



**Economy and Environment Program
for Southeast Asia**

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Annual Report

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What is EEPSEA?

The Economy and Environment Program for Southeast Asia was established in May 1993 to support training and research in environmental and natural resource economics. Its goal is to strengthen local capacity in the economic analysis of environmental problems so that researchers can provide sound advice to policy-makers. The program uses a networking approach to provide financial support, meetings, resource persons, access to literature, publication avenues, and opportunities for comparative research across its nine member countries. These are Thailand, Malaysia, Indonesia, the Philippines, Vietnam, Cambodia, Lao PDR, China, and Papua New Guinea.

EEPSEA's structure consists of a Sponsors Group, comprising all donors contributing at least USD 100,000 per year, an Advisory Committee of senior scholars and policy-makers, and a small secretariat in Singapore. EEPSEA is a project administered by the International Development Research Centre (IDRC) on behalf of the Sponsors Group.

Typically, researchers learn about EEPSEA through various means and apply for a research or training award. Most applicants attend one of EEPSEA's courses before or in conjunction with their research project. Budget ceilings for research projects are CAD 20,000-28,000, depending on the country. Researchers may be affiliated with a university, government or non-government organization and the grants are normally made to that institution. Teams of researchers carry out most projects.

Research project proposals are sent to experts for written review. Those recommended for further consideration must then be revised and presented at a working group session at the next EEPSEA biannual meeting. Further revisions are usually called for until the project is judged satisfactory and a grant, approved. After approval, interim findings are presented and critiqued every six months until the project is completed. Researchers receive frequent technical assistance and literature from the Secretariat and resource persons. Final reports of successful projects are widely disseminated by EEPSEA and the researchers themselves through publications, the media, and consultations with policy-makers.

The selection process for both training and research awards is highly competitive. Approximately one in four applications for research awards is accepted.

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EEPSEA Management and Staff

Message from the Director

The main highlight of 2009-2010 was clearly the EEPSEA Impact Conference in Hanoi in February 2010. It was the first of its kind for the organization. The conference served as a platform to bring together researchers, government representatives, and donors to showcase instances where EEPSEA research had been used to support policy formulation in environment and natural resource management in Southeast Asia. The “impact stories” shared were indeed inspiring and motivating.



Not only did the event demonstrate that environmental economics tools could be used to assess the economic impact of environmental policies, programs, and technologies, it enabled us to learn from government participants how we could contribute more effectively to policy change and impact. The most important message they had for us was that we should talk to government counterparts to know what problems they needed our input on and involve them in the research process right from the onset of the study through to completion. Rather than be treated merely as sources of information during data collection and as recipients of final reports, government officers wanted to be consulted on what researchers intended to do so that they could plan on how best to use the research information.

The conference also gave our donors a chance to interact with researchers and policy-makers directly. One donor said he came out impressed with the range of work that EEPSEA researchers were doing to help address real-life environmental problems in the region. Both researchers and policy-makers cited global environmental issues like climate change, biodiversity conservation, and pollution as the key areas for future donor support for EEPSEA.

The conference made it very clear that research impact takes time to happen and so, researchers should persevere in their efforts to bring about change through meaningful research. This process can be improved if they work closely with the intended end-users of their research as well as with the media.

I am happy to report that our Climate Change Vulnerability Map continues to make waves in the region. Having been launched in a few countries in early 2009, it was launched in Vietnam just the day before the Impact Conference and some of us from EEPSEA were interviewed about it by Hanoi's top radio and TV station. The map had also been launched in Cambodia earlier in September 2009. It continues to be a topic of interest and relevance at various conferences and forums we have attended. One might say that the map has put EEPSEA on the map of climate change work in the region!

On the topic of climate change, I am proud to further announce the completion of a five-country research project on adaptation behavior by households, communities and local governments in response to extreme climate events. The results are expected to be particularly useful to policy-makers and others involved in development work. In the coming year, we plan to build capacity in the areas of vulnerability assessment and the economics of adaptation through an action-research program that will involve four country teams of researchers and government planners. This is our humble contribution to the far-reaching and serious global problem of climate change.

During the past year, we continued to provide the well-proven package of EEPSEA support to build research capacity and support decision-making on environmental issues in the region. We conducted several training courses and meetings, improved our collaboration with other institutions in the region, broadened our outreach, and churned out many important publications. One of our books, *"The Economics of Environmental Management in Vietnam"*, featuring 10 EEPSEA studies in Vietnam, was officially launched during the Impact Conference in Hanoi and presented to the Deputy Director General of the Ministry of Education and Training and the Director General of the Institute of Strategy and Policy on Natural Resources and Environment.

We are grateful for the continuing and valuable support of our long-serving resource persons: Wiktor Adamowicz, Nancy Olewiler, David James, Ted Horbulyk, Dale Whittington, and Benoit Laplante. We also sincerely thank our Advisory Committee members for their guidance: Dr. Vo Tong Xuan; Ms Monemany Nhoyhouakong; Dr. Zhang Shiqui; Ms Bebeth Gozun, and Dr. Wiktor Adamowicz. We are ever appreciative of our generous donors; IDRC, Sida, and CIDA, for their continuing confidence in and support to us. Last but not least, a big thank you to all our researchers for their hard work and perseverance, and to our Senior Economists and staff for their unfailing dedication.

Together, let us continue to build EEPSEA as a valued contributor in developing sound solutions to critical environmental challenges in the region through relevant and reliable research.



Herminia Francisco

1.0 Regional Research Awards

Regional research awards are one of the main grant activities of EEPSEA. For 2009-2010, EEPSEA approved 22 research projects under the regional competition (Table 1). The research topics varied widely with the majority of the proposals focusing on pollution and climate change issues. The other issues covered were terrestrial biodiversity conservation, forest fires, and fishery and water management.

Table 1. List of research projects approved from July 2009-June 2010

Researcher/ Country	Research Title
1. Wu Dan, China	Economic Analysis for Multi-pollutant Control in China's Coal-fired Electricity Plants
2. Phouphet Kyophilavong, Lao PDR	Trade Liberalization, Poverty and the Pollution: Evidence from Lao PDR
3. Nathaniel Bantayan, Philippines	To Burn or Not To Burn: An Analysis of Alternative Management Regimes for the Chocolate Hills of Bohol
4. Sem Sopheak, Cambodia	The Analysis of the Dynamics of the Preay Lick Teak Degradation in Preay Koh Biodiversity Conservation Area, Tonle Sap Biosphere Reserve, Kompong Chnang Province, Cambodia
5. Jamil Francisco, Philippines	Public Attitudes and Willingness to Pay for Cleaner Public Transport in Metro Manila, Philippines
6. Pham Khanh Nam, Vietnam	Behavioural Aspects of Adaptation to Climate Change: A Quantitative Analysis from the Mekong River Delta, Vietnam
7. Haitao Yin, China	Public and Private Insurance Partnership for Enhancing Household and Community Adaptive Capacity in Dealing with Climate Change in China
8. Rosalina P Tan, Philippines	Designing a Raw Water Fee Scheme for Groundwater Abstraction in Cagayan de Oro: Transaction Costs and Social Capital
9. Huynh Viet Khai, Vietnam	Cost of Industrial Water Pollution on Rice Production in Vietnam
10. Vin Spoann, Cambodia	Why Connected Households Are Not Connected to Urban Water Supply? Evidence from Siem Reap Municipality
11. Nguyen Van Kien, Vietnam	Social Capital, Livelihood Diversifications, and Household's Resilience to Annual Flood Events in the Vietnamese

Researcher/ Country	Research Title
	Mekong River Delta
12. Kunlayanee Pornpinatepong, Thailand	The Response of Fishermen to Fishing Effort Control Policies in Southern Songkhla Lake, Thailand : A Field Experiment
13. Mao Xianqiang, China	The Way to CO2 Emission Reduction and the Co-Benefits of Local Air Pollution Control and Energy Saving in China's Transportation Sector - A Policy and Economic Analysis
14. Wei Geng, China	Clean Development Mechanism in China: Firm Decision and Project Assessment
15. Le Ha Thanh, Vietnam	Greening Leather Tanning Industry in Vietnam
16. Siriluk Chiarakorn, Thailand	Financial and Economic Viability of Bioplastic Production in Thailand
17. Lin Ligu, China	Determinants of Effective Environmental Regulations : Evidence from China
18. Bounmy Inthakesone, Lao PDR	Climate Variability Impact on Rice Production in Lao PDR and Farmers' Adaptive Behaviour
19. Vibol San, Cambodia	Identification of Reduced Emission from Degradation and Deforestation (REDD) Mechanism Potential and Variation in Woodfuel Demand in the Chamriey Mountain Area, Cambodia
20. Nguyen Viet Cuong, Vietnam	Linkage Between Drinking Water and Poverty: Evidence from Vietnam
21. Malabou Bailatry, Lao PDR	Identification of Cost benefit Analysis (CBA) of Ecotourism in Xe Plan National Protected Area (NPA): A Case Study of the Xe Plan NPA, Champassak Province, Lao PDR
22. Jaruntorn Boonyanuphap, Thailand	Cost Benefit Analysis Rehabilitation Measure: A Case Study of the Mountainous Agricultural Area

2.0 Regional Training and Partnerships

EEPSEA conducts a 3-week regional course on environmental economics biennially. In addition, it also organizes or sponsors several workshops and courses each year which are relevant to the needs of researchers and policy-makers and to current environmental concerns in the region.

In the year 2009-2010, EEPSEA held its 9th Regional Short Course on Environmental Economics and conducted and sponsored four regional meetings in partnership with other organizations in Southeast Asia. Two of the latter were relevant to its work on climate change. By engaging with other partners, EEPSEA widens its role and outreach in strengthening local capacity in environmental economics research and policy-making in Southeast Asia.

2.1 9th Regional Training Course on Environmental Economics

EEPSEA held its 9th Regional Short Training Course on Environmental Economics from May 20-31, 2010, in Manila, Philippines. Twenty-one participants from the academe, government research agencies, and natural resource organizations attended. An additional 17 EEPSEA researchers attended the Econometrics part of the course.

This year's training was divided into three subject areas: Econometrics, Policy Analysis, and Cost-Benefit Analysis, which were taught by international experts Wiktor Adamowicz, Nancy Olewiler, and Benoit Laplante, respectively. These experts are long-standing EEPSEA resource persons.

Wiktor Adamowicz of the University of Alberta, also a member of the EEPSEA Advisory Committee, gave a brief review of the basic statistical and econometric concepts and definitions. He also introduced applicable concepts that the participants could use in environmental economics research. Through practical exercises, the participants learned how to analyze environmental datasets using econometric software. Canesio Predo, an EEPSEA alumnus, assisted Wiktor Adamowicz in conducting the Econometrics sessions.



Wiktor Adamowicz demonstrating the use of econometric software to course participants



Participants of the Econometrics part of the training course

Nancy Olewiler of Simon Fraser University taught the participants the art of research-based policy development, formulation, and implementation. She emphasized the importance of incorporating policy considerations and aims at the proposal stage of a research project. Group exercises gave the participants the opportunity to assess real world environmental problems and formulate practical policy recommendations.



Nancy Olewiler giving a lecture on Policy Analysis



Participants listening intently to Nancy Olewiler's lecture

Lastly, Benoit Laplante discussed the step-by-step procedure in undertaking a cost-benefit analysis (CBA). He used examples of actual development projects (e.g. dam construction) implemented in the region to demonstrate how to carry out a CBA and discussed the various valuation methods that researchers could use to incorporate values of the environment into such analysis. Dr. Laplante also explained “with” versus “without” analysis, the use of discounting and the choice of discount rates, and how to capture uncertainty in the CBA of projects.

2.2 EEPSEA Partners with Singapore Economic Review

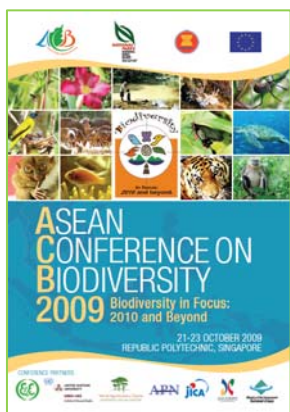
EEPSEA organized a session at the Singapore Economic Review's 3rd Biennial Conference held from 6 to 8 August, 2009, in Singapore. The session focused on environmental economics in Southeast Asia and featured four of its researchers. Rosalina Palanca-Tan presented the findings of her EEPSEA research project entitled “The Value of Life Estimates for Children in Metro Manila”. Pham Thai Hung and Ligu Lin gave talks on the following papers, respectively; “The Impact of Trade Liberalization on Industrial Pollution: Empirical Evidence from Vietnam”



(L-R) Pham Thai Hung, Ligu Lin, EEPSEA Director Herminia Francisco, Rosalina Tan, and EEPSEA Senior Economist, Arief Yusuf, at the Singapore Economic Review Biennial Conference

and “Pollution Taxation in China: The Impact of Inspections”. EEPSEA Senior Economist, Arief Anshory Yusuf, presented his EEPSEA research entitled “On the Distributional Effect of Carbon Tax in Developing Countries”.

2.3 EEPSEA and ACB Team Up at the ASEAN Conference on Biodiversity



Conference Poster

To draw attention to the economic benefits of biodiversity and the costs associated with biodiversity loss and ecosystem degradation in Southeast Asia, EEPSEA and the Association of Southeast Asian Nations (ASEAN) Centre for Biodiversity (ACB) jointly hosted a session on the economics of ecosystem biodiversity at the ASEAN Conference on Biodiversity held at the Republic Polytechnic in Singapore from 21 to 23 October, 2009. The session covered the importance of incorporating economic principles into efforts to conserve biodiversity and maintain ecosystem functions. It focused on the synergies between the various components of ecosystems and biodiversity, and highlighted the direct connection between ecosystem degradation, biodiversity loss and economic development.

Three EEPSEA researchers, Rodelio Subade of the Philippines, Nguyen Van Song of Vietnam, and Beria Leimona of Indonesia, presented their EEPSEA projects while Arief Anshory Yusuf, EEPSEA Senior Economist, presented the EEPSEA Climate Change Vulnerability Map at the session on climate change.



EEPSEA researchers Beria Leimona, Nguyen Van Song, and Rodelio Subade at the conference panel discussion

2.4 EEPSEA and SEARCA Organize Training on Climate Change

EEPSEA, together with the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) and the Southeast Asian Ministers of Education Organization Regional Training Center (SEAMEO RETRAC), conducted the 2nd International Training Course on Responding to Changing Climates from 9 to 11 November,



Training course participants at one of the lectures

2009, in Bangkok, Thailand. This year's focus was "Knowledge-based Strategies in Managing Risks in Agriculture and Environment". More than 20 government planners and technical staff involved in agriculture and rural development, natural resource management, and disaster and risk management at regional, national, and local levels, attended the course. EEPSEA sponsored the participation of eight participants as well as Canesio Predo, an EEPSEA alumnus, and Herminia Francisco, EEPSEA Director, as resource persons.

3.0 In-Country Activities

One of EEPSEA's continuing priorities is to encourage selected national institutions and EEPSEA alumni to play a stronger role in building local research capacity in environmental economics. Over the past three years, EEPSEA has begun to rely increasingly on its alumni pool to support its training and small research grant programs in Vietnam, Cambodia, and Lao PDR, by serving as resource people. This strategy of relying on local expertise will continue in the years to come and is part of the process of institutionalizing local efforts to build capacity in environmental economics research. The courses and other in-country activities initiated by EEPSEA are discussed below.

3.1 Lao PDR – Researchers' Training Course

In mid-2009, the first round of small research grants for Lao PDR researchers was completed. To continue its capacity-building program in environmental economics (EE) in the country, EEPSEA commenced its second round of its training initiatives there. It offered the Overview of Environmental Economics Course, which included lectures on Research Survey Design, from 30 June to 4 July, 2009.

The course was organized by the Water Resources and Environment Agency (WREA) and 25 participants from eight different agencies in Lao PDR attended. EEPSEA Senior Economist, Orapan Nabangchang, and EEPSEA Director, Herminia Francisco, delivered the lectures.

Ten participants were from six technical departments of WREA. Nine participants came from three units of the National University of Laos (NUOL): the Faculty of Economics and Business Management, the Faculty of Forestry, and the Center of Economics & Development Studies. The National Agriculture and Forestry Research Institute (NAFRI) sent three participants and the rest were from the National Economic Research Institute (NERI), Ministry of Planning and Investment (MPI), and National Politics and Administration (NAPA). The broad mix of participants is expected to facilitate the policy impact of EEPSEA's work in the country.

Part of the training course was devoted to helping the participants refine their proposals for submission to the EEPSEA Regional Research Grant Competition. Eight proposals were presented, mostly from NUOL participants. EEPSEA will continue its capacity-building initiatives in Lao PDR to expand the number of proposals from it.



Training course participants during the closing ceremony of the Lao PDR Researchers' Training Course

3.2 Thailand and Lao PDR – Teachers' Training Course

Due to cultural similarities and spatial proximity, EEPSEA held a joint Thailand-Lao PDR Teachers' Training Course on Environmental Economics from 11 to 14 July, 2009, in Bangkok, Thailand. The training course was modeled on the 3-week teachers' course that EEPSEA had pioneered in Vietnam and later offered in the Philippines, China, and Indonesia.

For this course, six participants came from Lao PDR and 22 from Thailand. Majority of the participants were faculty members of regional and provincial universities who were unable to participate in the biennial EEPSEA regional training activities, largely because of their limited command of English and/or limited exposure to environmental economics. Lao PDR was represented by lecturers from the National University of Laos, Champasak University, and Souphanouvong University. Thailand, on the other hand, was represented by faculty members from the Prince Songkla University, Naresuan University, Mahidol University, Mahasarakham University, Wailalak University, King Mongkut's University of Technology, Khon Kaen University, Kasetsart University, Ubonrachathane University, Mah Fah Luang University, Dhurakij Pundit University, and Sripatum University.



EEPSEA Senior Economist, Orapan Nabangchang, at one of the lecture sessions of the Teachers' Training Course in Bangkok

The course resource persons consisted of Thai EEPSEA researchers and alumni namely, Varaporn Punyawadee (Maejo University), Rawadee Jarungrattanapong (Thailand Land Policy Institute), Areeya Manasboonphempool (Kasetsart University), Adis Israngkul Na Ayudhaya, and Udomsak Seenprachawong (Thailand National Institute of Development Administration). In addition, EEPSEA

Senior Economist, Orapan Nabangchang, and EEPSEA Director, Herminia Francisco, also gave lectures on Forestry Economics and the Economics of Climate Change Adaptation. The Centre for Natural Resources and Environmental Economics Studies, Sukhothai Thammathirat Open University, the institution that received the training grant, organized the course.

To encourage the participants to apply the tools they learned in the course, Dr. Francisco gave the trainees the chance to present concept proposals. A total of 15 proposals emerged, nine of which showed good potential to be developed into research projects.

3.3 Cambodia – Teachers’ Training Course

The Cambodia Teachers’ Training Course on Environmental Economics was held at the Royal University of Phnom Penh (RUPP) from 15 to 17 July, 2009. Chhinh Nyda, a current recipient of an EEPSEA research grant, was responsible for organizing it. Asa Sajise and Ma. Angeles Catelo, EEPSEA alumni from the University of the Philippines Los Banos, served as the resource persons.

There were 28 participants from eight universities and colleges in Cambodia. The universities and colleges represented were the Royal University of Phnom Penh, Royal University of Agriculture, University of Battambang, Prek Leap National School of Agriculture, Build Bright University, Pannasastra University, Norton University, and Cambodia Mekong University. Three additional participants came from two NGOs; the Environment and Agriculture Development organization, and the Culture and Environment Protection Association.



A researcher presenting and sharing his proposal to the other participants

A total of six research proposals was presented. The resource persons gave insightful comments on how these could be improved and expanded for submission to EEPSEA’s Regional Research Grant Competition. At the end of the training, the participants requested EEPSEA to organize a follow-up course to help them better understand all the concepts and tools.

4.0 Bi-Annual Workshops

EEPSEA's biannual workshops (in May and November) are the focal points of its work program. They bring together all active researchers, including PhD thesis students and new proposal applicants, as well as resource persons and other eminent personalities in the field. The Advisory Committee joins the November workshop every year. The four-day workshop generally involves 50-60 people and includes individual consultations between researchers and their advisors, concurrent working groups in which research reports and proposals are presented, and plenary sessions with talks by international experts.

4.1 32nd Bi-Annual Workshop – November 2009

Seventy Southeast Asian researchers, resource persons, and guests gathered in Hanoi, Vietnam, from 16 to 19 November, 2009, to mark the 32nd EEPSEA Biannual Workshop. The event featured plenary sessions on climate change, payments for ecosystem services, and behavioral economics.



Tran Van Hoa speaking about the economic trade implications of measuring CO₂ emissions in Vietnam

Tran Van Hoa of Victoria University in Australia discussed the economic trade implications of measuring carbon dioxide emissions in Vietnam. He presented a framework for Vietnam and the possibility of replicating the same approach in other Southeast Asian countries to mitigate climate change. Complementing this presentation was Andrea Cattaneo of Woods Hole Research Center in Massachusetts, USA, who presented on policy mechanisms for reducing emissions from deforestation and degradation (REDD).

Andrea Cattaneo explained how the stock-flow REDD mechanism could be used to raise funds and at the same time help mitigate the impacts of climate change. He gave an overview of the Open Source Impacts of REDD Incentives Spreadsheet (OSIRIS) that was currently being used in South America to assist in the implementation of REDD mechanisms in the region.



Andrea Cattaneo explaining the concepts and benefits of REDD

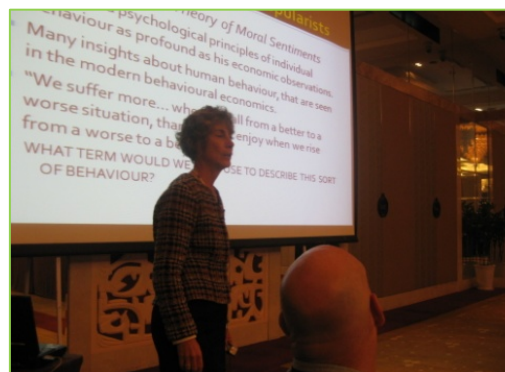


Robert Hearne sharing about his research in Costa Rica

A Visiting Fulbright Fellow at Kasetsart University and Associate Professor at North Dakota State University, Robert Hearne, shared about his research project in Costa Rica which assessed public preferences for biodiversity and scenic beauty in the context of environmental services payment schemes. He explained that using contingent choice modeling, the project was able to value willingness to pay (WTP) for nature conservation in remote areas and scenic beauty in accessible areas, and found a higher WTP for the former.

Nancy Olewiler of Simon Fraser University, an EEPSEA resource person of long standing, gave a presentation on the role of behavioral economics in economic analysis and policy prescriptions. She encouraged EEPSEA researchers to continue including the concepts of behavioral economics in their research work and in influencing policy.

Nancy Olewiler talking about the role of behavioral economics in economic analysis and policy prescriptions



In the course of the workshop, EEPSEA researchers also made presentations on the progress of their projects. In addition, they had one-on-one meetings with their EEPSEA-designated advisors. The climate change cross-country research group held a special meeting to discuss the progress of the project and to identify the next steps forward.



Theodore Horbulyk having a one-on-one meeting with EEPSEA researcher, Cao Jing, from China



EEPSEA Senior Economist, Orapan Nabangchang, and plenary speaker, Robert Hearne, discussing a proposal with an EEPSEA grantee

4.2 33rd Bi-Annual Workshop – May 2010

EEPSEA held its 33rd Biannual Workshop in Manila, Philippines, from 25 to 27 May, 2010, with 60 participants. The workshop featured four plenary sessions on community forestry and poverty, mangrove ecosystem services, disaster risk reduction, and the economics of climate change adaptation.

Thomas Enters from the Centre for People and Forests (RECOFTC) presented on the role of environmental economists in the area of community forestry and poverty. He provided empirical evidence to show that while community forests generated income, this did not necessarily translate into poverty alleviation for the communities. In this context, he put forward the idea that concepts like Reducing Emissions from Deforestation and Degradation (REDD) and payments for ecosystem services (PES) could be instrumental in rendering community forestry policies more relevant to poverty reduction. He emphasized that the principles and approaches of both REDD and PES could help shift the focus from 'forest products' to 'environmental services' in determining the benefits of forestry resources. In this respect, environmental economists could make valuable contribution in the areas of resource valuation and the analysis of costs and benefits as well as distributional impacts.



Thomas Enters discussing the possible benefits that can be derived from REDD and PES schemes



Jeffrey Vincent explaining how his team used VSL to estimate the damages resulting from the Indian Ocean tsunami of 2004

Jeffrey Vincent, a Professor from Duke University, Fellow of Beijer Institute of Ecological Economics, and Fellow of the South Asian Network for Development and Environmental Economics (SANDEE), gave a presentation on “Ecosystem Services versus Human Action: Mangroves and Storm Protection in India”. He said that although there was interest in ecosystem services, there had been limited economic analysis of these until the major losses of Katrina and the Indian Ocean tsunami took place.

He shared on the storm protection services of mangroves as observed in two phases of a study he had conducted with Saudamini Das of the University of Delhi. Their main finding was that mangroves could reduce the damage from storms and therefore, should be a key storm protection measure along with early warning systems. The session was highly interactive and the participants had the chance to discuss with Prof. Vincent the data used in his analysis and the use of proxy and instrumental variables.

Rajib Shaw of the Graduate School of Global Environmental Studies in Kyoto University discussed the evolution of the concept of Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) where there had been a notable shift towards a greater involvement of local government and communities, increasing focus on multi-disciplinary and multi-stakeholder approaches as well as a moving trend from



Rajib Shaw explaining the evolution of disaster risk reduction and climate change adaptation concepts

technology to implementation. On the Climate and Disaster Resilience Initiative (CDRI), he presented the framework of analysis and results of initiatives undertaken at regional, country, and city levels. The presentation ended with information on the Asian University Network of Environment and Disaster Management (AUEDM) and how EEPSEA researchers could play an active role in this network.

Benoit Laplante, a long-standing resource person with EEPSEA, spoke on the "The Economics of Adaptation to Extreme Weather Events in Developing Countries". He gave an overview of the occurrences and frequencies of different types of disasters from the 1960s onwards. He showed that while Asia's percentage distribution of extreme weather events was not as high as other continents, it was by far the most impacted region. He noted that countries that experienced less negative impacts were those with



Benoit Laplante discussing the different factors that affected climate change adaptation

a high literacy rate, high per capita income, and higher levels of education, showing the important role that education played in adaptation to climate change.

Based on the results of the econometric analysis, Dr. Laplante concluded that building climate resilience would require considerable resources at national as well as sectoral and local levels. He also noted that designing adaptation strategies needed to take into account the fact that resilience would change over time as income and educational levels changed. He pointed out that while some resources would continue to be targeted for capital (infrastructural) investments, female education could contribute significantly to the building of climate change resilience in the region. The presentation stimulated active discussion on the econometric analysis, the interpretation of the results, and the policy implications.

Similar to other biannual workshops, the 33rd Biannual gave the researchers the opportunity to share with other EEPSEA researchers their research work at various stages of completion. The participants also met one-on-one with their assigned EEPSEA advisors.

EEPSEA Senior Economist, Bui Dung The, in his one-on-one session with EEPSEA researcher, Vo Thanh Danh, at the 33rd Biannual Workshop



5.0 Publications Program

EEPSEA has always been cognizant of the fact that in order for it to contribute effectively to the field of environmental economics, the publication of research reports, technical documents, and policy briefs is a must. It has, therefore, made its research findings and results available in various formats. These publications are available electronically as well as in the form of hard copies.

5.1 Research Reports

- For 2009-2010, EEPSEA published 12 research reports. As reported in the previous annual report, these reports are readily available at the “Eldis Gateway to Development Information”, an online information archive and news service financed by Sida and other donors.

- *2009-RR1: Sea Level Rise in South Kalimantan, Indonesia—An Economic Analysis of Adaptation Strategies in Agriculture*, by Akhmad R. Saïdy and Yusuf Aziz

In Indonesia, there is considerable concern about the impact sea level rise will have on large areas of reclaimed coastal swampland in South Kalimantan; land which is already experiencing freshwater salination due to sea water intrusion. To help decide what the best response to this unfolding crisis is, this study looked at different strategies that the government could take. One of these was building dikes, and the other, relocating farmers to new agricultural areas inland. The study found that building dikes to protect farmlands was the more cost-effective option.



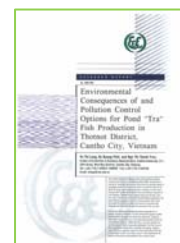
- *2009-RR2: Economic Vulnerability and Possible Adaptation to Coastal Erosion in San Fernando City, Philippines*, by Jaimie Kim E. Bayani, Moises Dorado, and Rowena Dorado



This study investigated the problem of erosion in San Fernando Bay in the province of La Union in the Philippines. It looked at approximately seven kilometers of the bay's coastline which was vulnerable to erosion and found that, if nothing is done, the problem would cause millions of pesos worth of damage. It also found that a planned protection strategy was the most rational approach to adopt. Such a strategy was socially and politically acceptable, justifiable from an economic perspective, and would preserve the area's beaches along with the social services they provided.

- *2009-RR3: Environmental Consequences of and Pollution Control Options for "Tra" Fish Production in Thotnot District, Cantho City, Vietnam*, by Vo Thi Lang et al.

Aquaculture is a thriving industry in Vietnam and Tra fish is the most popular catfish species bred in the country, which has become an important export item. However, catfish farming is causing wastewater pollution which has a negative impact on surrounding local communities that rely on river water as their main water source. The study assessed a number of treatment options that could bring such pollution down to acceptable levels and declared that a trickling-filter system was the most cost-effective option. However, such a system would cost farmers more than they currently paid to discharge their polluted wastewater. The study therefore recommends a number of policy options that would encourage fish farmers to reduce the amount of pollution they discharge and help them meet the necessary clean-up costs.



- *2009-RR4: Pollution Control Options for Handicraft Villages: The Case of Duong Lieu Village in the Red River Delta, Vietnam, by Nguyen Mau Dung*

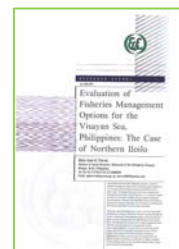
Processing agricultural products is one of the most important ‘handicraft’ activities in Vietnam’s Red River Delta. It provides jobs, improves household incomes, and helps alleviate poverty in the area. However, it also generates a huge amount of harmful waste. This study assessed the cost-effectiveness of various pollution control options in a village where 95% of the households were engaged in cassava starch processing. It found that this activity was a significant source of pollution which was seriously



affecting the health of the people and state of the local rivers. The study recommends that a wastewater treatment plant for the whole village be set up; that wastewater fees be collected from households engaged in agro-product processing activities; that the sewerage system in the village be improved; that households be involved in environmental clean-up work; and that steps be taken to encourage cleaner production technologies in the agro-product processing industry.

- *2009-RR5: Evaluation of Fisheries Management Options for the Visayan Sea, Philippines: The Case of Northern Iloilo, by Alice Joan G. Ferrer*

This study investigated a number of potential management options that could help protect biodiversity in the Visayan Sea which is under serious threat, and enable the fishing communities there to earn a better living. It found that the best way forward would be to use a combination of management options, including declaring the area as a marine protected one and implementing various fishing bans. The study also recommends that a single management body be set up to oversee the implementation of this multi-pronged approach.



- *2009-RR6: Cost-Effectiveness of Policy Options for Sustainable Wetland Conservation: A Case Study of Qixinghe Wetland, China, by Wu Jian, Wang Xiaoxia, Niu Kunyu, and Li Shushan*



This study sought to assess the best way to reduce the conflict between wetland water needs and off-site water use. Its aim was to help policy-makers decide how best to balance economic development with wetland conservation. The study recommends that the local government reconstruct the irrigation system in the area surrounding the Qixinghe Wetland. At the same time, training on water-saving practices should be promoted amongst farmers.

- *2009-RR7: Cost-Effectiveness Analysis of Ground-Level Ozone Control in and Around Beijing*, by Xie Xuxuan and Wu Dan

Ground-level ozone pollution is one of the most significant air pollution problems in big cities in China. This study assessed a number of policy options that could help reduce such pollution in Beijing. It found that the installation of oil gas recovery systems in Beijing's 1,446 gasoline stations would be the most cost-effective option. It also found that options to reduce ozone pollution by cutting vehicular emissions were much more cost-effective than options to "clean-up" coal-fired plants. The study further highlighted that cost-effective pollution control could be achieved by, for example, better practices when refuelling vehicles. The results of this research are expected to help decision-makers control ozone pollution in more cost-effective ways.



- *2009-RR8: Assessing the Impacts of Environmental Regulations on the Food Processing Industry in Vietnam*, by Le Ha Thanh



This study assessed the effectiveness of Decree 67, one of the country's key 'polluter-pays' environmental laws. It found that although the legislation had been successful in raising environmental awareness among businesses, it was less successful at stopping pollution. The decree had minimal impact and was poorly implemented. The study showed that companies had adequate knowledge of environmental protection but did not consider environmental protection a top priority. Environmental costs were not being fully internalized by businesses. One recommendation made was to reduce the scope of the legislation to make it easier to implement.

- *2009-RR9: An Assessment of Forest Management Options for Preventing Forest Fires in Indonesia*, by Luthfi Fatah and Udi Udiansyah

This study examined the root causes of forest fires in Indonesia and assessed a range of potential policy options to improve the situation. It found that the weak enforcement of forest conservation rules and regulations was the main problem and that this was caused by a range of resource utilization and institutional failures. It proposes three key policy improvements that would address the forest fires problem in a cost effective way: strengthening policy implementation in the field, putting in place an effective reward and punishment system, and establishing an institution to monitor and record stakeholder compliance and violation. The study further recommends a number of steps to make sure that these are implemented effectively such as ensuring that parliament supports and finances the policies and empowering local communities to help weed out corruption and bribery.



- *2009-RR10: Designing a Procurement Auction for Reducing Sedimentation: A Field Experiment in Indonesia*, by Beria Leimona, Brooke Kelsey Jack, Betha Lusiana and Rachman Pasha



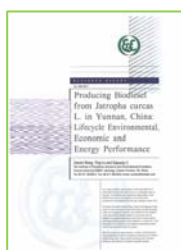
This study tested the application of a procurement auction method to reveal hidden information on the opportunity costs of supplying environmental services. The results showed that a sealed-bid, multiple round, second-price Vickrey auction with a uniform price should be applied where most of the auction participants had a low education level, low asset endowment, and small-sized plots; and where market-based competitiveness was not common. It revealed that farmers' bids in conservation contracts were more dependent on their learning processes during the auction rather than observable factors such as their socio-economic background, awareness of conservation, and social capital state. Finally, the study showed that introducing procurement auctions to rural communities as a market-based approach would not harm their social relationships and was an applicable method in a rural setting.

- *2009-RR11: Social Connections, Networks, and Social Capital Erosion: Evidence from Surveys and Field Experiments*, by Yazhen Gong

This study measured trust, a cognitive social capital that can significantly influence cooperation among individuals and groups in taking collective action for joint benefits. It aimed to understand the determinants of social capital with specific focus on the effect of bonding social capital and bridging social capital. The results showed that education level positively and significantly predicted behavior towards environmental concerns.



- *2009-RR12: Producing Biodiesel from *Jatropha curcas* L. in Yunnan, China: Lifecycle Environmental, Economic and Energy Performance*, by Zanzin Wang, Ying Lu and Siguang Li



This study showed that given current technology levels and management practices, the production of *Jatropha curcas* L. (JCL) biodiesel was not economically feasible. However, it also found that JCL biodiesel had excellent performance from both environmental and energy production perspectives and that, if JCL seed yields could be improved, then biodiesel production would be economically feasible. With this in mind, the report suggests a number of initiatives to make JCL biodiesel an effective part of China's overall energy policy. These include providing grants and other types of funding to optimise the JCL biodiesel production process.

5.2 Technical Reports

Technical reports relate to research that is either too academic and/or technical for general circulation. These are generally short-term studies on specific topics (e.g. case studies) or those that are already published as part of EEPSEA's special publications (like books). EEPSEA produced ten technical reports last year (listed below). Two focused on climate change.



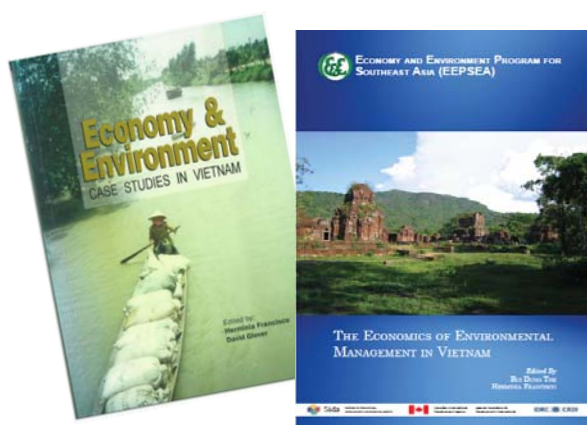
- *Community-Based Mapping of the Rice Terraces Inscribed in the UNESCO World Heritage List*, by Margaret Calderon, Nathaniel Bantayan, Josefina Dizon, Asa Sajise, and Myranel Salvador
- *Evaluating the Economic Potential and Feasibility of Producing Bioenergy from Under-utilized Crops in Sri Lanka*, by Prabodh Illukpitiya
- *Land Use Planning and Land Allocation in the Uplands of Northern Laos: Process Evaluation and Impacts*, by Khamphay Manivong and Phouthone Sophathilath
- *An Assessment of Paper Mill Wastewater Impacts and Treatment Options in Vientiane Capital City, Lao P.D.R.*, by Kaisorn Thanthathep, Phousavanh Douangphila, and Somphone Khamphanh
- *Valuing Environmental Services Using the Contingent Valuation Method* by Duangmany Luangmany, Souphandone Voravong, Kaisorn Kaisorn Thanthathep, Daovinh Souphonphacdy, and Malabou Baylatry
- *Adaptation Strategies to Address Coastal Erosion/Flooding: A Case Study of the Communities in Bang Khun Thian District, Bangkok, Thailand*, by Rawadee Jarungrattanapong and Areeya Manasboonphempool
- *Willingness to Pay for the Preservation of Lo Go - Xa Mat National Park in Vietnam*, by Dang Le Hoa and Nguyen Thi Y Ly
- *Water Use Conflicts and their Impact on Rice Yields in Takeo Province, Cambodia*, by Thun Vathana, Suon Vanny, Khiev Daravy, and Ros Bandeth
- *Perceptions of Best Management Practices in Thai Citrus Farms and the Development of an Agri-Environmental Policy: A Case Study in the Ping River Basin, Thailand*, by Wimolpat Bumbudsanpharoke

- *Early Warning Systems for Storm Management in the Coastal Commune of Hai An, Central Vietnam: The Role of Information and Local Institutions*, by Hoang Trieu Huy

5.3 Books and Journals

Despite the advancements in electronic publishing, EEPSEA continues to believe in the importance of printing books/journals as reference materials for researchers in developing countries. As such, it supported the publication of books in China and Vietnam as well as a book and a journal in the Philippines.

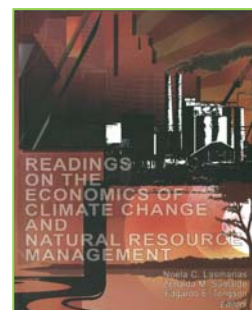
In 2009, EEPSEA partnered with Peking University and the Veolia Environment Institute to publish the proceedings of the International Conference on Trade, Urbanization, and Environment which was held from 28 to 30 October, 2009, in China. EEPSEA believes that the issues discussed in the conference among government officials, scientists, multi-lateral agencies, and civil society organizations towards reconciling the twin needs of environmental protection and economic development will be beneficial to researchers in the region.



Recognizing the growing interest in environmental economics (EE) in Vietnam, EEPSEA published its second book of case studies in Vietnam entitled “*The Economics of Environmental Management in Vietnam*” to encourage local researchers to engage in more EE research. This book features ten EEPSEA studies in Vietnam on various topics such as the economics of soil erosion, the economic analysis of pollution control

options, and the valuation of environmental quality improvement. At its official launching ceremony in Hanoi in February 2010, the book was presented by EEPSEA Director, Herminia Francisco, to Nguyen Van Tai, Director General of the Institute of Strategy and Policy on Natural Resources and Environment, and Le Trong Hung, Deputy Director General of the Ministry of Education and Training. Copies of the book have also been sent to the various universities in Vietnam.

EEPSEA provided the Resources and Environmental Economics Foundation of the Philippines (REAP) with financial support to publish the book entitled “*Readings on the Economics of Climate Change and Natural Resource Management*”. The book contains selected papers presented in past REAP meetings which focus on climate change, coastal resources management, and land allocation issues. It features some EEPSEA-funded studies on how



communities cope with, adapt to, and mitigate climate change impacts. This is the second book by REAP that EEPSEA has sponsored.

EEPSEA also supported the publication of a supplementary issue of *Danyag*, a Humanities and Social Sciences Journal of the University of the Philippines in the Visayas. This supplementary issue covered five case studies on the impacts of the oil spill incident at the Semirara Island in Antique Philippines—four of these studies had been funded by EEPSEA. The articles featured in this journal provide a basis for estimating damage and compensation values as well as the costs of cleaning up the oil spill and rehabilitating the coastal ecosystem. Rodelio Subade, an EEPSEA alumnus, serves as the Executive Editor of *Danyag*.



5.4 Policy Briefs

In order to reach out to policy-makers and natural resource managers, EEPSEA regularly publishes a four-page policy brief of its research reports. In 2009-2010, the following policy briefs were produced:



- Is Biodiesel an Effective Environmental Solution? A Case Study from China, by Zanzin Wang, Ying Lu, and Siguang Li
- Fighting Forest Fires — An Assessment of Policy Options in Indonesia, by Luthfi Fatah and Udi Udiansyah
- Making Polluter Pay Legislation Work — A Study of Vietnam's Decree 67, by Le Ha Thanh
- Battling Beijing's Ozone Crisis — Options for Action, by Xie Xuxuan and Wu Dan
- Securing Water for Wetland Conservation in China — An Assessment of Policy Options, by Wu Jian, Wang Xiaoxia, Niu Kunyu, and Li Shushan
- Saving Fishers and Fish — An Assessment of Fishery Management Options for the Visayan Sea in the Philippines, by Alice Joan G. Ferrer
- Helping Handicraft Villages Clean Up — An Assessment of Pollution Control Options in Vietnam, by Nguyen Mau Dung
- Fish Farm Pollution — A Study of Clean-up Options in Vietnam, by Vo Thi Lang et al.

- Responding to Sea Level Rise — A Study of Options to Combat Coastal Erosion in The Philippines, by Jaimie Kim E. Bayani, Moises Dorado, and Rowena Dorado
- Protect or Retreat — How Should Kalimantan Deal with Rising Sea Levels Caused by Climate Change? by Akhmad Saidy and Azis Yusuf

6.0 Impact and Outreach

Since its inception, EEPSEA has consistently worked to disseminate the research results of its researchers as widely as possible and make them useful to policy-makers and natural resource managers. The positive impact of EEPSEA activities and research studies in terms of facilitating sound decision-making and action on environmental issues and helping to bring about beneficial behavioral shifts in society is EEPSEA's success yardstick. EEPSEA seeks to make every activity it organizes one that is meaningful, relevant, and useful to the beneficiaries of such initiatives.

In the third quarter of 2010, EEPSEA will publish its Impact Report covering the period from 2000 to 2009. This report will showcase the significant impacts of the studies that EEPSEA has funded and the notable career growth of the researchers it has supported and trained.

6.1 Policy Impact and Influence

EEPSEA researchers, trainees, and alumni have managed to influence policy and promote change in the region through their research work and expertise. Some of the most significant impacts for 2009-2010 are discussed below.

6.1.1 Thailand Connects Micro-Hydro Electric Plants to Main Grid

The 1997 project of Sitanon Jesdapipat and Siriporn Kiratikarnkul investigated why at a time when governments sought to increase renewable energy sources, micro-hydro power plants in Thailand were beginning to shut down. The researchers discovered that the output of the latter had become unreliable due to deforestation. They recommended that the plants be modified to connect to the main grid, allowing local villagers the option of buying electricity from the grid. Such a scheme would take advantage of the existing renewable energy supply as well as the reliability of the provincial energy authority.

The Thai government has since laid the groundwork for the commercialization of micro-hydro plants by exploring ways of connecting them to the national grid and then including the plants in a net metering scheme that allows community plants to buy and sell energy to the grid. In 2007, it budgeted 150 million baht over three years to commercialize the plants.

6.1.2 Cagayan De Oro to Implement Raw Water Fee Scheme

The city of Cagayan de Oro in the Philippines depends entirely on groundwater for its potable water supply. A combination of factors namely, the growing population, rapid industrialization, and artificially low water prices has however led to an alarming decline in groundwater levels. Rosalina Palanca-Tan studied the extent of the problem and proposed measures to save the water supply. Using the contingent valuation method, Tan discovered that more than half of the businesses operating private and unregulated wells in the area supported the regulation of groundwater usage.

Tan proposed that the city government implement an annual auction of groundwater extraction permits. The supply of these permits would be determined based on the replacement rate of the groundwater supply, thus ensuring that water scarcity would be reflected in higher prices. The permits would also be tradable, enabling businesses that conserved water to benefit from selling excess supply. The soundness, simplicity, and flexibility of the proposed strategy gained the full support of the Mayor of Cagayan de Oro. At a multi-sector forum with government agencies, business representatives, academia, research institutions, media, and NGOs, the Mayor called upon City Council members to begin the implementation of a raw water fee scheme.

6.1.3 Research Helps Protect Forest Tree Species in Sri Lanka

In Sri Lanka, the existing permit system, meant to discourage deforestation, was instead driving users to illegal logging and inhibiting investment in sustainable forest plantations. Herath Gunatilake explored optimal policy combinations to address the problem. Using environmental economic tools in his 2002 study, he suggested several measures to the government. Following his discussions with government agencies, permits for several tree species were eliminated in 2003.

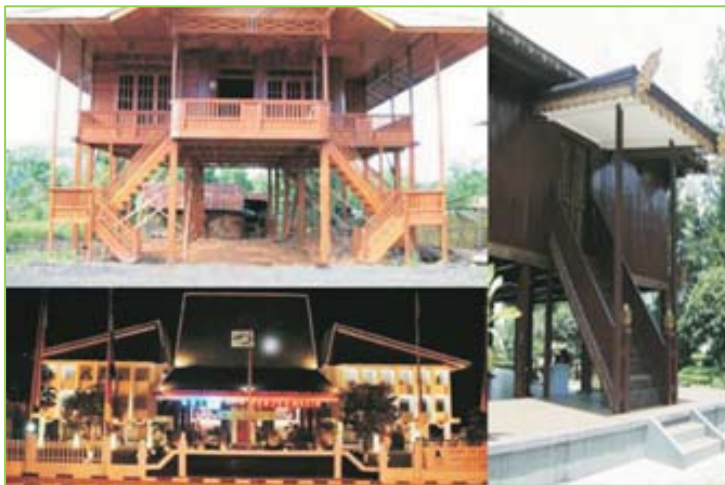
6.1.4 Crop Insurance Scheme Extended in China

When China initially implemented a low-premium crop insurance scheme to support its farmers, studies emerged suggesting that the scheme led to increased use of environmentally damaging chemicals. Funing Zhong implemented a research project on this and found that the protection against disasters provided by the scheme actually made it less worthwhile financially to use chemicals. In other words, crop insurance was more likely to reduce chemical use than lead to its increase.

Zhong presented the findings of his study to the Chinese Ministry of Agriculture and the Organisation for Economic Cooperation and Development (OECD) at an international conference. Following this, the crop insurance scheme was extended nationwide. His work has been published in several journals as well as in a book which received an award from the Chinese Ministry of Education.

6.1.5 New Building Code Formulated in South Kalimantan

In 2009, Akhmad Saidy and Yusuf Azis employed geographic models to determine the extent to which different communities would be affected by sea level rise in South Kalimantan, Indonesia. They used the findings, along with information from household surveys and local communities, to compare various adaptation strategies. The study recommended a new building regulation for one of South Kalimantan's most threatened cities, Banjarmasin City, requiring that buildings in the administrative areas of the city use staging house construction to limit the potential loss of lives and property due to floods. This recommendation was taken up by the government as well as another to improve the dykes in reclaimed land.



Staging house construction in South Kalimantan, Indonesia

6.1.6 Restoring Productivity to Saline-Affected Fields in Sri Lanka

In 1999, Selliah Thiruchelvam got funding from EEPSEA to conduct a study of the problem of soil salinity in the Mahaweli river system in Sri Lanka. After the 2004 Indian Ocean tsunami, soil salinity problems arose in many coastal areas in Sri Lanka. To address this problem, the Sri Lankan government turned to Selliah Thiruchelvam because of the study he had conducted. Thiruchelvam used his expertise to work with farmers to fix their salinity problems and restore productivity to salt-polluted fields affected by the tsunami. The recommendations of his study regarding drainage and irrigation practices have also been widely distributed to farmers and water management experts in the country.

6.1.7 Cambodia Imposes Discharge Limits on Industry

Sideth Muong carried out an EEPSEA research project on industrial pollution in Cambodia, choosing the textile industry due to its large scale and high levels of pollution. He compared different levy schemes with the industry's costs for pollution reduction and proposed the introduction of a pollution levy/tax and other controls. As a result of the study, the Cambodian Ministry of the Environment took the first step of imposing limits on discharges by industries.

6.1.8 EEPSEA's Climate Change Vulnerability Map Study Used in Developing ASEAN Framework on Climate Change and Food Security

In 2009, the Association of Southeast Asian Nations (ASEAN) Secretariat developed an integrated framework to facilitate ASEAN's proactive response to the global threats of climate change and food insecurity. In the presentation of the framework held in Singapore, the four main references used in developing the framework were cited. One of these was the EEPSEA Climate Change Vulnerability Map. The ASEAN Secretariat had used the results of the mapping exercise to identify the regions in Southeast Asia that were most sensitive to climate change impacts. The map was also used as a springboard to develop adaptation and mitigation strategies for improved food security through sustainable, efficient, and effective use of land, water, forest and aquatic resources by minimising the risks and impacts of and contributions to climate change.

6.2 Mass Media Mileage

For the last 16 years, EEPSEA has been on the radar of the mass media, with peaks in 1998-2000 and 2009. These peaks were associated with two major events. The first was linked to the haze pollution study that EEPSEA undertook in response to the 1997 forest fires and haze caused by forest burning in Indonesia, which badly affected neighbouring countries. The second was related to the climate change vulnerability report that EEPSEA and IDRC-ASRO produced in 2009. In the last few years, EEPSEA's researchers, trainees, and alumni have been receiving more exposure in the mass media due to their research studies. This section highlights some of the media impacts over the past year.

6.2.1 Philippines' Gold Star Daily Highlights Tan's Groundwater Study

The *Gold Star Daily*, the longest running daily newspaper in Cagayan de Oro City and the Northern Mindanao region, referred to Rosalina Palanca-Tan's study when it featured the endorsement of the study's recommendations by a multi-sectoral forum on watershed protection, on how to prevent further depletion of the city's groundwater resources.



Rosalina Palanca-Tan during the multi-sectoral forum in Cagayan de Oro City

The article cited the endorsement of the Cagayan de Oro City Mayor, Constantino Jaraula, and the Cagayan de Oro City Water District (COWD) Board of Directors of Tan's proposal. Joel Baldelovar, Chairman of COWD's Board, said the Board supported Tan's proposal for annual groundwater extraction permits to be issued while stressing the need for a specific program for the protection of the watershed and details on how to implement a pricing mechanism for the system of monitoring and permits.

"We should not legislate further laws such as imposing taxes on groundwater when existing laws covering the abstraction of groundwater are apparently violated with impunity."

- Joel Baldelovar,
Chairman of the
Cagayan de Oro City
Water District Board
of Directors,
Philippines

6.2.2 EEPSEA's Climate Change Vulnerability Map Makes Media Waves in Hanoi

Following the Climate Change Vulnerability Map Launch in Vietnam on 25 February 2010, the top news outfit in Hanoi, "Hanoi Radio and Television", allocated a news slot for EEPSEA researchers on 27 and 28 February to talk about the vulnerability map. They interviewed EEPSEA Director, Herminia Francisco, together with Vietnam-based researchers, Phong Tran and Tran Huu Tuan, who emphasized the urgency of addressing the impacts of climate change with a concerted effort by individuals, households, and the government. This is one of the reasons why EEPSEA had assessed adaptation behavior towards extreme climate events in Hanoi and Hue, Vietnam. During the same period, other local newspapers also showed interest in the vulnerability map.

Climate change hot spots are mapped out

By Binh Chau

A climate change vulnerability map was launched last week, showing climate change hot spots across Vietnam.

This study, conducted by Canada's International Development Research Centre's (IDRC) Economy and Environment Programme for South East Asia (EEPSEA), identifies the provinces most vulnerable to climate change in Vietnam from an assessment of more than 50 provinces nationwide.

According to the study, eight out of the 10 most vulnerable provinces in Vietnam are located in the Mekong River Delta. They are Dong Thap, Vinh Long, Can Tho, Tra Vinh, Soc Trang, An

Giang, Tien Giang and Ben Tre. These provinces face the greatest risks to rising sea levels and flooding. Some of them, such as Dong Thap, Can Tho and Vinh Long, have already experienced frequent floods.

The two remaining vulnerable provinces are Lai Chau and Thai Binh, located in northern Vietnam. Lai Chau in particular is highly exposed to drought and mildly exposed to landslides. It is also the province with the least adaptive capacity among the 10 named. Vietnam's 10 most vulnerable provinces are among the top 25 per cent of the most vulnerable areas in South East Asia.

"The map will help local governments and people better understand how vulnerable they are and what they should do to protect themselves,"

said Dr. Herminia Francisco, director of EEPSEA, who also said that the map would help Vietnamese decision-makers allocate adaptation resources in a proper manner.

The study is part of a larger study of climate change vulnerability in 592 sub-national provinces or districts in Vietnam, Laos, Cambodia, Thailand, Malaysia, the Philippines and Indonesia.

Francisco said that in the next step, EEPSEA planned to update the map by taking account of new information and refining it by using different assumptions and scenarios. EEPSEA also proposed to help selected local governments apply some of the study's recommendations to their own situations.

A local article on the climate vulnerability map, written by journalist Binh Chau in Hanoi

6.3 Members' Accomplishments and Career Developments

EEPSEA's research and training initiatives have produced a remarkable number of alumni who have made important contributions to the field of environmental economics in the region and beyond. These members continue to grow in their respective fields of expertise. In the past year, significant achievements and/or career developments were made by the following EEPSEA alumni. More on EEPSEA members' accomplishments and career advancements will be featured in the EEPSEA Impact Report for 2000-2009.



In May 2010, **Bien Nguyen Nghia**, was appointed as the Director of the Department of Planning and Finance under Vietnam's General Director of Forestry. The Department is responsible for sectoral planning and projection, and the management of financial resources related to the forestry sector, forest inventory, and forest information.

In October 2009, **Xuxuan Xie** started his research fellowship at the University of Cambridge's Department of Land Economy. His dissertation is on ozone pollution control in China.

Thanakvaro Thyl de Lopez is now a researcher with the Risoe Centre at the University of Denmark where he works on the implementation of climate change and development projects in Africa and Asia.



Antonia Corinthia Naz now teaches Quantitative Methods for Policy Analysis and Ethics, and Accountability in the Public Service, at the National College of Public Administration and Governance at the University of the Philippines in Diliman. She uses EEPSEA materials in her courses which are attended mostly by senior government officials and staff of congressmen and senators.

Esmyra Javier now serves as the Operations Coordinator of the Future Carbon Fund of the Asian Development Bank.

Vinh Ky Quang was appointed by the local government of Can Tho City in Vietnam as the Director of the City's Center for Natural Resources and Environment Monitor.

Son Nguyen Phu is now the Vice-Head of the Department of Socio-economics and Policy at the Mekong Delta Development Research Institute of Can Tho University in Vietnam.

Gaguk Yuliyanto now serves as a System Analyst and Senior Researcher at the Transportation Department of the Republic of Indonesia and the University of Ibnu Khaldun, respectively.

6.4 Journals and Special Publications

EEPSEA takes pride that the reports of the research studies it supports get published in international and peer-reviewed journals. In 2009-2010, EEPSEA-funded studies were included in various international journals and special publications as cited below.

Herath Gunatilake and Chennat Gopalakrishnan. 2010. Technical Efficiency of Sawmilling and the Conservation of Natural Forests: Evidence from Sri Lanka. *Journal of Natural Resources Policy Research*. 2 (2): 149-169.

Wimolpat Bumbudsanpharoke, Dominic Moran, and Clare Hall. 2010. Exploring Perspectives of Environmental Best Management Practices in Thai Agriculture: An Application of Q-methodology. *Environmental Conservation*. 36:225-234.



Yazhen Gong, Gary Bull, and Kathy Baylis. 2010. Participation in the World's First Clean Development Mechanism Forest Project: The Role of Property Rights, Social Capital, and Contractual Rules. *Ecological Economics*. 69 (6): 1292-1302.

Tran Huu Tuan and Stale Navrud. 2009. Applying the Dissonance-Minimising Format to Value Cultural Heritage in Developing Countries. *The Australian Journal of Agricultural and Resource Economics*. 53 (3): 327-343.

Budy Resosudarmo and Arief Yusuf. 2009. Survey of Recent Developments. *Bulletin of Indonesian Economic Studies*. 45 (3): 287-315.

6.5 Conference Presentations

EEPSEA researchers are actively involved in sharing the results of their research at regional and international conferences and forums. In 2009-2010, the following EEPSEA researchers spoke at and/or presented their EEPSEA-funded work at various conferences. The conference participation of most of these researchers was funded by EEPSEA.

- The Fourth World Congress of Environmental and Resource Economists, a joint initiative of the European Association of Environmental and Resource Economists (EAERE) and the Association of Environmental and Resource Economists (AERE), was held in Montreal from 28 June to 2 July, 2010, on the campus of the Université du Québec à Montréal (UQAM).

Five papers from EEPSEA-funded research projects were accepted for the congress. Pham Khanh Nam, an EEPSEA researcher from Vietnam, presented his paper entitled “Funding a New Bridge in Rural Vietnam: Conditional Cooperation and Default Contributions”. Two researchers from Thailand, Kunlayanee Pornpinatepong and Kanittha Tambunlertchai, presented their papers on sustainable fisheries and environmental management standards, respectively. Meanwhile, Ligu Lin from China shared on his study on the enforcement of pollution levies in China and Rodol Subade presented his study on the valuation of the protection of bio-diverse resources in Panay Island in the Philippines.

The researchers of the said projects reported receiving good comments on their papers, which will be helpful to them in developing their papers for journal submissions in the near future. They also expressed their appreciation to EEPSEA and IDRC for supporting the costs of their travel to attend the conference.

EEPSEA Director, Herminia Francisco, and Senior Economist, Orapan Nabangchang, joined the five EEPSEA researchers at the Congress. In addition to attending conference paper presentations, Drs. Francisco and Nabangchang also participated in a meeting with other environmental economics network officials from South Asia, Latin America, Europe, and Africa. They further attended the IDRC launch of the book entitled “*Valuing the Environment*” which is a summary of IDRC’s 17 years of work on and support towards environmental economics research in developing regions.



Participants from different IDRC-supported networks at the 4th World Congress of Environmental and Resource Economists

- EEPSEA Senior Economist, Orapan Nabangchang, served as a resource person at the South Asian Network for Development and Environmental Economics (SANDEE) Environmental Economics Training Course in Bangkok, Thailand, from 3 to 20 May, 2010.
- EEPSEA Director, Herminia Francisco, presented a talk on Climate Change Science and Vulnerability at the ASEAN+3 Youth Environment Forum from 22 to 25 April, 2010, at Bandar Seri Begawan, Brunei Darussalam. She gave an overview of the science of climate change, highlighting the arguments raised by climate change skeptics, and presented the findings of the vulnerability assessment that EEPSEA had conducted. She highlighted the role that youths could play in supporting climate change initiatives in the region, emphasizing how they could inspire the world through their creativity.
- EEPSEA Senior Economist, Orapan Nabangchang, delivered three lectures at the Third Executive Forest Policy Short Course on Enhancing Forest Policy in the Greater Mekong Sub-region, in Bangkok, Thailand, from 9 to 11 March, 2010.
- Four EEPSEA researchers joined 350 people from 54 different countries at the 1st International Conference on Environmental Pollution, Restoration, and Management that took place in Ho Chi Minh City, Vietnam, from 1 to 5 March, 2010. The conference theme was on the improvement of environmental quality in the developing world. EEPSEA Senior Economist from Vietnam, Bui Dung The, led the team of EEPSEA researchers, namely, Nguyen Van Song, Zenaida Sumalde, and Corinthia Naz. He introduced EEPSEA during the conference plenary session and subsequently presented his EEPSEA research work on PES in Vietnam. Zenaida Sumalde and Corinthia Naz presented their research projects on aquaculture and solid waste pollution while Nguyen Van Song shared the results of two of his EEPSEA projects in Vietnam, one related to energy and the other to illegal wildlife.
- EEPSEA Senior Economist, Orapan Nabangchang, participated in a workshop hosted by Thailand's Land Research Centre on Payment for Environmental Services and Community Titles in Bangkok, Thailand, on 1 February, 2010.
- EEPSEA Director, Herminia Francisco, attended the technical experts meeting on the impacts of climate change in Southeast Asia entitled "Starving Tigers? Regional Climate Change Scenarios for the 21st Century and Implications for Singapore" in Singapore from 26-27 January, 2010.
- EEPSEA Director, Herminia Francisco, presented EEPSEA's Climate Change Vulnerability Map at the 2009 East Asian Seas Congress in Manila, Philippines, held from 23–27 November, 2009.

- EEPSEA Senior Economist, Orapan Nabangchang, delivered a presentation at the 5th National Conference of Economists organized by the National Institute of Development Administration (NIDA) in Bangkok, Thailand on 16 October, 2009. Her presentation was entitled “Private Contributions Towards the Provision of Public Goods: The Conservation of Thailand’s Endangered Species”.
- The Singapore Institute of International Affairs (SIIA) and the Institute of Strategic and International Studies (ISIS), Malaysia, hosted the 3rd Dialogue on Trans-boundary Haze Pollution from 4–6 October, 2009, in Kuala Lumpur, Malaysia. The dialogue sought to sustain an existing platform for discussing the haze amongst various sectors including experts and non-governmental organizations in the region. In this dialogue, EEPSEA Director, Herminia Francisco, joined a panel of experts to discuss the haze as a regional and global issue. The discussion highlighted the need to assess the health impacts of the haze in the region. As a result, EEPSEA announced a call for proposals related to the health impacts of haze pollution.
- EEPSEA Senior Economist, Bui Dung The, presented EEPSEA activities in Vietnam at the Vietnam Environmental Economists Association Meeting held in Hanoi on 26 September, 2009.
- EEPSEA Senior Economist, Orapan Nabangchang, participated in the ISDR-ESCAP Consultation Meeting on Coastal and Climate Change Hazards, held in Bangkok, Thailand on 17–18 September, 2009.
- At the Lee Kuan Yew School of Public Policy, National University of Singapore, EEPSEA Director, Herminia Francisco, made a presentation on “Climate Change Impacts in Southeast Asia: What Maps and Case Studies Show” on 17 September, 2009.

Herminia Francisco talking about EEPSEA’s climate change vulnerability map at the National University of Singapore



- On 11 September 2009, EEPSEA Director, Herminia Francisco, was present at the Climate Change Vulnerability Map Launch in Phnom Penh, Cambodia. More than 140 participants from various government and non-governmental organizations in the country attended the event.

Herminia Francisco explaining the relevance of the climate change vulnerability map in Phnom Penh



- From 3–4 September, 2009, EEPSEA Director, Herminia Francisco, together with five former and current EEPSEA alumni, engaged policy-makers in a two-day information exchange session in Vientiane. EEPSEA Senior Economist, Orapan Nabangchang, shared about her work with EEPSEA and how her research results were used to develop policies in Thailand. EEPSEA alumnus, Vu Thanh Phuong of Vietnam, shared on his team's experience in implementing payments for ecosystem services in Vietnam. Dolora Nepomuceno from the Philippines talked about her agency's findings on the use of an environmental user fee system while Adis Israngkura of Thailand and Mohd. Shahwahid of Malaysia shared on their research studies in the areas of mining valuation and land use change.
- EEPSEA Senior Economist from Indonesia, Arief Anshory Yusuf, presented on "Climate Change Vulnerability Mapping for Southeast Asia" at the Climate Insecurities, Human Security, and Social Resilience Conference held in Singapore from 26–28 August, 2009.
- Herminia Francisco gave a talk on the Climate Change Vulnerability Map by EEPSEA at the 4th Annual Meeting of the Resources and Environmental Economics Foundation of the Philippines (REAP) from 9–10 July 2009.

6.6 Course Development

Some of EEPSEA's researchers have applied what they learned from EEPSEA training courses in their teaching jobs. While at the Visayas State University, Canesio Predo developed two new courses: Introduction to Natural Resource Economics and Cost-Benefit Analysis. EEPSEA publications served as key reference materials for these two courses.

7.0 Special Feature – EEPSEA Impact Conference 2010

EEPSEA is now in its 16th year of capacity-building in the field of environmental and natural resource economics research in Southeast Asia. Over the years, EEPSEA has given out more than 250 research grants and offered 50 training courses to more than 700 individuals. What has been the impact of all this? This question was answered at the EEPSEA Impact Conference 2010 where past and current EEPSEA researchers and training alumni shared how their work with EEPSEA had contributed positively towards addressing important environmental challenges in the region.

7.1 What was the EEPSEA Impact Conference?

The EEPSEA Impact Conference 2010 was a gathering of Southeast Asia's environmental economics researchers along with donors, policy-makers, and other

individuals working on environmental issues in the region. It was held in Hanoi, Vietnam, from 26-27 February, 2010.

The main objectives of the conference were to showcase the significant impacts of the research EEPSEA has funded and the notable achievements of the researchers it has supported and trained over the last 16 years, chart its direction for the future, and build a stronger alliance with other agents of change involved in environmental and natural resource management in Southeast Asia.

As an output of the Conference, an Impact Report for the period 2000-2009, a sequel to the 1993-1998 and 1993-2000 EEPSEA Impact Reports, will be produced.

7.2 Conference Highlights

About 70 EEPSEA researchers, resource persons, and policy-makers from all over Southeast Asia (including China) participated in this special conference. The participants presented 40 “impact stories” which will be featured in the EEPSEA Impact Report for 2000-2009.

Rohinton Medhora, IDRC Vice-President for Programs, gave the keynote address. He spoke on the issue of global governance taking climate change as the basis. He stressed that the configuration of countries in any climate change roundtable would depend on the questions at hand – *Who caused the problem? Who was best able to pay for it? and Who was most affected by it?* Next, he pointed out that more thought needed to be given to how to represent the views of excluded countries. He challenged EEPSEA researchers to capture these views in their analysis to guide negotiations on complex issues such as climate change.



Rohinton Medhora delivering his keynote address on global governance at the EEPSEA Impact Conference

Three prominent environmental economists also gave presentations at the conference. Myrick Freeman III of Bowdoin College spoke on the wealth of nature and valuing the services of natural capital. By using the findings of the US Environmental Protection Agency’s study on valuing the protection of ecological systems and services, he described the approach to measuring ecosystem values and how EEPSEA researchers could apply the methodology in their research work in Southeast Asia. He also discussed the treatment of uncertainties as well as the lessons EEPSEA researchers should remember when embarking on research of this nature.

Benoit Laplante, a long-standing EEPSEA resource person, discussed pollution control in Southeast Asia. He presented an assessment of the current state of pollution in the region as well as actions being taken to curb the problem. According to Dr. Laplante, the assessment of the impacts and effectiveness of economic instruments in addressing pollution was as important as their selection.

Ian Coxhead of the University of Wisconsin and a former EEPSEA resource person talked on development, trade, and environment. He discussed the connection between international integration and resource exploitation and presented the changes that the Asian market integration was bringing to the region. Focusing on forest and land use, he raised the possibilities of a “Chinasia” and a “Malindo”. Under Chinasia, he presented the comparative advantage of China and Indonesia in terms of development, trade, and environment. With Malindo, Coxhead emphasized the role that Malaysia and Indonesia could play together as two countries that specialized in palm oil production.

Another highlight of the Conference was the launch of a new book, which compiled all the important EEPSEA-supported research on environmental economics that had been



Nguyen Van Tai accepting the book “*The Economics of Environmental Management in Vietnam*” from Herminia Francisco at the book launch in Hanoi

carried out in Vietnam and which had influenced policy and education systems in the country. The book entitled “*The Economics of Environmental Management in Vietnam*” was proudly presented by EEPSEA Director, Herminia Francisco, to Nguyen Van Tai, Director General of the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE) and Le Trong Hung, Deputy Director General of the Ministry of Education and Training, Vietnam.

Richard Fuchs, the Regional Director of the IDRC Regional Office for Southeast and East Asia, gave the closing remarks. He was joined by David Glover, IDRC’s Program Leader on Environmental Economics; Jeffrey Elzinga of the Canadian International Development Agency (CIDA); and Renee Ankarfjard of the Swedish International Development Cooperation Agency (Sida).

The EEPSEA Impact Conference was held back to back with IDRC’s 40th anniversary celebration. One of the highlights of the celebration was the presentation of EEPSEA’s climate change vulnerability mapping report.



Participants of the EEPSEA Impact Conference 2010 in Hanoi

7.2.1 Impact Stories

EEPSEA “impact stories” were presented at the conference. They were classified into three categories of impact: a) enhancing community concerns on important environmental issues, contributing to policy debate, or leading to important environmental local legislation; b) supporting academic curriculum development in the field of environmental economics; and c) developing a pool of experts in environmental economics analysis and research.

For the first category, EEPSEA researchers and alumni from China, Thailand, Vietnam and the Philippines presented how their research findings had influenced community fisheries, wildlife conservation, and pollution reduction. In terms of impact in the academic arena, researchers who were faculty members at colleges and universities in Laos, Vietnam, and the Philippines shared how their relevant training from EEPSEA had enhanced their capacity to develop better environmental economics curricula in their own institutions and encourage students to take an interest in the environmental economics and environmental management fields.



Monemany Nhoibouakong speaking on the impacts of EEPSEA's initiatives in Lao PDR

The sharing of impact stories facilitated the dialogue between researchers and policy-makers on ways to further enhance the policy impact of research. An important message that the policy-makers gave to researchers was to engage the former at the onset of their projects and not wait until the end of the research study to meet with them. This would



ensure that the study was something that would be useful to them. Involving policy-makers as partners in research projects was preferred as opposed to treating them merely as end-users of research reports.

Policy-makers asking researchers to get them involved from the onset of the research process

7.2.2 Donors Ask

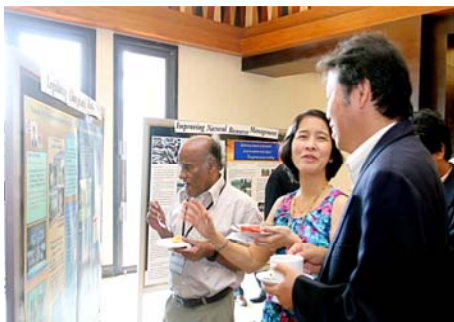
EEPSEA organized “Donors’ Ask” session to give policy makers, media representatives, researchers, and alumni an opportunity to assess EEPSEA’s place in the map of environmental economics in Southeast Asia as well as identify opportunities and challenges on how EEPSEA can effectively work together with them. The sessions divided into groups of policy makers and media representatives, resource persons and alumni, and active researchers, gave the participants the opportunity to chart the next direction for EEPSEA. The sessions generated information that validates EEPSEA’s importance in the environmental policy making field in the region. It also helped EEPSEA management and its donors to better understand the plight of researchers in the region and how together they can work together to further advance environmental economics research in Southeast Asia.

Together, the groups agree that climate change and pollution as well as biodiversity conservation are the major environmental problems that Southeast Asia is facing at present. With empirical evidence to support conservation initiatives, policy makers expressed their willingness to commit financial and technical resources. EEPSEA alumni reiterated the progress that EEPSEA has made in the region in the last 16 years. Despite the achievements that EEPSEA has made, the alumni believe that employing a more interdisciplinary approach to environmental economics maybe more useful in the years to come. It also has the potential to produce more robust results for policy makers. Further, the alumni and active researcher are hoping that EEPSEA will champion the creation of an institutionalized organization for environmental economist in the region similar to the AERE and the EAERE. By having this, the organization can develop a region-based peer-reviewed journal that will feature studies in Southeast Asia that employed environmental economic tools.

EEPSEA Impact Conference 2010: Opening Ceremony



EEPSEA Impact Conference 2010: Poster Presentations



EEPSEA Impact Conference 2010: *Sharing of Impact Stories*



EEPSEA Impact Conference 2010: *Alumni Networking*



8.0 Management

8.1 Secretariat

EEPSEA's management is composed of its Director, Herminia Francisco, and three Senior Economists: Orapan Nabangchang from Thailand, Bui Dung The from Vietnam, and Arief Anshory Yusuf from Indonesia. All three have been long-standing EEPSEA researchers. They continue to work from their home institutions, e-communicating with EEPSEA on a one-third-time basis.

Rusyan Jill Mamiit-Coburn continues as EEPSEA Research Officer and Catherine Ndiaye remains as Grant Assistant, with full-time assistance from Ang Cheng Hiang, Regional Program Assistant.

8.2 Sponsors Group

The Sponsors Group of participating donors sets policy, provides financial support, and approves the annual work program and budget. It comprises donors that contribute at least USD 100,000 per year. The current membership is listed below.

- International Development Research Centre (IDRC), Canada
– CAD 1,000,000/year
- Swedish International Development Cooperation Agency (Sida)
– CAD 490,500/year
- Canadian International Development Agency (CIDA)
– CAD 400,000/year

8.3 Advisory Committee

The Advisory Committee advises the Director on priorities for research and training and recommends the annual work program to the Sponsors Group. The Committee consists of senior scholars and policy-makers active in environmental management in Asia. The majority of the committee's members come from Asia. Each member has a three-year term, renewable once for Asian members. The Committee meets once a year in conjunction with the November Biannual Workshop.

The existing committee members are:

- Zhang Shiqui (Susan), Beijing University, China.
- Vo Tong Xuan, AnGiang University, Vietnam.
- Elizea Gozun, Former Secretary of the Department of Environment and Natural Resources, the Philippines.
- Monemany Nhoybouakong, Water Resources and Environment Administration, Lao PDR.
- Wiktor Adamowicz, University of Alberta, Canada.

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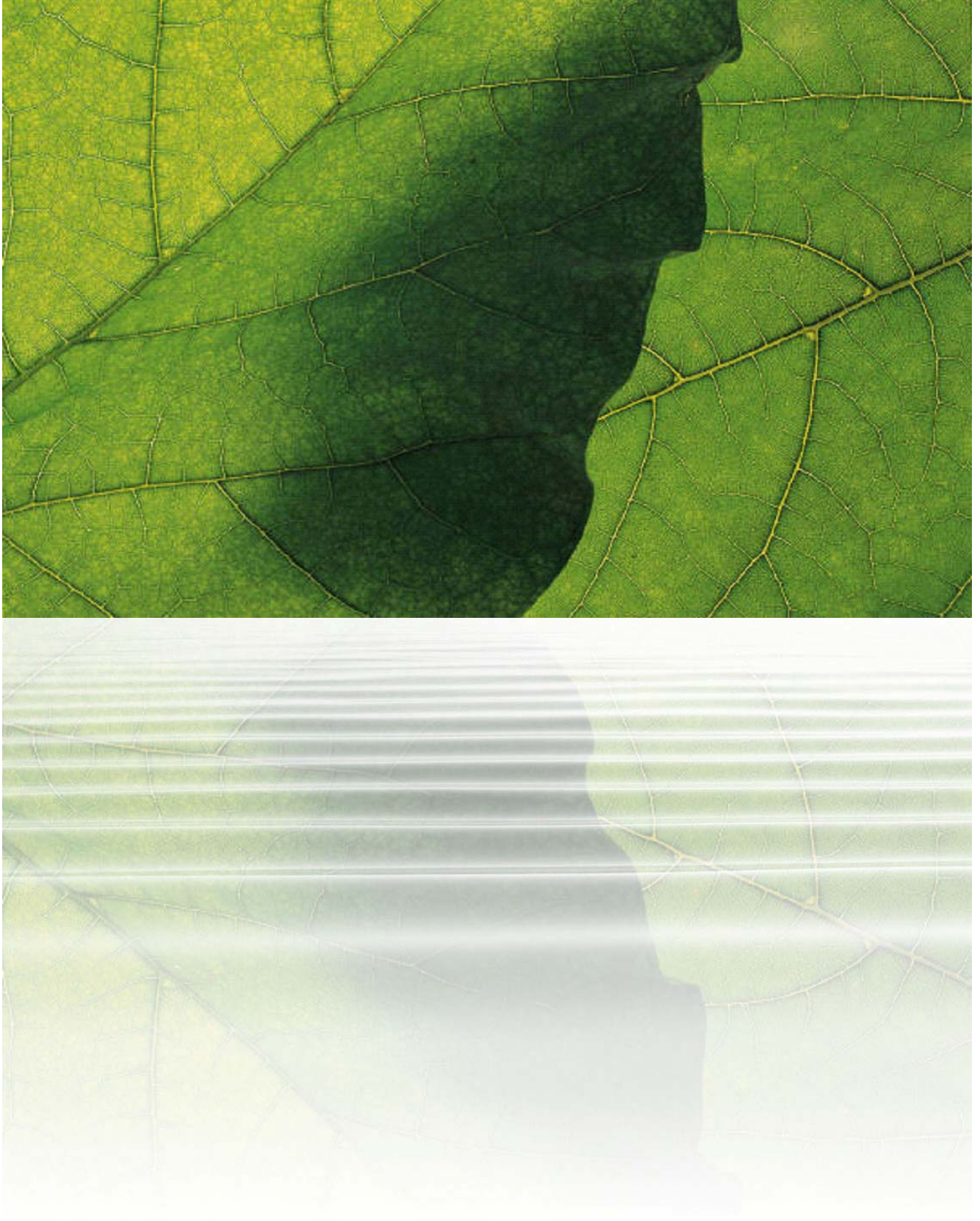
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