures.	Outreaching activity to inform relevant policy process.
Building up database, etc.	Collection of social, economic and environmental data necessary to conduct Component 1 and Component 2.	Estimate relevant parameters necessary for building the MRIO model and the CGE model.	
Final report			Final report will be finished.

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

This research will be conducted mainly by IGES in collaboration with other Japanese and overseas institutions. Component 1 and 2 will be conducted by IGES' Economy and Environment Group and Component 3 will be conducted by IGES' Economy and Environment Group in collaboration with the Governance and Capacity Group. Database establishment, parameter estimation and policy package design will be conducted by IGES in collaboration with other institutions.

(II) Allocation of Human Resources

- 1) Required expertise: macroeconomic modeling such as CGE, MRIO or national accounting, econometric analysis, and political science in particular on climate change and trade regime.
- 2) Number of staff: 2 (30% time) plus a research assistant
- 3) Required person-months (for 3 years)
 - Accounting for embodied emissions: 6 person-months
 - Policy assessment: 6 person-months
 - Analysis based on political science: 6 person-months
 - Econometrics estimation: 3 person-months

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 2 million yen

2. External funds obtained/to be applied

Direct costs will be funded by JSPS. (anticipated)

III. Impact Generation

1. Major outputs (research papers and policy papers)

Two journal articles will be produced. One is planned to be published on *Economic Systems Research*, and the other one is planned to be published on *Ecological Economics* (or on a similar journal *Energy Policy*). One IGES policy paper will also be produced.

2. Influence strategy

Publication of our research results on international journals to obtain public recognition of methodology is important. In addition, we want to make use the opportunities of IGES' participation

in relevant regional/international policy processes, such as side-events of COP meetings of the UNFCCC. Moreover, the United Nations Conference on Trade and Development (UNCTAD) already showed its interest in our preliminary results on the calculation of embodied carbon. Under the new Japanese administration under the Democratic Party, climate policy is put high priority and the research on responsibility sharing of embodied emissions will be highly policy relevant topic. We want to explore more collaboration to generate tangible research outputs to be influential to related international policy processes.

Title: (3) Green growth through economic instruments and green investment

I. Research Outline

1. Background (Relevance to Asia-Pacific)

Green growth, which can be defined as “mobilizing and re-focusing the global economy towards investments in clean technologies and 'natural' infrastructure such as forests and soils” (UNEP Green Economy Initiative webpage), is getting political momentum globally as well as in the Asia-Pacific region. Green growth can be distinguished from conventional growth by the fact that green growth requires internalisation of environmental externalities, and consequently appropriate interventions to correct market failures are required. Green growth is hence not only about green investment, greening tax scheme and reform of environmentally-destructive subsidies, but also about reflection of externalities such as ecosystem services or resource constraints into cost-benefit calculations.

The former aspect is addressed by stimulus packages of many countries. The US Obama administration is proposing Green New Deal (GND) aiming at creating new jobs, protecting environment and ecology by reducing carbon dependency, by investing around a trillion dollar in green business, and many other countries also plan similar stimulus packages. In the Asia-Pacific region, Japan, China and Korea have announced ambitious stimulus packages with “green” stimulus. Japan plans to create over 1.4 million green jobs through expanding the market for green products. Korea’s “Green New Deal Job Creation Plan” will create 960,000 new jobs in green sectors such as energy conservation, recycling, carbon reduction, or flood prevention. China earmarked \$140 billion for green investments in their \$586 billion fiscal stimulus package. It is crucial to provide quantitative assessment of these green investment policies in order to exploit their potential in promoting sustainable development.

The latter aspect draws attention in several international initiatives for green growth including UNESCAP’s green growth program and UNEP’s green economy initiative. The importance of such analysis is also well recognised by the Ministry of the Environment, Japan that launched several environmental economic study projects this fiscal year, with a view to reflect significance of ecosystem services and resource constraints into quantitative policy impact assessment.

2. Objectives

This study will conduct quantitative assessment of green growth policies such as greening tax and subsidy reform including energy subsidy reform and will contribute to policy formulation towards green growth.

3. Major components

- (4) Study on resource efficiency improvement
- (5) Study on sustainable use of ecosystem services

(6) Study on tax and subsidy reform and green investment towards low carbon society

4. Research questions

- What are the impacts of green growth policies on job, income distribution, environmental indicators and economic performance?
- What kind of innovative financial mechanisms are required to implement green growth?

5. Methodologies

Study on resource efficiency improvement: This component will be carried out as a part of the MOEJ Environmental Economics study on resource circulation policy. It consists of development of resource constraints scenarios based on material flow analysis and econometric analysis on resource constraints and impacts on demand sides, evaluation of resource circulation systems at the national and the regional levels based on case studies, integrated policy impact assessment mainly based on multiregional CGE model.

Study on sustainable use of ecosystem services: This component will be carried out as a part of the MOEJ Environmental Economics study on ecosystem services. It consists of development of theoretical economic models of ecosystem services based on microeconomic modeling, economic valuation of ecosystem services at the regional and the global levels based on econometric analysis, formulation of innovative financial mechanisms with respect to ecosystem services based on case studies, and integrated policy impact assessment mainly based on ecological resources extended CGE models.

Study on tax and subsidy reform, and green investment towards low carbon society: This component will employ integrated policy impact assessment tools to assess the impacts of tax/subsidy reform and green investment policies. Along this line, a proposal on the north-south strategic cooperation on investment in climate change mitigating technologies to have win-win outcomes for economic growth and the prevention of climate change for the two blocs of nations is prepared. In particular, integrated policy assessment based on two-nation CGE models will be developed for the case study of the cooperation between Japan and China. In addition, quantitative policy impact assessment of tax/subsidy reform and investment towards sustainable biofuel use has been conducted as a part of Biofuel Use Strategies for Sustainable Development (BforSD) project in which a computable general equilibrium (CGE) model using the GTAP-BIO dataset was developed to assess the expected economic and environmental impacts of potential biofuel policy options.

6. Value-added (including Relationship with IGES Core Competence)

This research will apply quantitative policy assessment tool to be developed by IGES to green growth issues with particular focus on the Asia-Pacific region. There are high demands in this region to conduct such quantitative assessment of green growth policies. This research will provide green growth policy with quantitative assessment results.

(Relationship with IGES Core Competence)

IGES is now building its capacity in economic analysis and applications to policy assessment. This research will strengthen the capacity of IGES in conducting integrated policy impact assessment in various sustainable development studies. The demands for quantitative policy impact assessment from policy makers and regional/international policy processes are increasing and this research will also contribute to IGES competence in this field.

This research will be carried out through collaboration with other IGES Groups and it is expected to strengthen core competence of each group.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

Components	Activities		
	FY 2010	FY 2011	FY 2012
Study on resource efficiency improvement	<ul style="list-style-type: none"> • Literature review and data collection • Coordination between resource constraints scenario and policy impacts assessment tools. 	<ul style="list-style-type: none"> • Econometric analysis on resource constraints and impacts on demand sides • Development of policy packages 	<ul style="list-style-type: none"> • Integrated policy impact assessment • Reporting
Study on sustainable use of ecosystem services	<ul style="list-style-type: none"> • Literature review • Development of theoretical model of ecosystem services 	<ul style="list-style-type: none"> • Case study on innovative financial mechanisms • Econometric analysis to estimate economic value of ecosystem services 	<ul style="list-style-type: none"> • Development of policy packages • Integrated policy impact assessment • Reporting
Study on tax and subsidy reform and green investment towards low carbon society	<ul style="list-style-type: none"> • Literature review • Fund raising activities with complete development of the research proposal • Establishing research network • Policy assessment and reporting of BforSD economic analysis component. 	<ul style="list-style-type: none"> • Data collection • Model customisation • Development of quantitative analytical framework and methodologies 	<ul style="list-style-type: none"> • Policy assessment • Reporting and outreach

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

Component 1 will be conducted as a part of the Environmental Economics project on resource circulation policy funded by MOEJ in collaboration with IGES SCP Group and external partner institutions (The University of Tokyo and Prof. Shinkuma of Kansai University).

Component 2 will be conducted as a part of the Environmental Economics project on ecosystem services funded by MOEJ in collaboration with IGES NRM Group and external partner institutions (Waseda University, Nagoya University and Kyoto University).

Component 3 will be conducted through collaboration with other IGES Groups, particularly with

Climate Change Group in general and with Governance and Capacity Group and the University of Tokyo for the BforSD project. In addition, for study on low-carbon investment through north-south collaboration, IGES will cooperate with other research institutes, such as the Chinese Research Academy of Sciences (China).

(II) Allocation of Human Resources

- 1) Required expertise: macroeconomic modeling such as CGE, MRIO or national accounting, econometric analysis, economics dealing with energy, resource and poverty, microeconomic approach to ecosystems and resource constraints
- 2) Number of staff: 5 (effort rate 30%)
- 3) Required person-months (for 3 years)
 - Study on resource efficiency improvement: 25 person-months
 - Study on sustainable use of ecosystem services: 25 person-months
 - Study on tax and subsidy reform and green investment towards low carbon society: 50 person-months

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 7 million yen

2. External funds obtained/to be applied

- This research is mainly financed by the Environmental Economic Studies on resource circulation policy and on ecosystem services (MOEJ).
- A part of the BforSD project financed by the Global Environmental Research Fund is available for the first year (in FY2010) of this research.

It is expected to obtain external funds related to quantitative assessment of climate policy, green investments and so on.

III. Impact Generation

1. Major outputs (research papers and policy papers)

Each component is expected to produce one research paper or one policy paper towards the end of the fifth phase. In addition, it is expected that some intermediate outputs will be published as working papers or journal articles. Potential publications in FY2010 include a book chapter entitled

“Regional Low Carbon Society and Potential of Technology Transfer Market Creation in East Asia”, a journal paper entitled “Impacts of biofuel promotion policy in India: an assessment using a dynamic CGE model”, and journal papers based on interim outputs of two Environmental Economic Studies on resource circulation policy and on sustainable use of ecosystem services.

2. Influence strategy

Publication of our research results on international journals to obtain public recognition of methodology is important. In addition, we want to make use the opportunities of IGES’ participation in relevant regional/international policy processes, such as UNEP Green Growth Initiative, MOEJ’s “The Innovation for Green Economy and Society” initiative, Clean Asia Initiative and so on. In particular, the research demands for quantitative assessment of low carbon policies including green investment. Collaboration with other institutes working in this area through collaborative activities with international agencies such as ADB, UNEP, and UNDP as well as through networking opportunities including LCSRnet or ISAP sessions will be sought to contribute to its related international policy process. Research results are also expected to provide useful inputs into policy processes of the Asia 3Rs Forum, in which IGES is expected to play a major role as the secretariat.

Governance and Capacity

Title: (1) Regional and national governance: Trans-boundary air pollution

I. Research Outline

1. Background (Relevance to Asia-Pacific)

Air pollution remains a serious problem in East Asia, and in recent years, the region has seen increased emissions of air pollutants such as SO_x, NO_x, VOCs, ozone, particulates, and GHG gases such as CO₂. This is resulting from the rise in the energy demand due to rapid economic development and increased consumption of fossil fuels. It is expected that these emissions will further increase due to continued economic development.

Emissions of these air pollutants are having impacts at multiple levels. At the domestic level, it is inflicting serious health and agricultural damage. WHO estimates approximately 537,000 premature deaths will occur annually in the Southeast Asia and Western Pacific regions from urban air pollution (WHO, 2002)²⁵. Significant agricultural damage in the region has already occurred in terms of reduced yields and crop quality (Schwela et al, 2006)²⁶. Air pollution has also become a regional transboundary problem, causing acid deposition or transport of ozone/aerosol, to the downwind countries. In 2007, approximately two thousand people reported photochemical smog in Japan, which was largest in more than 20 years; most of it was considered to be from mainland China (Nihon Keizai Shimbun, 2008; Hayasaki et. al., 2008).^{27,28} Significant yield losses from increased ozone emission in the region are predicted (Wang and Mauzerall, 2004)²⁹. At the hemispheric level, it has been suggested that surface emissions of NO_x, CO and hydrocarbons might affect oxidant concentration in downwind regions (Wild and Akimoto 2001)³⁰. Also, increased emissions of GHG gases will have a global impact. Therefore, it is increasingly recognized that air pollution can no longer be addressed as a local or even as a national issue, and international cooperation is necessary. Nevertheless, international cooperation still requires actions at the national level.

²⁵ WHO *The World Health Report 2002: Reducing Risks, Promoting Healthy Life*, Geneva, World Health Organization, 227, 2002. (Note: this study will cover some of these geographic areas but not others.)

²⁶ Schwela, D, G. Haq, C. Huizenga, W. Han, H. Fabian, and M. Ajero. *Urban Air Pollution in Asian Cities: Status, Challenges and Management*. London, UK, Sterling, VA, USA: Earthscan, 27-28, 2006.

²⁷ Nihon Keizai Shimbun., Koukagaku smog chuugoku kara yuugai busshitsu ka? [Photochemical smog, hazardous substance from China?]. Nihon Keizai Shimbun 5 July 2007.

²⁸ Hayasaki, M., T. Ohara, J. Kurokawa, I. Uno "Episodic pollution of photochemical ozone during 8-9 May 2007 over Japan: Observational data analyses," J. of Japan Society for Atmospheric Environment, 43(4), 225-237, 2008.

²⁹ Wang, X. and Mauzerall, D. L., "Characterizing Distributions of Surface Ozone and its Impact on Grain Production in China, Japan and South Korea: 1990 and 2020," Atmospheric Environment, 38, pp. 4383-4402, 2004.

³⁰ Wild, O., and H. Akimoto, "Intercontinental transport of ozone and its precursors in a three-dimensional Global CTM", J. Geophys. Res., 106(D21), 27, 729-27, 744, 2001.

Transboundary air pollution has received regional attention for some time. A shared understanding, based on the European experience with the Convention on Long-Range Transboundary Air Pollution and its protocols, has emerged in the Asian region that the transboundary air pollution issue requires a regional effort, (United Nations, 1993)³¹. Sub-regional efforts have culminated in the establishment of EANET (Acid Deposition Monitoring Network in East Asia) in 1998, and the ASEAN Regional Haze Agreement, which entered into force in 2003, and other initiatives.

However, there is no regional agreement in Northeast Asia yet. Moreover, in the past decade, transboundary air pollution has expanded to include new issues such as the ozone/aerosol and climate change, in addition to the traditional issue of acid deposition, as they have increased significance. To promote further development of collaboration in transboundary air pollution issues in East Asia, there is need for additional research from both the natural science and social science perspectives on the remaining and newly emerging issues, since information and analyses on many aspects are still insufficient, and progress in Asia lags behind Europe. It is expected that this research project will contribute to fostering of increased international cooperation regarding atmospheric environment management in East Asia.

2. Objectives

This research will analyse the key trends of domestic atmospheric environment management policy in the case study countries (China, Korea, ASEAN (Thailand) and Japan) and the main factors determining them in order to understand the possible domestic promoting factors and barriers to the promotion of potential international coordination for comprehensive atmospheric management or potential international agreement.

3. Major components

This research is conducted in collaboration with other universities and research institutes as one part of a larger project under the Global Environment Research Fund (S-7) funded by MOEJ. The part of the study that IGES will conduct has two elements:

- Identifying the domestic factors in the case study countries that contribute or hinder the introduction and the promotion of related international negotiations.
- Identifying the key issues that need to be addressed from the standpoint of individual countries' domestic politics and policies in the case study countries to implement co-benefit approach.

³¹ United Nations, *AGENDA 21: Program of Action for Sustainable Development, Rio Declaration on Environment and Development, and Statement of Forest Principles*. New York: United Nations Publications, Ch.9. Sec.26, 1993. Page 114 of 211

4. Research questions

- What are the domestic factors in the case study countries that contribute to or hinder the introduction of an integrated approach and the promotion of related international negotiations?
- What are the key issues that need to be addressed from the standpoint of individual countries' domestic politics in the case study countries including potential co-benefits.

5. Methodologies

Case studies will be conducted in three countries (China, Japan, Korea) and ASEAN. Information on atmospheric environment management including environmental policies, decision making processes, political institutions, and relevant stakeholders, will be collected. Insights will also be drawn from comparative analysis of the domestic factors influencing other agreements focusing on Europe and North America (e.g. CLRTAP). Data will be collected through government documents, interviews, news articles, and secondary sources. IGES will also convene international experts meetings.

6. Value-added (including Relationship with IGES Core Competence)

From a research point of view, there are few studies of air pollution policymaking at the national level from a political science perspective in the case study countries. Existing studies tend to focus on local or sub-national policymaking, have a technical perspective, or discuss policymaking in an unsystematic way or with outdated research perspectives. In contrast, this research will focus on the obstacles and promoting factors at the national level for a potential international agreement on air quality management in East Asia. Moreover, several researchers in other themes and subthemes have linkages with decision makers in Japan and elsewhere, and the study also aims to build additional links. Therefore, this study will enable IGES to make a substantive contribution to actual expected negotiations in addition to the research value added.

This research is very strategic for IGES as an organization because air pollution is highly related to the climate change issue, which is one of core research focuses of IGES, as well as one of the highest priority global issues. Also, this research provides an opportunity to utilize IGES's extensive institutional experiences regarding air pollution issues. Some researchers have extensive experience working on air pollution issues, including experience in actual air pollution negotiations and policy development. Other researchers have political science backgrounds which is important since this is essentially a political science study. In addition, some researchers have already been working on this study.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

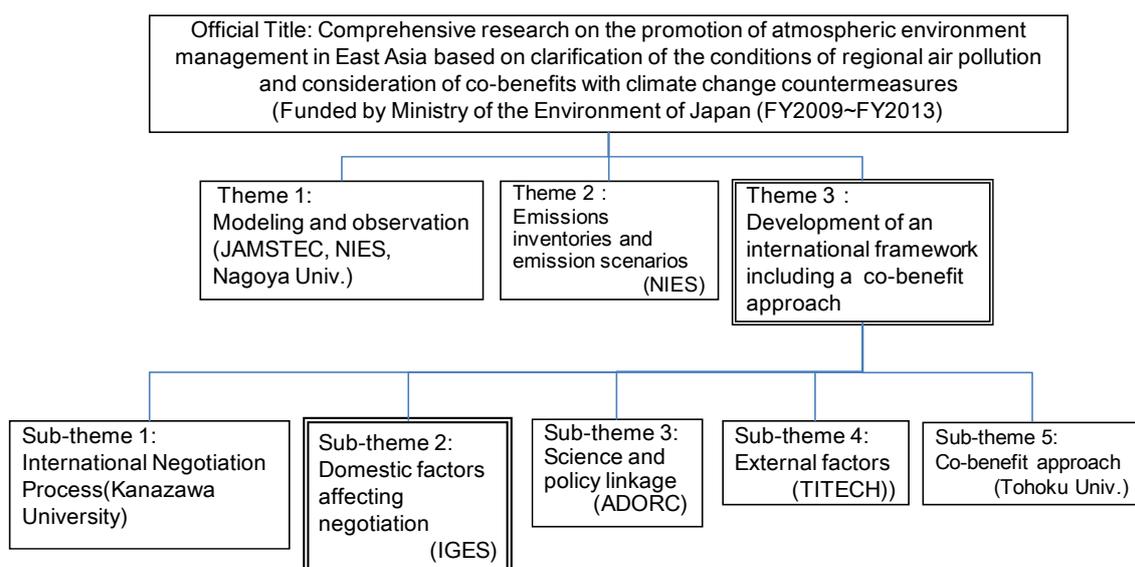
Five year study beginning in FY2009.

- For FY2009, literature review and comparative analyses were conducted on the cases of Europe and several Asian countries including Japan, China, Korea, and Thailand (as an ASEAN example). An analytical framework to explore the domestic policy influences on air pollution policies including the promotion of international coordination for comprehensive atmospheric environment management was developed based on political science and political economy concepts and methodology.
- For FY2010, based on the result from FY2009, further research will be conducted to assess the factors determining domestic atmospheric environment policies and related domestic political institutions and to consider how these domestic factors will apply to potential mechanisms or frameworks for implementing potential comprehensive atmospheric environment management.
- For FY2011, implications from introducing comprehensive atmospheric environment management for major governmental and public stakeholders will be clarified.
- For FY2012, implications of introducing comprehensive atmospheric environment management for private sector stakeholders will be studied.
- For FY 2013, specific strategies for promoting comprehensive atmospheric environment management in each country will be developed.

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

Project S-7 of Global Environment Research Fund is led by Dr. Hajime Akimoto (ADORC), and composed of three themes. The first focuses on modelling and monitoring (conducted by JAMSTEC, NIES, Nagoya Univ.), and the second focuses on emission inventory and emission reduction scenarios (conducted by NIES). IGES is in charge of one subtheme under and the third theme, led by Kanazawa university, which focuses on international framework and a co-benefit approach (other subthemes are led by ADORC, TITECH, and Tohoku Univ.). IGES will be responsible for researching domestic factors that contribute to or hinder the promotion of international negotiations on atmospheric environment management in the case study countries.



(II) Allocation of Human Resources

(Person-months per year)³²

- Overall subtheme leadership —1.
- Operational supervision, planning, writing —4
- Experienced researcher: implementation, planning, research, writing – 4
- Researcher: Implementation, research, writing, administration —10
- Part time experienced researcher – 3
- Research assistant – 6

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 10 million yen

2. External funds obtained/to be applied

FY2010-FY2014: Global Environment Research Fund, Ministry of the Environment, Japan (application planned)

III. Impact Generation

1. Major outputs (research papers and policy papers)

- Research papers on institutions and decision making processes regarding air quality management policy for each case study country (4)

³² In the official proposal submitted to the Ministry of Environment, Hideyuki Mori, Mark Elder, and Hiromitsu Miyajiri were listed.

- Research paper on comparative trends in air pollution policies in case study countries.
- Comparative research paper on role of stakeholders (especially industry) regarding air quality management policy
- Policy report assessing the potential of an approach emphasising the cobenefits between air quality management and climate change policy
- Policy report analyzing the effects of domestic factors on the potential to strengthen the framework of international cooperation on air pollution issues
- Policy brief with recommendations regarding how to promote increased regional cooperation on transboundary air pollution issues

2. Influence strategy

This study is expected to contribute to a strategy to promote future international negotiations to improve air quality management in East Asia, including the possibility of a future international framework. Research results are expected to be input into a prospective future forum on co-benefits in Asia. The project attempts to foster capacity development regarding studies of air quality management from a policy perspective in case study countries, with a view towards establishing a regional research network.

Title: (2) Biofuel Use Strategies for Sustainable Development

I. Research Outline

1. Background (Relevance to Asia-Pacific)

In the past few years many countries have adopted ambitious biofuel promotion policies. Governments are attracted to biofuels because of their potential contributions to (i) energy security; (ii) economic development and poverty reduction; and (iii) the environment, especially lower greenhouse gas (GHG) emissions, and air pollution (Elder, SVRK, Romero, and Matsumoto, 2008). The rush to promote biofuels, however, could be counterproductive if they are not sustainably produced. There are widespread concerns that biofuels could end up causing more environmental or social problems than they solve (Elder, SVRK, Romero, and Matsumoto, 2008). Moreover, the initial ambitious biofuel promotion plans of two countries in this study, India and Indonesia, turned out to be not very economically sustainable, and it proved very difficult to expand production to meet utilisation targets which turned out to be unrealistic. China has already modified its policies to limit biofuel production using food crops, and India and Indonesia are considering revisions of their policies. A number of initiatives to develop biofuel sustainability standards have emerged and are at various stages of advancement. These initiatives offer the possibility of demonstrating sustainability on a case by case basis on a voluntary basis, based on standards and criteria developed by the various initiatives. However, most are still in the development stage.

2. Objectives

The main objective is to promoting sustainable production and utilisation of biofuels by developing win-win-win strategies and solutions to achieve energy security, environmental conservation and poverty reduction

3. Major components

- (1) Four case study countries
 - a. China
 - b. India
 - c. Indonesia
 - d. Japan
- (2) Initiatives on biofuel sustainability standards
- (3) Economic model for policy impact assessment (conducted by EE)

4. Research questions

- (1) What are the advantages and disadvantages of various forms of biofuels currently being produced and used in Asian countries?
- (2) Assess the current policies relating to the production and consumption of biofuels in the Asian region?
- (3) What are the environmental, social and economic impacts of biofuel trade in Asia?
- (4) What are the most appropriate policy options for the sustainable use of biofuels in transportation in Asia?

5. Methodologies

For the national-level reviews of biofuel related policies and conditions in case study countries, methodologies including policy gap analysis, market analysis, and interviews with stakeholders and analysis of primary documents and secondary literature. Field surveys will be conducted in three developing case study countries (China, India, and Indonesia), including interviews with policymakers and stakeholders as well as visits to feedstock production areas. A computable general equilibrium (CGE) model based on GTAP6 and using the GTAP-BIO dataset was developed to assess the expected economic and environmental impacts of potential biofuel policy options. In addition, IGES is directly participating in one of the comprehensive global initiatives, the Roundtable on Sustainable Biofuels (RSB), which is a multistakeholder dialogue organized by Ecole Polytechnique Federale de Lausanne (EPFL).

6. Value-added (including Relationship with IGES Core Competence)

IGES research on policies is based on primary research such as interviews with government officials and other stakeholders, and government documents. IGES information is high quality since IGES has access to high level government decision-makers in Indonesia and India. Policy information becomes quickly outdated, so IGES current policy research has value in that sense. The economic modeling component is at the state of the art, modifying the GTAP model to incorporate biofuels. IGES research will be more objective than others since IGES does not have any business interest in biofuels and is not connected to commercial biofuel interests.

(Relationship with IGES Core Competence)

IGES has 2 years conducting the biofuel research. Professor Suzuki has extensive knowledge about engineering issues. Mark Elder has a background regarding industrial policy issues. Daisuke Sano has a background on agricultural issues. Satoshi Kojima has background on modeling issues. Anindya Bhattacharya has background on energy and modeling issues. Jane Romero has a background on transport issues.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

FY 2010 will be the last year of the three-year project that started in FY2008.

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

IGES biofuel research is implemented through a cooperative research project called. Biofuel Use Strategies for Sustainable Development (BforSD) (FY2008-2010), led by the Integrated Research System for Sustainability Science (IR3S) of The University of Tokyo. Other partners include the National Agriculture and Food Research Organization (NARO), United Nations University/Institute of Advanced Studies (UNU/IAS) and Osaka University. This research is supported by the Ministry of the Environment, Japan through the Global Environment Research Fund. There are 7 subthemes, and IGES is in charge of one subtheme which focuses on impact assessment of biofuels in Asia.

(II) Allocation of Human Resources

Required expertise

Knowledge on policies of industrial development, economic modeling analysis, renewable energy, agricultural/rural development, and transportation.

Required number of staff and person-months

- Sub-theme leader (0.5 person-months)
- Overall project coordination (3 person-months)
- Case study in country A (4 person-months)
- Case study in country B (4 person-months)
- Case study in county C (4 person-months)
- Case study in country D (4 person-months)
- Modeling analysis (Conducted by EE)
- Study on regional policy coordination (2 man-months)
- Administrative, budget management, report preparation (2 man-month)

Total 23.5 person-months plus allocation from EE.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 8 million yen

2. External funds obtained/to be applied

Global Environment Research Promotion Fund of MOEJ (Application planned)

III. Impact Generation

1. Major outputs (research papers and policy papers)

(For FY 2010)

- 1 journal article or book chapter
- 4 IGES policy study reports (four case studies, Indian modelling study included)
- 1 policy brief

2. Influence strategy

- IGES is participating in an existing global multistakeholder initiative, the Roundtable on Sustainable Biofuels, which is developing global sustainability standards. Overall BforSD results can be input into the Global Bioenergy Partnership (GBEP; most members are national governments) through one of the BforSD Advisory Board members.
- IGES has direct communications with key biofuel policymakers in Indonesia, so we are confident that we will be able to get a hearing for our final recommendations. IGES direct connections within the Indian government are also relatively good.
- Prof. Takeuchi, overall project leader of BforSD, plans to present results at COP. IGES could also support presentation of specifically IGES results at COP.

- Previously, IGES research was presented at the Asia Regional Seminar for Sustainable Resource Management.
- Biofuel research may be considered for other policy processes, networks, or forums that IGES is involved in.

Title: (3) Participatory environment decision making: lessons learned and approaches to future actions (PMO in consultation with Governance and Capacity Group)

I. Research Outline

1. Background (Relevance to Asia-Pacific)

Asia and the Pacific continue to face exponential challenges in promoting sound management of natural resources and the environment in the context of achieving sustainable development. Broad public participation in decision-making including the environmental impact assessment procedures is vital to facilitate effective and optimal natural resource and environmental management. Restrained information sharing or so-called information asymmetry inhibits optimal decision-making and is detrimental to long-term sustainability.

Access to environmental decision making remains a key challenge in Asia and the Pacific according to various reports such as the report released under the Access Initiative (TAI) spearheaded by the World Resource Institute (WRI). In promoting participatory environmental decision making, many aspects need to be addressed such as the process and methods of environmental information collection, modes of environmental information dissemination, environmental decision making processes and related institutional capacity and human resources. For example, the freedom of information act (FOIA) has been adopted by only a handful number of countries in Asia and the Pacific. Even in the countries that have FOIA, a number of exceptions are also introduced and it is said that such exceptions have been used to eviscerate the purposes of FOIA. Many governments haven't yet acknowledged environmental information as public goods, and withhold it under the pretext of privacy and national security protection.

NGOs and local community leaders still struggle to come to grips with environmental decision making processes. Many seek opportunity to participate in environmental impact assessment (EIA) procedures and obtain such reports, but often fail to do so and face difficulty in negotiating with investors and business operators in order to protect environmental heritage or to obtain fair and equitable sharing of natural resources in their communities. Conflicts emerge over a wide range of natural resource use issues that range from mining, land use conversion, hydropower construction, landfill, chemical effluent and residue, shrimp farming, and many others. Sometimes, it is alleged that human rights are infringed. In order for stakeholders particularly NGOs and local community leaders to successfully participate in environmental decision making and attain their fair share of benefits or proceeds from natural resources, they need to enhance their skills of report interpretation, negotiation and stakeholder/community mobilization through proper training. It is essential that such leaders have skills in linking local issues with macro-policy issues in the long-term perspectives.

They also need to present costs and benefits of actions and non-actions in comprehensible terms so that local stakeholders can easily understand the need and benefit of acting differently and urgently.

Various policy measures and tools for promoting participatory environmental decision-making have been introduced to respond to peculiar political, socio-economic and cultural conditions of Asia and the Pacific, while integrating standard policy models that have evolved from developed countries. Progressive initiatives that have been undertaken to promote the public access to environmental information include, for instance, the Indonesia's Program for Pollution Control, Evaluation, and Rating (PROPER), which is an innovative environmental information disclosure programme spearheaded by the Environmental Impact Agency (BAPEDAL) of Indonesia. A Chinese NGO called the Institute for Public and Environmental Affairs has been rating the environmental management performance of private companies. Both programmes aim to induce private companies to comply with environmental regulations and enhance their environmental performance. Such good practices have potential of being replicated to other sectors and countries in the region. The scenario method used in Europe and North America provides useful techniques for strengthening human and institutional resources that are essential elements of participatory environmental decision making. It enables stakeholders to envision the consequence to be brought about under the business as usual scenario and to think of alternatives and required processes. This study will explore how this could be implemented in Asia.

This study will address these key issues for public participation in environmental governance. What will enable local stakeholders to participate in environmental decision making more successfully and reach optimal decisions over environmental issues? What are the key parameters for ensuring the participatory environmental decision making?

2. Objectives

- (1) Identifying key components of policy and institutional framework that are conducive to participatory environmental decision making,
- (2) Clarifying key features of environment information related measures for curtailing the violation of environmental regulations and improving the environmental performance particularly by business corporations,
- (3) Elucidating processes, in which environmental information particularly environmental impact assessment reports can be used as a tool for participatory environmental decision making and reaching optimal decisions over environmental and natural resource management,
- (4) Developing models and key features of training programmes for strengthening social capacity that will foster participatory environmental decision making,

- (5) Developing methods for conflict resolutions through participatory environmental decision making, and
- (6) Examining potentials and constraints of policy measures and tools proposed as models for participatory decision-making.

3. Major components

- (1) Access to environmental information: Reviewing EIA, FOIA and policy and institutional mechanisms on the promotion of public access to environmental information,
- (2) Assessment on current status of policy and institutional framework and social capacity as case studies on participatory decision making, and pilot activities to support the development of policy and institutional framework for participatory decision-making and training programmes for NGO and local community leaders and members based on the scenario methods, and
- (3) Conflict resolution through participatory environmental decision making: Selecting specific environmental issues particularly at the local community level and experimenting conflict resolution methods, it is intended to pursue the process in which lessons from local conflict resolution can be applied to develop optimal macro-policy.

4. Research questions

- (1) What are key components of policy and institutional framework that are conducive to participatory environmental decision making,
- (2) How best can environment information related measures be applied to curtail the violation of environmental regulations and to improve the environmental performance particularly by business corporations,
- (3) How effectively can environmental information particularly environmental impact assessment reports be used as a tool for participatory environmental decision making and reaching optimal decisions over environmental and natural resource management,
- (4) How do the interface and operation of institutions influence the effectiveness of participatory decision making?
- (5) What can be models and key features of training programmes for strengthening social capacity that will foster participatory environmental decision making,
- (6) What are the desirable methods for conflict resolutions through participatory environmental decision making, and
- (7) How can mechanisms be developed to link the findings of local environmental management to macro-policy formulation processes.

5. Methodologies

The following methods and activities will be carried out to undertake the proposed research work.

- (1) Literature review,
- (2) Interview,
- (3) Questionnaire survey,
- (4) Workshops,
- (5) Case studies,
- (6) Pilot activities

In doing so, it is intended to identify key parameters that determine the social capacity for promoting participatory environmental decision making. Then, based on the multifactor analysis, it is aimed at examining the interface of multiple factors on the social capacity, and exploring an optimal combination of such factors that will maximize the social capacity for effective and desirable environmental decision making.

6. Value-added (including Relationship with IGES Core Competence)

- (1) The proposed research component is intended to undertake in the Asia – Pacific regional scale to assess and analyze participatory environmental decision making in a holistic viewpoint that will encompass from FOIA, social capacity and conflict resolution in the area of environmental management and sustainable development; such a research work has not yet been undertaken in the regional scale,
- (2) It is also aimed at applying the scenario method as a tool for promoting participatory environmental decision making and strengthening social capacity on environmental decision making; despite its usefulness proven in other regions, it has not yet been introduced to the substantive level in Asia and the Pacific,
- (3) Within the proposed research programme, the practical application of the participatory environmental decision making using the scenario method will be pursued as pilot activities; pragmatic experimentation of conflict resolution over environmental matters has not been undertaken in the region despite that such approaches have been introduced in other regions.

(Relationship with IGES Core Competence)

IGES has been addressing the issue of participation in environmental management over the past research programme cycles. In the Fourth Research Programme, the Capacity Development and Education had several components for information access and stakeholder empowerment that are carried out more concretely as key components of the Asia – Pacific Forum for Environment and Development (APFED), the Asia - Europe Environmental Forum of the Asia – Europe Foundation (ASEF), and the Asia Environment Compliance and Enforcement Network (AECEN) that are

spearheaded by the PMO/IAC team. In the APFED Showcase Programme and the Award Programme, good practice case studies have been undertaken, for instance, on access to environmental information in Bangladesh and environmental lawyers training in China. In the ASEF work, the scenario method has been experimented for training trainers, but only on an experimental base and not yet been applied for pragmatic application. By capitalizing upon the Fourth phase activities particularly those undertaken by PMO/IAC, the proposed research work is expected to provide an instrumental contribution of research work on participatory decision making and to demonstrate concrete field and policy actions for expanding the stakeholders' participation in environmental decision making that are more conducive to achieving sustainable development in the region.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

The following timeframe is envisioned for undertaking the proposed research work. The marked areas indicate the quarterly period where intensive work will be carried out for the indicated activities, but work will be undertaken to the considerable extent in the non-marked period.

Activities	FY2010				FY2011				FY2012			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1. Literature review	x	x	x	x								
2. Workshops		x		x		x		x		x		x
3. Interview/questionnaire surveys		x		x		x		x		x		
4. Case studies			x		x		x		x			
5. Pilot projects			x	x		x	x		x	x		
6. Report and article preparations			x	x			x	x			x	x

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

The proposed research work will be undertaken by a team that will consist of 1 managing researcher plus 3 researchers and 1 research administrative coordinator. This project will be conducted jointly by the Governance and Capacity Group and the Programme Management Office.

(II) Allocation of Human Resources

The managing researcher will coordinate the overall activities while undertaking his assigned

research tasks. The managing researcher and 3 researchers will undertake the research tasks that will be allocated based on the themes and geographic location. The research administrative coordinator will undertake administrative work while supporting the transformation of research output for dissemination to the public through website or appropriate media.

(III) Funding

1. Cost estimate

2. External funds obtained/to be applied

For the pilot projects, the APFED Showcase Programme is expected to continue for the FY2010 – 2011. It is proposed that pilot activities shall be financed by the APFED Showcase Programme.

In addition, external funds will be explored with the AECEN, ASEF, Asia Foundation, ASEAN, the Asian Development Bank, UNEP and other potential organizations for supporting the participatory environmental decision making to match the financial requirement for the proposed research work.

III. Impact Generation

1. Major outputs (research papers and policy papers)

It is expected that a series of research papers will be produced on the participatory environmental decision making on pilot projects and case studies, covering different countries or different sub-topics such as FOIA or EIA application.

Regional synthesis reports will be also produced each year highlighting notable progress and key challenges.

The manual and handbook on participatory environmental decision making will be produced for the pragmatic use at the field level in the countries of the region.

Other than the potential sponsors for the proposed research work, IGES will collaborate with NetRes institutes – an Asia-Pacific regional network of policy research institutes for environmental management and sustainable development, and the World Resource Institute and other relevant organizations.

Research findings will be shared and used as an integral part of the inputs for the regional and inter-regional processes such as AECEN and ASEF, and other networks. It is also intended to provide as inputs for forthcoming regional and international processes such as the 6th Ministerial

Conference on Environment and Development (MCED VI), CBD/COP10, East Asia meetings, CSD and 2012 Summit.

I. Research Outline

1. Background (Relevance to Asia-Pacific)

The Asia-Pacific region experienced the most rapid growth in its consumer class and now constitutes the largest regional consumer class in the world. The consumer class in this region accounts for 29% of the world total, and it contributes 21.4% of global private consumption. However, the majority of the population still live in extreme poverty and have little opportunity to participate in this newly realised consumer class.

The High Level Officers Informal Meeting for ASEAN+3 Environment Ministers Meeting (6-7 Aug., 2009) identified Climate Change Partnership and Regional Cooperation for Environmental Education for Sustainable Development (EESD) as two of the main priorities to achieve a low carbon society. Japan proposed cooperation for regional research on EESD and gained support from China and Korea due to the countries' own priorities for public environmental awareness and green growth education respectively. *The 2nd ASEAN+3 Leadership Programme on Sustainable Production and Consumption* (8 Aug., 2009) highlighted the critical roles of ministries in formulating and supporting national policies on SCP as an important means for mitigating the impacts of the growing demands of the consumer class as a root cause of climate change. To support SCP, the importance of Education for Sustainable Consumption (ESC) is recognised as a priority within the general theme of EESD, especially during preparation of the *Marrakech Process 10-Year Framework of Programmes*.

The Marrakech Process identifies consumer practices as a primary factor of current unsustainable development. Furthermore, it acknowledges the individual consumer as the key actor governments must target to advance sustainable consumption. The Italian and Swedish-led task forces have acknowledged a critical lack of policy research on ESC and Sustainable Lifestyles even though this is considered a crucial area for transition to a low-carbon society. The civil advancement of sustainable consumption requires direct focus in research and policy on addressing consumer behaviour, and *the Marrakech Process* launched its partnership PERL in October 2009 to continue research/policy work to promote autonomous participation in sustainable consumption.

Within the plan and activities of the *Decade of Education for Sustainable Development (2005-14)*, the importance of a reformed and broadened understanding of education is firmly advocated as a primary means to advance the type of responsible citizenship that is necessary for the achievement of sustainable development. The broadened definition of education must not only consider both

formal and informal educational practices, but it needs to recognise the importance of integrating daily life practices as a core objective of learning outcomes. To advance ESD beyond mere information provision, the methodologies of participatory action learning and experiential education are relied upon heavily to adapt curriculums and educational activities to inspire critical learners empowered with the analytical tools to assess the impacts of their own actions, to relate this to the global state of the environment, and to test new mechanisms for a transition to a low-carbon society through the process of critical praxis. Though this reformed concept of education is well theorised by international experts/academics, there is still a substantial gap in its implementation in policy, curriculum development and practice. Efforts to narrow this gap must be a target area for future ESD research and policy.

To reflect this status to deliver capacity development and education for sustainable consumption, research efforts on identifying successful capacity development mechanisms and efficient ESC policy instruments at national and regional levels is urgently needed. International discussions, as part of the Marrakech Process, have identified three major gaps in current research regarding: 1) *National Mechanisms* for influencing consumer behaviour; 2) *ESC Leadership* through training for policy makers; and 3) *Political Dialogue* for the promotion of regional cooperation and good practice.

2. Objectives

The ultimate goal of this research is – “*To provide strategic policy recommendations for governments to advance transition to a low-carbon society through the promotion of civil society’s autonomous participation in sustainable consumption and responsible lifestyles*”.

Based on the ultimate goal above, this research has five specific objectives as follows:

- 1) To examine governmental mechanisms to advance responsible consumer behaviour and encourage sustainable consumption practice;
- 2) To identify an efficient government strategy of Education for Sustainable Consumption (ESC) for implementation at national and regional levels;
- 3) To ensure effective ESC Leadership through training and capacity building for policy decision-makers;
- 4) To investigate the critical roles of civil society organisations and initiatives in promoting sustainable consumption;
- 5) To promote a regional network for ESC in the East Asian countries and to strengthen political discourse regarding SC practices.

This research identifies the primary instruments of *Education* and *Information Provision* as the main means for influencing consumer behaviour, thus these instruments will compose the main focal points for investigation of governmental mechanisms to advance sustainable consumption practices.

Regulatory, Economic and Cooperative instruments are acknowledged as secondary instruments for this research topic and will be addressed only where they apply to creating enabling conditions and removing practical barriers for sustainable consumption. This division between primary and secondary instruments will also provide opportunity for significant cross-collaboration between this work and that proposed by the SCP group, while at the same time avoiding significant overlaps of research.

3. Major components

- 1) “*Policy Research*” on strategic mechanisms for governments to advance responsible consumer behaviour and encourage sustainable consumption practice – including clear evaluation criteria;
- 2) “*Research on Capacity Building for ESC Leadership*” to strengthen policy makers’ understanding of ESC imperative and techniques for its promotion – including a Strategy for ESC implementation
- 3) “*Advancing Political Dialogue*” on ESC through the identification of good practice and by strengthening policy cooperation and strategic research on ESC in Asia-Pacific – including the establishment of a *Regional Network on ESC* and international partnership with PERL.

TABLE 1: RESEARCH ON GOVERNMENT ACTIONS TO

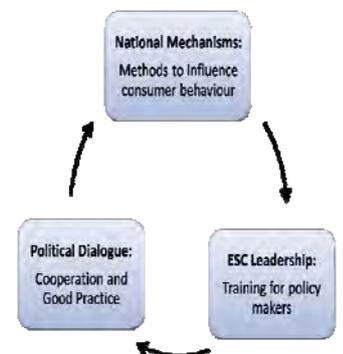
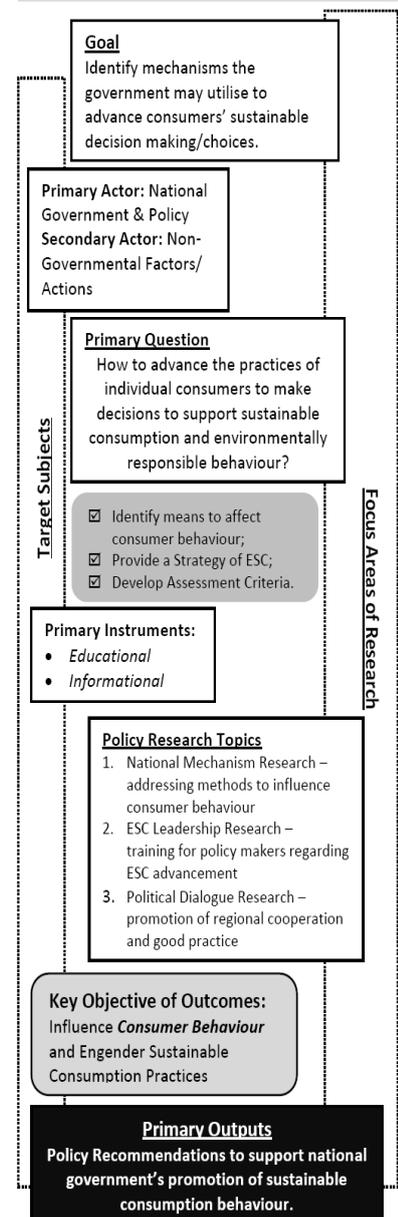


TABLE 2: SUMMARY OF RESEARCH FRAMEWORK



4. Research Questions

The key question of this research is: *“How to advance the practices of individual consumers to make decisions to support sustainable consumption and environmentally responsible behaviour?”*, and its four sub-questions are:

- 1) What are the primary means to influence consumer behaviour and encourage civil society’s autonomous participation in sustainable consumption and responsible lifestyles?
- 2) What are the indigenous contexts in Asia that precondition consumption behaviour and should be taken into consideration by policy-decision makers in their promotion of sustainable consumption?
- 3) What are the strategic policy steps required in order to implement successful ESC and consumer awareness raising campaigns?
- 4) How can multi-stakeholder participation in capacity development for sustainable consumption best be achieved, and how can regional cooperation be advanced?

5. Methodologies

National Mechanism Research – To address methods to influence consumer behaviour effectively

This research will be based on both primary study of the influence of ESC activities on consumer behaviour (conducted through questionnaire and case study) and also on the review of existing policy and implementation.

A strategic model of assessment is to be developed from theoretical modelling of mechanisms to influence consumer behaviour. This model will be applied to and tested against the analysis of the primary research.

This work on assessment modelling will aid in developing an evaluation criteria to be used for case study analysis to identify good practice. The initial methods of review will be based on qualitative action research, however these will be used with the goal of developing the above mentioned model and criteria which would allow for more structured empirical analysis.

ESC Leadership Research – To develop training for policy makers regarding ESC advancement

This research must begin by identifying the current strengths and weaknesses in existing ESC knowledge held by relevant policy decision-makers. This will occur through review of current policy frameworks and strategic plans, assessment of training materials/curriculums, and through interviews with relevant officers. Necessary areas for advanced research will be identified during this preliminary step.

Utilising the understanding of mechanisms to influence consumer behaviour identified as part of the assessment modelling in the above research component, work will be made to produce a Strategy for Consumer ESC that can facilitate government officers in their initiatives. In correspondence, research will attempt to identify strategic policy steps required to implement successful ESC through case studies and review of implementation strategies.

Political Dialogue Research – To promote regional cooperation and good practice

This research will utilise activity-based dialogue analysis and adapt the theoretical methodology of experiential education to provide an analytical understanding. Based on both interview collection and material assessment, Ely's (1991) model of 'thinking units' will be applied to gain empirical understanding of primary subject areas.

Research on multi-stakeholder cooperation in support of ESC will also be investigated to determine opportunities for cross-sector collaboration to encourage the uptake of sustainable consumption practices. Utilising methods of participatory appraisal and planning, identification of common interests and issues for multi-stakeholders will be accomplished.

The evaluation criteria established in the first component will be applied to create a recording framework for good practice and its dissemination. Finally, improvement of political dialogues will be facilitated through development of a regional network on ESC and participation in international forums to encourage cooperation and the promotion of good practice.

6. Value-added (including Relationship with IGES Core Competence)

The significance of this research is that:

- 1) it will provide a model of "Education for Sustainable Consumption" that is readily accessible to policy makers and educators, and it will provide a definition of ESC that is understandable out with the expert field;
- 2) it will be the first to clearly investigate strategic mechanisms for governments to advance responsible consumer behaviour and encourage sustainable consumption practice in Asia;
- 3) it will also be the first to clearly investigate methods of Capacity Building for ESC Leadership;
- 4) it will establish both an Evaluation Criteria for ESC initiatives and a Strategy for Consumer ESC implementation;
- 5) it will advance multi-stakeholder cooperation regarding ESC, strengthen political discourse regarding sustainable consumption, and support development of "a regional network" on

ESC; and;

- 6) it will provide a clear opportunity to influence “international policy” and gain recognition for the significance of the Asia-Pacific region in achieving global SCP.

(Relationship with IGES Core Competence)

From a series of research activities in FY2008 and FY2009, CDE Project has developed in-depth knowledge and skills to deal with ESC-related projects. In particular, regional working partnerships have been established with ministries in multiple countries in Asia and with international organisations such as ASEAN, UNESCAP, UNEP, UNESCO, CCN (European Consumer Citizenship Network) and PERL (Partnership for Education and Research about Responsible Living). The current research work and partnerships of CDE Project will bring assets to the 5th Phase.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

Over the three years of the 5th Phase:

- 1) First research year (FY2010) - Examining good practice mechanisms of governmental policies on ESC at a national level in North-East region;
- 2) Midterm research year (FY2011) – Development of good practices and policy instruments from various countries in the South-East region and extension of capacity development and education for sustainable livelihoods, and;
- 3) Final research year (FY2012) – Overall and in-depth analysis of previous two-years projects to synthesise findings and messages of the project in East Asia region.

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

The recent research activities of CDE Project have identified a significant possibility that IGES could take a role as a regional hub for Research and Strategic Policy Development on ESC.

CDE Project has established links with the following networks and initiatives working on ESC:

- 1) Global Initiatives
 - GSSL (Global Survey on Sustainable Lifestyle) which is a global initiative established by UNEP to support Marrakech Process;
 - The Swedish Task Force on Sustainable Lifestyles of Marrakech Process, and;
 - Partnership for Education and Research about Responsible Living (PERL) which is a global initiative to put research evidences into evaluation of Marrakech Process in 2010.
- 2) Network and Government Agency in Japan

- Economic and Social Research Institute and Consumer Affair Agency in Cabinet Office (which will be launched in the first week of this September) in Japan;
 - GPN (Green Purchasing Network) in Japan which is a cooperative association in Japan joined by approximately 3,000 member organisations consisting of businesses, local governments, consumer groups, environmental NGOs;
- 3) Agencies of Other Countries
- Centre for Environmental Education and Communication, Ministry of Environmental Protection
 - Green Campus Initiative in Republic of Korea
 - Presidential Committee on Green Growth, Republic of Korea

There is significant scope for the development of a regional network on ESC in North-East Asia (and later expanding to include the ASEAN +3 countries). Tentative agreements from government officers from Japan, China and Republic of Korea were solicited during the regional workshop organised by the CDE project in Beijing, July 2009.

(II) Allocation of Human Resources

Two research staff members are needed. One staff member should have expertise on environmental education and behavioural science, and more than 10 years of working experience. The other staff member should be expertise on social science, and about 3 years of working experience.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 5 million yen

2. External funds obtained/to be applied

Application planned for subsidies from Kanagawa Prefecture.

Application is made to Mitsui Environment Fund (FY2010-FY2013).

III. Impact Generation

1. Major outputs (research papers and policy papers)

- One IGES Policy Report
- One IGES Research Report

- Two IGES Policy Briefs
- Two Journal articles

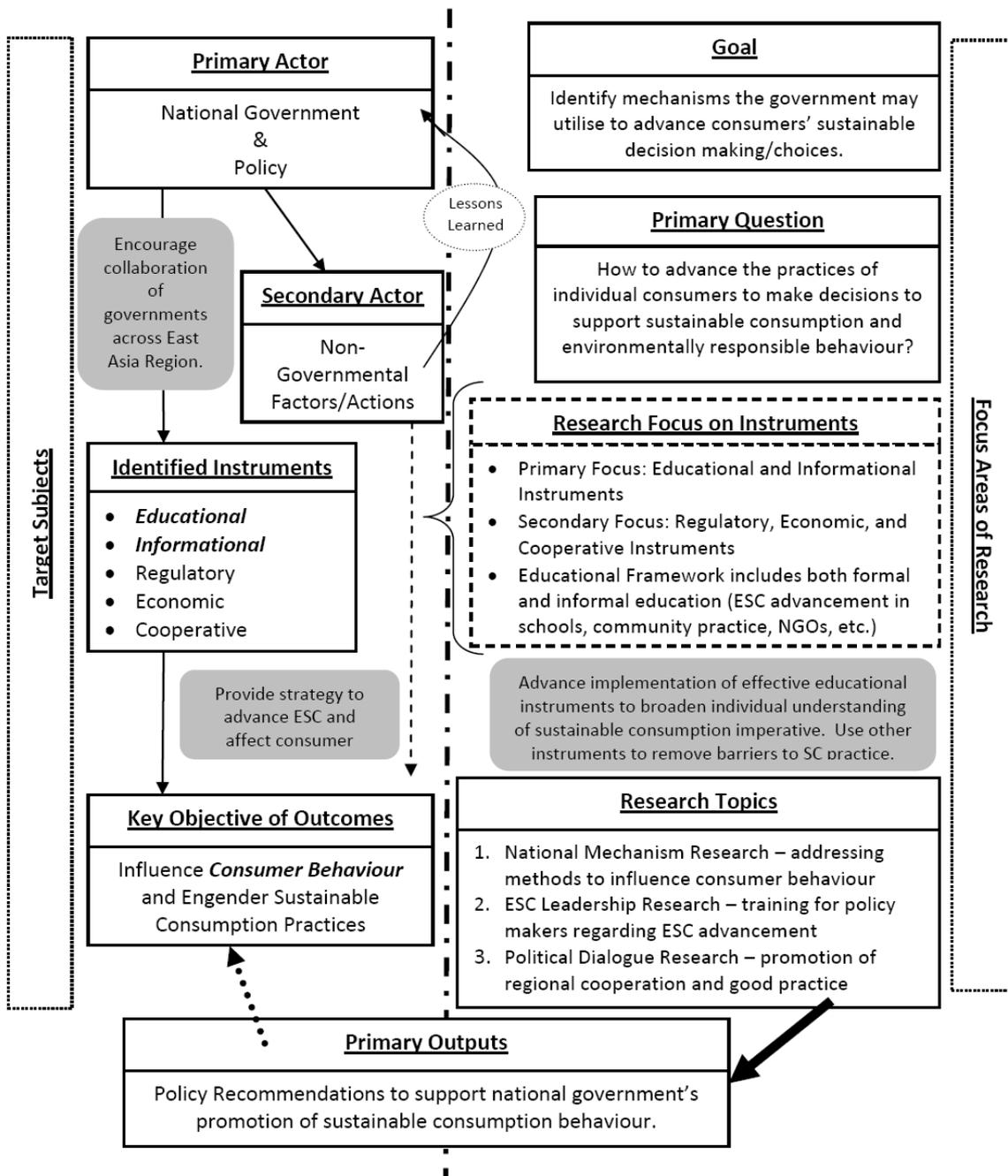
2. Influence strategy

The primary objective for research on ESC is to provide policy advice that will support transition towards a low carbon society through civil society's autonomous participation in sustainable consumption. The goal of the Marrakech Process is to establish a 10-Year Framework of Programmes (10YFP) to detail the policies that will lead to SCP. In 2010 (at CSD+18) and 2011 (at CSD+19), the development of the 10YFP will be reviewed and then implemented. During the decade following this, significant work will occur internationally, regionally and nationally to advance sustainable consumption through a diverse range of aspects including education.

ESC is a priority area being reviewed by both the Italian Task Force on ESC and the Swedish Task Force on Sustainable Livelihoods. Regional work is also occurring in Asia with the regards to the Asia-Pacific Roundtable on SCP and the Green Growth process. However, significant gaps have been identified in research concerning how government can influence consumer behaviour and encourage sustainable consumption choices. There is a need to develop effective governmental mechanisms to advance sustainable consumption practices; to secure strong ESC leadership from policy-decision makers; and to promote political dialogues that encourage regional cooperation and good practice.

Therefore, evidence-based policy research on ESC is both timely and pertinent as it can provide a contribution to the review process for the 10YFP and for development of strategic means to implement ESC policies in the coming future. The Italian Task Force has established a series of guidelines for ESC that deserve further analysis and scrutiny. In addition, future platforms for influencing international policy through research on ESC have been established as part of the Partnership for Education and Research about Responsible Living (PERL), and IGES-CDE project joined as a working member in October 2009.

TABLE 3: MAP OF RESEARCH FRAMEWORK



Kansai Research Centre

Title: (1) Research Partnership for the Application of Low Carbon Technology in India

I. Research Outline

1. Background (Relevance to Asia-Pacific)

With recent economic growth of around 9% expected to continue, India seems likely to be plagued by chronic electricity shortage and an unstable power supply for the foreseeable future, along with rapidly increasing greenhouse gas emissions. India is now the fifth largest emitter of carbon dioxin and the fifth largest consumer of primary energy in the world. India aspires to adopt low carbon technology and puts high priority on energy efficiency measures based on “The National Action Plan on Climate Change in India”, which seeks to save 10,000MW through energy conservation by 2012. There are potential energy savings of 25% in the industrial and consumer sectors, but no strong measures are yet in place.

Against this background, Japan has considered transfer of energy efficiency technology to Indian industry. However, commercial buildings and small and medium sized enterprises, which have dramatically increased their energy consumption, have not been targeted before. Research is therefore required on application and transfer of low carbon and energy efficiency technology to those sectors. In addition to a study of relevant administrative agencies and regulations in India, and identifying how intellectual property rights are handled and ways that the social system could potentially be a barrier for technology transfer, it is important to offer a social scientific proposal that can improve the prospects.

India also has an electricity supply system different from Japan. Therefore, what is needed is appropriate technology transfer that fully addresses the needs of India in terms of human resources and the level of technologies of industries concerned, as well as meeting the conditions set by the Japanese side.

2. Objectives

Abstract research only will not be enough to resolve various issues surrounding technology transfer for low carbon society. This study proposes a pilot project that selects specific low carbon and energy efficiency technologies to apply to the energy-hungry commercial buildings and small and medium enterprises. The results of the pilot would then highlight the challenges both in technologies and social systems.

The ultimate aim of the study is development of a globally-applicable social scientific framework for low carbon technology transfer based on the co-benefit approach through

up-skilling of engineers, creation of system for sharing technology information and a new cooperative posture in the private sector.

3. Major components

C1: Grasp and analyze the policy related to low carbon technology transfer and past cases

- Review the policy related to low carbon technology
- Extract incentives and disincentives for low carbon technology transfer in both countries

C2: Japan-Analyze the supply side

- Select low carbon technologies that could be applied and analyze their potential for reducing GHG emissions
- Extract and analyze critical issues to low carbon technology transfer from the viewpoint of Japanese businesses
- Identify the problems of equipment cost, intellectual property rights, etc.

C3: India-Analyze the demand side

- Identify the technology demands and select the priority areas and sectors where applications should be promoted

C4: Selecting and prioritizing low carbon technologies for emissions reduction

- Select the technologies with the highest potential for saving energy
- Consider technological and regulatory improvements necessary for diffusion

C5: Analysis and verification through the pilot project

- Select the F/S project and review the technology spec
- Bring in the equipment and system
- Monitor and evaluate emission reduction efficiency and identify areas for improvement
- Analyze and review the environmental, economic and social impact of the low carbon technology transfer.

C6: Development of performance indicators and capacity building related to the low carbon technology transfer

- Develop evaluation methods based on the pilot project results and review coherence with the Japanese side

- Propose boosting technology development capacity
- Boost capacity of research institutes and businesses in India
- Cultivate human resources and promote knowledge related to low carbon technologies (ex. Training programs)
- Establish a website about low carbon technology and improve access to information

4. Research questions

- What are the existing policies related to low carbon technology transfer and has it happened in the past?
- What are the social scientific opportunities and barriers based on the technology available from Japan and the technology demands in India?
- What are the desirable technologies and their order of priority based on social scientific opportunities and barriers?
- What kind of accreditation system and standards framework is needed to promote low carbon technology?
- What is the capacity building policy needed for promotion of low carbon technology? If it exists, how should it be promoted?

5. Methodologies

The research shall be conducted as follows:

- Literature review, workshop and hearings with those involved to find out the policy and existing cases of low carbon technology transfer
- Experts' meetings, workshops, and hearings to review low carbon and energy efficiency technologies available from Japan
- Literature review and meetings with persons involved in India to analyze the social scientific background of technology needs and barriers in India
- Implement the pilot project with low carbon and energy efficiency technologies that have potential for application and transfer
- Meetings, workshops and site tours with Indian and Japanese businesses to identify technological priorities, based on the social scientific findings
- Expert meetings and hearings to research the framework of an accreditation system and standards framework that would promote low carbon technology transfer
- Research meetings, hearings and discussions to identify policy on human resource cultivation and capacity building for the promotion of low carbon technology transfer

- Final report summarizing the results

6. Value-added (including Relationship with IGES Core Competence)

By examining the concrete cases of low carbon technology transfer, the social scientific opportunities and challenges that need to be considered should become clear, enabling a social scientific framework to be developed that promotes international low carbon technology application based on the co-benefits approach.

(Relationship with IGES Core Competence)

IGES, as an institute conducting pragmatic studies to support environmental decision making in Asia, shall provide effective policy measures to encourage the efforts against climate change from the perspective of different social actors. It is obviously insufficient to discuss the relationship between the economy and carbon emissions solely at regional or national macro level.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Timeframe

June 1, 2009 – March 31, 2014 (Until RD is concluded with the Indian government, this study is provisional. Once R/D concluded, full research starts. R/D should be concluded within FY 2009)

2. Implementation framework

(Overall team structure, partner institutes, role of IGES. etc)

The study team will consist of researchers at IGES and experts in India. The researcher at IGES shall take care of the overall arrangement of the study activities for which s/he is responsible, including research framework design and survey document development, and arrangement of the survey activities in cooperation with local people. The local experts (India) will collaborate in field work for data collection. The partner institute (TERI) needs to be identified after the start of the project.

(II) Allocation of Human Resources

1) Required expertise

For the researchers at IGES to be involved, background knowledge on corporate

environmental management is necessary. Research experience in the field of environmental economics and companies' environmental behavior, especially focusing on India, is preferred. Experience with field surveys is essential to achieve better responses from the targeted firms.

2) Number of staff

Researchers (including visiting researchers) :

3 persons (IGES covers personnel cost partially using JST funds.)

Research Assistant :

2 persons (IGES covers personnel cost using JST funds.)

Visiting researchers from private sectors:

4-5 persons (Private sector covers personnel cost.)

Experts from private sector:

10 persons (Private sector covers personnel cost.)

3) Staff time

Full-time (20 days/month x 12 months): 3 researchers, 2 research assistants

Part-time (20 days/month x 2 months): 2 research assistants

In addition to above full-time and part-time researchers and research assistants, visiting researchers and experts will be involved (Please see 2) Number of staff)

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 24 million yen

2. External funds obtained/to be applied

JST-JICA project itself shall be implemented by external funds.

III. Impact Generation

1. Major outputs (research papers and policy papers)

The following research outputs will be generated:

- ◆ Research report to summarize the study activities and major findings.

2. Influence strategy

To enlarge the influence of the project, the policy process with relevance to carbon emissions mitigation in industrial sectors in India shall be tracked. Relevant findings from the studies shall be disseminated quickly by distribution of research documents.

Title: (2) Market-based Instruments for Improving Firm's Carbon Performance in East Asia

I . Research Outline

1. Background (Relevance to Asia-Pacific) (make this section a bit shorter)

The approaches for Low Carbon Society (LCS) have raised heavy discussions currently due to the urgency against climate change. The implications of LCS are obviously diverse for countries at different stage of development. For developed countries like Japan, achieving a LCS involves great cut of CO₂ emissions by the diffusion of innovative green technologies, the lifestyle changes and proper institutional arrangement. For the developing countries in Asia, the LCS has to go together with wider goals achievement like economic growth and poverty eradication. Amongst the major economic actors for LCS, the firms in industrial sectors have to improve their current carbon performance either by using low-carbon energies or modifying manufacturing processes. Within the upcoming 20 years, huge investment will be input for energy supply infrastructures, among which the developing countries will share slightly over a half. China alone will make up nearly one-third of the total investment in developing countries. However, part of these investments for energy sector should be shifted to improve energy efficiency of manufacturers at the demand side. The existing inappropriate policies need to be reversed. As examples, current financing mechanisms are not effective in encouraging low-carbon investments. CDM (Clean Development Mechanism) projects only share a small fraction of the low-carbon investments needed in developing countries. Clear, stable and long-term policy signals are highly prioritized, particularly in terms of price for carbon. Market-based instruments (MBIs), such as economic subsidies, tax differentiation and emission trading scheme, are quite essential for the changes of firm's environmental behaviors. Inappropriate subsidies and tariff barriers should be removed. The key reason for MBIs adoption is their theoretical advantages of generating the same outcomes as traditional command approaches at lower cost. As shown in Fig.1, each of the three levers of MBIs may extend to a range of policy options.

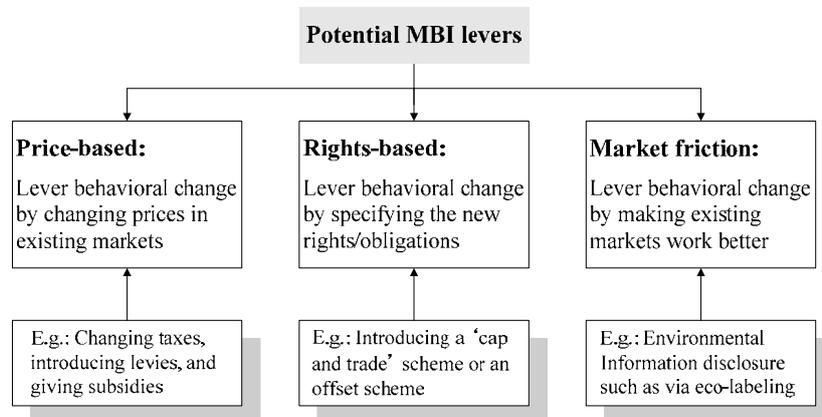


Fig.1: Range of levers employed by MBIs.

This proposal suggests the studies on MBIs for improving firm's carbon performance in East Asia due to the advantages of economic strategies and a few basic recognitions and evidence. Summarized from the ongoing studies of CEM (Corporate environmental management) in developing Asia at KRC/IGES, the companies are increasingly aware that there is no inherent conflict between operating a competitive business and better environmental behaviors. The firm's environmental efforts are sensitive to economic factors probably due to the weak involvement of civil society in this region. The cost-driven approaches would be more effective for pushing firms to adopt environmental activities. The strong linkage between economy level and the capacity of carbon reduction determines the selection of target countries. As listed in Table 1, the economy structure and carbon intensity of the three East Asian countries are representative in this region. The firms there bear closer studies designed by this proposal.

Table 1: Profile data of selected countries in Asia (Sourced from WDI, 2007)

Indicator	Japan	China	Korea	Malaysia	Indonesia	Thailand	India
Population, total (mill.)	127.77	1318.31	48.46	26.55	225.63	63.83	1124.79
GDP (current US\$) (bill.)	4384.5	3205.51	969.79	186.72	432.82	245.35	1176.89
GDP growth (annual %)	2.1	13	5	6.3	6.3	4.8	9.1
GDP per capita (Current US\$)	34315.6	2431.5	20012.2	7032.8	1918.3	3843.8	1046.3
Value added (Agr.:Ind.:Ser.)	2:30:68	11:49:40	3:39:58	10:48:42	14:47:39	11:44:45	18:30:52
Energy use (kg oil eq./capita, 2005)	4135	1319	4415	2570	798	1598	492
CO ₂ em.(t/capita, 2005)	9.6	4.3	9.4	9.3	1.9	4.3	1.3
CO ₂ em. (t/1000 US\$ GDP, 2005)	0.2695	2.5073	0.5718	1.7292	1.4659	1.5355	1.7564
Merchandise trade (% of GDP)	30.4	67.8	75.1	173.1	48.6	119.8	30.8
FDI, inflows (current US\$, mill.)	22180	138413	1579	8456	6928	9498	22950

An additional reason for looking at the countries in East Asia is the fact that they have relatively fruitful experiences on MBIs implementations. In Japan, sulfur emission charge was levied to get revenues for the compensation of pollution victims. Motor vehicle taxes are used to discourage vehicle and fuel consumption. In China, the PLS (Pollution levy system) was started many years ago based on the "polluters pay principle". A few emission trading programs are under development such as nationwide trading of SO₂. Several economic tools, such as green credit policy, are under pilot test. In Korea, carbon tax is likely to be introduced in the near future. Tax differentiation is offering tax deductions for Korean companies involved in environmental efforts, and for the investments of anti-pollution facilities.

2. Objectives

The overall objective of this project is to support the development and possible implementation of

MBIs for improving carbon performance of industries, which may include:

- 2.1 Review the policies with relevance to firm's efforts of energy conservation and carbon reduction;
- 2.2 Examine current level of firm's carbon performance and identify the determinant factors for the companies to reduce carbon emissions in East Asian countries;
- 2.3 Monitor the responses of firms to the typical MBIs and analyze the policy deficiencies;
- 2.4 Propose an economic policy framework for encouraging firms to improve their carbon performance and provide evaluations for the optional policy scenarios.

3. Major components

As indicated in Fig.2, this project is designed to consist of 6 components and research tasks:

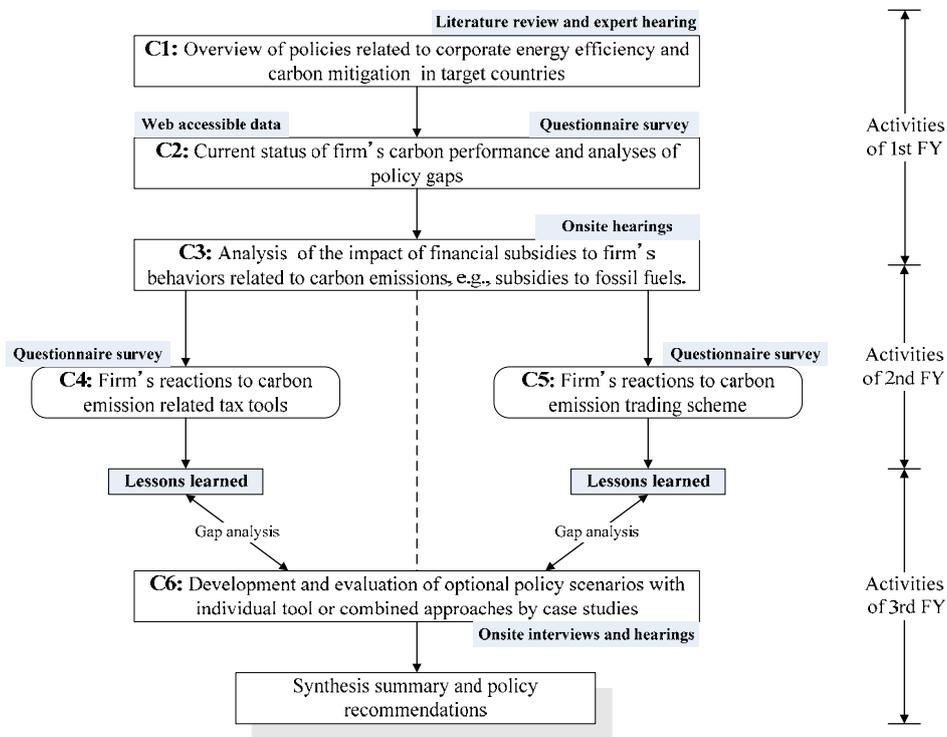


Fig.2: Research components and time schedule.

C1: Overview of policies on corporate energy efficiency and carbon reduction in target countries

This component will give a thorough overview to the policies with aims to encourage the firms to save energy and to reduce CO₂ emissions. The focus will be given to the policy approaches concerning with individual company, a set of companies or at sector levels. Strategies, which use incentives or disincentives, such as fossil fuel subsidies, voluntary standards based labeling, product charge, tax differentiation, tradable emission permit, carbon emission tax, trade subsidies, shall be reviewed. Current policy deficiencies for carbon reductions at industrial sectors will be identified. This

preliminary overview helps the understanding of the background in target countries and the clarification of MBIs to be explored by further empirical studies.

C2: Current status of firm's carbon performance and policy gap analysis

This section will monitor current status of firm's energy use and level of carbon emission intensity. The information may come from web accessible documents and raw data collected by structural questionnaire survey. Determinant factors for firms to reduce their carbon emissions will be identified and analyzed. Case analyses will attempt to examine various drivers and barriers for firm's efforts in improving its carbon performance. The factor analysis is expected to guide the study direction for developing effective tools to close current policy gaps.

C3: Analysis of the impacts of financial subsidies to firm's behaviors on carbon emissions

In the target countries, the implementation of MBIs for carbon reduction appears laggard. Financial subsidies, whether reasonable or not, are major economic tools adopted so far. This component will analyze the impacts of ongoing subsidies, e.g., the subsidies to fossil fuels, to firm's efforts of carbon emission reductions. This analysis can be categorized as policy retrospective evaluation and will be conducted by field hearings.

C4 & C5: Firm's reactions to carbon tax differentiation and emission trading scheme

C4 & C5 will be conducted in parallel. It is expected to monitor the firm's responses to these representative price-based and right-based tools under assumed emission caps. Considering tax differentiation as an effective strategy which has been successfully practiced in some European countries, C4 will examine the possible changes of firm's behaviors to this policy. Functional mechanisms of this typical price-based tool will be identified by hearing the judgment from firms. The function analysis may provide evidence for the development of policy adaptive to the social, political and cultural background in target countries. In a similar way, C5 will discuss emission trading scheme which has been widely implemented by large companies.

C6: Development and evaluation of optional policy scenarios consisting of individual tool or combined approaches

At the last stage, previous findings will be used to assist in the development of a set of policy scenarios which are considered to be effective. The main task of this section is to give comprehensive assessments to the proposed scenarios. The cost-benefit (or efficiency) analysis of individual firm's cases may be a useful methodology for the evaluation. The data may be collected by onsite visits and hearing at firm level. Finally, synthesis summary and policy suggestions will be generated.

4. Research questions

The following questions are hoped to be answered by series of empirical studies at firm's level:

- 4.1 What kind of policies is under practice to encourage firm's carbon reduction in East Asia?

4.2 How about current energy efficiency and carbon performance of the firms in target countries?

And, what is determining the firm's behaviors with relevance to carbon performance?

4.3 How will the firms response to the typical MBIs which may provide pressures or incentives for improving firm's carbon performance?

4.4 What are the effective policy options to improve firm's carbon performance? And, what are the cost and benefit of the optional policy tools for the representative companies?

4.5 What MBIs can be recommended for the decision-makers in the target countries to enhance firm's carbon performance which may contribute to realize of post Kyoto mitigation goals?

5. Methodologies

This project will be carried out by using below listed approaches:

5.1 Literature review and comparative analyses;

5.2 Research framework development for explaining firm's environmental behavior which shall use traditionally economic models and related sociological philosophy like stakeholder and institutional theories;

5.3 Structural questionnaire surveys and onsite hearings for data collection;

5.4 Statistical summarizations;

5.5 Econometric practices for in-depth analysis;

5.6 Roundtables or consultative meetings to gather advices and further inputs for research activities;

5.7 Workshops, seminars and publication disseminations for research outreach.

6. Value-added (including Relationship with IGES Core Competence)

This study may directly provide evidence to support the development and implementation of MBIs in East Asia to help the carbon reduction of industrial sectors. It can also enhance the core competence of IGES in research field of climate change policies since one more layer of important topics will be discussed by this study.

(Relationship with IGES Core Competence)

IGES, as an institute conducting pragmatic studies to support environmental decision making in Asia, shall provide effective policy measures to encourage the efforts against climate change from perspectives of different social actors. It is obviously insufficient to discuss the relationship between economy and carbon emissions solely at regional or national levels. The environmental behavior of firms, as major economic actors, bears continuously observations. Their reactions to the optional economic tools will directly affect the effectiveness of the policies. As a prerequisite step to convince decision makers, the appropriate road map has to be provided for the representative instruments via a series of feasibility studies. The empirical studies may strongly enhance the competence of IGES due to their policy orientation and originalities, which can make

IGES difference with other research institutes like universities.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

As indicated in Fig.2, the project will be conducted in three years by a series of activities designed.

In the 1st year (FY2010):

- ◆ Information gathering for preliminary overview;
- ◆ Clarification of a detailed research protocol and confirmation of analysis approaches;
- ◆ Identification of local research partners with comparative advantages;
- ◆ Arranging consultative meetings and a kick-off seminar;
- ◆ Arranging an international symposium with related theme;
- ◆ Primary survey studies in the target countries;
- ◆ Summary of annual outputs and preparation of research documents.

In the 2nd year (FY2011):

- ◆ Development of analytical framework and survey documents;
- ◆ Field studies jointly with local research partners for data collection;
- ◆ Arranging roundtable or consultative meetings for additional research inputs;
- ◆ Arranging international workshop or symposium for research dissemination;
- ◆ Summary of annual outputs and preparation of research reports, policy brief and academic papers.

In the 3rd year (FY2012):

- ◆ Development of policy scenarios for evaluation and survey documents;
- ◆ Field studies jointly with local research partners to monitor firm's opinions;
- ◆ Arranging roundtable or consultative meetings to add inputs;
- ◆ Arranging international workshop or symposium for research result dissemination;
- ◆ Preparation of the final project report with policy proposals.

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

The study team will consist of researchers at IGES and a few recognized experts from each of the target countries. The researcher at IGES shall take the duty of overall arrangement of the study activities for which he is responsible, including research framework design and survey document development, arrange the field surveys in cooperation with local people. The local experts will help the collaboration of field works for data collection. The partner institutes need to be fixed after the start of the project. In order to fulfill the research tasks, the candidate institutes shall have expertise in environmental economics studies especially at micro-firm level, and have networks ensuring the

smooth implementation of field surveys to the companies. This research will be conducted in close collaboration with the Climate Policy Group of IGES.

(II) Allocation of Human Resources

- 1) Expertise to be required: Background knowledge on corporate environmental management is necessary. Research experiences in environmental economics and firm's behaviors are preferred. The experiences for field works are essential to achieve higher responses from target firms.
- 2) Number of staffs to be involved: Regular researcher: 3; Visiting researcher: 1; Research assistant: 2.
- 3) Man-months: Full-time: 3 regular plus 1 visiting researchers; Part-time: 2 research assistants.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 30 million yen

2. External funds obtained/to be applied

The project fund is currently planned to be from the subsidies of Hyogo prefecture. If opportunity allows, the project team at IGES will apply for other external fund by submitting proposals independently or together with local partners from the target countries.

III. Impact Generation

1. Major outputs (research papers and policy papers)

Following research outputs will be generated:

- ◆ Annual research report to summarize the yearly activities and major findings;
- ◆ No less than two manuscripts for external journal submission in each fiscal year based on field surveys and policy analyses;
- ◆ One or two IGES policy briefs by integrating the study findings in different countries;
- ◆ One or two policy reports briefing the results of international symposiums/seminars.

2. Influence strategy

To enlarge the research influence, the policy process related to carbon reduction at industrial sectors in the target countries will be traced. The interesting findings from the field studies will be disseminated in a flexible way either by research documents diffusion or by certain symposiums. The tripartite environmental minister meeting (TEMM) between the three countries may be borrowed to propose policy suggestions based on the pragmatic studies.

Title: (3) Research on Local Business Initiatives

I. Research Outline

1. Background (relevance to the Asia-Pacific)

To establish a low carbon society (hereafter LCS), adoption of effective measures is crucial not only in the industrial sector, but also in the non-industrial sector, such as the household sector, the transportation sector or the SMEs sector, a so-called still-growing CO₂ emitting sectors (Here, the SMEs sector will be classified in non-industrial sector as it is often classified separately from large scale industries). In order to take effective measures, considering the nature of these non-industrial sectors, it is necessary that actions be taken at the local level as situations often vary depending on geographical locations.

Furthermore, having a business perspective in developing effective approaches is becoming significant than ever. Conventional measures that have been taken by the local administrations are often said to be inappropriate in terms of its effectiveness and financial continuity. There are growing needs for innovative policies and practical schemes at the local level that involves a business perspective, which has been lacking in the public administration. IGES-KRC in fact has been receiving such requests from the local government and other stakeholders.

Against this background, the research on local business initiative (hereafter LBI) will conduct a pragmatic research with related activities including a pilot project to seek practical policy solutions with a focus on SMEs and households. The geographical focus will mainly be placed on Japan. This is because 1) actual policy needs exist in Japan, and 2) a recognition that Japan should be an international model for LCS. Although an initial geographic focus will be on Japan, applicability of the practical policy solutions to other Asian countries will also be examined.

* This research/activity is planned as a response to a request made by the local government, one of the main stakeholders and sponsors of IGES-KRC, and who seeks for innovative solutions to reduce CO₂ emission in its locality.

2. Objectives

1. To develop practical policy solutions at the local level to reduce CO₂ emissions in the SMEs and the household sectors, and
2. To make practical recommendations on policy development to the policy makers and the other relevant stakeholders.

3. Major research components

Component1: “Developing practical schemes and its supporting policies for CO₂ reductions in the SMEs sector through public-private corporation”

As a major component of the research on LBI, it is directly connected to the policy making process of the local government. Detailed content of the research is as follows.

- Review of the current status of the SMEs’ energy efficiency and their behaviors towards energy saving/ CO₂ reduction. Estimation of the marginal CO₂ abatement cost of the SMEs will also be conducted.
 - Identification of necessary conditions (especially the payout time) for the SMEs to adopt energy efficient facilities
 - Development of supporting schemes for the SMEs to adopt energy efficient facilities
 - Trial implementation of the supporting schemes
- * For component 1, both municipal government and SMEs shall be main target audiences.

Component 2: “Applied research and activity on household ESCO”

Component 2 is a succession research and activity of the Fourth phase. The result of the research and activity in the Fourth phase was regarded as highly successful and it has also given certain influence to the local public and the policy development. In the Fifth phase, research on financially self-sustaining business model and a feasibility analysis of applying the current scheme to the Asian countries will be conducted.

4. Research questions

Component1:

- What is the current status of energy efficiency in the SMEs sector
- What are the hindering factors for SMEs to take appropriate CO₂ reduction measures especially the adoption of energy efficient (low carbon) facilities
- What are the conditions necessary for the SMEs to adopt energy efficient facilities
- What kind of supports for SMEs are necessary to promote the adoption of energy efficient facilities
- What schemes and policy supports are needed to realize systematic CO₂ reductions by the SMEs

Component2:

- What kind of business schemes for household ESCO are financially self sustaining

- How is the scheme effectively applicable to the Asian developing countries

5. Methodologies

Component 1

- Literature review
- Development of a simple model to conduct cost benefit analysis in adopting energy efficient facilities
- Questionnaire surveys and interviews for data collection
- Cost benefit simulation
- Roundtable /consultative meetings for policy formulation

Component 2

- Literature review
- Roundtable /consultative meetings
- (Conduct interviews in the potential Asian countries)

6. Value-added (including Relationship with IGES Core Competence)

With a direct connection to the local policy development process of hyogo prefecture, the nature of the reserach on LBI would be to develop an actual policy solution. To date, several studies have been conducted on the current status of eneryg efficiency of SMEs and the hindering factors for the SMEs to adopt energy efficient facilities, but many of them have failed to produce practical policy solutions. With its close linkage to the local policy development process, the resarch will have an innovative aspect and would be able to add values to the previous studies.

(Relationship with IGES Core Competence)

The resarch is directry connected to the local policy development processes and other relevant processes of hyogo prefecture. This would give practical experience and achievement to IGES as a solution oriented research institute. Furthremore, as the research deals with an issue of CO₂ reduction, it can also help enhance core competence of IGES in the field of climate change by accumulating a pragmatic knowledge and experience in the SMEs and the household sectors.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

Component 1

1st year

- Arrange consultative meetings and a kick-off seminar

- literature reviews and field surveys for identifying appropriate segment of SMEs
- * among various sectors in SMEs, manufacturing sector which in general have high energy consuming process will be the main target for research.
- Cost benefit simulation
- Develop preliminary policy recommendation

2nd year

- examining possibility of elaborated solution scheme to certain Asian regions.
(if not applicable, identify the gap between Japan and Asian regions to which the elaborated solution is judged as “not applicable”)

other detail plans are still under consideration (time frame of the 2nd year after will be based on the discussion with Hyogo prefecture)

3rd year

Under consideration (time frame of the 3rd year after will be based on the discussion with Hyogo prefecture)

Component 2

1st year

- Elaborate business model for obtain certain revenue for developing self sustaining scheme
- Examine institutional framework (and network) for self sustaining diffusion of the scheme / project.

2nd year and after

Time frame is under consideration

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

Component 1

The research team will consist of the IGES researchers, visiting researchers with relevant expertise (some of them will be dispatched from private companies), and local government officials who are currently in charge of the policy development. The IGES researchers will be responsible for the overall arrangement of the research activities. The visiting researchers will conduct specific studies and tasks relevant to their respective expertise. Governmental officials shall take initiative together with the IGES researchers in policy formulation processes as well as trial implementation of the schemes developed.

Component 2

The research team will be composed of the IGES researchers. A research assistant or a visiting researcher will be hired when necessary. Component 2 will involve a series of trial

implementations of the financially self-sustaining scheme. These will be conducted by a consortium of stakeholders, which is established for this research activity. The member of the consortium consists of the private firms, NPOs, academia, and the local government.

* Collaboration with IGES-CP team will be considered as needed.

(II) Allocation of Human Resources

1) Required expertise

General requirement for the researchers in charge is to have expertise in energy efficiency and CO2 reduction measures. In addition, researchers who respectively have expertise in environmental policy / regulation, corporate environmental management, corporate finance, and corporate management and so on will be invited as visiting researcher.

2) Number of staff

	Researchers	Visiting researchers	Assistant
Component 1	2	about 5	-
Component 2	2		1
	2	5	1

3) the man-months

Component 1: 10days/month x 12months x 1 researcher

3-4days/month x 12month x 1 researcher

3-4days/month x 12 month x 5 visiting researchers(Private sectors cover personnel cost.)

Component 2: 5days/month x 12month x 2 researchers

20days/month x 12month x 1 assistant

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 2 million yen

2. External funds obtained/to be applied

The project fund is currently planned to be from the subsidies of Hyogo prefecture. If opportunity allows, the research on LBI will try to apply for other external funds.

III. Impact Generation

1. Major outputs (research papers and policy papers)

- Research report to present major findings
- Policy recommendation report (in the form of a commission report)

2. Influence strategy

Research on LBI directly links to the policy development process of a local government especially the component 1(Hyogo prefecture). Research outputs and recommendations thus can directly be reflected to the local policies. SMEs in the region, as well as local government, will be informed about elaborated scheme for their active participation. Furthermore, recommendations can also be applied to other local governments that have similar policy needs (e.g. reducing CO₂ in the SMEs and households sectors(e.g.Anjo city)).

In addition, policy recommendations can also be presented to other international networks including ICLEI, and those involving the local government of the Asian countries.

Title: (4) Research on the Co-benefit Technology Platform

I. Research Outline

1. Background (relevance to the Asia-Pacific)

Local environmental problems are urgent issues to address among the priority development goals of developing countries. Air and water pollution and waste management result from rapid industrialization, urbanization, and population growth, and often cause serious problems for a country's social and economic development as well as the natural environment. The co-benefit approach aims to address climate change concerns while also improving the local environment, as a part of actions by developing countries to achieve their development goals in a sustainable manner. Efficient promotion of the co-benefit approach requires technical, financial and institutional support and cooperation.

In this manner, various stakeholders have become interested in the co-benefit approach between climate and air and water pollution and waste management. However, it is widely appointed out that due to the lack of information on co-benefit technologies and their effects and merits, a serious gap of information exists between technology suppliers and recipients. Also technology applicability and cost effectiveness in developing countries are pointed out.

Furthermore, it is not clearly recognized how to greenhouse gas emission reductions and pollution prevention can be achieved as a result of taking the co-benefit approach in the environment policy making process, although in general co-benefits have a great potential for solving both problems together.

One of the main barriers for recognition of co-benefits should be the insufficient information, a communication gap and lack of coordination in stakeholders in both technology supply and recipient sides and policy makers.

A mechanism to share information among stakeholders on co-benefits is needed and in order to implement co-benefit projects in developing countries, it is also required that applicable and cost effective technologies are developed and promoted.

2. Objectives

- (i) To develop practical policy and technological solutions to promote co-benefit projects in developing countries in the efficient and comprehensive manner,
- (ii) To make practical recommendations to develop policies to get the co-benefit approach integrated in technology transfer and information dissemination taking into account needs of relevant stakeholders, and
- (iii) To share information on co-benefit technologies, experiences and technological inventories.

3. Major research components

Component 1: Clarification of the co-benefit technology in developing countries in Asia and Pacific

Component 2: Current co-benefit technology

Component 3: Analysis and Application of the co-benefit technology in order to implement the co-benefit project

Component 4: Development and evaluation of optional policy for co-benefit technology implementation

4. Research questions

Component 1: Needs for co-benefit technology in developing countries

- Legal frame work for pollution prevention and global warming
- Environment status
- What kind of technology is needed in the area of air, water and waste management

Component 2: Co-benefit technology in Japan and other developing countries

- What kind of technology is able to be supplied in the area of water, air and waste management?
- How to estimate the environment impact reduction effect of co-benefit technology?

Component 3 :

- What is the barrier for transfer of co-benefit technology, such as cost, applicability, operation and maintenance, patent and property right?
- What types of supporting and information sharing scheme for co-benefit technology transfer is efficient?

Component 4:

- How to be recognized the merit of co-benefit to the policymaker, firms and other related stakeholders?
- How to input the result of cobenefit into the policy making process?

5. Methodologies

Component 1

- Literature review

- Questionnaire surveys and onsite hearing surveys for data collection
- Statistical analysis
- Workshops, seminars and publication dissemination for research outreach

Component 2

- Literature review
- Questionnaire surveys and onsite hearing surveys for data collection
- Networking the co-benefit technology platform with local government, Kansai Economic Federation, Universities, UNEP/IETC, GEC, JICA, etc.
- Workshops, seminars and publication dissemination for research outreach

Component 3

- Literature review
- Questionnaire surveys and onsite hearing surveys for data collection
- Networking the co-benefit technology platform with local government, Kansai Economic Federation, Universities, UNEP/IETC, GEC, JICA, NIES, etc.
- Workshops, seminars and publication dissemination for research outreach

Component 4

- Literature review
- Questionnaire surveys and onsite hearing surveys for data collection
- Workshops, seminars and publication dissemination for research outreach

6. Value-added (including Relationship with IGES Core Competence)

This research directly provides to support the introduction and implementation the co-benefit approach in terms of green house gas emission reduction and pollution prevention in Asia and Pacific countries and promote the developing the co-benefit technologies in developed countries.

(Relationship with IGES Core Competence)

IGES-KRC has been implementing business and environment research based on Kansai Area and Asia pacific area inter linkage. In Kansai area, there are lot of firms which have unique environmental friendly technologies and economically efficient management and a lot of human resources who has the experience on pollution control management.

In this sense, this research has a strong relationship with IGES-KRC research as well as firms and human resources in Kansai area.

In IGES headquarters, it is also planned to conduct the research on “ Co-benefit Network for Asia and the Pacific.” Both it and “Research on the Co-benefit Technology Platform” should generate a synergy effect in establishing the recommendation on co-benefit approach.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

1st year

- Information collection for primary overview
- Arrange consultative meetings and a kick-off seminar
- Field surveys
- Drafting the Network on co-benefit technology
- Develop preliminary policy recommendation

2nd year

- Arranging consultative meetings
- Selecting the model cases of co-benefit approach project and evaluation
- Initiating the Network meeting
- Summary of research output and preparation of the report, policy brief and papers

3rd year

- Development of policy recommendation and related document
- Network meeting
- Arranging the international symposium for disseminating the research result
- Preparation of the final report

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

The study team will consist of researchers at IGES and a few recognized experts from each of the networking participating institutions. The researcher at IGES shall take the duty of overall arrangement of the study activities for which he is responsible, including research framework design and survey document development, arrange the survey activities in cooperation networking institutions. The candidate institutes of networking are local governments, Kansai Economic federations, Universities, UNEP/IETC, GEC(Global Environment Center), JICA, NIES etc.,.

(II) Allocation of Human Resources

	Researchers	Visiting researchers	Assistant
Component 1-4	0	about 1	0

0

1

0

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 11 million yen

2. External funds obtained/to be applied

The fund is planned to be obtained from the contract fee from Ministry of the Environment Japan and other related foundation.

If opportunity allows, the research will apply to other external funds.

III. Impact Generation

1. Major outputs (research papers and policy papers)

- (i) Networking the technology and policy interface
- (ii) Research report to present major findings
- (iii) Policy and applicable co-benefit technology report (in the form of a commission report)

2. Influence strategy

Research on Co-benefit Technology platform directly links to establishing networking for disseminating the co-benefit technology which is applicable and cost effectiveness in developing countries.

Because various stakeholders are involved in this networking, such as local governments, firms, research institute, technology transfer agencies, policy recommendation can also be presented in collaboration with Co-Benefit Network for Asia and the Pacific.

Kitakyushu Urban Centre

Title: (1) Role of international intercity collaboration to promote local initiatives for low carbon development

I. Research Outline

1. Background (Relevance to Asia-Pacific)

Actions at the city/local level are recognized as increasingly important for low carbon development. The Environment Ministers meetings of ASEAN + 6 countries has designated the realisation of Environmentally Sustainable Cities (ESC) as a priority issue, which has been advocated and promoted by the Ministry of the Environment Japan (MOEJ) under a new Clean Asia Initiative. Under this new initiative, co-benefits approach to solve both local environmental issues and climate change issues at city level has been discussed as a major policy tool towards low carbon development. In line with this approach, the MOEJ is increasing priority attention to promoting low carbon measures by cities in Asia. The MOEJ will support international collaboration between China and Japan, including cooperation on environmentally friendly city between the cities of Kawasaki in Japan and Shenyang in China, in consultation with Chinese Ministry of Environmental Protection.

International intercity network programs are believed to have significant potential to promote low carbon development in Asia, but how this potential could be realized is not yet clear. There are several international intercity network programmes to deal with environmental issues in Asia. Yet most of them do not necessarily focus on low carbon development, which is becoming more significant for Asian growing economies.

Recently, efforts have begun to refocus network activities towards low carbon development. Kitakyushu city of Japan will establish an Asia Low Carbon Center to disseminate Japan's environmental technologies to growing cities in Asia, and activities will begin from FY2010. Kitakyushu city is also considering establishing a new initiative as the successor of the Kitakyushu Initiative for a Clean Environment, one of the Asian intercity environment networks, to focus on the promotion of low carbon technology transfer. Others are proposing the consideration of increased cooperation among similar intercity network programmes in Asia.

Before creating new networks or increasing collaboration among existing ones, it is important to pause to consider lessons from existing networks and other forms of international intercity cooperation. While existing networks have demonstrated certain usefulness, there are some concerns that they have not necessarily addressed properly. Since these new network initiatives are still in the early stages of development and implementation, this research on international intercity collaboration to encourage local initiatives on low carbon development is very timely and could contribute to designing the new phase of Asian intercity networks and enhance their effectiveness, and to support Asia-wide city-focused programmes promoted by national governments.

This research will be conducted mainly by the Kitakyushu Urban Centre, in collaboration with the Governance and Capacity group. This research will focus on the role of international intercity networks in promoting low carbon development, and their institutional design. It will also conduct research on city-level urban planning to promote low carbon cities. The research will benefit from the Kitakyushu Office's experience as the secretariat for the Kitakyushu Initiative, and the results of the study will be used for future network activities of the Kitakyushu Urban Centre.

2. Objectives

This study will research how international intercity cooperation mechanisms can facilitate urban/local initiatives to help realize a low carbon society through the following:

- Proposing options for international intercity collaboration towards low carbon development, including the creation of a new network or platform or increased cooperation between existing networks. Options will include institutional issues such as governance structure, organization, financing mechanisms, etc.
- Proposing options for improving functions of existing international intercity networks.
- Identifying practices and policies to promote city-level low carbon development in Asia that could be effectively facilitated through international intercity collaboration. Effective mechanisms for this facilitation will also be identified.

3. Major components

With these objectives, there will be two specific research activities (components) on

- (i) Institutions of international intercity collaboration to promote city-level low carbon development in Asia, and
- (ii) Practices and policies to promote low carbon development which can be promoted through international intercity collaboration.

Component (i) on institutional analysis of intercity collaboration has two parts with different funding sources: namely (a) a part of a study on international intercity cooperation for low carbon development in Asia (MOEJ Global Environment Research Fund) and (b) a study on scenarios for an international platform to promote sustainable urban development, policies and technologies in East Asia (MOEJ Environmental Research and Technology Development Fund). The former study (a) is the main study, while the latter study (b) focuses more narrowly on the UNEP/International Environmental Technology Centre (IETC) Eco-town project and Kawasaki-Shenyang collaboration, in collaboration with National Institute for Environmental Studies, Japan (NIES).

Component (ii) on practices and policies for city-level low carbon development is also covered by (a) another part of a study on international intercity cooperation for low carbon development in Asia (MOEJ Global Environment Research Fund). This component is mainly conducted by partner institutes under coordination of IGES.

The table that explains the relations between components and funding sources is attached at the end of this document.

4. Research questions

- What are the strengths and weaknesses of existing international intercity networks regarding institutional design, effectiveness and appropriateness of programmes?
- What are the effective low carbon policies and measures at local level that could have both developmental benefits and climate change mitigation effects in Asian developing countries, and which could be effectively promoted through international intercity collaboration?
- What are the promoting and hindering factors of local initiatives for low carbon development and international collaboration for Japanese cities, especially from the viewpoints of businesses, NGOs, and local governments?
- What is the best way to design a platform or network for international intercity collaboration to promote local initiatives towards low carbon development in developing Asia and in Japan (e.g. institutional structure, governance, financing mechanism, etc.)?
- How can the functions of existing international intercity networks be improved?

- What are the roles of international experts in intercity collaboration for addressing low carbon development issues in Asian emerging cities?

5. Methodologies

- (i) Institutions of international intercity collaboration to promote city-level low carbon development in Asia

This has two sub-components: 1) analysis of existing international intercity collaboration and platform for the environment and proposal of appropriate intercity networks for low carbon development, and 2) study of international intercity joint projects for low carbon development.

Sub-component 1) includes the evaluation and analysis of existing intercity networks by studying their objectives, functions, activities, achievement of the objectives, financing of the secretariat and projects, and governance. Based on the analysis of strengths and weaknesses of the existing networks, appropriate activities that are suitable for intercity collaboration will be determined. Then, options for international intercity collaboration for low carbon development will be proposed, for example, the addition of a new programme to some existing networks or the creation of a new network or options to improve the functions of existing networks. The case study of Shenyang-Kawasaki collaboration will contribute to the above analysis.

Sub-component 2) studies the international intercity collaborative projects for low carbon development by different local actors, i.e., local governments, NGOs, and businesses. Models of joint activities for each type will be proposed and assessed. Promoting and hindering factors for local actors to participate in international collaboration will be examined. This part also will identify the low carbon development practices and policies that can be shared among cities with similar conditions in Asian developing countries and in Japan, as candidates of technical cooperation among local governments through networks, using the outputs of component (ii).

- (ii) Practices and policies to promote low carbon development which can be promoted through international intercity collaboration

For the study in Asian developing countries, climate change mitigation effects and developmental co-benefits of practices in the sectors of building, household, small and medium enterprises (SMEs), and transport are studied. Policy tools such as incentive mechanisms to promote practices are studied, too. Then the appropriate practices and policies are assessed in relation to city's characteristics such as the economic development level. Policy process analysis is conducted to see promoting and hindering factors of adoption of such practices and policies. These studies are also conducted for practices and policies in Japan. In addition to them, the study of citizens and other local actors' attitudes and motivations for international environmental collaboration is conducted for Japanese cities.

Following is the list of the methods to gather necessary data and information to be used in the above components.

- Literature survey
- Field research and interviews
- Stakeholder consultation workshops and dialogue
- Public opinion surveys with associated statistical analysis

6. Value-added (including Relationship with IGES Core Competence)

From the research standpoint, the volume of research on international intercity networks in general is not large. The geographical focus of existing research is mainly on networks outside of Asia, and

networks that are covered generally have either a very broad or very narrow focus. There are very few if any studies on intercity networks that focus on environment and low carbon development in Asia. Lessons from existing networks can still be drawn even if the number of examples is small, and even from networks whose purpose is not centred on low carbon development. Intercity networks face common issues, including financing, organizational structure, operating procedures, etc. and this study will consider how these issues would be affected by a focus on low carbon development.

The final recommendation of this study will contribute to the important priority of the Asian Environment Ministers Meeting and MOEJ to promote the concept of ESC, especially in relation to the promotion of low carbon development. Specifically, the final recommendation of this research is expected to contribute to the design and implementation of the successor of the Kitakyushu Initiative, i.e., Organization of Asian Environmental Cities, intercity collaboration at Asia Low carbon Center, and the potential restructuring of Asian intercity networks, as well as to provide inputs to ESC programme of the Clean Asia Initiative supported by the Asian Environment Ministers Meeting.

(Relationship with IGES Core Competence)

IGES has extensive experience with local initiatives and intercity networks, for example the Kitakyushu Initiative. IGES also has good collaborative relationship with ICLEI, Clean Air Initiative for Asian Cities (CAI-Asia) and CITYNET. IGES will be responsible for operational management and associated studies for MOEJ Clean Asia Initiative. Persons in charge of overall supervision and actual implementation have extensive related experience.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

- (a) Study on international intercity cooperation for a low carbon development in Asia (MOEJ Global Environment Research Fund)

FY2010 and 2011 will be the second and final years of the study.

- (b) Study on scenarios for an international platform to promote sustainable urban development, policies and technologies in East Asia (MOEJ Environmental Research and Technology Development Fund)

FY2010 will be the fourth and final year of the study.

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

The following is the organisational setup for the component of institutions of international intercity collaboration to promote city-level low carbon development in Asia.

- (a) Study on international intercity cooperation for a low carbon development in Asia (MOEJ Global Environment Research Fund)

IGES is the lead institute, with partner institutes of Kyushu University and Hosei University. IGES is in charge of overall coordination of the project as well as one sub-theme. IGES is in charge of the institutional and feasibility analysis of international intercity collaboration, while Kyushu University and Hosei University are in charge of study of practices and policies to promote city-level low carbon development. The Kitakyushu Urban Centre will jointly conduct the component of practices

and policies to promote low carbon development at city level.

- (b) Study on scenarios for an international platform to promote sustainable urban development, policies and technologies in East Asia (MOEJ Environmental Research and Technology Development Fund)

IGES is a partner institute in charge of one sub-theme. The overall project is led by NIES. Other partner institutes in charge of other sub-themes include Toyo University and Keio University. IGES is in charge of the institutional analysis of international intercity collaboration, provision of guidelines on international collaboration with specific attention to the roles of international experts, utilising case studies of collaboration between Shenyang and Kawasaki, whereas NIES, Toyo University and Keio University are in charge of development and application of integrated assessment tools of policies and technologies for sustainability. NIES is also responsible for overall coordination, including intercity collaboration.

(II) Allocation of Human Resources

(Based on a total time period of two years.)

- Overall supervision on the study of local initiative for sustainable development, 2 persons, 2 man/months in total (including project leader/subtheme leader)
- Operational supervision on the study of local initiative and policy analysis, 1 person, 6 man/months in total
- In charge of actual implementation with expertise of local government policies for sustainable development, 1 person, 24 man/months in total
- Contribute to actual implementation with expertise of local government policies for sustainable development, 1 person, 24 man/months in total

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 19 million yen

2. External funds obtained/to be applied

- (a) MOEJ Global Environment Research Fund (FY2010-2011)
- (b) MOEJ Environmental Research and Technology Development Fund (FY2010 is the final year)

III. Impact Generation

1. Major outputs (research papers and policy papers)

- Journal articles (potential titles): “Japanese citizens attitude for international environmental cooperation on low carbon development,” “Japanese citizens willingness to participate in low carbon practices and to support international intercity collaboration by their local governments,” in 2011
- IGES policy study reports (potential titles): “Low-carbon development partnership between Japanese cities and cities in Asian developing countries – Preliminary assessment,” “International intercity network program for low-carbon development in Asia,” in 2010
- Policy brief (potential titles): “International intercity network for low carbon development in

Asia and implications for new initiatives,” in 2010

2. Influence strategy

IGES will propose mechanisms to promote international intercity collaboration for low carbon development in Asia between Japanese Eco-model cities and Asian cities that have international linkages, in cooperation with Japanese government agencies and international organizations. IGES will provide ideas for concrete programmes to stakeholders to be implemented through these collaboration mechanisms. Outputs can be provided to the Clean Asia Initiative process complementing the outputs of the non-research activity of the Kitakyushu Urban Centre regarding city-level urban planning to create a master plan for low carbon cities. Inputs to the East Asia Summit (EAS) Environment Ministers Meetings as well as the working group on ESC in Clean Asia Initiative are also expected. Engagement of existing Asian intercity network programmes such as ICLEI and CITYNET through workshops are also planned to make best use of the current international platforms and to extend outreach.

Title: (2) Role of local governments: local initiatives to promote sustainable development (non-research activity)

I. Outline

1. Background (Relevance to Asia-Pacific)

Rapid urbanisation and industrialisation caused by the economic growth is a common trend in cities in the Asia-Pacific region. It is estimated that nowadays more than half of population live in cities globally. Reflecting that, the roles of local governments in managing the local and urban environment is getting more important, which are further enhanced by the decentralisation of the responsibilities to the local governments. In addition to that, due to the global trend in the climate change and global warming discourses, expectations for local governments in playing a leading role in curbing the GHG emissions to develop a low-carbon society is also growing. Consequently, it is imperative to improve the environment managerial capacity of local governments in the region so that the cities can cope with the various demands from local, national and global levels.

IGES is in an advantageous position to support those cities in the region in responding to such demands by taking advantage of the 10-year experience in managing the Kitakyushu Initiative (KI) programme, an environmental intercity network, and close relationships with Kitakyushu City, Kitakyushu International Techno-cooperative Association (KITA), core KI member cities, other intercity networks, donors, and international and regional organisations. Particularly, Kitakyushu City expects IGES Kitakyushu Urban Centre to continue managing the intercity network developed under the KI, which will be renamed to the Asia Environmental Cities Organisation, within the framework of an Asia Low-carbon Centre to be established in 2010 to synergise with the activities conducted by the city and KITA that will promote technical transfer and business matchmaking of low-pollution and cleaner production technologies between the city's industries and those in Asian countries.

Close collaboration with other organisations and programmes are also expected, including JICA, Kitakyushu City and KITA for further promoting composting practices in Asian countries and designing training programmes for improving environmental managerial capacity of local government officers, Eco-model Cities in Japan, including Kitakyushu City, for collecting model practices and policies to be disseminated to other Asian cities, Clean Air Initiative (CAI)-Asia and CITYNET for co-organising events and sharing cities' databases and contacts, and Cities Development Initiative in Asia (CDIA) programme under the ADB and Eco2 Cities programme under the World Bank for actual project designing targeting particular cities.

IGES is also undertaking the Clean Asia Initiative task from the Ministry of the Environment, Japan, and Kitakyushu Urban Centre is particularly in charge of organising a High Level Seminar

(HLS) on Environmentally Sustainable Cities (ESC) in Jakarta, Indonesia, in March 2010 under the framework of the East Asia Summit (EAS) Environment Ministers Meeting (EMM). The chairs' summary of the HLS, which will contain ideas of actual collaborative activities among relevant stakeholders toward development of ESC in the region, will be delivered to the 2nd EAS EMM to be held in Brunei Darussalam in late 2010 for the ministers' consideration and it is expected that Kitakyushu Urban Centre's activities in the 5th Phase will be fostered in that way and revolved around the EAS EMM in close coordination with other relevant stakeholders. Further, there are other opportunities to foster collaboration among interested parties and herald such activities, including the World Cities Summit in Singapore in June 2010 and the 6th Ministerial Conference on Environment and Development in Asia and the Pacific (MCED 2010) in Kazakhstan in September to October 2010.

Kitakyushu Urban Centre continues focusing on urban environmental issues at a local level, as well as promotion of environmentally sustainable cities, in the region.

2. Objectives

The project aims to achieve following long-, mid- and short-term objectives:

Long-term objectives [more than 3 years]:

- Assist development of low-polluting, low-carbon and environmentally sustainable cities in the region without compromise the economic growth.

Mid-term objectives [within 3 years]:

- Develop national or regional city-to-city cooperation mechanisms to replicate good environmental practices from one city to another.
- Develop an interactive city-to-city cooperative platform.

Short-term objectives [within 2 years]:

- Redesign the KI programme structure and intercity network functions based on the demands from member cities and self-analysis of own strengths and capacities.
- Assist local governments in developing master plans and work plans toward development of low-carbon and environmentally sustainable cities. (The concepts of low-carbon and environmentally sustainable cities, which are vague and broad, can be narrowed down to certain areas as a starter, such as clean rivers, blue sky, and green cities with walkways and bicycles lanes, and cities start developing relevant activities from there.)
- Assist local governments in implementing relevant policies and projects through coordination with other organisations and central government agencies and facilitation of information exchange.
- Assist capacity development of local government officers and NGOs through designing and organising suitable training courses in cooperation with Kitakyushu City, JICA and other organisations.

3. Major components

(1) Redesign intercity network functions

- Redesign the network functions in terms of scopes, geographical focuses, objectives, and targeted outputs, in consideration of demands from member cities, requests from Kitakyushu City, self-analysis on financial and technical capacities, and strengths and weaknesses compared to other intercity networks and organisations.
- Collection of relevant good practices and policies based on redesigned focuses, which may include:
 - ① 3Rs, resource efficiency and urban environmental infrastructure
 - Solid waste management (community-based approach, waste segregation, composting, collection of waste management fees, charging for plastic bags, zero waste policies)
 - Improvement of final disposal sites (retrofitting semi-aerobic systems, collection and usage of methane gases, designing and construction of sanitary landfills)
 - Incineration (hazardous waste management, heat recovery)
 - Air pollution mitigation
 - Sewerage systems, decentralised wastewater treatment, septage management,
 - Drainage management, flood control
 - Improving non-revenue water rate, rainwater harvesting
 - Nurturing recycling industry (plastic, paper, PET bottles, glass, metal, e-waste, RDF, RPF), pro-recycling policies
 - Local product for local consumption (food mileage, labelling)
 - ② Energy efficiency and renewable energy
 - Usage of biomass (organic waste, septage, animal waste, agricultural waste, kitchen waste, wood chips)
 - Biodiesel production (used cooking oil, oilseed rape)
 - Promotion of wind power (wind farms and small-scale devices), through citizens' funds
 - Promotion of PV and thermal heating systems
 - Hybrid power generation systems with PV and wind in remote areas
 - Small-scale hydro (at water supply and wastewater treatment plants)
 - Geothermal energy
 - Heat pump, using ground heat, for air conditioning
 - ESCO for public buildings and ordinary households, green building certificates, retrofitting energy efficient measures, LED lights
 - Decentralised power generation, co-generation, smart-grid
 - Clean-coal technology
 - Policy analysis (top-runner system, RPS law, feed-in tariff, green electricity, CDM, carbon credit)
 - Local policies (subsidies, tax incentives) to induce implementation of energy efficiency measures and shifting to alternative energy use
 - ③ Environmentally sustainable transport

- Improving efficiency of public transport systems, electrification of tickets (IC cards) and linking with other services
 - BRT, LRT, park & ride, community bus, shared taxi
 - Bicycle lane, rent-a-cycle, walkways, car-free day, non-motorized vehicles
 - Road pricing, traffic regulation in downtown, parking regulation
 - Financial incentives (car tax, car registration tax, subsidies for public transports)
- ④ Management of parks and greeneries
- Development and management of city parks, road-side trees, usage of compost
 - Management of natural parks, botanical gardens and marine parks
 - River bank and coastal protection, cleaning up of rivers and shores, improving river amenities
 - Promotion of urban farming and gardening
 - Greening of roofs, walls and grounds
 - Financial mechanisms for urban parks management (citizens fund, management by citizens, private-public partnership, donation of private lands to cities through a reverse mortgage arrangement, REDD)
 - Involvement of citizens and private companies in the nature conservation activities
- ⑤ Long-term city planning
- Environmental visions and relevant policies and projects implemented by local governments, and those outcomes
 - Urban planning (wind routes, green corridor, compact city, urbanisation control area, public involvement in city planning)
 - Control of urban sprawl, protection of farmyards in suburbs, linkage of urban and rural areas
- ⑥ Cross-cutting issues (environmental education and financial mechanisms)
- Green purchase scheme, eco-points, local currencies, charging for plastic bags
 - Carbon/emission trade in cities and regions
 - Supporting local businesses through micro-credits and micro-finances
 - Private resource mobilisation (donation, loans) (KIVA, Table-for-two)
 - Environmental education, involvement of younger generation in volunteer activities
 - Utilisation of ICT, information sharing
 - Connect local governments and NGOs in Japan and the Asia-Pacific region
- (2) Assist local governments in developing master plans and work plans toward development of environmentally sustainable cities
- Share information on good practices and policies and analyses of these enabling factors.
 - Coordinate various stakeholders and resource persons/agencies to assist local governments in developing master plans and work plans of good practices and policies.
- (3) Assist local governments in implementing relevant policies and projects
- Design necessary trainings and capacity building opportunities to assist implementation of relevant projects and policies in cooperation with other organisations, including Kitakyushu

City and JICA.

(4) Assist replication of good practices

- Promote adoption and implementation of similar approaches by other local governments and collaborate with central government ministries and agencies to develop national replication mechanisms of such activities.

4. Major Activities

(1) Redesign intercity network functions

- Redesign the scopes, targeted geographical coverage areas and member cities, objectives and targeted outputs of the intercity network through consultation with various stakeholders and potential member cities and self-analysis on financial and technical capacities.
- Collection of good practices and policies according to the new scope.

(2) Assist local governments in developing master plans and work plans

- Work closely with targeted local governments in developing master plans and work plans of particular projects and policies implementation.
- Organise workshops and seminars for supporting development of such master plans and work plans and information exchange among local governments and other stakeholders.

(3) Assist local governments in implementing relevant policies and projects

- Develop training programmes and supporting programmes/frameworks to assist implement relevant policies and projects by local governments in cooperation with other organisations, including Kitakyushu City, JICA and other international and regional organisations.

(4) Assist replication of good practices

- Work closely with central government ministries and agencies to develop national replication mechanisms of good practices and policies through proposing actual national programme ideas.

II. Allocation of Human/financial Resources

(I) Implementation arrangements

1. Time frame

FY2010:

- Redesign the intercity network through stakeholder consultation and self-analysis.
- Collect good practices and policies accordingly.
- Follow up activities of the High Level Seminar (HLS) on Environmentally Sustainable Cities (ESC) to be held in Jakarta, Indonesia in March 2010, including presentations at the World Cities Summit in Singapore in June 2010 and the 6th MCED in Kazakhstan in September to October in 2010, and monitoring of environmental targets set by participating cities.

FY2011:

- Disseminate analyses of good practices and policies at a local level through organising seminars and workshops in cooperation with other supporting organisations.
- Assist selected local governments in developing master plans and work plans of particular projects and policies and implementing them in cooperation with other supporting organisations.
- Design training courses to assist capacity building of local government officers in cooperation with other supporting organisations.

FY2012:

- Same to the activities in FY2011.
- Collaborate with central government ministries and agencies in designing national replication programmes/mechanisms of good policies and projects.
- Summarise and design for the next-stage activities.

2. Implementation framework

- IGES works within the Asia Low-carbon Centre in Kitakyushu City in close collaboration with the city and KITA. IGES will be in charge of managing an intercity network (named Organisation of Asian Environmental Cities), while the city and KITA works on business development through technical transfer of environmental technologies of the city's industries to Asian cities.
- IGES works under the framework of the Clean Asia Initiative commissioned by MOEJ and collaborates with other organisations, including JICA, CAI-Asia, CITYNET, ICLEI, ADB, World Bank, ASEAN Working Group on Environmentally Sustainable Cities (AWGESC) and other national and local organisations.

(II) Allocation of Human Resources

Manager (1) --- Overall coordination and management

Researcher (1) --- Lead in researching activities and designing of the network programme

Visiting researchers (2) --- Research supports and coordination with other stakeholders

Administrative officer (1, from Kitakyushu City) --- Coordination with the city and KITA

Accountant (1)

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 19 million yen

2. External funds obtained/to be applied

- Effort will be made to obtain a fund "Clean Asia Initiative" of MOEJ.
- Kitakyushu City subsidy

III. Impact Generation

1. Major outputs (research papers and policy papers)

Long-term (more than 3 years):

- Actual implemented policies and projects and consequent environmental improvement in the member cities.

Mid- and short-terms (within 3 years):

- Master plans and work plans for particular projects and policy implementation by member cities toward establishment of low-carbon societies.
- Policies and projects being implemented by member cities.
- Development of trainings programmes for capacity building of local government officers in cooperation with other supporting organisations.
- Development of actual projects/programmes with other supporting organisations targeting urban environment improvement in particular cities.
- Proposals of national programmes to replicate good practices and policies within the country.
- Development of an interactive intercity network.
- Workshop reports, research papers and project reports.

2. Influence strategy

- Taking advantages of international conferences and meetings, including the World Cities Summit in Singapore in June 2010, the 6th MCED in Kazakhstan in September to October 2010, and the 2nd EAS EMM in Brunei Darussalam in late 2010, to highlight the activities and achievements of intercity networks managed by IGES.
- Collaborate with other intercity networks, including CAI-Asia, CITYNET and ICLEI, to co-organise events and share findings and databases and information on member cities.
- Collaborate with Kitakyushu City, KITA, JICA country offices and JICA experts and volunteers in further disseminating Surabaya's community-based solid waste management practices in Asian cities.
- Collaborate with JICA, CDIA/ADB, and Eco2 Cities/World Bank in developing actual supporting projects and training programmes targeting improvement of urban environment, as well as capacity building of local government officers.
- Collaborate with central government ministries and agencies and regional frameworks like AWGESC in developing national programmes in disseminating good practices and policies.

Bangkok Office

Title: Asian Environmental Compliance and Enforcement Network (AECEN) (non-research activity)

I. Outline

1. Background (Relevance to Asia-Pacific)

The Asian Environmental Compliance and Enforcement Network (AECEN) is a regional practitioner network dedicated to sharing improved policies and practices on compliance and enforcement in Asia. Launched in 2005, Currently, AECEN has 17 member agencies from 14 countries. AECEN's mission is to promote improved compliance with environmental legal requirements in Asia through regional exchange of innovative policies and practices. AECEN members include national and sub-national agencies from Cambodia, China, India, Indonesia, Japan, Laos, Malaysia, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and Vietnam. Korea is actively considering membership in AECEN.

2. Objectives

Network objectives are to: (i) promote the development and implementation of improved environmental policies, laws, regulations, and institutional arrangements; (ii) strengthen practitioner capacity through specialized training and skills development; and (iii) facilitate regional sharing of best practices and information on strategies for strengthening compliance and enforcement.

3. Major components

Pilot activities - The Secretariat works with member countries to implement selected pilot activities in priority areas that show promise for regional replication. Pilot activities promote adoption of new policies, practices and systems, and link to capacity strengthening efforts.

Twinning projects - To demonstrate innovative solutions, the Secretariat coordinates twinning activities in priority areas that are identified by member agencies, and have good potential for replication in the region. Developed in partnership with local stakeholders, twinning activities promote adoption of new policies, practices and systems, and will link to capacity strengthening efforts.

Regional activities – These include (i) the AECEN Award for Excellence for an outstanding woman contributing to improved compliance and enforcement in the Asian region; (ii) the Asian Justices Forum on the Environment, which is dedicated to replicating environmental courts throughout the region and training judges and other legal professionals to understand the technical side of environmental cases for better judgements on the part of plaintiffs; (iii) a regional forum held annually to showcase AECEN achievements and to share best practices; (iv) an intergovernmental agreement on environmental

compliance and enforcement, leading to a ministerial meeting in 2010; (v) benchmarking environmental agency institutional capacities; and (vi) assisting multilateral development banks to develop and strengthen country safeguards systems.

Secretariat support - The Secretariat will support the Executive Committee in the performance of its tasks, including the convening of a meeting of the Executive Committee to review activity implementation and plans. The Secretariat will also continue to reach out to development partners to link country and regional activities with development partner programming priorities, and promote the Network as the platform for sharing and disseminating the outputs of their projects/activities. Secretariat support also include knowledge management and outreach through the website, videos, and brochures.

4. Major activities

- Preparing an annual work program in consultation with the Executive Committee and Network members;
- Organizing regional and country workshops to share best practices and lessons learned on priority issues;
- Conducting program assessments and targeted studies to evaluate country and regional challenges and identify priorities;
- Conducting country pilot projects that promote development and adoption of new policies and practices;
- Developing practitioner tools and other resources for application at regional and country levels;
- Building practitioner capacity through peer technical exchanges, specialized practitioner training and information exchange;
- Developing and tracking performance indicators to evaluate country performance;
- Developing and disseminating regional guiding principles on compliance and enforcement and other publications,
- Establishing and maintaining linkages with other international and regional networks; and
- Developing and maintaining a Network website and information on relevant topics.

II. Allocation of Human/Financial Resources

a. Implementation arrangements

1. Time frame

AECEN was launched in 2005 and USAID funding is assured until 2012. IGES is expected to transition to the full-time operation of the Secretariat by the end of 2011.

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

Partner institutes:

USAID, USEPA, ADB, UNEP - AECEN established an Executive Committee composed of member agency representatives and sponsoring development agencies. The committee serves as the governing body of the network, setting network goals and policies, inviting members and approving annual work programs. The committee is composed of two members each from East Asia and South Asia, and three members from Southeast Asia, as well as representatives from the U.S. Agency for International Development (USAID), the United Nations Environment Programme (UNEP) and the Asian Development Bank (ADB). The U.S. Environmental Protection Agency (USEPA) also provides technical guidance.

Role of IGES:

AECEN is currently transitioning to a more permanent secretariat arrangement under the Institute for Global Environmental Strategies (IGES), which currently represents Japan on the AECEN Executive Committee.

b. Allocation of Human Resources

In 2010, IGES is expected to establish a legal entity in Bangkok that will be capable of renting its own premises, operating a bank account, and hiring staff, as a pre-condition of transitioning to the full-time Secretariat role. Currently under ECO-Asia (funded by USAID) AECEN is supported by the Chief of Party (Paul Violette – 25%), Head of AECEN Secretariat (Peter King – 50%), AECEN Secretariat staff (Milag San Jose- Ballesteros and Watcharee Limanon), plus ECO-Asia support staff in the Bangkok Office. In 2010, IGES is expected to use USAID funding to recruit a local Environment Specialist (full-time), and website manager (part-time) and to nominate a part-time Liaison Officer in Hayama. IGES staff are separately engaged in two twinning activities – Japan-China Energy Efficiency and Japan-Thailand Soil Contamination. IGES headquarters staff will also be expected to assist with logistics arrangements for the regional side event on soil contamination at ISAP and the annual AECEN forum to be convened in Kyoto in November 2010.

c. Funding

1. Cost estimate

Budget for activities of FY 2010: 32 million yen

2. External funds obtained/to be applied

Details are being confirmed but the primary sources of funds for 2010 will be (i) USAID, (ii) ADB, (iii) World Bank – to be confirmed

IV. Impact Generation

3. Major outputs (chair's summary and other synthesis documents, database, good practice etc.)

The crucial aspect of the AECEN approach is to focus on action research – conduct a regional assessment of a particular aspect of environmental compliance and enforcement, pilot test an approach (like compliance assistance centers), expand through twinning arrangements (where a specific country has good experience in overcoming an identified weakness and can act as a mentor to a recipient country), use the knowledge gained through outreach activities, and gradually build up a replication strategy to roll out the improved approach throughout the Asian region. The program is led by the members identifying their own capacity building needs and relies heavily on South-South cooperation, thus building regional cooperation.

4. Influence strategy

AECEN works through three main modalities: (i) pilot activities in new and innovative compliance and enforcement approaches; (ii) “twinning” between countries to promote practices that have been demonstrated to be successful under Asian conditions; and (iii) institutional strengthening across the chain of command from self-regulation and voluntary measures to environmental courts and the judiciary. AECEN also promotes enforcement of multilateral environmental agreements (MEAs) through improved enforcement and implementation of national requirements.

Pilot activities promote adoption of new policies, practices and systems, and link to capacity strengthening efforts. For ultimate success from engaging in pilot projects, however, AECEN needs to understand how best to scale up from small pilot activities to the national and regional levels, and how to transfer lessons learned from one sector to another. Once a few pilot activities are completed in several countries, AECEN convenes a regional workshop to draw out good practices and to seek agreement from member agencies on replication strategies and a plan of action to roll out the most successful cases to other sectors, nation-wide and to the regional level.

To demonstrate and promote innovative solutions, the AECEN Secretariat coordinates twinning activities in priority areas that are identified by member agencies, and have good potential for replication in the region. Developed in partnership with local stakeholders, twinning activities promote adoption of new policies, practices and systems, and link to capacity strengthening efforts. Generally, twinning opportunities are identified by undertaking a rapid assessment of the current status of the particular issue, conducting a regional meeting to validate the findings, and finding willing partners to engage in a twinning relationship. Japan has participated in AECEN twinning partnerships with facilitation and technical

support provided by IGES.

Programme Management Office

Title: (1) International Forum for Sustainable Asia and the Pacific (ISAP) (non-research activity)

I. Outline

1. Background (Relevance to Asia-Pacific)

IGES aims to conduct strategic and solution-oriented policy research to realise sustainable development in the Asia Pacific region and to propose practical solutions. IGES has been well-known for its mission and role in the region and it is now expected to make further contributions to regional and global society.

The “International Forum for Sustainable Asia and the Pacific (ISAP)”, based on the global networks and research results that IGES has developed so far, promotes diverse discussions on sustainable development in Asia and the Pacific, and provides opportunities to boost information sharing and strengthen collaborative efforts with experts and related organisations. ISAP, to be held once a year with timely themes, aims to develop innovative and strategic policy discussions towards a sustainable Asia and the Pacific.

ISAP 2009 was held on 26-27 June 2009, with the main theme of “Towards Copenhagen: A New Development Pathway to a Low-Carbon Sustainable Asia and the Pacific,” which focused on “low-carbon development”, “sustainable consumption and production” and “biodiversity”. Experts from Japan and overseas were invited to discuss from diverse perspectives, and explored a new path to a low-carbon development and appropriate measures which incorporate needs of developing countries in Asia and the Pacific. The forum linked up relevant networks³³ working in the region to promote sustainability agenda.

2. Objectives

The overall objective is to nurture the convening and disseminating power of IGES in the long run. More specific objectives are three-fold:

- (i) to stimulate policy discussions with key stakeholders concerned, both domestic and international, and demonstrate and share useful outputs of IGES;

³³ Asia-Pacific Regional Network of Policy Research Institutes for Environmental Management and Sustainable Development (NetRes), International Research Network for Low Carbon Societies (LCS-RNet), Asia-Europe Environment Forum of the Asia-Europe Foundation (ENVforum), International Consortium for Low-Carbon Society (ICLCS), etc.

- (ii) to work together with experts, both internal and external, to produce important documents of IGES on a regular basis; and
- (iii) to strengthen networks in which IGES is playing an important role.

3. Major components

The whole event will consist of basically four different types of meetings according to the specific objectives of the event, i.e. ISAP Plenary, ISAP Open Forums, ISAP Workshops, and ISAP Network Conferences. In addition to those meetings, exhibitions and poster sessions will be held as well.

Component 1: ISAP Plenary (Opening and Closing Sessions)

An opening session will be held in the main hall in the morning of Day 1. ISAP plenary is open to the registered general audiences, while invitations will be sent out to important stakeholders of IGES, including, for example, the Minister of the Environment of Japan, Governors of Kanagawa Prefecture and Hyogo Prefecture, Mayor of Kitakyushu City, IGES Board members including representatives of international organisations concerned and signatory countries, as well as other important figures closely associated with IGES (like APFED, NetRes, ASEF, AECEN, LCS-RNet, IISD SDplanNet–Asia&Pacific, etc.).

This session will be composed of opening remarks, key note speeches and a plenary open forum focusing on the topic of the year. In the case of ISAP 2009, the topic of the year was a pathway towards low-carbon and sustainable Asia. Two keynote speeches were given on the topic and the plenary open forum followed included two panel sessions showcasing efforts to shift towards low-carbon societies both overseas and in Japan.

“Sustainable Low Carbon Development” should be the main theme of ISAP 2010. This umbrella theme could include several sub-themes, which are not limited to climate-related subjects such as “implications of Copenhagen Accord”, but also sustainable resource management relevant sub-theme such as “sustainable consumption and production”, which is the main theme of IGES WP III.

After all the sessions are over, a closing session will be held towards the end of Day 2. The session may be composed of brief summary presentations by each meeting, and closing remarks by the Chair of Board of Directors of IGES.

Component 2: ISAP Open Forums

ISAP Open Forums are open to the registered audiences and aim to stimulate general policy

discussions amongst panelists selected from in and outside of Japan. Research findings and messages of IGES as well as views of other panelists are presented to the general audiences and to key stakeholders, both domestic and international. After those presentations, discussions among panelists follow, and whenever possible, questions and comments from the floor are solicited. Each project at IGES produces a few policy papers and research reports well in time for June every year. On that basis, therefore, each project is requested to conduct one session as a part of the ISAP Open Forums.

Component 3: ISAP Workshops

ISAP Workshops are, in principle, closed experts meeting. IGES intends to produce a series of key documents on a regular basis. The ISAP Workshops will function as opportunities for in-depth discussions to set a course of and/or the detailed contents of the key documents amongst internal and external experts.

Those documents include IGES White Paper (every two years) and a revitalised IRES series (at least once, hopefully twice a year). For that purpose, two or three key topics will be chosen for the ISAP Workshops every year. A call for papers will be made, if considered necessary, roughly a half a year in advance, through the Internet for potential presentations by researchers outside IGES.

Component 4: ISAP Network Conferences

ISAP Network Conferences are convened to maximise the interaction between different types of networks in which IGES is playing an important role. Since IGES has been functioning as a secretariat/focal point for many networks, invitations will be sent out to those networks if they can organise a network conference or other types of activities, drawing upon opportunities to be provided by ISAP. Such networks include (i) LCS-RNet, (ii) ICLCS, (iii) APFED/NetRes, (iv) ASEF, and (v) 3R Asia Forum, (vi) Asia Co-benefit Forum (to be developed), and (vii) Asia-Pacific Regional Adaptation Network. Details about duration, agenda, and cost sharing will be discussed with each of the networks concerned.

4. Major activities

Component 1: ISAP Plenary (Opening and Closing Sessions)

Activities include (i) setting the theme of the year, (ii) identifying the keynote speakers, (iii) designing and preparing the plenary open forum, (iv) implementing the event, and (v) preparing and publicising the meeting report.

Component 2: ISAP Open Forums

Activities include (i) each IGES project identifying policy papers and research reports to be presented to the general audiences, (ii) selecting outside experts as panelists, and designing and preparing for each open forum session, (iv) implementing the session concerned, and (v) preparing and publicising the meeting report.

Component 3: ISAP Workshops

Activities include (i) identifying two or three key topics, (ii) making a call for papers, (iii) selecting invitees, (iv) convening the workshops, and (v) preparing and publicising the meeting report.

Component 4: ISAP Network Conferences

Activities include (i) coordinating with relevant networks and designing the network conferences and/or other types of activities back-to-back with the ISAP, (ii) preparing each network conference, (iv) implementing the events, and (v) preparing and publicising the meeting report.

Other than the above, overall coordination is significantly important for the success of each event of and the entirety of the ISAP. Such overall coordination will start in November or December, at least half an year in advance to each ISAP, to provide sufficient lead time, in particular for a call for papers for ISAP Workshop, as well as for inviting renown keynote speakers and discussants for the plenary session.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

Provisional timeframe for the preparation and follow-up of ISAP 2010 (June or July 2010)

Year 2009

Nov. & Dec. 1st preparatory discussion meeting (overall design and budget)
Setting the theme of the year (Plenary)
Identifying two or three key topics and making a call for papers (WSs)
Initiating coordination with relevant networks (Net)

Year 2010

Jan. & Feb. 2nd preparatory discussion meeting
Identifying, contacting and confirming the keynote speakers (Plenary)
Designing the network conferences and/or other types of activities (Net)

Mar. & Apr. 3rd preparatory discussion meeting (session coordination, etc.)
Designing and preparing the plenary open forum (Plenary)

	Designing and preparing each open forum (OFs)
	Selecting invitees (WSs)
	Preparing each network conference (Net)
<u>May</u>	Final preparatory discussion meeting
<u>July</u>	ISAP 2010
<u>Aug.</u>	Preparing and publicising the meeting report

* Preparation of ISAP 2011 may start around November/December 2010.

** Preparation of ISAP 2012 may start around November/December 2011.

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

In FY2009, ISAP was supported by Ministry of the Environment, Japan, Kanagawa Prefectural Government, Hyogo Prefectural Government, Kitakyushu City, United Nations Environment Programme/Regional Office for Asia and the Pacific (UNEP/ROAP), United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), United Nations University (UNU), Asian Institute of Technology (AIT), The Energy and Resources Institute (TERI)

(Venue) ISAP 2009 was held at Shonan Village Center. ISAP 2010 will be held in Yokohama to examine how the better access and larger accommodation would benefit the opportunity.

(II) Allocation of Human Resources

- Coordinator (1) 6 M/M: Advanced skill in designing, coordinating and implementing large scale open forums targeting public audiences, expert meetings and network meetings, closely working with IGES staff members and external experts.
- Research Assistant (1) 6 M/M: Experience in assisting designing, coordinating and implementing large or medium scale open forums, expert meetings and network meetings.
- Senior Support Staff from Research Support Unit (1) A total of 4 M/M: Advanced skill in providing overall support for designing, coordinating and implementing large scale open fora targeting public audiences, expert meetings and network meetings. Necessary supports include effective public announcement of the events, registration of the audiences, venue and accommodation arrangements for participants, and etc.
- Support Staff from Research Support Unit (1) A total of 4 M/M: Experience in assisting general support to the convening of large or medium scale open fora, expert meetings and network meetings.
- Each Project Member (as appropriate): may varies from 0.25 M/M to 1 M/M.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 28 million yen

2. External funds obtained/to be applied

Basic costs for the event will be covered, in principle, by subsidies from Kanagawa Prefecture and all-IGES funds, e.g. venue, registration, translation, and other meeting assistances. Costs associated with specific meetings and activities of partner institutes will be borne by each organisation/network concerned.

III. Impact Generation

1. Major outputs (chair's summary and other synthesis documents, database, good practice etc.)

Event Documents

On the occasion of ISAP, each project prepares documents for the proceedings. The required documents for the proceedings include overall introduction of project, each presenter's summary. The proceedings will be prepared by each organizer by the beginning of June, and finalized by the Secretariat.

After the event, the PMO and Research Support Unit will produce the overall report of ISAP. The tentative contents will be: Opening Remarks, Summary of keynote speeches, conclusion and recommendations with respect to the major focus areas from Network Meeting/Workshop, outcomes and summary from open forums. The further details will be determined in due course.

List of expected documents

Open-Forum	Network Meeting	Workshop
Proceedings <ul style="list-style-type: none">overall project introductionsummary of each presentation	Proceedings <ul style="list-style-type: none">the objectives of meetingsconcept note, etc.	Proceedings <ul style="list-style-type: none">the objectives of meetingsConcept note, etc.
Overall Event Publication		
Tentative contents: Opening Remarks, Summary of keynote speeches, conclusion and recommendations with respect to the major focus areas from Network Meeting/Workshop, outcomes from open forums		

2. Influence strategy

ISAP itself is the IGES's major challenge to create an interactive process among multiple stakeholders, to which IGES's key research findings and messages will be constantly delivered and in which the ideas, outlines and details of IGES's key deliverables will be discussed. Major part of the invitees to ISAP consists of the key players of relevant important regional/global processes, while some network conferences will be convened back-to-back with ISAP. Quick and concise publication of the key messages of ISAP each year may provide constant influence to the discussions at regional/global forums/processes in due course.

Title: (2) Contribution to the establishment/elaboration of effective international environmental cooperation mechanisms (1): Promotion of Clean Asia Initiative (CAI) (non-research activity)

I. Outline

1. Background (Relevance to Asia-Pacific)

Asia maintains almost half of the world population. Anthropogenic impacts to the regional and global environment, in particular those originate in East Asia featuring remarkable economic growth, becoming obvious and serious due to the accelerating socio-economic activities, which result in the increased GHG emissions, forest degradation, water contamination, and air pollution. Other major environmental issues in the region include acid rain, sand storm and marine pollution both domestically and transboundary.

Based upon accumulated lessons learnt from ECO Asia (Environment Congress for Asia and the Pacific) which has been held annually during 1991 - 2008, the Government of Japan (GOJ) proposed the Clean Asia Initiative (CAI). It is anticipated that environmental cooperation to address priority environmental issues - exchange of expertise, technologies, lessons learnt on institutional arrangements and policy framework for examples, amongst Asian countries will be further promoted through the CAI.

Three pillars of the CAI were announced by the GOJ in June 2008, i.e. (i) creation of a low-carbon society, (ii) creation of sound material-cycle society, and (iii) creation of a society living in harmony with nature while adaptation to climate change is simultaneously attained, in Asia with special focuses on ASEAN countries. The CAI has been highlighted in key national strategic documents of Japan, such as the “Economic Growth Strategies 2008” and “Basic principle for Economic and Financial Reformation 2008.”

Being involved in the overarching environmental cooperation initiative by GOJ is essential for IGES to strengthen IGES networking and strategic operation, PMO decided to apply for open bidding entitled “Promotion of Clean Asia Initiative (FY2009-FY2010)” called for by GOJ and won it in October 2009.

2. Objectives

Overall objective of the CAI is to create a policy environment to discuss practical measures to create a sustainable society in Asia, with special focuses upon East Asia, which includes Northeast Asian sub-region and AESAN. To this end, specific objectives of the CAI include the followings:

- (i) establishing and maintaining network with relevant governments, international organisations and research community for better implementation of CAI,
- (ii) provision of substantive inputs to the priority intergovernmental policy processes such as Ease Asia Summit (EAS) Environment Ministers’ Meeting, and

- (iii) examination of future modality of environmental cooperation in East Asia.

3. Major components

This project consists of the following 3 components:

Component 1: Network with relevant governments, international organisations and research community

For the promotion of CAI and realising the specific objectives of the CAI, strengthening of the network among governments, international organisations and research community in the region is essential. IGES is expected to establish and function as the Secretariat for CAI promotion.

Component 2: Provision of substantive inputs to priority intergovernmental policy processes

It is also essential for IGES to provide the priority intergovernmental policy processes with substantive inputs. In the CAI promotion operation, key environmental meetings such as the following are envisaged as the target policy processes.

- EAS Environmental Minister Meeting (EAS-EMM)
- ASEAN+3 Environmental Ministers Meeting (ASEAN+3 EMM)
- Japan ASEAN Environmental Policy Dialogue
- Tripartite Environmental Ministers' Meeting (TEMM)
- Ministerial Conference on Environment and Development (MCED) in Asia and the Pacific

For example, IGES is designing and preparing, on behalf of the ASEAN Secretariat, Government of Indonesia, Government of Singapore, Government of Australia and GOJ, a EAS-EMM High-level Seminar on Environmentally Sustainable Cities (March 2010, Jakarta). "Environmentally sustainable cities" is recognised as one of the priority areas for environmental cooperation among EAS countries as highlighted in the *Singapore Declaration on Climate Change, Energy and the Environment* adopted at the 3rd EAS in November 2007, and *Ministerial Statement of the Inaugural EAS Environment Ministers Meeting* adopted in October 2008.

IGES is also invited to provide substantive support to the upcoming TEMM in May 2010 and its preparatory processes which have already started in December 2009. Further opportunities for substantive feeds into regional and sub-regional discussions on environmental cooperation will be identified in due course, which will not be limited to the target policy processes listed above.

Component 3: Examination of future modality of environmental cooperation in East Asia

It is important to examine the possible reform and enhancement of the current environmental cooperation scheme in East Asia corresponding to current and future concerns shared among countries with mid- and long-term perspectives. To this end, CAI focuses on the identification of current and future needs,

analysis on the gaps between needs and current environmental cooperation scheme, facilitation of discussions among multiple stakeholders such as government officials, international organisations and donor agencies, technical experts from private sector, and members of civil society groups. IGES Will pursue the future modality of environmental cooperation in East Asia through conducting a series of quick studies to clarify the natures of priority issues concerned, as well as through facilitating discussions among stakeholders through convening multi-stakeholder dialogues.

4. Major activities

Component 1: Network with relevant governments, international organisations and research community

Component 1 include the following key activities:

- (1) Liaison and coordination with the ASEAN Secretariat, relevant countries and international organisations strengthening the network among governments, international organisations and research community in the region
- (2) Support for designing practical environmental cooperation project in the region
- (3) Information dissemination and awareness raising on CAI, both domestically and internationally

Component 2: Provision of substantive inputs to priority intergovernmental policy processes

Component 2 focuses on the provision of substantive inputs to the priority intergovernmental policy processes in Asia and the Pacific. Key opportunities identified include the following high-level meetings and their preparatory processes:

- EAS Environmental Minister Meeting (EAS-EMM)
- ASEAN+3 Environmental Ministers Meeting (ASEAN+3 EMM)
- Japan ASEAN Environmental Policy Dialogue
- Tripartite Environmental Ministers' Meeting (TEMM)
- Ministerial Conference on Environment and Development (MCED) in Asia and the Pacific

IGES intends to provide, for example, discussion papers and policy briefs, as well as secretarial services, when and where applicable to contribute to the active discussions in each policy dialogue. Such opportunities would not be limited to the meetings listed above, but would be further identified in due course.

Component 3: Examination of future modality of environmental cooperation in East Asia

Component 3 focuses on the examine the possible reform and enhancement of the current environmental cooperation scheme in East Asia through following activities:

- (1) Quick studies to identify the current and future needs, analysis on the gaps between needs and current environmental cooperation schemes. Research topics of the quick study in FY2009 include:
 - Main priority environmental issues and the extent of environmental cooperation in ASEAN
 - Analysis of the target of post 2010 on Biodiversity
 - Establishment of young leadership network on environment in Japan and Asia
 - Effect of low carbon cities
 - Co-benefits on the climate change policy and business activity in East Asia, etc.

- (2) Facilitation of discussions among multiple stakeholders and pursuing the future modality of environmental cooperation in East Asia. The types of meeting convened could include (i) informal discussion on future environmental cooperation regime among Japanese experts such as government officials and donor agencies, and (ii) international conference among international organisations

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

Time	Contents		
	Network with relevant governments, international organisations and research community	Provision of substantive inputs to priority intergovernmental policy processes	Examination of future modality of environmental cooperation in East Asia
Sept. 2009		<ul style="list-style-type: none">● Taskforce team on “Environmentally Sustainable Cities” established	
Oct. 2009	<ul style="list-style-type: none">● Liaison and coordination with the ASEAN secretariat, relevant countries and international organisations	<ul style="list-style-type: none">● Provision of substantive inputs to Official Environmental Meetings<ul style="list-style-type: none">➢ Japan ASEAN Environmental Policy Dialogue (30 Oct. 2009)➢ ASEAN+3	<ul style="list-style-type: none">● Launch of examination of needs

		<p>Environmental Ministers Meeting (30 Oct. 2009)</p> <ul style="list-style-type: none"> ➤ East Asia Summit High level Official Meeting (30 Oct. 2009) ➤ 1st ESC Taskforce meeting (Singapore) 	
Nov. 2009	<ul style="list-style-type: none"> ● Support for designing practical environmental cooperation project between ASEAN countries and Japan 		<ul style="list-style-type: none"> ● Selection of the member of domestic and international network activities
Dec. 2009			
Jan. 2009	<ul style="list-style-type: none"> ● Start editing the contents of homepage and brochure ● Start of project finding 	<ul style="list-style-type: none"> ● TEMM-WLM 	<ul style="list-style-type: none"> ● 1st Domestic network activities (Tokyo) ● Start quick study
Feb. 2010	<ul style="list-style-type: none"> ● 1st News Letter 	<ul style="list-style-type: none"> ● Kitakyushu Initiative Network Meeting (Kitakyushu) ● EAS-EMM 1st High Level Seminar on Environmentally Sustainable Cities (Jakarta-tentative) 	<ul style="list-style-type: none"> ● 1st International network activities (Bangkok)
Mar. 2010	<ul style="list-style-type: none"> ● 2nd News Letter ● Final Report (FY2009) to MOEJ 	<ul style="list-style-type: none"> ● TEMM-WLM(Tokyo) ● TEMM director level meeting (Sapporo) 	<ul style="list-style-type: none"> ● Midterm Report to MOEJ
Apr. 2010	<ul style="list-style-type: none"> ● Continuation of designing practical environmental cooperation project between ASEAN countries and Japan ● Periodic update of home pate contents 		<ul style="list-style-type: none"> ● Continuation of examination of needs
May. 2010			
Jun. 2010	<ul style="list-style-type: none"> ● 3rd News Letter 	<ul style="list-style-type: none"> ● ISAP (June, Yokohama) ● TEMM12 	
Jul. 2010			<ul style="list-style-type: none"> ● 2nd domestic network activities (Yokohama) ● 2nd international network activities (Yokohama)

Aug. 2010		<ul style="list-style-type: none"> ● 3rd ESC Taskforce Meeting (August, Brunei-tentative) ● Preparatory meeting for ASEAN+3 Environmental Minister Meeting and 2nd EAS Environmental Minister Meeting (Brunei) 	
Sept. 2010	<ul style="list-style-type: none"> ● 4th News Letter 		
Oct. 2010		<ul style="list-style-type: none"> ● Report to 2nd EAS Environmental Minister Meeting (Brunei) ● ASEAN+3 Environmental Minister Meeting 	
Nov. 2010			<ul style="list-style-type: none"> ● 3rd domestic network activities (Tokyo)
Dec. 2010	<ul style="list-style-type: none"> ● 5th News Letter 		<ul style="list-style-type: none"> ● 3rd international network activities (Bangkok)
Jan. 2011		<ul style="list-style-type: none"> ● Taskforce meeting for the preparation of 2nd seminar (Jakarta or Singapore) 	<ul style="list-style-type: none"> ● 4th domestic network activities (Tokyo)
Feb. 2011			
Mar. 2011	<ul style="list-style-type: none"> ● 6th News Letter 		<ul style="list-style-type: none"> ● Report of examination result to MOEJ
FY2011		<ul style="list-style-type: none"> ● Taskforce meeting (1) and International Workshops (1) ● EAS-EMM 2nd High Level Seminar (Biodiversity or Climate Change) 	
FY2012		<ul style="list-style-type: none"> ● Follow-up of the 2nd Seminar <ul style="list-style-type: none"> ➢ Taskforce meeting and International Workshop (1) ➢ Report to EAS-EMM ➢ Workshops on 	

		relevant/priority issues	
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2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

(1) Overall team structure

This operation is to support and provide substantive inputs into the regional initiative, i.e. CAI, announced and promoted by MOEJ and IGES is expected to play a key role as the Secretariat for CAI promotion. The range of operation varies from simple secretariat work, such as publication of CAI newsletters, to complicated strategic actions to provide priority policy processes with substantive inputs best utilising all IGES internal assets as well as external resources.

As like other all-IGES activities, PMO will be in charge of overall coordination of the operation. Some specific tasks are mandated to and implemented by relevant groups/projects. For example in FY2009, a quick study on “Main priority environmental issues and the extent of environmental cooperation in ASEAN” is mandated to PMO-PG, provision of substantive support to the TEMM and its preparatory processes has been handled by PMO-PG as well, preparation and follow-up of EAS-EMM High-level Seminar on Environmentally Sustainable Cities (March 2010, Jakarta) is handled by Kitakyushu Office, some needs analysis and informal communication with Malaysian Government on possible 3R technical assistance has been undertaken by WMR.

In a mean while, with close collaboration with aforementioned specific activities, PMO pursue the future modality of environmental cooperation in East Asia, for example through convening multi-stakeholder dialogues and/or experts meetings.

Key partners of CAI promotion operation include, GOJ (MOEJ), the ASEAN Secretariat and ASEAN member countries, non-ASEAN EAS member countries, international organisations in the field of environment and development, such as UN-ESCAP, UNEP, UNDP, etc.

(II) Allocation of Human Resources

PMO Senior Coordinator A (1) 6 M/M: In charge of overall coordination and Component 1
 PMO researcher/visiting-researcher A1 (1) 12 M/M: Support of overall coordination and Component 1
 PMO researcher/visiting-researcher A2 (1) 3 M/M: Senior Liaison w/ ASEAN
 PMO Research Assistant A1 (1) 12 M/M: Overall support (Outreach)
 PMO Research Assistant A2 (1) 12 M/M: Overall support (Administrative matters)

PMO Senior Coordinator B (1) 6 M/M: In charge of Component 2
 PMO researcher/visiting-researcher B1 (1) 6 M/M: Support of Component 2 (TEMM, etc.)
 PMO researcher/visiting-researcher B2 (1) 6 M/M: Support of Component 2 (ESC, etc.)

PMO Senior Coordinator C (1) 6 M/M: In charge of Component 3
 PMO researcher/visiting-researcher C1 (1) 4 M/M: Support of Component 3
 PMO researcher/visiting-researcher C2 (1) 4 M/M: Support of Component 3
 PMO researcher/visiting-researcher C3 (1) 4 M/M: Support of Component 3
 PMO researcher/visiting-researcher C4 (1) 4 M/M: Support of Component 3
 PMO researcher/visiting-researcher C5 (1) 4 M/M: Support of Component 3

Each Project Member (as appropriate): may varies from 0.25 month to 3 months.

(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 57 million yen

2. External funds obtained/to be applied

FY2010: necessary fund will be raised applying for the Clean Asia Initiative Project of MOEJ.

FY2011: undecided

FY2012: undecided

III. Impact Generation

1. Major outputs (chair's summary and other synthesis documents, database, good practice etc.)

- Commission Report to MOEJ
- A series of short report (CAI quick study series)
- Quick reference of needs and gaps in environmental cooperation in East Asia (tentative)
- Discussion papers, proceedings, meeting reports, synthesis papers, good practices, etc.
- CAI outreach materials (Pamphlet, CAI project fact sheets, newsletters, website, etc.)

2. Influence strategy

This Promotion of CAI operation will function as the major vehicle to deliver research findings and messages which IGES has developed through various research activities and policy processes such as APFED and NetRes etc. to the high-level policy forums including EAS-EMM, ASEAN+3 EMM, Japan-ASEAN Environmental policy dialogue, EAS-EMM High-level Seminar, TEMM, MCED, etc., through which knowledge and knowhow accumulated will be shared with the countries in Asia and relevant international organisations in the field of environment and development. Potential impact to the environment and development policies in the region is quite high considering the very high-levelness of participants to the aforementioned meetings.

Title: (3) Contribution to the establishment/elaboration of effective international environmental cooperation mechanisms (2): Monitoring and Advisory activities on Indonesia Climate Change Program Loan (non-research activity)

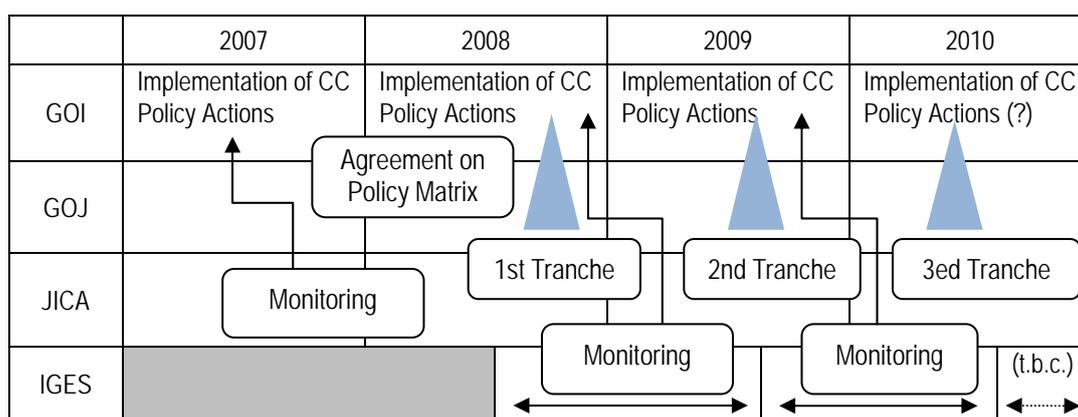
I. Outline

1. Background

Indonesia Climate Change Program Loan

The Indonesia Climate Change Program Loan (ICCPL), the first large-scale programme loan under the Cool Earth Partnership³⁴, was agreed between the Government of Indonesia (GOI) and GOJ in August 2008. ICCPL was designed to support a wide range of Indonesian efforts to deal with Climate Change issues, including some key policy reforms, through providing 300 million USD per year over three years (tentative) as general budget support instead of financing individual Climate Change mitigation and adaptation projects.

A set of policy targets/actions was prepared by GOI based on its *National Action Plan Addressing Climate Change* issued in 2007, which was summarised in the form of a Policy Matrix, and agreed by both governments. The Policy Matrix originally covered 6 sectors (LULUCF, Energy, River Management, Water & Sanitation, Agriculture, and Crosscutting issues) and two more sectors (Disaster Management and Marine Sector) were added in May 2009. Achievements of targets/actions in the Policy Matrix are closely monitored and the result is supposed to be and has been used for the justification of the disbursement of the each tranche of the programme loan.



IGES's involvement in ICCPL

³⁴ In January 2008, the Government of Japan (GOJ) announced “Cool Earth Partnership,” a financial mechanism to assist developing countries aiming to achieve emissions reductions and economic growth simultaneously, and working to contribute to climate stability. Cool Earth Partnership intends to provide funds amounting approximately to 10 billion USD (1,250 billion JPY as of January 2008) in aggregate over five years (2008-2012). After the regime change occurred in September 2009, ICCPL is considered as the first case of Hatoyama Initiative, which also intends to assist developing countries efforts tackling climate change issues.

IGES is invited and mandated to implement monitoring and advisory (hereinafter M&A) operation on the FY2008³⁵ and FY2009 Policy Matrix targets/actions, as well as to evaluate the overall performance of the ICCPL after the completion of the programme loan around August 2010.

The 1st round of M&A was between October 2008 and June 2009. IGES, together with JICA, formed a M&A team led by Prof. Hironori Hamanaka, and implemented the M&A activities focusing on FY2008 policy targets/actions covering the aforementioned policy sectors of ICCPL. The 2nd round of M&A is between October 2009 and August 2010. The M&A team has been implementing the 2nd round of M&A activities focusing on FY2009 policy targets/actions. In the 2nd round of M&A activities, provision of ideas for ICCPL Policy Matrix beyond 2010, taking appropriate opportunities, has been also anticipated.

IGES, as the core organisation mobilising its experts to the ICCPL M&A operation, The M&A team: i) monitored the progress of attaining targets and actions in the Policy Matrix; ii) proposed policy recommendations based on the analysis of Climate Change policy, institutional arrangement, and implementation in Indonesia at relevant occasions such as the Steering Committee Meetings (SCs, periodical meetings held by the delegates of GOI, GOJ and JICA to share the progress of target actions and discuss measures for improving the outcome of the loan); and iii) prepared *monitoring reports* based on the above activities.

2. Objectives

The overall objective of the on-going M&A activities on ICCPL is to contribute to further strengthening the climate policy of GOI (recipient government), as well as to strengthen the capacity of GOJ (donor government) to design and implement effective financial assistance scheme. To this end, specific objectives of the activities include: i) monitoring and evaluation of GOI's Climate Change policies; ii) to provide recommendations to GOI for further strengthening its capacity to respond to Climate Change issues; and iii) to provide recommendations to GOJ for effective support to developing countries' Climate Change policies.

3. Major components

Component 1: Monitoring activities

Component 1 focuses on the information gathering and analyses regarding the progress of attaining policy targets/actions, about 50 targets/actions, on which GOJ and the recipient government agreed, and prepare, update and finalise the *Monitoring Sheet* and the *Monitoring Report*.

Component 2: Advisory activities

³⁵ Fiscal year in Indonesia matches with calendar year. A fiscal year starts in January and ends in December.
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Component 2 focuses on the provision of *policy recommendations* in the form of the *Advisory Note*. Recommendations highlight, for example, (i) measures to overcome obstacles or challenges on the current policy implementation, (ii) measures to ensure mid- and long-term effects of implemented actions after the period of the loan, and (iii) necessary actions to be taken, which are not included in the framework of the current programme loan despite its significance to mitigation and/or adaptation policy in the context of Indonesia.

Component 3: Programme evaluation activities

Component 3 focuses on the comprehensive evaluation of ICCPL, i.e. impact of the programme loan to the climate change policies/measures in Indonesia. Evaluation will be summarised in a form of a Programme Evaluation Report and will be shared with JICA after the 2nd round of M&A activities, presumably in August 2010.

4. Major activities

Component 1: Monitoring activities

IGES experts, in collaboration with JICA experts and local consultants stationed in Jakarta, collect and analyse information on the progress of attaining policy targets/actions. For this purpose, the team conducts three to four times of fact finding missions (hereinafter FFMs) to obtain direct information from the recipient government and other sources, as necessary. The M&A team updates the *Monitoring Sheet* and prepare the *Monitoring report (including Progress Report, Interim Report, Draft Final Report, and Final Report)* and submits them to JICA.

The M&A team obtains information from the National Development Planning Agency of Indonesia (BAPPENAS), line ministries, and other stakeholders in charge of the implementation of the policy actions on the ground, such as local forest management offices and river management units, in close cooperation with JICA Indonesia office.

Component 2: Advisory activities

IGES experts prepare recommendations addressing both GOI and GOJ. Outputs and their use could be summarised as:

- *Advisory Note* on delayed actions, which could be utilised for discussions between JICA and GOI to look into possible solution of the problems faced and to develop necessary technical assistance.
- *Advisory Note* on beyond Policy Matrix (2007-2009), which could be utilised for discussions between JICA and GOI to identify additional key issues to be addressed for strengthening climate change measures in Indonesia.
- Afore mentioned *Advisory Notes* produced in the M&A activities are also utilised as the draft

outline of advisory comments conveyed by the Leader of M&A Team (Prof. Hamanaka) at high level policy dialogue, such as ICCPL Steering Committee meetings and other informal opportunities, between GOI and GOJ.

➤ IGES experts involved in ICCPL operation also prepared a draft of *Provisional Ideas on Indonesian Climate Change Policy Matrix (2010-2014)* based on the analysis on the key documents prepared by the Government of Indonesia, namely *Indonesian Second National Communication to UNFCCC (2009)* and *Indonesian Climate Change Sectoral Road Map Synthesis Report (2009)*, as well as other information collected through the A&M team's activities; and the provisional ideas were shared with JICA for their consideration.

Component 3: Programme evaluation activities

M&A team carries out a comprehensive evaluation of the contribution that the aid programme made to Climate Change policies in the recipient country, in terms of the impact of each policy actions and of mid or long term effect of the institutional reform carried out in the period of the aid programme. For this purpose, the team conducts evaluation mission after finalising the Final Report and produces a *Programme Evaluation Report*.

II. Allocation of Human/Financial Resources

(I) Implementation arrangements

1. Time frame

- The 2nd round of ICCPL M&A activities is carried out between October 2009 and August 2010. Among the activities below, those scheduled in the period from April 2010 to August 2010 are implemented in the fifth phase of IGES.

IGES 4 th Phase		
Date	Missions & Events	Working Documents / Outputs
Oct. 2009	Mission to Indonesia: first FFM & TTM	Preparing TORs with Local Consultants Preparing and submitting <i>Inception Report</i>
Nov. 2009	Mission to Indonesia: first SC	Preparing <i>first advisory note</i> Preparing and submitting <i>Progress Report</i>
Jan. 2010	Mission to Indonesia: second FFM & TTM	
Feb. 2010	Mission to Indonesia: second SC	Preparing <i>second advisory note</i> Preparing and submitting <i>Interim Report</i>
IGES 5 th Phase		
Apr. 2010	Mission to Indonesia: third FFM & TTM	
May. 2010	Mission to Indonesia: third SC	Preparing <i>third advisory note</i> Preparing and submitting <i>Draft Final Report</i>
Jun. 2010		Preparing and submitting the <i>Final Report</i>

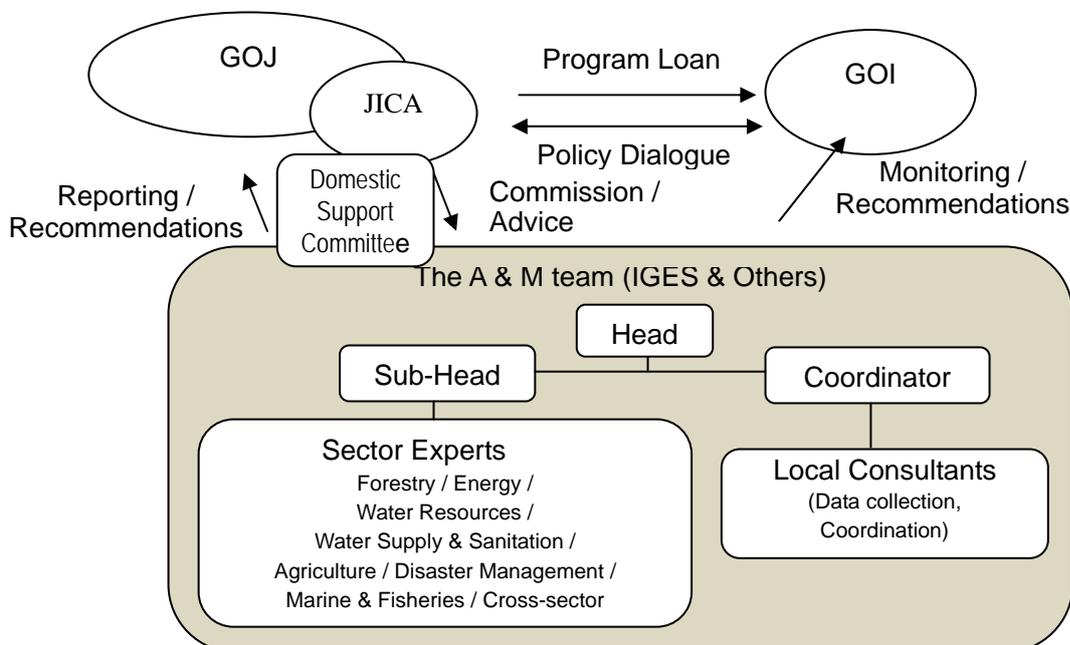
Jul. 2010	Mission to Indonesia: Programme evaluation mission	
Aug. 2010		Preparing and submitting Programme <i>Evaluation Report</i>

2. Implementation framework (in the case of ICCPL monitoring and advisory activities)
(Overall team structure, Partner institutes, Role of IGES, etc)

The key stakeholders of the ICCPL operation include GOJ, JICA, GOI, the M&A team (composed of IGES and external experts), domestic support committee, and local consultants. Based on the attainments of the policy actions that GOI pledged in its policy matrix, GOJ provides financial aid to GOI through JICA.

IGES, as the core member of ICCPL M&A team, is mandated to monitor the progress of attaining target actions and provide policy recommendations. The result of monitoring activities and policy recommendations are proposed as monitoring reports and advisory notes, which are proposed to the steering committee meetings (SCs) of ICCPL which are periodically held by GOI together with GOJ and JICA to share the progress of target actions and discuss measures for improving the outcome of the loan.

For these purposes, the M&A team cooperates with local consultants in Indonesia to obtain detailed information regarding the progress of actions and institutional reforms. The team is advised by the Domestic Support Committee on overall activities.



(II) Allocation of Human Resources (in the case of ICCPL monitoring and advisory activities)

Role (Man/Month)	Tasks	Required Expertise
Leader of M&A team / Head of Domestic Support Committee (1 M/M x 1)	<ul style="list-style-type: none"> ● Policy dialogues with relevant policy makers in GOI ● Provide necessary advice for the overall operation of M&A team 	<ul style="list-style-type: none"> ● Sound knowledge in the climate policies ● Advanced experience in CC related international negotiation, policy dialogues, etc.
Head (8 M/M x 1)	<ul style="list-style-type: none"> ● Supervising overall activities including collecting information, analysis and reporting. ● Coordination with stakeholders in Indonesia (GOI, Embassy of Japan and JICA-Indonesia) and in Japan (JICA-HQ, MOFA, METI, MOE). 	<ul style="list-style-type: none"> ● Advanced management experience in monitoring and evaluation of programme loan / ODA project ● Advanced coordination skill to work with multiple stakeholders both in Japan and Indonesia
Sub-Head (4.5M/M x 1)	<ul style="list-style-type: none"> ● Coordination with domestic stakeholders (JICA, GOJ, etc.) ● Supervision of sector experts' activities on preparation of Evaluation sheet, Monitoring Reports, Advisory Notes and ODA evaluation report. ● Attending TTMs and SCs as necessary. 	<ul style="list-style-type: none"> ● Management experience in monitoring and evaluation of programme loan / ODA project ● Editorial expertise for critically reviewing and finalising scientific monitoring reports ● Advanced coordination skill to work with multiple stakeholders
Sector Experts (3.5M/M x 7)	<ul style="list-style-type: none"> ● Analysing the progress of policy actions. ● Preparing TOR for local consultants. ● Preparing evaluation sheets, monitoring reports (Progress report, Interim report, Draft-final report, Final report) and their summaries. ● Proposing advisory notes. ● Inputs to ODA evaluation report ● Attending TTMs and SCs as necessary. 	<ul style="list-style-type: none"> ● Advanced knowledge / skill for producing <i>monitoring reports</i> and <i>advisory notes</i> of each sector: <ul style="list-style-type: none"> ✓ Data collection (documents review and field interviews); ✓ Data analysis and presentation of results ✓ provision of policy recommendations
Coordinator / Cross-cutting Sector Expert (10M/M x 1)	<ul style="list-style-type: none"> ● Coordination with stakeholders in Indonesia (GOI, Embassy of Japan, JICA local office and local consultants, etc.) ● Attending TTMs and SCs as necessary. ● Analysis, etc. of cross-cutting sector. 	<ul style="list-style-type: none"> ● Advanced coordination skill to work with stakeholders ● Management experience in utilising local consultants for project monitoring and evaluation ● Advanced knowledge / skill for producing <i>monitoring reports</i> and <i>advisory notes</i> of cross-cutting sector.
Support Staff (10M/M x 2)	<ul style="list-style-type: none"> ● Overall support activities such as contracting, accounting, editing and collating reports, and arranging 	<ul style="list-style-type: none"> ● Advanced or intermediate experience in project support

	missions.	
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(III) Funding

1. Cost estimate

Budget for activities of FY 2010: 42 million yen

2. External funds obtained/to be applied

- Total amount for the project duration through IGES 4th -5th (Oct. 2009 to Aug 2010), full IGES cost coverage from JICA is guaranteed.

III. Impact Generation

1. Major outputs

Monitoring Reports

The M&A team prepare four *monitoring reports (Progress, Interim, the Draft-Final and the Final)*. Among them, *the Draft-Final Report* and *the Final Report* will be submitted in IGES 5th phase.

➤ *Draft-Final Report* (May 2010)

Based on the findings till the third FFM and discussions at the third TTM, the M&A team describes the attainments of policy actions, obstacles / challenges and policy recommendations as draft-final report.

➤ *Final Report* (Jun 2010)

Final version of the draft-final report updated in line with the discussion at the third SC.

Monitoring Sheet

The progress of attaining target policies are tabulated and shared with GOJ, JICA, and GOI.

Advisory Notes

The M&A team's recommendations for GOI's Climate Change policies will be summarised in a form of draft outline of advisory comments to be delivered at each SC and other occasions of policy dialogue between GOI and GOJ.

Provisional Ideas on Indonesian Climate Change Policy Matrix (2010-2014)

This document is prepared and shared with JICA for their consideration as the information document for building the next round of ICCPL Policy Matrix.

Programme Evaluation Report (Aug. 2010)

The results of overall programme evaluation on ICCPL will be summarised as the *Programme Evaluation Report*.

2. Influence strategy (both in the cases of ICCPL and similar opportunities to be identified)

● Influence strategy in general

Research institutes conducting pragmatic and strategic policy researches such as IGES can contribute to international environmental cooperation mechanisms in several ways:

- (a) Providing secretariat functions and/or management services to the mechanisms;
- (b) Providing supports to the operation of the mechanisms, e.g.) supporting meetings and/or conferences by proposing agendas, preparation of documents and producing minutes;
- (c) Reporting study results, e.g.) preliminary assessment, monitoring of the progress / attainments of the policy targets / actions, and evaluation of the cooperation mechanisms;
- (d) Providing policy recommendations based on the study results, e.g.) additional policy targets / actions and future cooperation mechanisms; and
- (e) Indirect contribution through sharing the study results and experiences with other research institutes, government agencies, NGOs and so on by reporting and discussing them at academic meetings and other occasions.

Research institutes could be closely involved in the process of the environmental cooperation mechanisms through the activities categorised as (a) and (b). They could also provide expertise to the cooperation mechanisms as external professionals when they conduct such the activities categorised as (c) and (d). Those categorised as (e) aim at indirect contribution through outreaching to academic and wider expert societies.

● Influence strategies in the case of ICCPL

IGES contributes to the operation of ICCPL through activities categorized (b), (c), and (d) above.

- Category (b): Support activities
 - ✓ Supporting the policy dialogues at the steering committee meetings on the policy targets / actions, monitoring results, remedial measures, and future plans through preparing agenda, documents, and minutes in cooperation with JICA, GOJ, and GOI.
- Category (c): Monitoring & Analysis
 - ✓ Monitoring and analysing the progress / attainments of policy targets / actions.
- Category (d): Policy Recommendations
 - ✓ Providing policy recommendations to GOI based on the monitoring results. Recommendations may include, but not limited to, remedial measures for the delayed or

unattained targets, following actions to ensure sustainable outcomes, important actions which are not stated in the policy matrix, and institutional design in view of mid and long term impacts.

- ✓ Proposing a design of future cooperation mechanism between GOJ and GOI.
- ✓ To this end, provision of the *Provisional Ideas on Indonesian Climate Change Policy Matrix (2010-2014)* and follow-up discussions with relevant stakeholders are one of the essential elements of influence strategies in ICCPL M&A operation.

IGES conducts the above activities and directly contributes to the bilateral cooperation to strengthen Climate Change policies in Indonesia

- Activities categorised both in (c) and (d)
 - ✓ *Programme Evaluation Report* will be prepared by the M&A team following the termination of the period of ICCPL. The report aims at evaluating the outcomes of the cooperation mechanism in line with the OECD-DAC's principles for evaluation of development assistance (relevance, effectiveness, efficiency, impact, and sustainability), and extracting lessons for other international cooperation policies.

IGES contributes to further improvement of GOJ's environmental cooperation policies addressing Climate Change issues through producing the *Programme Evaluation Report*.

- Category (e): Outreach to academic and wider expert societies

Further influence could be made through reporting the experience and results of ICCPL activities to share the lessons learned with other research institutes, government agencies and so on. Provisional topics of academic outputs may include, but not limited to:

- ✓ Analysis on pros and cons of the programme loan approach of international environmental cooperation mechanisms; and
- ✓ Challenges for researchers and/or research institutes involved in the international cooperation mechanisms.

Title: (4) Civil Society Policy Dialogue and Network Activities for Sustainable Asia and Pacific

I. Outline

2. Background (Relevance to Asia-Pacific)

IGES has been functioning as secretariats and/or key members for the regional and international policy fora and networks for promoting policies and activities aimed at sustainable development in Asia and the Pacific. IGES was a part of the secretariat for a series of prominent policy processes and stakeholder policy dialogue on sustainability policy issues including the Environment Ministers' Meeting of the Group of Eight held in Kobe in 2008, Environment Congress for Asia and the Pacific or ECO Asia convened annually (the latest sixteenth session held in Nagoya in 2008), the Asia – Pacific Forum for Environment and Development (APFED), the Regional and Global Civil Society Forum (RCSF/GCSF), the Asia Environment Compliance and Enforcement Network (AECEN), and Asia – Europe Environmental Forum (ENVForum). The regional policy fora are expected to continue their work in 2010 and beyond including those to be initiated in the new or emerging framework such as the East Asia Summit or other sub-regional and/or regional boundaries.

The Asia – Pacific Forum for Environment and Development (APFED) launched in 2001 in response to the recommendation of the Ministerial Conference on Environment and Development in Asia and the Pacific (MCED) in 2000 is one of the most notable programmes that provide a framework for multi-stakeholder policy dialogue and network for promoting sustainability policy and actions in Asia and the Pacific. In order to facilitate 117 policy recommendations contained in the 2004 APFED Final Report, a wide range of activities have been being promoted under the APFED Phase II (APFED II) centered around the three programme pillars namely (1) Policy Dialogue, (2) Knowledge Initiative and (3) Showcase Programme with support of the institutional mechanisms called NetRes (Asia – Pacific Regional Network of Policy Research Institute for Environmental Management and Sustainable Development). In FY2010, major efforts will be focused on the dissemination of APFED II findings and recommendations that will be contained in the APFED II Final Report due to be finalized in March 2010 and launched in summer 2010 through various policy dialogue activities. In APFEDII, 49 pilot projects have been supported under the APFED Showcase Programme over the past 5 years across Asia and the Pacific to address climate change, 3Rs and biodiversity as well as water and stakeholder empowerment. The United Nations Environment Programme (UNEP) is an important partner that has been acting as the APFED Showcase Facility Secretariat. The APFED II activities are expected to continue in the FY2010, and key components of APFED II activities will continue beyond FY2010.

NetRes has been launched in 2006 as a key institutional mechanism for the APFED II activities. NetRes, and consists of 8 member institutions namely (1) Chinese Society of Environmental Sciences (CSES), (2)

Korea Environment Institutes (KEI), (3) Thailand Environment Institutes (TEI), (4) Singapore Institute for International Affairs (SIIA), (5) TERI (The Energy Research Institutes based in India), (6) Sustainable Development Policy Institute (SDPI) of Pakistan, (7) University of South Pacific (USP) based in Fiji, and (8) IGES. IGES serves as a secretariat for NetRes. NetRes primarily support APFED II programme activities namely Policy Dialogue, Showcase Programme and Knowledge Initiative more specifically Ryutaro Hashimoto APFED Award good practice case studies and APFED Good Practice Database. In addition, concrete activities have been initiated to undertake joint research to address policy and institutional gaps in promoting sustainable development in Asia and the Pacific.

The International Forum for Sustainable Asia and Pacific (ISAP) of which the first meeting was held in Hayama in June 2009 is expected to serve as a regional forum for stakeholders particularly in the research institutes, international network offices and NGOs to exchange the outcome of research and operational activity and address policy challenges in pursuit of sustainable development in Asia and the Pacific.

A number of other network activities are of vital importance to IGES in pursuing sustainability policy agenda and research work. IGES acts as a Steering Committee member of the Asia – Europe Environmental Forum (ENVForum) of the Asia – Europe Foundation (ASEF) that is an institutional arm established under the auspices of the Asia – Europe Summit (ASEM). ENVForum provides opportunities for multi-stakeholders in Asia and Europe to interact and collaborate on key sustainability policy issues. IGES hosted the 7th ENVForum Roundtable Meeting on Biodiversity and Ecosystem Services in Hayama in June 2009 in conjunction with the first ISAP (International Forum for Sustainable Asia and Pacific). Based on the outcome of ENVForum activities, a number of initiatives and collaborative activities are expected to take place, for instance, capacity development for environmental leaders to promote participatory decision making based on the scenario method and preparation of common position paper on key policy issues such as biodiversity and ecosystem services.

The Asia Environment Compliance and Enforcement Network (AECEN) is another key network. IGES serves as a member of the AECEN Steering Committee. An IGES special academic advisor also services as a member of the AECEN Advisory Panel. AECEN provides not only a forum for government officials and stakeholders to discuss ways and means for improving compliance with environmental laws and regulations, but also a programme called “Twining Programme” in which two parties of the member countries collaborate to undertake activities aimed at strengthening policy and institutional framework for compliance with environmental laws and regulations and their enforcement. IGES has been implementing an AECEN Twining project with the Thailand Pollution Control Department in strengthening a policy and institutional framework for tackling soil contamination. Another project is in pipeline for addressing energy conservation and climate change in collaboration with CSES and the Energy, Environment and

Economy Institute of the Tsinghua University in China. IGES is expected to continue to play a leading role in promoting activities under AECEN.

There are other networks that aimed at promoting multi-stakeholder policy dialogue and mobilizing stakeholder involvement in policy innovation and field activities for sustainable development in the region. In the Civil Society Forum of UNEP, an IGES/PMO coordinator acts as one of the two regional facilitators and as a member of the Scientific Community major group for the period of 2008 – 2009. IGES also participates in the Poverty and Environment Partnership of the Asian Development Bank. There was a proposal from the Global Environment Facility proposes that IGES would act as a key coordinating institute for non-governmental actors in Northeast Asia.

There is indeed a growing demand to the involvement of an institution such as IGES to facilitate regional network activities, and such opportunities are expected to expand more widely. At the same time, such networks provide IGES with opportunities to share its output in a timely manner and promote applications of recommended policy measures and activities that emanate from IGES research activities.

Some lessons have been drawn so far from the past involvement of IGES in the operation of policy fora and civil society network activities. It provides IGES researchers with first hand exposure and, in some occasions, involvement in key policy decision making processes where political dynamism can be vibrantly observed. In the preparatory process, current policy requirements can be comprehended. Some of the future challenges would be how to translate the observed political dynamisms into the research agenda that IGES intends to undertake. IGES can also play a more proactive role in providing inputs from its research work and operational activities to support policy processes. Network activities also need to evolve from information exchange to partnership activities and joint research as well as capacity development for stakeholders. By and large, there is a great deal of mutual and multiple benefits for network operators, members and IGES.

3. Objectives

The proposed cluster of network activities are expected to achieve the following objectives:

- (1) To support the formation of policy frameworks at the various levels to promote sustainable development, to facilitate multi-stakeholder collaboration and to forge international cooperation with a view to establishing a sustainable society that is low in carbon emissions, efficient in material use and in symbiosis with nature,
- (2) To support regional and international policy fora and civil society network activities with a view to stimulating multi-stakeholder policy dialogue and mobilizing stakeholder involvement in

sustainability policy discourse and activities,

- (3) To explore opportunities for multiplying mutual benefits of network members for generating greater impacts on policy processes aimed at sustainable development in the region,
- (4) To facilitate consensus building and concerted actions for tackling trans-boundary and global environmental issues,
- (5) To propagate information on good practice across Asia, the Pacific and the world, and
- (6) To promote replication of good practice and innovative approaches.

4. Major components

The following are the major components of the proposed cluster of network activities:

- (1) Multi-stakeholder policy dialogue: Network activities have generic elements of policy dialogue: linking such policy dialogue outcome with the development and implementation of concrete enabling policy and programmes remain to be essential, Information dissemination should be more widely promoted with diversified modes and methods at various levels, for instance, the use of executive summaries, visual images and key regional languages, Prominent policy processes should be further targeted as occasions for conducting policy dialogue and disseminating messages including conference of the parties of the relevant environmental agreements, regional ministerial meeting, Commission on Sustainable Development and other bodies and meetings where the inputs can generate enhanced impacts on policy processes.
- (2) Good practice and case study analysis: Network activities are commonly intended to promote information sharing on good practice and case studies,
- (3) Pilot project activities: Catalytic support is provided under networks for supporting pilot projects for demonstrating the usefulness of innovative policy measures and activities,
- (4) Capacity development: training and other capacity development components are also steered under network activities, and
- (5) Advocacy: based on empirical analysis, a set of recommendations on policy and activities can be released to advocate and facilitate policy and institutional transformation aimed at sustainable

development.

Linkages with other programme components of the IGES 5th Programme Cycle can be explored where possible.

5. Major activities

Based on the afore-mentioned components, it is proposed to undertake the following activities:

- (1) Multi-stakeholder policy dialogue: Undertaking multi-stakeholder policy dialogue on key policy issues including thematic issues or cross-cutting ones: main target audience includes decision makers and practitioners involved in decision making processes and operation activities to promote sustainable development in Asia and the Pacific.
- (2) Good practice and case study analysis: Good practice analysis and case studies shall be conducted, where possible, an Award giving programme can be used, a linkage with good practice database can be also explored,
- (3) Pilot project activities: Based on policy dialogue and case studies, catalytic support can be given to the pilot project to examine the usefulness of innovative policy measures and activities,
- (4) Capacity development: training and other capacity development activities can be undertaken to strengthen social capacity of the countries in the region,
- (5) Advocacy: Document preparation and outreach activities will be conducted to advocate and facilitate policy and institutional transformation aimed at sustainable development; multiple medias will be used for generating greater impacts in information dissemination.

II. Implementation arrangements

1. Time frame

The following timeframe is envisioned for undertaking the proposed cluster of network activities. The marking indicates the time period where intensive work will be carried out for respective activities. However, a considerable level of work will be continued in the non-marked time period.

Activities	FY2010				FY2011				FY2012			
7. Multi-stakeholder policy dialogue		x		x		x		x		x		x
8. Case studies		x		x		x		x		x		x

9. Pilot projects		x		x		x		x		x		
10. Capacity development			x		x		x		x			
11. Advocacy			x	x		x	x		x	x		
12. Report and article preparations			x	x			x	x			x	x

2. Implementation framework

(Overall team structure, Partner institutes, Role of IGES, etc)

The proposed research work will be undertaken by the Programme Management Office that will include several senior policy researchers, a number of researchers, administrative coordinator and assistant. The staff members to be involved in CAI and ISAP from PMO will be determined. With respect to APFED and other network activities, the Interagency Collaboration (IAC) team is expected to continue to undertake activities. IAC will be led by a senior coordinator to be supported by 4 researchers and additional project staff members.

IGES has been operating as a secretariat for the Asia – Pacific Forum for Environment and Development (APFED), and NetRes. In addition, IGES serves as a member of the steering committees for the Asia - Europe Environmental Forum (ENVForum) of the Asia – Europe Foundation (ASEF), and the Asia Environment Compliance and Enforcement Network (AECEN). All the activities are spearheaded by the PMO/Inter-agency Collaboration (IAC) team. As a secretariat and a steering committee member, IGES undertake coordinating role and take a lead in programme development for network activities while undertaking its own activities to support the implementation of specific components of network activities.

When IGES act as a member of the networks, it provides relevant information on findings, lessons and recommendations aimed at facilitating sustainability policy measures and activities in the region.

3. TORs for IGES staff and/or short-term staff to be involved (expertise required etc)

The managing researcher will coordinate the overall activities while undertaking his assigned research tasks. The managing researcher and 3 researchers will undertake the research tasks that will be allocated based on the themes and geographic location. The research administrative coordinator will undertake administrative work while supporting the transformation of research output for dissemination to the public through website or appropriate media.

III. Funding

1. Cost estimate

Budget for activities of FY 2010: 84 million yen

2. External funds obtained/to be applied

For the pilot projects, the APFED Showcase Programme is expected to continue for the FY2010 – 2011. It is proposed that pilot activities shall be financed by the APFED Showcase Programme.

Plus, external funds will be explored with the AECEN, ASEF, Asia Foundation, ASEAN, the Asian Development Bank, UNEP and other potential organizations for supporting the participatory environmental decision making to match the financial requirement for the proposed research work.

IV. Impact Generation

1. Major outputs (chair's summary and other synthesis documents, database, good practice etc.)

In each of the policy dialogue, chair summaries will be prepared by IGES or in our collaboration. Any key elements can be developed as policy papers around key topics or sub-topics. Case studies and pilot project reports will be documented as reports, and transformed into policy papers. In addition, based on the outcome of policy dialogue, case studies and pilot activities, regional synthesis reports will be prepared covering a broad range of sustainability policy issues or thematic/cross-cutting issues. Distilling such regional synthesis reports, a set of recommendations on policy measures and activities will be prepared for launching at the priority policy processes that will take place in the region or at the global level.

2. Influence strategy

(How the network/process related activity is linked to IGES research projects, and how the proposed activity is related to other important regional/global processes.)

IGES will operate in collaboration with sponsoring organizations for network activities. Other than such sponsoring organizations, IGES will collaborate with network members, for example, NetRes institutes, and members of other networks such as ENVForum and AECEN.

The output of the research work will be shared and used as an integral part of the inputs for the regional and inter-regional processes such as AECEN and ASEF, and other networks. It is also intended to provide as inputs for forthcoming regional and international processes such as the 6th Ministerial Conference on Environment and Development (MCED VI), CBD/COP10, East Asia meetings, CSD and 2012 Summit.