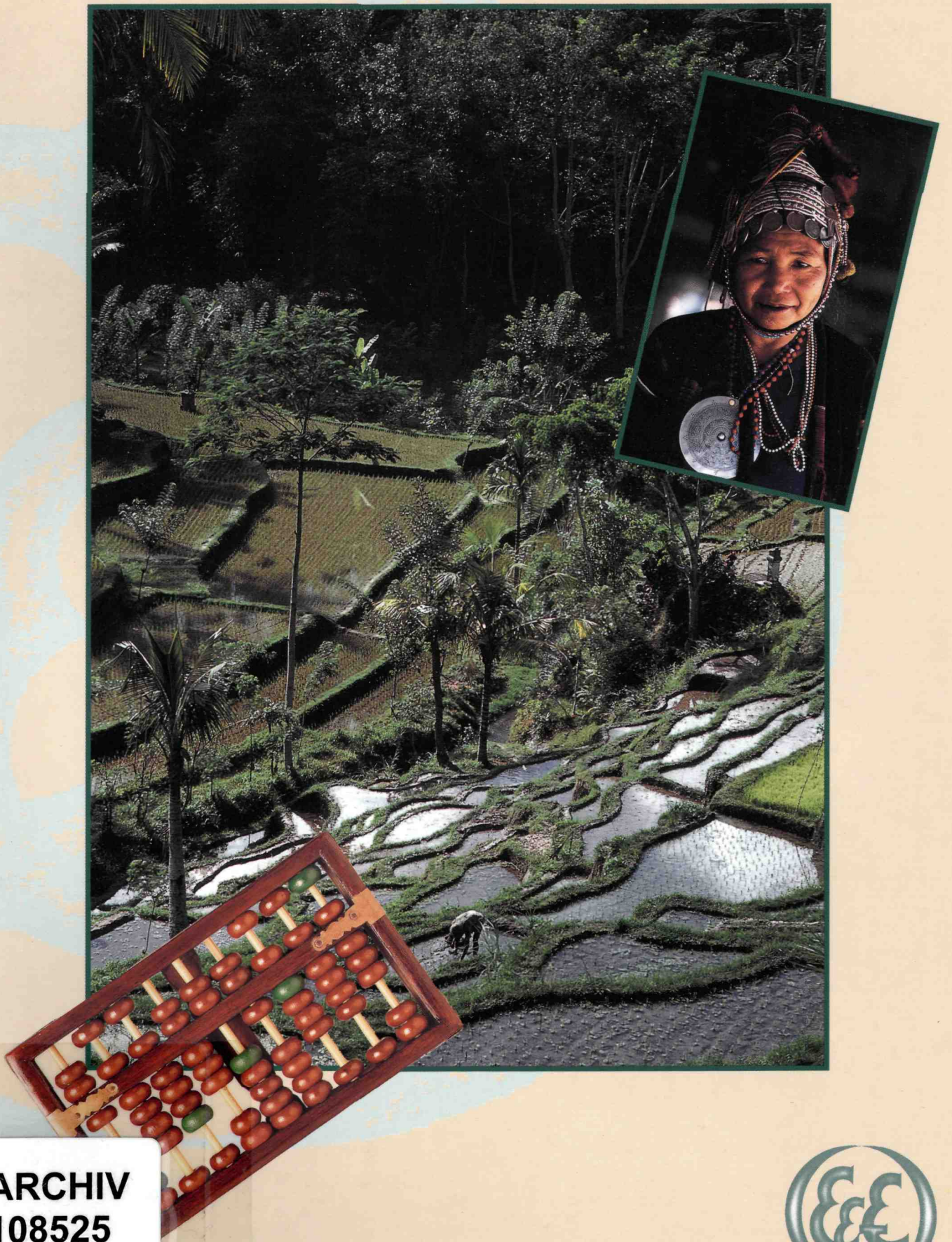
EEPSEA: 1993-1998

THE ECONOMY AND ENVIRONMENT PROGRAM FOR SOUTHEAST ASIA



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经济 Economy

Kapaligiran KINH TÉ

经济

Ekonomi

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Economy

经济 Ekonomiya

Environment

Alam Sekitar

Environment MÔI TRUONG 环境

环境

MÔI TRUONG

Alam Sekitar Environment

Cover:
The red abacus beads indicate 1993-1998. For a clue to the meaning of the green beads, see the chart on page seven.

环境 MÔI TRUONG

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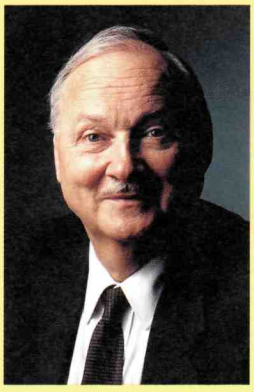

"As one of the first projects launched after the 1992 Earth Summit, EEPSEA has played an important role in integrating economic and environmental perspectives. The battle for sustainable development will be won or lost in Asia. EEPSEA's network of researchers, and the information they produce, are a tremendous resource for those engaged in that battle."

MAURICE STRONG, CHAIRMAN, EARTH COUNCIL

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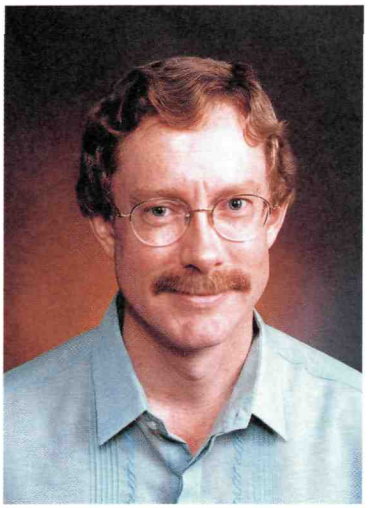
The Dollars and Sense of Environmental Protection



Dr. David Glover is EEPSEA's founding Director.

From 1984-1992 he was Director of the Economic Policy Program at the International Development Research Centre (IDRC) in Ottawa, Canada. There he helped to develop a number of multi-country research networks. These included the African Economic Research Consortium, the Peruvian Economic Research Consortium, and the Industrial Policy Network for Francophone Africa.

Dr. Glover holds a PhD. from the Department of Political Economy, University of Toronto. He has written or edited about 25 books and articles on the environment, agricultural policy and global trade.

Here he introduces the key ideas and concepts behind environmental economics and explains why they are so relevant to Southeast Asia.

Q: What is the thinking behind environmental economics?

DG: Environmental economists try to assess the economic importance of environmental problems, identify their causes and design economic incentives to solve them. They do this by extending conventional economic analysis into areas that have been neglected by economists in the past. These include the value of natural ecosystems and the cost of long-term environmental change.

Environmental economics has been a discipline for 40 years or more. But, it's only really since the Rio Earth Summit of 1992 (UNCED) that its importance has been fully recognized and interest in applying it to developing countries has grown.

Q: Why has it only recently gained a higher profile?

DG: It's taken time for the importance of environmental problems to be appreciated. It's also taken time for people to realize the limitations and high costs of conventional approaches to protecting the environment, in particular the use of command and control regulations. These costs are particularly important in developing countries where financial resources for environmental protection are limited and must be used effectively. People are now looking for alternative ways forward and it is clear that environmental economics has much to offer.

Q: How can environmental economics help protect the environment?

DG: Markets normally do a pretty good job of dealing with scarcity – as things become more scarce, their prices increase, people consume less of them and producers invest more in producing them. However, this doesn't happen when environmental goods become scarce, because few of them are bought or sold in markets. Many are also subject to misguided government policies that encourage environmental destruction, by, for example, subsidizing energy consumption, overfishing and deforestation.

Environmental economics can help us to recognize the economic cost and causes of environmental depletion and so help us to react correctly – by strengthening property rights (either private or community-based), applying corrective taxes and so on. Economics can also help us design environmental laws that incorporate workable economic incentives and that therefore have a good chance of affecting behavior.

Conversely, environmental economics can reveal the full environmental cost of human activity. By assessing such costs and incorporating them into the price of goods we can use market forces to bring about environmental protection: If we all had to pay the full environmental cost of our activities we'd soon learn to conserve resources and consume in less damaging ways.

Q: Can you give an example in Asia?

DG: Water pricing is the most obvious. Asia is facing water shortages almost everywhere and yet the prices governments charge for water are usually just a fraction of the cost of providing it. As shortages develop, large investments in new sources of supply are needed, entailing financial and environmental costs. By charging prices that fully cover costs, governments can encourage conservation and afford improvements in current delivery systems.

Q: What other pitfalls can this approach alert us to?

DG: Time and time again we have seen the results of incomplete economic analysis. Projects are approved because their narrow economic benefits appear to be positive but they then result in severe environmental damage. Many large dams have had this effect. If we could have valued those damages and included them in a more complete cost-benefit analysis then many such projects could have been avoided or re-designed.

Environmental economics can inform environmental action.

Q: Can Asia afford to protect its natural environment?

DG: It can't afford not to. Particularly in the region's developing countries, the environment is more than a source of recreation – it is the basis of the economy. Forests, fisheries, soil and water – these are essential resources and rural people depend upon them for their livelihoods.

The problems are easy to see: City dwellers are suffering serious health damages from unchecked pollution even though the resulting medical bills and lost productivity generally amount to more than it would cost to reduce the pollution. Inflows of foreign capital are discouraged when tourist sites become less attractive. Polluted water and traffic congestion raise the cost of doing business.

If we fail to recognize that we depend upon a healthy environment, we will simply descend into a vicious circle in which environmental degradation leads to poverty which leads to yet more exploitation of the environment. We need to establish a virtuous circle by re-investing some of the proceeds from economic development back into the environment, so creating a sustainable flow of benefits.

Q: Where can we see action?

DG: Singapore has used economic instruments very effectively to control traffic congestion and the resulting pollution. A high price is applied to permits for car ownership and the revenue is used to finance a first-class public transport system. The case studies in this report show how EEPSEA's work is starting to bring about further positive change.

Q: What role does business play?

DG: Private enterprise and the productive use of resources is the means by which wealth and prosperity are created. But it will be a short-lived prosperity and its benefits may not be distributed equitably if resource use is not well managed.

Business needs to be aware of the full costs of its activities and the benefits of improving its environmental performance. Are there ways to recycle waste products and re-use or sell them for profit? Can water, resources and energy be conserved thereby reducing costs?

Businesses that are eco-efficient find that they often improve their bottom line as well as preserving the environment they work in.

Q: What is the future of environmental economics in Asia?

DG: The basic concepts are being accepted, popularised and widely taught in universities throughout Southeast Asia.

Demand for these courses comes not just from economists, but from engineers, ecologists and environmental managers, who see environmental economics as a way to take their own insights a step further.

Tools such as environmental valuation are being tested and adapted to Asian circumstances. Countries like the Philippines have made resource pricing and the use of economic instruments a matter of government policy and are preparing to implement them. Over all, we can expect to see environmental economics play a much bigger role in shaping the development of Asia in a more sustainable and ultimately more profitable way.

OPINIONS

"Many people are questioning whether economic growth must be accompanied by environmental degradation. We are searching for policies that benefit both the economy and the environment, using resources carefully for the greatest long-term benefit. By providing the information and expertise needed to design such policies, EEPSEA is making a valuable contribution to sustainable development in Asia."

EMIL SALIM,
MINISTER OF STATE FOR THE ENVIRONMENT,
INDONESIA (1988-93)

Five Years of EEPSEA

'93

January to April: EEPSEA concept developed at IDRC and a two-year grant approved. Sweden and Denmark join IDRC in the Sponsors Group as founding Members.

Secretariat established in Singapore and Program launched in May.

Sixteen researchers sponsored by EEPSEA successfully complete a five-week course in Environmental Economics and Policy Analysis at the Harvard Institute for International Development (HIID).

Advisory Committee complete by August. Contacts established with regional and inter-governmental bodies such as APEC, ASEAN, UNEP and ESCAP.

EEPSEA Advisory Committee meets for the first time

in November to review and approve research proposals. Committee sets the program's long term research priorities and approves a first seven research proposals.

'94

EEPSEA significantly expands its range of training options and strengthens local courses in environmental economics in Vietnam, Thailand, Sri Lanka and the Philippines.

Two students sponsored for HIID course and two for a comparable course at the University of Goteborg in Sweden.

EEPSEA workshop in May approves 13 research proposals, bringing the stock of projects to 19, drawn from all EEPSEA countries except Cambodia and Laos.

EEPSEA research starts to have an impact – a report on clay mining in Sri Lanka influences the formation of government policy in the mining sector.

Fifty participants attend the EEPSEA 3rd biannual workshop. The event includes a teleconference with representatives of the World Bank in Washington, US.

EEPSEA starts research cooperation with the ASEAN Working Group on Environmental Economics (AWGEE).

'95

Training courses concentrate on in-country courses in Vietnam, Cambodia and Laos. Highlights of the work include a five-week course for university teachers in Ho Chi Minh City, Vietnam. Twenty-eight participants attend.

'Apprenticeship' programs set up in Vietnam and Cambodia. Researchers receive one-on-one guided assistance from expert resource persons.

Norwegian multinational provides EEPSEA's first grant from the private sector.

EEPSEA web site set up – includes information on training and research awards and full-text of EEPSEA publications (free of charge).

'96

EEPSEA featured in *Asian Wall Street Journal* and in a half-hour television documentary by Asia Business News, seen throughout Asia and Europe.

EEPSEA Director testifies before the British House of Commons Committee on Trade and the Environment on the role of market and policy failures in environmental degradation.

EEPSEA's key research themes are re-configured to cover Water Management, Health and Urban Pollution, Energy and Rural Resources as well as Forests and Mangroves.

EEPSEA Special Papers, commissioned for presentation at the biannual workshops, are used in training courses by organisations such as Wye College, UK and the Economic Development Institute of the World Bank.

Dr. Herminia Francisco joins EEPSEA as Deputy Director in May.

Several projects in Vietnam and the Philippines are undertaken at the behest of local governments. These projects provide advice on pollution charges, environ-

OPINIONS

"Overall, EEPSEA has met or exceeded most of the evaluation criteria and objectives set out... The program has also performed well relative to other relevant international capacity building initiatives... Furthermore, while the program has largely kept to its original objectives, sensible adjustments have been made along the way in the spirit of learning by doing. As a result, there is a strong consensus that the program has improved over time."

DR. MOHAN MUNASINGHE, DIVISION CHIEF FOR ENVIRONMENTAL ECONOMICS AND POLICY, WORLD BANK (1990-1995)

mental legislation and damage compensation.

More than 25 new courses in environmental economics now established by EEPSEA researchers in universities throughout the region.

Annual budget now CAD 2.250 million, provided by nine donors – up from CAD 500,000, provided by IDRC and SAREC in 1993.

Centrepiece of EEPSEA's training program – the five-week course in Los Banos, the Philippines, in Environmental and Resource Economics – launched in June. The course attracts 120 applications and is highly successful.

'97

Number of PhD. thesis awards granted increases sharply, including one for a researcher from Papua New Guinea. This is EEPSEA's first award in PNG – EEPSEA now active in all ten member countries.

EEPSEA's Research Reports Series is launched – six completed projects accepted for publication.

Completion of the Vietnam Small Grants Program. Some 25 researchers present the final results of seven projects at a workshop in Ho Chi Minh.

Fourteen research projects approved, bringing total since 1993 to 40.

At a Cambodian training and research workshop dealing with forestry policy, the country's Minister of Environment endorses an EEPSEA study's findings and calls for a moratorium on logging in the study area.

EEPSEA collaborates with the World Wide Fund for Nature on a study of the Economic Value of Damages from the 1997 Fires and Haze in Indonesia.

'98

Results of EEPSEA Fire and Haze study presented to 1998 meeting of ASEAN Environment Ministers as an input to the regional haze action plan. Findings are discussed by the UN General Assembly Committee on Humanitarian & Social Affairs. Over 100 media citations are reported world-wide.

EEPSEA-sponsored projects in Manila used to help draft contracts for the privatization of Manila's water supply services.

EEPSEA secures government funding for a training course in the Philippines – signaling the start of greater involvement by governments despite the region's economic troubles.

Philippine Association of Environmental and Resource Economists holds its inaugural meeting with EEPSEA support.

HIGHLIGHTS OF THE 1996 EVALUATION

In 1996, the Sponsors Group commissioned an external evaluation of EEPSEA's first three years of operation. It was carried out between March and October, 1996 by Dr. Mohan Munasinghe, former Chief of the Environmental Economics and Policy Division at the World Bank.

The evaluation was highly favorable. The report included results of a survey of EEPSEA researchers, resource persons and others. Some of the main findings were:

- The program "...met or exceeded most of the evaluation criteria..."
- The special programs for Indochina have been necessary and well-conceived.
- The participation rate of women is "remarkably high" (more than 50%).

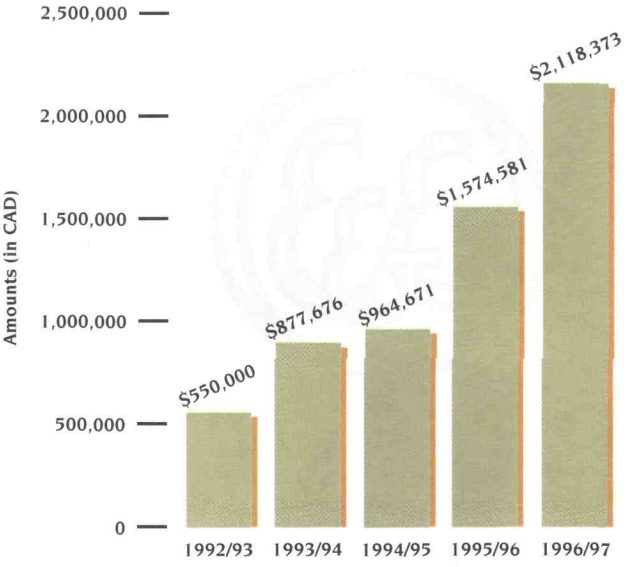
SURVEY RESULTS:

% of respondents rating performance good to very good (4 or 5 on a 1-5 scale):

- improved research skills: 76%
- improved interdisciplinary skills: 76%
- usefulness of workshops: 98%
- administrative efficiency: 88%

The full report is available from the EEPSEA Secretariat in Singapore.

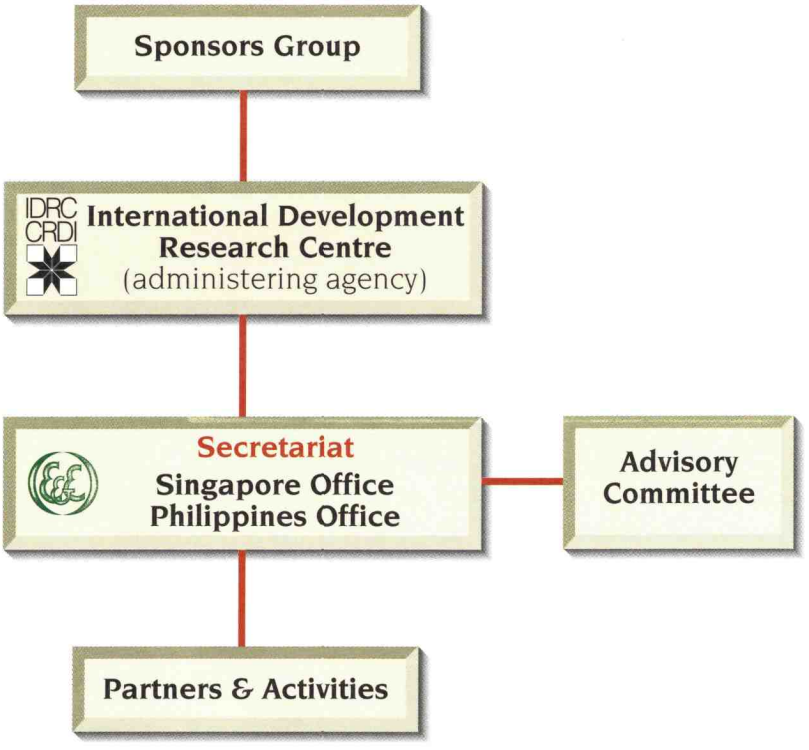
BUDGET GROWTH



The People at the Heart of the Organization

EEPSEA IS A LEAN AND EFFICIENT PROGRAM WITH A MINIMUM OF BUREAUCRACY. IT CONSISTS OF:

- a Sponsors Group, consisting of all donors contributing at least USD 100,000 per year. This group provides financial support, sets policy and approves the annual budget and program of work. The Group meets each May.
- The International Development Research Centre (IDRC) administers the program on behalf of the Sponsors Group. IDRC is a public corporation created by the Canadian government to help communities in the developing world find solutions to social, economic and environmental problems through research.
- an Advisory Committee made up of senior scholars and policy makers from the region plus international resource persons. It sets the program's priorities for research and training, and recommends the annual program of work to the Sponsors Group.
- a small Secretariat in Singapore and the Philippines, whose function is to administer the program and provide technical support to researchers. It has two professional staff, one full-time and one part-time.



OPINIONS

"EEPSEA has broken new ground in the world of environmental economics by encouraging and training the 'new blood' in Asia, and by issuing an increasingly impressive set of working documents and reports. All credit to EEPSEA's staff and advisors: this is a truly impressive performance."

DAVID PEARCE, CENTRE FOR SOCIAL AND ECONOMIC RESEARCH ON THE GLOBAL ENVIRONMENT, UNIVERSITY COLLEGE LONDON

Key Personnel

Dr. Vo-Tong Xuan

The Chairman of EEPSEA's Advisory Committee, Dr. Vo-Tong Xuan has been instrumental in transforming war-ravaged Vietnam from a rice importer into the 3rd largest exporter of rice in the world, all within one decade.

One of Vietnam's leading agricultural scientists, Dr. Xuan is Professor of Agronomy at the University of Cantho, Vietnam and a member of many key national and international agricultural programs, committees and advisory boards. His personal goal: 'to work on behalf of the Vietnamese farmer.'

The author of numerous books and scientific reports he has been honored many times. Recent awards include the Ramon Magsaysay Award for government service and the 'Chevalier de l'Ordre du Merite Agricole' medal awarded by the French Ministry of Agriculture, Fisheries and Forestry.

Dr. Ammar Siamwalla

Ex-Chairman of the Advisory Committee and President of the Thailand Development Research Institute from 1990 to 1995, Dr. Ammar Siamwalla, now holds the post of Distinguished Scholar at the Institute.

A PhD. in Economics from Harvard University, Dr. Siamwalla has worked extensively around the world on the economic analysis of many aspects of agricultural policy, trade and practice. The author of over 60 publications, Dr. Siamwalla is on the board of many key Thai economic and agricultural organizations, including the Economic Advisory Board of the Thailand Management Association. Among his many awards is that for Best Research Work in Economics from the National Research Council Thailand.

Dr. Herminia A. Francisco

Dr. Herminia Francisco has been EEPSEA's Deputy Director since 1996. She works with the Director in evaluating research projects. She also oversees regional training courses and co-ordinates the publication of the EEPSEA Research Report Series.

A PhD. in Agricultural Economics (Resource Economics), Dr. Francisco is Associate Professor at the Department of Economics, University of the Philippines, Los Banos.

Dr. Francisco is also on call as a consultant to the Department of Environmental and Natural Resources. Among her research interests is the socio-economics of upland agriculture.

The author of numerous publications on environmental economics, she has recently written on issues such as watershed resources and population growth.

Dr. Ponciano S. Intal, Jr.

Ex-Chairman of the Advisory Committee, Dr. Intal is President of the Philippine Institute for Development Studies (PIDS). Here he leads the Institute in its mission to assist the Filipino government in planning and policy making for social and economic development. Prior to PIDS he was Deputy Director of the Philippine's National Economic and Development Authority (NEDA). A PhD. in Economics from Yale University, Dr. Intal is a leading researcher on sustainable economic development in the region and a member of many advisory boards. These include the National Advisory Board of the Presidential Commission for the Urban Poor and the Program Committee of Micro Impact of Macroeconomic and Adjustment Policies (MIMAP), IDRC-Ottawa. He is the author of numerous publications including five books on subjects such as foreign debt and international trade.

Current Members of Advisory Committee

Piyasena Abeygunawardena
Asian Development Bank

Stein Hansen
Nordic Consulting Group Ltd., Norway

Ponciano Intal, Jr.
PIDS, Philippines

M.S. Kismadi
Executive Director, Yayasan Pembanguanan Berkelanjutan, Indonesia

John Whalley
University of Western Ontario, Canada; University of Warwick, UK

Vo-Tong Xuan
University of Cantho, Vietnam

Ma Zhong
Renmin University, China

Former Members of Advisory Committee

Edward Barbier
University of York, UK

Marian de los Angeles
REECS, Philippines

Martin Khor
Third World Network, Malaysia

Justin Lin
Chinese Centre for Econ. Research

Theodore Panayotou
Harvard University, US

Ammar Siamwalla
TDRI, Thailand

Jeremy Warford
CSERGE, UK

Resource Persons

EEPSEA researchers are supported by world class advisors whose skills combine academic rigour with real world experience. Among them are:

Dale Whittington
University of North Carolina

William Hyde
Virginia Polytechnic Institute

David James
Ecoservices Ltd., Australia

H. Jack Ruitenbeek
HJ Ruitenbeek Consulting, Ltd., Canada

Daigee Shaw
Academia Sinica, Taipei

Kirk Hamilton
World Bank

Centres of Excellence for Asian Environmental Economics

EEPSEA aims not only to promote expertise in environmental economics but also to ensure that this expertise becomes an integral part of the decision-making process in member countries.

One way in which EEPSEA does this is to work in close partnership with influential local institutions. New institutes specializing in the field of environmental economics have generally not sprung up de novo in S.E. Asia, as they have in some other regions. More commonly, established economic research centres have incorporated environmental issues into their research and teaching.

EEPSEA provides such institutes with the support they need to play a leading role in their countries. It does this by training staff members, supporting research projects, providing connections with experts in other parts of the world and by drawing them into EEPSEA's regional network.

EEPSEA has worked with many local partners. A few of them are profiled here.

Local expertise is vital for sustainable development to take root.

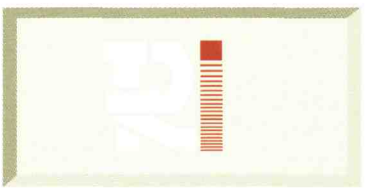
UNIVERSITY OF AGRICULTURE AND FORESTRY, VIETNAM (UAF)

The University of Agriculture and Forestry is located in Ho Chi Minh City, Vietnam. Set up to promote agricultural development, the University has about 3,500 students and conducts graduate and bachelor degree programs in a wide range of subjects including agronomy, animal science, forestry and agricultural economics. To increase knowledge 'on the ground', university staff disseminate research results and technology to farmers through a journal, workshops and radio and TV broadcasts. The UAF is, with the Vietnam National University at HCMC, one of two key EEPSEA partners in Vietnam. These institutions have played a leading role in EEPSEA's Vietnamese training program. Together they ensure that the environmental economics research capacity of the country continues to grow.

THE UNIVERSITY OF THE PHILIPPINES, LOS BANOS (UPLB)

The University of the Philippines, Los Banos (UPLB) is one of the first schools in SE Asia to offer courses in environmental and resource economics. Its Masters program in Agricultural Economics began in 1954 and its PhD. program in the early 1960s; both include the opportunity to specialize in Resource Economics. Students come from throughout the region and several of EEPSEA's key researchers in China, Sri Lanka, Vietnam and Indonesia are graduates of UPLB. The Vietnam connection is particularly strong: UPLB faculty

members have taught in EEPSEA's courses there and acted as resource persons in the Vietnam apprenticeship program (see page 22). They have also carried out projects with EEPSEA on such topics as rural pollution and community-based resource management. The College of Economics and Management expects to offer a Masters degree in Environment and Natural Resource Economics beginning in 1999.

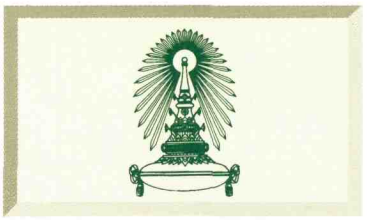


Thailand Development Research Institute (TDRI)

TDRI is Thailand's first policy research institute. Set up in 1984, the Institute provides technical and policy analysis to support the formulation of social and economic development policy in Thailand. Natural Resources and the Environment is one of six areas of research at the institute, which also studies macroeconomic policy, international economic relations and human resources and social development. EEPSEA and the TDRI have worked together many times. Dr. Ammar Siamwalla, President of TDRI from 1990 to 1995, has been Chairman of EEPSEA's Advisory Committee. After receiving training and research experience through EEPSEA, TDRI staff provided an environmental economics course for Laotian government officials in 1995.

China Center for Economic Research (CCER)

The China Center for Economic Research (CCER) at Peking University was set up in August 1994 to meet the demand for an independent, non-governmental research institute in China. CCER is affiliated with Peking University but is funded primarily by research grants and private donations. CCER has three main functions: research, education and executive training. It offers graduate and undergraduate programs in economics and its researchers analyze issues surrounding China's economic reforms. It has close links with other research institutes in China and abroad through joint research projects, conferences, symposia and a visiting fellows program. It publishes in both English and Chinese. CCER's Director, Professor Justin Yifu Lin, has been a member of EEPSEA's Advisory Committee. The Center's members have attended EEPSEA five-week course in Los Banos and carried out research on issues such as soil erosion.



The Centre for Ecological Economics, Thailand

The Centre for Ecological Economics was set up in the Faculty of Economics at Chulalongkorn University, Thailand in 1995 to carry out research and teaching in this field. Two years later, it launched a Masters Program in Natural Resource and Environmental Economics, catering to the needs of environmental practitioners from a variety of disciplines. This is one of the first such programs offered in the region. EEPSEA has provided special lecturers for the program, while the Centre has conducted EEPSEA-supported research on the economic valuation of mangroves.

The Department of Agricultural Economics, University of Peradeniya, Sri Lanka

The Department of Agricultural Economics has offered courses for undergraduates since 1972. It provides undergraduate and masters degrees in Environment and Natural Resource Economics and has trained over 100 students in the last five years. The Masters program was the first of its kind in the region. The Department also conducts short courses in Environmental Impact Assessment and workshops for local and state agencies. Links with EEPSEA are strong: members of the department have attended EEPSEA's course in Los Banos, and carried out research on the environmental impacts of deforestation, irrigation, trade liberalization, and other related subjects.

OPINIONS

"EEPSEA is a unique institution which has done much to promote the better management of the environment in Asia. One important feature is the building of, and continued contact with, a research community in the countries of the region. This network is an invaluable contribution, achieved with relatively little in the way of financial resources."

Anil Markandya,
Professor of Economics,
University of Bath, UK

The Burning Issue: Costing Asia's 1997 Fires

IN 1997 Southeast Asia experienced its worst ever environmental disaster as a thick blanket of choking smoke – euphemistically known as the 'haze' – drifted over large parts of the region.

This haze, which affected Malaysia, Indonesia, Singapore and beyond, was caused by forest fires which raged out of control through much of Sumatra, Kalimantan and other parts of the Indonesian archipelago.

As TV news filled with pictures of the flames, it was clear that the impact of the disaster would be enormous – not just in terms of loss of biodiversity, but also in economic and social terms: industrial production, transport and tourism were literally smoked out, while hospital admissions for haze-related illnesses such as bronchitis and asthma climbed.

The 1997 Indonesian fires affected millions of people across the region.

In reaction to the crisis and in order to help inform the regional and international response, WWF-Indonesia and EEPSEA launched a study to assess the economic value of the damage. It included an assessment of damages to Indonesia, Malaysia and Singapore, between August and December 1997. Its findings were staggering – even using conservative assumptions, the cost of the fires and the haze exceeded USD 4.4 billion (see table for details). This is more than the damages assessed for purposes of legal liability in the Exxon Valdez and Bhopal disasters combined.

The report put its figures in terms that policy makers and the general public could identify with. It noted, for example, that the value of the resources lost to Indonesia would have been enough to provide all of the country's 120 million rural poor with basic sanitation, water and sewerage services. Put differently, Indonesia's losses were more than double the total foreign aid received by the country every year.

Other countries were also badly hit: the resources lost to Malaysia as a result of the haze could have financed all of the federal government's social programs for the last three years. Singapore's tourism losses could have fully funded the country's Community Chest, comprising 50 charities and benefitting about 180,000 people, for three years.

The report pointed out that tourism accounted for a large share of losses. These were in foreign currency and were acutely felt during the 1997 financial crisis. It also noted that by far the largest share of the losses was suffered by Indonesia itself, giving the country considerable incentive to avoid further fire episodes.

The figures were picked up by the press and flashed around the world. In all, over 100 media citations were recorded – from local TV channels to CNN and the BBC and from the

OPINIONS

"I would like to take this opportunity to commend EEPSEA *for the constructive work it has undertaken during the past five years. I am particularly appreciative of the fact that it was the first to put forward estimates of the economic and other loses from 1997's haze. I also appreciate the inclusive manner in which it works."*

TOMMY KOH,
AMBASSADOR-AT-LARGE, SINGAPORE

Singapore *Straits Times* to the *Washington Post* and the *Financial Times*. Given distribution by news services like Reuters, it is likely that the report appeared in every major newspaper in the world.

The research was discussed as the first item in a Meeting of the UN General Assembly Committee on Humanitarian & Social Affairs, chaired by the Undersecretary General of the UN. Meanwhile, NGOs picked up on the findings and used them to justify calls for a change in ASEAN's usual non-confrontational approach to regional diplomacy.

The findings immediately began to affect government thinking. An interim report, presenting estimates for only haze damage, was submitted to the ASEAN Environment Ministers meeting in Kuching in February 1998. After the meeting Singapore's Environment Minister was asked how much help in dealing with Indonesia's fires Singapore could provide. His answer: "Even with a tight budget, we have to prioritize because if we do not help them, the economic losses to us and the entire region are tremendous. Whatever we can spend to help will be money well spent."

The final report concurred with the general consensus that the 1997 fires were primarily caused by illegal burning undertaken by plantation and timber companies.

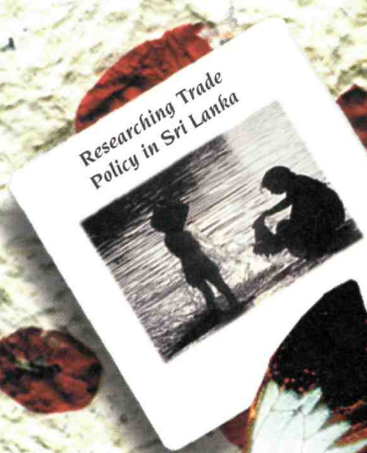
To avoid a repetition of the disaster, the report made a number of far-reaching recommendations to both the Indonesian government and the international community. These included the following:

- A moratorium on the conversion of 1 million hectares of peat forest to rice cultivation.
- The clarification of land ownership laws that encourage people and companies to clear land as a way of staking a claim.
- The enforcement of existing laws that regulate the use of fire as a mechanism for land clearance.
- Changes in policies that keep the price of wood to processing mills low, providing little incentive to protect standing timber or to sell scrap wood rather than burn it.
- Lengthening the term of leases of forest land to timber companies, to encourage more sustainable forest management.
- Investigating no-burn methods for land clearing.
- Reducing targets for planned forest conversion and instead establishing new plantations in unused 'alang alang' grasslands.

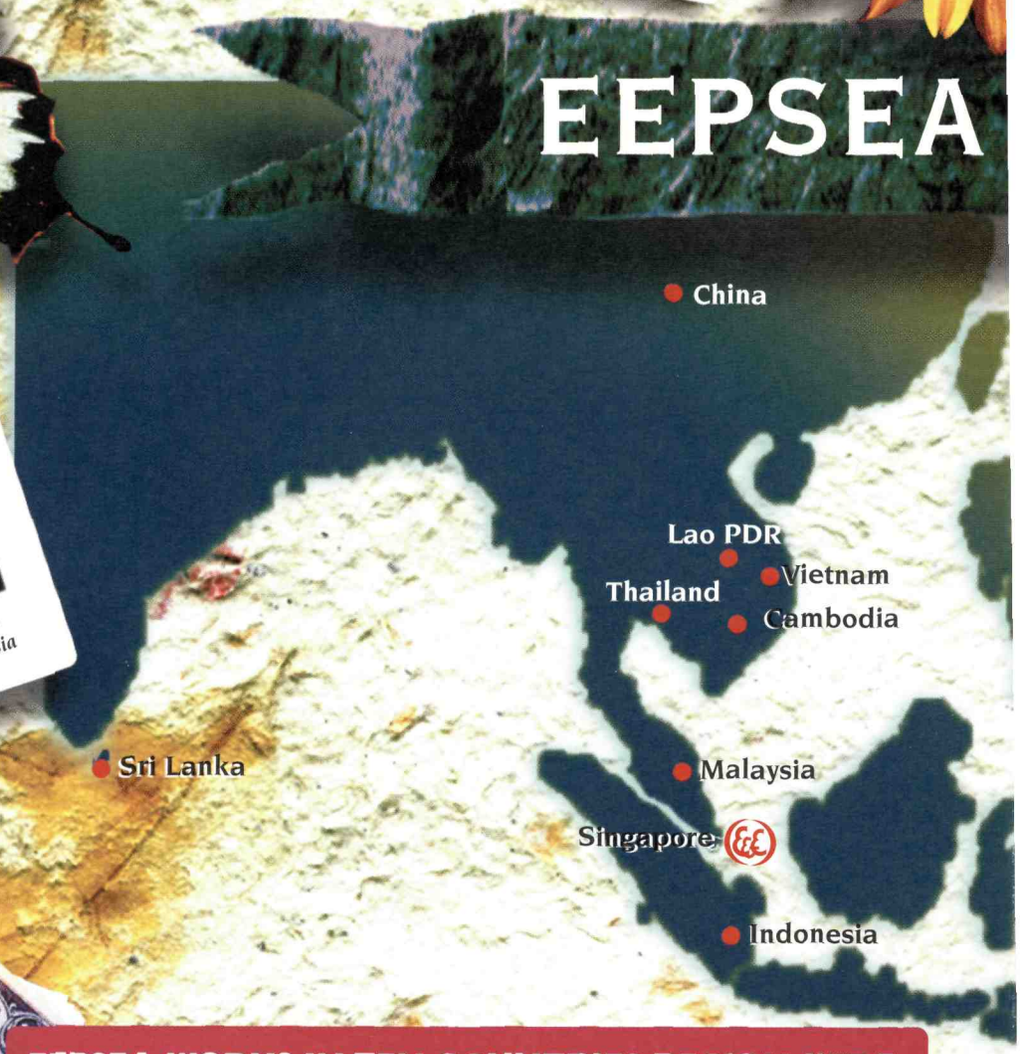
In early1998 the fires returned; heavy rains later in the year gave the region a respite. There is now a danger *that, given Indonesia's political and* economic turmoil in 1998, the fires will slip from the top of the political agenda. EEPSEA's report has helped to keep the importance of the issue in the public eye. Time will tell if its warning about the economic imperative of stopping the fires from returning will be translated into long-term effective action. A book-length report will be published in 1998.

Fire and Haze Related Damages (USD)

Type of Loss	Lost to Indonesia	Lost to Other Countries	Total
Timber	493.7	–	493.7
Agriculture	470.4	–	470.0
Direct Forest	705.0	–	705.0
Indirect Forest Benefits	1077.1	–	1077.1
Capturable Biodiversity	30.0	–	30.0
Fire Fighting Costs	11.7	13.4	25.1
Carbon Release	–	272.1	272.1
Short Term Health	924.0	16.8	940.8
Tourism	70.4	135.8	256.2
Other	17.6	181.5	199.1
Total Fire & Haze	3799.9	669.6	4469.5



EEPSEA



EEPSEA WORKS IN TEN COUNTRIES REGION-WIDE

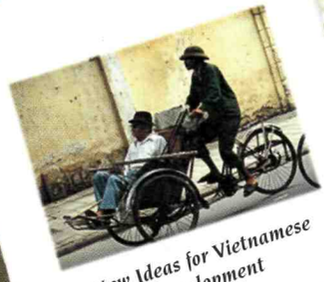
Country	Research Awards	Training Awards
Thailand	9	19
Malaysia	3	6
Indonesia	8	8
Philippines	12	13
Papua New Guinea	2	-
Vietnam	11	64
Cambodia	-	18
Lao PDR	-	4
China	15	14
Sri Lanka	5	7
Total	**65**	**153**

IN ACTION

EEPSEA Research Projects

Philippines

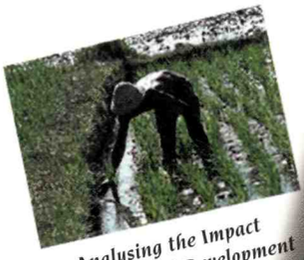
Costing Water Pollution in the Philippines



New Ideas for Vietnamese Development

Papua New Guinea

Researching the Impact of Pollution on Health



Analysing the Impact of Agricultural Development

Preserving Biodiversity

Sustainable Solutions to Development Dilemmas

At the heart of EEPSEA's work is its research program. Over the last five years, this important initiative has resulted in 65 research projects (for full details see page 24). Undertaken by researchers from across the region, these projects cover a wide range of sectors and environmental issues. Together they comprise an impressive library of information, case studies and policy recommendations.

Most projects are carried out by multi-disciplinary teams affiliated with a university, government or non-governmental organization.

Research proposals are sent to experts for written review. Those recommended for further consideration are then revised and presented at one of EEPSEA's biannual workshops. The selection process for research awards is highly competitive: fewer than one application in three is accepted. Once projects are underway, however, researchers receive frequent technical assistance and literature from the Secretariat and other resource persons, individually and during the biannual workshops. In conjunction with their research projects most EEPSEA researchers also attend one of the program's training courses.

Final reports from successful projects are widely disseminated by EEPSEA and by the researchers themselves through publications, the media, and consultations with policy makers. The following examples of work undertaken by EEPSEA-sponsored researchers (pages 17 – 23) illustrate the scope of the research program and highlight its relevance to the problems facing policy makers in the region.

OPINIONS

"EEPSEA is an inspiration for those who are serious about addressing environmental problems on the ground. The quality of the work is high and its practical relevance unquestionable. It is refreshing to see serious effort going beyond the rhetoric that too often purports to inform the environmental policy debate at the international level."

PATRICK LOW,
DIRECTOR OF RESEARCH AND
ECONOMIC ANALYSIS, WORLD TRADE ORGANIZATION

CHINA'S POLLUTION CHALLENGE:

Balancing the Carrots and Sticks

POLLUTION is recognized as one of the biggest environmental challenges facing China as the country pushes to modernize and develop its economy.

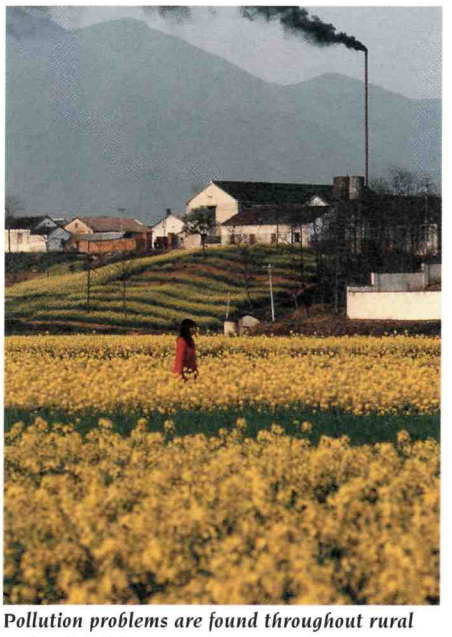
Many major waterways are in unhealthy condition and air pollution now affects almost all of the country's main cities. Some of this impacts on the rest of the world, through acid rain and emissions of greenhouse gases. Consequently there is much interest, both nationally and internationally, in improving the effectiveness of China's environmental protection policies.

Among the most important market-based anti-pollution policies in the country is the Pollution Charge System (PCS). Covering four types of pollution – water, air, solid waste and noise – it came into widespread use in 1982. The system combines deterrent fees for pollution offenders with a subsidy system to help polluting enterprises build waste treatment facilities. The efficient working of this system as an economic incentive has, however, been questioned and many reservations concerning its practical application remained unanswered.

To try and answer such questions, EEPSEA researcher, Yun Ping, from the Institute of Environmental Economics, Renmin University, Beijing, set out to find out whether the PCS really does encourage companies to clean up.

Spurred on by her first-hand working experience in a Chinese environmental protection authority, Yun Ping, began her research by conducting case studies in three cities – Anyang, Changzhou and Shunde – to see how commercial enterprises and the Environmental Protection Bureau (the enforcer of PCS) in each city worked with the system.

Under the PCS, fees are collected when discharge standards are exceeded. Eighty percent of the revenue from the fees is returned to the polluter to help them comply with pollution standards. The remaining 20% is designated for use by local EPBs for things such as the purchase of monitoring equipment.



Pollution problems are found throughout rural and urban China.

Yun Ping found that the response to the PCS was complex. Her research showed that many economic factors were impeding its effectiveness. For example, she found that operating and maintaining treatment facilities was often more costly than paying the pollution charges and that many enterprises preferred paying the fines rather than controlling pollution.

She also found that the EPBs' weak enforcement meant that many enterprises got away with using the rebate to pay for raw materials and salaries rather than pollution prevention. Furthermore many firms were content to pay the fines since the subsidies they then received allowed them to profitably exploit a loophole in the tax system.

To find out how widespread this type of behaviour was, Yun Ping then carried out a survey of 100 state and non-state owned enterprises in Changzhou City. These firms produced products such as textiles, chemicals, food and drugs.

The results confirmed the findings from the case studies: a large majority of enterprises reporting that they would control more pollution if the subsidy was removed – showing that the present subsidy system has a key role in encouraging enterprises to pay charges instead of helping them to control pollution.

Among her many recommendations Yun Ping proposed that any rise in fees must be accompanied by a reform of the subsidy system. She also stressed that EPBs play a crucial role in setting and implementing the PCS and that this implicitly affects compliance rates.

"My study shows that distortions in the behaviors of both firms and the environmental authorities could eat away any positive effects a higher fee level could have," she says in summary.

Yun Ping's findings are now available to shape policy implementation and accelerate pollution clean-up.

MANY ENTERPRISES GOT AWAY WITH USING THE REBATE TO PAY FOR RAW MATERIALS AND SALARIES RATHER THAN POLLUTION PREVENTION

OPINIONS

"China is very interested in applying an economic approach to the management of environmental problems. We are especially interested in observing the experiences of other countries who are experimenting with this approach and in sharing our experiences with them. EEPSEA's regional network is an excellent way to do this and we hope it continues to play this important role in years to come."

ZHANG KUNMIN, DEPUTY ADMINISTRATOR, NATIONAL ENVIRONMENTAL PROTECTION AGENCY, CHINA (1988-1998)

MANILA'S WATER SUPPLY:

Getting Water to Work

WATER supply is a key issue across Southeast Asia, and nowhere more so than in the Philippines, where widespread water shortages and pollution have made it a central policy issue.

Two EEPSEA-sponsored projects in Manila have recently played important roles in the development of this policy. The first looked at the pressing problem of domestic water supply in the run-up to its privatization. The second looked at the industrial use of groundwater. Both studies showed that economic principles can be applied to the management of this scarce resource with positive results.

The problem of domestic water supply was tackled in 1995 by EEPSEA-funded researchers Cristina David and Arlene Inocencio at the Philippines Institute for Development Studies (PIDS). Their study was carried out just after crisis legislation had been enacted to speed the development of water supply infrastructure. About $7 million had been slated for an action program to privatize the Metro Manila Waterworks and Sewerage System (MWSS). Action was critical – Manila had the worst record of all major ASEAN cities in the efficiency of its water supply. Over 30% of the population was not reached by any public water service.

In explaining the thinking behind their research, David and Inocencio say that "a key priority in designing urban water policy and institutional reforms is the appropriate structure of water charges to ensure long-term sustainability of supply." In order to determine such an optimal pricing policy, estimates of the demand for and supply of water are required. The researchers' study therefore focused on understanding the water supply situation in Manila.

Piped water reaches few of Manila's poorer quarters.

ACTION WAS CRITICAL – MANILA HAD THE WORST RECORD OF ALL MAJOR ASEAN CITIES IN THE EFFICIENCY OF ITS WATER SUPPLY

David and Inocencio found that people coped with the limited supply of water in a variety of ways, using everything from private waterworks to buying water from vendors. The impact of this on the poor was significant.

The average income of households forced to buy water from vendors was a third of that of households with MWSS connections. But water from vendors cost up to 10 times as much as water from the MWSS.

As a result the researchers found that, "poorer households have to spend a much greater proportion of their available income on water than do wealthier households." They therefore concluded that high costs had more to do with lack of supply than with the tariff rate. They saw that the most important issue regarding pricing was not 'affordability', but whether it would allow for investment in and expansion of the water supply system to meet the needs of the poor.

In 1997 Maria Ebarvia, another EEPSEA-sponsored researcher, investigated the other pressing water problem in the city: that of industrial supply.

Due to recent industrial development in Manila, the demand for water has rapidly outpaced supply and has forced many businesses to dig their own wells. In fact, about 80% of industries rely on this as their main source, with only about 20% getting water from the MWSS. As a result, groundwater extraction is lowering the water table by 6-12 metres per year and groundwater is threatened by salination and other kinds of pollution.

Ebarvia's study aimed to determine the right mix of pricing, fiscal and regulatory measures needed for the efficient use of ground water. She calculated the true costs of various supply options, including the cost of depletion and other environmental impacts such as saltwater intrusion.

She found that, in the long run, the most costly option would be for businesses to continue to use groundwater, since water would become steadily scarcer and more polluted.

Consistent with David and Inocencio's findings for household water, Ebarvia found that the best policy option would be a conservation program to control groundwater use coupled with improvements in the supply offered by the MWSS. Ebarvia recommended that regulatory measures to bring this about could be complemented and partly financed by economic incentives, such as charges for the use of groundwater. These could be designed to induce companies to both restrict their water use and to install water-saving technology.

In light of the findings of these two projects, the Presidential Task Force on Water, headed by the Department of Environment and Natural Resources (DENR), commissioned PIDS to do a water resource pricing project in Manila and Cebu – financed to the tune of PHP 2.5 million. Partly because of the expertise developed and demonstrated in its EEPSEA project, PIDS has been designated to lead this activity. Information from the two EEPSEA studies is being used extensively.

PHILIPPINES MINING DISASTER:

Counting the Cost of a Ruined River

IN March 1996, the Philippines experienced one of its most serious industrial pollution accidents.

The incident involved the Marcopper Mining Corporation which has been carrying out open-pit copper mining since the 1970s.

When the company finished one of its operations in Marinduque, it plugged the old pit with concrete so that it could act as a disposal pond for mine waste. In August 1995, seepage was discovered in the pit's drainage tunnel. This subsequently ruptured. The accident discharged tailings into the Makulapnit-Boac (Boac) river system.

THE IMPACT ON THE RIVER AND THE PEOPLE WHO DEPEND ON IT WAS MASSIVE... THE RELEASE LEFT THE BOAC RIVER VIRTUALLY DEAD

The incident resulted in the release of some 1.6 million cubic meters of tailings along 27 km of the river and the coastal areas near its mouth. The impact on the river and the people who depend on it for their livelihoods was massive. The onrush of tailings displaced river water which inundated low-lying areas, destroying crops and vegetable gardens and clogging irrigation channels to rice fields. The release left the Boac River virtually dead. The effects of the incident were so devastating that a UN assessment mission declared the accident to be a major environmental disaster.

Rivers in the Philippines are vital to local people's livelihoods.

Eugenia Bennagen and Ramyleo Pelayo, two researchers from the Resources, Environment and Economics Centre for Studies (REECS), set out to estimate the value of the environmental damage from the accident. One of their aims was to help formulate guidelines for damage assessment and the calculation of compensation.

Before the accident occurred, the waters of the Boac river provided many important services to the communities along its banks. These included fishing, irrigation, laundry, washing, bathing, transport and local medicines. Some of these services have market values, while others are not easily costed in this way.

To see how much damage the mining accident had caused, Ms. Bennagen and her team looked at the total value of the services the river provided, before and after the incident.

By interviewing households, they found that about two-thirds of the local population had been affected in various ways: rice farmers reported lower productivity, laundry women had to find new, less accessible sources of water, and so on.

The study's findings were dramatic: total damages from the disaster over a 10-year period were estimated at 170 million pesos (USD 7 million in 1996). The losses for 1996 alone (some 50 million pesos) were more than double the amount provided in compensation by the Marcopper Environmental Guarantee Fund (EGF). The EGF did not apply an economic valuation of damages and relied instead on a more ad hoc approach. Ms. Bennagen recommends that the EGF's guidelines for damage assessment be modified to provide a more objective base for determining compensation.

REECS' report – just completed – will be showcased at a number of government and NGO seminars in coming months. It has also been shared with researchers investigating a similar mining disaster near the Donana National Park in Spain. The methods and findings from this study could therefore prove useful, not only for the Philippines, but world-wide.

OPINIONS

"EEPSEA's research projects provide the kind of information governments need. Because the research is done by local experts, we can follow up and draw on their advice as policies are implemented."

ANTONIO H. CERILLES,
SECRETARY, DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, PHILIPPINES

THAILAND'S NATIONAL PARKS :

Making Conservation Pay

IN Thailand, more than 80 forest reserves have been declared national parks – about 13% of the country's land area. Besides serving a vital conservation role, these parks provide valuable recreational and educational opportunities for Thais and foreign tourists.

Unfortunately, many Thai parks are under threat due to encroachment by local villagers, illegal human settlement, forest fires and soil erosion.

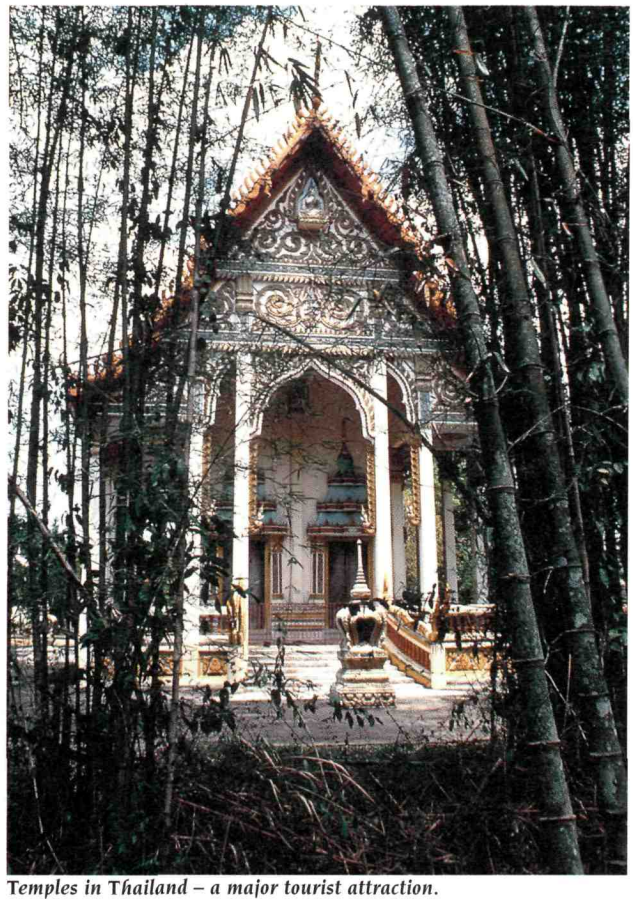
National parks are also threatened by pollution generated both by villages located inside the parks and by visiting tourists.

The costs of managing Thailand's national parks are met through the government's central budget, as well as by park entrance fees. But neither source provides sufficient resources to deal with the problems faced. Revenue from entrance fees is very low, since parks typically charge only five Baht per person (US$0.13 in 1998). These fees bear no relation to park services and facilities. The central budget is also limited since it must compete with other priorities like education, public health, and military spending.

To see whether it was possible to improve the entrance fee system and so finance the conservation of the parks, EEPSEA-sponsored researcher Dr. Adis Israngkura, an economist at the Thailand Development Research Institute, set out to see just what value visitors gave to the country's national parks.

His study concentrated on three public recreational area in two national parks in Chiang Mai province, northern Thailand. These were Doi Inthanon National Park, the Doi Suthep temple and the Mae Sa waterfall in the Suthep-Pui National Park. Doi Inthanon features the highest point in Thailand (2,565 metres), waterfalls, alpine meadows, hill tribe villages, caves and other attractions.

Dr. Israngkura asked people to rank four hypothetical trips in the three areas, according to their preference for various recreational attributes. These rankings were then used to calculate an appropriate entrance fee for each area.



Temples in Thailand – a major tourist attraction.

For example, at Doi Inthanon, Dr. Israngkura proposed a 40 baht entrance fee and additional fees for specific environmentally-sensitive sites around the park. This would increase park revenue from two million to eight million Baht per year.

ENTRANCE FEES SHOULD REFLECT THE VALUE OF RECREATIONAL SERVICES... THIS WILL HELP ENSURE THAT THESE WILL BE SUSTAINED FOR FUTURE GENERATIONS

The study also recommended that reduced rates be given to low-income visitors such as school children on educational visits, senior citizens and the like. "Entrance fees should be adjusted to reflect the value of recreational services," explains Dr. Israngkura. "This will help raise revenue to manage and improve the facilities. It will also help ensure that the recreational services provided by the national parks will be sustained for future generations."

The study is now being used by forestry experts preparing master plans for each park. These will address such issues as human settlement within the parks, conservation, land use and tourism. Dr. Israngkura's approach may well be adopted by the National Park Authorities in setting entrance fees for all of Thailand's national parks.

OPINIONS

"WWF supports the use of economic incentives in conservation efforts. But applying these incentives in the real world is often easier said than done. EEPSEA's emphasis on practical applications to real world problems makes its research extremely useful."

CLAUDE MARTIN,
DIRECTOR GENERAL,
WORLD WIDE FUND FOR NATURE

THE LOCAL IMPACT OF INTERNATIONAL POLICY:

Changing Times for Sri Lanka's Potato Farmers

EEPSEA particularly encourages work on the environmental aspects of trade, taxation and economic policy. This focus is important, since changes at the national and international level can have dramatic and often unforeseen repercussions for both communities and individuals.

This vital linkage is being explored in a new EEPSEA-sponsored project in Sri Lanka. The study looks at the potential impact of the South Asian Free Trade Agreement (SAFTA), which will liberalize trade among member countries.

The purpose of the study is to assess the impact of tariff reductions on imported potatoes on farmers, consumers and the environment. Potato cultivation employs about 25,000 farmers in Sri Lanka, so has received substantial government support over the last decade. It would be significantly affected by tariff reductions proposed under SAFTA.

Trade economists have well-developed techniques to estimate the economic effects of such changes on consumers and producers. But environmental consequences are rarely counted. If they are, they are usually measured in physical terms, and cannot easily be compared to the economic effects. Policy makers are left without a clear picture of how environmental gains or losses compare with economic impacts. Without such information, it is very difficult to design economic policies that promote development sustainably.

The study's authors want to break this information log jam by providing a comprehensive assessment of all the gains and losses – economic and environmental – from the proposed tariff reduction. Two of the researchers – Prof. Weerahewa and Prof. Kotagama – are members of the Sri Lankan President's advisory committee on SAFTA and are acutely aware of what information they need to provide for persuasive policy advice.

CHANGES AT THE INTERNATIONAL LEVEL CAN HAVE DRAMATIC REPERCUSSIONS FOR INDIVIDUALS

The researchers predict that with reductions in tariffs, potato imports will increase and the domestic price of potatoes will drop. As potato prices fall, farmers are expected to switch to substitutes like beans, carrots and beets. Farm-level data on the profitability of various crops has allowed predictions to be made as to the most likely substitutes. Different trade liberalization scenarios have been analyzed by reducing the price of potatoes by increments between 10% and 35%.

Sunset for Sri Lanka's potato farmers?

Potatoes are currently cultivated on hillsides in important watersheds. They are quite erosive when grown on such sloping land. This erosion causes on-site productivity losses and off-site losses downstream in irrigation and reservoir capacity. Agrochemicals from potato farmers also enter the waterways causing nitrate contamination which has affected human health.

It is clear to Dr. Weerahewa and her team that the different crop regimes that might replace potato will have different impacts – some are more erosive than others and some need different levels of fertilizer input. By including these variables in their model, the researchers can predict the environmental impacts of crop changes.

The next step is to calculate the monetary value of this environmental change. Here specialized methods need to be brought into play: For example, surveys can be done to find out how much people are willing to pay for water supplies free from fertilizer contamination.

The project's preliminary findings – currently being tested – make interesting reading. Under the most plausible assumptions, farmers lose, but consumers and the environment are better off after tariff reductions. The net benefits are large enough that farmers could be compensated through some sort of transfer payments, making everyone better off – an encouraging story about how policy reform can benefit both the economy and the environment.

OPINIONS

"As initiator of Thailand's financial master plan for social development, I regard EEPSEA's bringing environmental considerations into broader discussions of economic policy as one of its most valuable contributions. By supporting the local expertise needed to address these issues, EEPSEA is helping to make economic policies more sustainable."

SURAKIART SATHIRATHAI,
MINISTER OF FINANCE, THAILAND (1995-1996)

VIETNAM & CAMBODIA:

Research Where it's Needed Most

SINCE it began, EEPSEA has made special efforts to develop teaching and research capacity in Vietnam and Cambodia.

Although both countries are in transition to more open market-based economies, neither has a tradition of Western economics. In Cambodia, an entire generation of intellectuals was lost under the Khmer Rouge and rebuilding is a slow and difficult process. But, in both countries, a new generation of young scholars is emerging, aware of the environmental problems associated with economic change and eager to apply new concepts to their solution. These are the people EEPSEA is working with in a variety of training and research initiatives.

The process began in June 1993, when EEPSEA sponsored two Vietnamese researchers – Phan Thi Giac Tam and Do Van Xe – to attend a five-week environmental economics course. Shortly after, they carried out a successful research project with EEPSEA. Along with Advisory Committee Chairman Vo-Tong Xuan, they became EEPSEA's principal links with Vietnam.

Ms. Tam and Mr Xe then worked with EEPSEA to organize five-week courses at the University of Agriculture and Forestry at Ho Chi Minh City in 1995 and again in 1996. About 25 students attended each.

Cambodia: first steps towards sustainable development.

These courses created a supply of people, mainly in universities, eager to apply environmental concepts to real world problems. But would there be a demand for their skills from policy makers?

To acquaint government officials with the practical insights the field can offer, EEPSEA organized three seminars for policy makers in Ho Chi Minh City, Hanoi and Hue.

To further build on this work a five-day project development work-shop for graduates of the five-day courses was run. Resource persons worked with participants to develop projects on issues such as forests, mangroves, agro-chemicals and urban pollution.

Seven research projects were subsequently carried out. These were undertaken in close co-operation with resource persons, under a form of apprenticeship programme.

More recently, Vietnamese researchers attended EEPSEA's regional courses in Los Banos, Philippines. Most have submitted research proposals and joined EEPSEA's regional research network.

• • •

An apprenticeship program, similar to the one described above but smaller, has also been carried out in Cambodia.

EEPSEA trainer Camille Bann visited Cambodia periodically during 1995-97, each time providing several days of training and field trips to carry out surveys.

A pilot project on fuel-efficient wood stoves led to two full-scale projects, one on non-timber forest products in Ratanakiri province and one on the value of mangroves in southern Cambodia. Both were carried out by government officials from Phnom Penh and the provinces. Training workshops to launch the projects were attended by about 40 people; the projects themselves each involved about six researchers and were completed in June 1997.

IN CAMBODIA, A GENERATION OF INTELLECTUALS WAS LOST... REBUILDING IS A SLOW AND DIFFICULT PROCESS

The Ratanakiri study showed that the value of non-timber forest products was in fact higher than comparable estimates of timber values. In response, the Minister of Environment and the Governor of the Province of Ratanakiri called for the transfer of responsibility for management of customary forest land to community associations and for a moratorium on logging in those areas.

Given political uncertainty in Cambodia, it is not clear what will happen. However, if effective government is restored, the recommendations could be revived and acted upon.

OPINIONS

"Since environmental economics is relatively new in Vietnam, EEPSEA's efforts to develop capacity in this field have been of great value to the Ministry and to other institutions here. The seminars for policy makers, the courses for university professors and the small grants research network have given us many useful tools for further designing effective environmental policies and improving environmental management."

LE QUY AN,
DEPUTY MINISTER, MINISTRY OF SCIENCE, TECHNOLOGY AND ENVIRONMENT, VIETNAM (1990-1996)

Developing Expertise Region-wide

The 1998 Los Banos Course.

WHILE EEPSEA's aim is to support research that will influence policy, the expertise needed for that task is far from sufficient at present. Considerable investment in training is needed to enhance existing capacity and develop the skills of new researchers in Southeast Asia.

EEPSEA has explored a wide range of training options in its first five years, beginning with a five-week course at the Harvard Institute for International Development and including others as they became available. These included short courses in Sweden and Australia; a correspondence course from Wye College, UK; an MSc at York, UK; and postdoctoral fellowships in Canada.

CONSIDERABLE INVESTMENT IN TRAINING IS NEEDED TO ENHANCE EXISTING CAPACITY AND DEVELOP THE SKILLS OF NEW RESEARCHERS

In 1995, EEPSEA began to organize more of its own courses, notably in Vietnam. In June 1997, the centrepiece of EEPSEA's training program was unveiled: a five-week course for researchers held in Los Banos, Philippines. After a successful first run, the course was repeated in 1998.

The course has a number of advantages. It is less costly than sending people overseas. It can be geared toward researchers and EEPSEA's research program, rather than the wide mix of occupations and disciplines found in most short courses. Participants begin to work together as students, facilitating subsequent collaborative work as EEPSEA researchers. Moreover, a proposal preparation session allows the development of projects on priority topics. In general, the course is an effective way to shape EEPSEA's research and recruit new members.

The course is offered in collaboration with the Economic Development Institute of the World Bank (EDI) and the Southeast Asian Regional Centre for Graduate Study and Research in Agriculture (SEARCA). It prepares researchers and university lecturers to teach environmental and resource economics, to conduct research in this field and to respond to requests for analysis from governments. About 60 people (out of 220 applicants) have attended so far.

Participants learn to apply the principles of economic analysis to environmental problems. Topics include:

- management of renewable and non-renewable resources;
- extended cost-benefit analysis and valuation;
- the economics of pollution control; and,
- economy-wide and international issues.

Principal instructors have included Myrick Freeman III (Bowdoin College), Nancy Olewiler (Simon Fraser University), David O'Connor (OECD Development Centre), William Barron (University of Hong Kong) and John Whalley (Universities of Western Ontario and Warwick).

Through the course, students gain familiarity with the concepts and tools of environmental and resource economics; meet colleagues from throughout the region; learn about environmental problems and policies in other countries; and gain experience in preparing, presenting and defending research proposals. By the time they reach the tough forum of an EEPSEA biannual workshop in Singapore, they are seasoned and confident, ready to join the wider regional network.

It is clear that the course has been a great success. As long as demand remains high and the performance of graduates strong, it will continue to be a central part of EEPSEA's vital training program.

OPINIONS

"This training course has been extremely useful and successful both for enhancing personal knowledge in environmental and resource economics as well as sharing the knowledge through workshops, exercises, case studies and assignments..."

DR. CHURAI TAPVONG,
ASSOCIATE PROFESSOR OF SCHOOL OF ECONOMICS,
SUKHOTHAI THAMMATHIRAT OPEN UNIVERSITY, THAILAND,
ABOUT HER EXPERIENCE IN THE 1998 LOS BANOS COURSE

Research Projects Approved
January 1994 - June 1998

1. *An Ex-Ante Analysis of a Water Pollution Tax for the Meycauayan Tanning Industry.*
   Maria Nimfa Mendoza, University of the Philippines.

2. *Overfishing in the Philippines Marine Fisheries Sector:*
   Danilo Israel and Cesar Banson
   Philippines Institute of Development Studies.

3. *Economic Appraisal of Environmental Impacts of Biogas Plants in Livestock Farming in China.*
   Gu Shuhua et al, Tsinghua University.

4. *An Environmental Bond for Clay Mining in Sri Lanka.*
   Malik Ranasinghe, University of Moratuwa.

5. *Integrated Pest Management, Indonesia.*
   Bunasor, Bogor Agricultural University.

6. *Evaluation of Rural Sanitation Options in the Mekong Delta, Vietnam.*
   Do Van Xe/Phan Thi Giac Tam, University of Cantho/University of Agriculture and Forestry.

7. *Water Pricing for Nanjing, China.*
   Zhu Xiaolin, Jiangsu Academy of Social Sciences.

8. *Natural Resource Accounting for Forests, China.*
   Liu Xuelin, University College, London.
   (PhD thesis award)

9. *Regional Capability to Finance Irrigation Systems, Indonesia.*
   Dibyo Prabowo, Gadjahmada University.

10. *Cost-Benefit Analysis for Recycling Suburban Livestock Waste, China.*
    Jiang Xuemin, Huazhong Agricultural University.

11. *Determination of a Pollution Charge and its Impact on Indonesia's Textile Industry.*
    Maria Ratnaningsih,
    Thammasat University, Thailand.

12. *The Value of Improved Water Quality for Recreation in East Lake, Wuhan, China: Application of Contingent Valuation and Travel Cost Methods.*
    Du Yaping, Hubei Academy of Social Sciences.

13. *Economic Value of a Non-timber Forest Product (Parkia Speciosa), Malaysia.*
    Woon Weng Chuen et al,
    Forest Research Institute of Malaysia.

14. *Resettlement Program of the Three Gorges Dam, China.*
    Jiahua Pan,
    Institute of World Economics and Politics.

15. *Poverty and Deforestation, Northern Vietnam.*
    Tran Thi Que,
    Socio-Economic Development Centre (SEDEC).

16. *Valuation of Health Effects of Air Pollution, Bangkok.*
    Dirgha Tiwari, Asian Institute of Technology.

17. *Understanding Household Demand for Water: The Metro Manila Case.*
    Cristina David/Arlene Inocencio,
    Philippines Institute for Development Studies.

18. *Pricing for Groundwater Use in Metro Manila, Philippines.*
    Maria C. Ebarvia, University of the Philippines.

19. *Water Pricing and Welfare Improvement: Case Study from Semi-Urban Communities, Thailand.*
    Direk Patmasiriwat/Areeya Boon-Long,
    Thailand Development Research Institute.

20. *Household Water Pricing in Jakarta, Indonesia.*
    Budhi Sayoko,
    Centre for Economic and Environmental Studies.

21. *The Economic Benefits of Watershed Protection and Trade-offs with Timber Production, Malaysia.*
    Mohd. Shahwahid Haji Othman et al,
    Universiti Pertanian Malaysia.

22. *Environmental Impacts of the Makban Geothermal Plant, Laguna, Philippines.*
    Nicomedes Briones et al,
    University of the Philippines at Los Banos.

23. *Valuing the Health Costs of Air Pollution: the Cement Industry in South Sulawesi.*
    Rusdian Lubis et al,
    Center for Environmental Studies, Hasanuddin University, Indonesia.

24. *The Pollution Charge System in China: an Economic Incentive?*
    Yun Ping, Institute of Environmental Economics,
    Renmin University.

25. *Damage Schedules for Thai Coastal Areas: An Alternative to Assessing Environmental Values.*
    Ratana Chuenpagdee,
    University of British Columbia
    (PhD. thesis award).

26. *Economic Valuation and Conservation Policies for Tropical Forests in Sri Lanka.*
    Cyril Bogahawatte, University of Peradeniya.

27. *Economic Valuation of Mangroves and the Roles of Local Communities in the Conservation of Natural Resources: Case study of Surat Thani, South of Thailand.*
    Suthawan Sathirathai, Chulalongkorn University.

28. *Marginal Cost Pricing for Coal Fired Electricity in Coastal Cities of China.*
    Susan Zhang, Peking University.

29. *Optimal Allocation of Water to Competing Uses in Taiyuan, China.*
    Jing Xu, Ministry of Water Resources.

30. *Economic and Health Consequences of Pesticide Use in Paddy Production in the Mekong Delta of Vietnam.*
    Nguyen Huu Dung, National University,
    Ho Chi Minh

31- 37: Environmental Policy Issues in Vietnam
(7 sub-projects by various institutes)

31. *Valuation of Non-timber Forest Products in Hoa Binh Province*

32. *Using the Travel Cost Method to Evaluate Tourism Benefits of Cuo Phoung National Park*

33. *Impact of Fertilizer and Agrochemicals on Productivity and Health (Ho Chi Minh City, Mekong Delta and Red River Delta)*

34. *An Economic Analysis of Agro-Forestry and Traditional Cultivation in the Uplands of Daklak and Thua Thien Hue Provinces*

35. *Economic Analysis of Alternative Mangrove Management Options in Can Gio, Ho Chi Minh City*

36. *Economic Analysis of Rice-Shrimp Farming Systems in the Mekong Delta*

37. *Feasibility of an Effluent Charge for the Food Processing Industry in Ho Chi Minh City*

38. *Marginal Opportunity Cost Pricing for Wastewater Disposal: A Case Study of Wuxi, China.*
Fan Zhang, China Centre for Economic Research

39. *Surrogate Pricing for Water: The Case of Mini-hydro Cooperatives in Northern Thailand.*
Siriporn Kiratikarnkul and Sitanon Jesdapipat, Thailand Environment Institute.

40. *Estimation of Environmental Damage from Mining Pollution: The Marinduque Island Mining Accident.*
Eugenia Bennagen, Resources, Environment and Economics Centre for Studies.

41. *Valuing Environmental Benefits: An Entrance Fee System for Thailand's National Parks.*
Adis Israngkura, Thailand Development Research Institute.

42- A *Comparative Assessment of Natural Resource*
45. *Accounting in Four ASEAN Countries.*
ASEAN Working Group on Environmental Economics.

46. *Tradeable Discharge Permits System for Water Pollution of the Upper Nanpan River, China.*
Wendong Tao et al, Yunnan Institute of Environmental Sciences.

47. *Cost Effectiveness of Control Measures for Automotive Pollution in Colombo, Sri Lanka.*
Sunil Chandrasiri, University of Colombo.

48. *Air Pollution Tax for Controlling Emissions from the Manufacturing Sector in Manila.*
Catherine Corpuz, University of the Philippines.

49. *Sustaining the Commons: The Role of Liquidity Constraints in Upland Households, Philippines.*
Asa Sajise, University of California at Berkeley (PhD thesis award).

50. *Econometric Analysis of Factors Affecting Deforestation in Papua New Guinea.*
Trevor Gumoi, University of New England, Australia (PhD thesis award).

51. *China's Paper Industry: Growth and Environmental Impacts Under Economic Reform.*
Jintao Xu, Virginia Polytechnic (PhD thesis award).

52. *Farm Chemicals, Rice Production and the Environment in China.*
Jikun Huang, China Centre for Agricultural Policy.

53. *Causes of Deforestation in China.*
Yaoqi Zhang, University of Finland (PhD thesis award).

54. *Economic Analysis of Groundwater Extraction in Jakarta.*
Yusman Syaukat, Guelph University (PhD thesis award).

55. *Environmental Costs of Artisanal Gold Mining in the Philippines.*
Danilo Israel, Philippines Institute of Development Studies.

56. *Impact of Trade Liberalization on the Environment: The Case of Tariff Reduction for Potato in Sri Lanka.*
Jeevika Weerahewa, et al, University of Peradeniya, Sri Lanka.

57. *Water Quality Improvements: A Contingent Valuation Study of the Chao Phraya River.*
Churai Tapvong, Sukhothai Thammathirat Open University, Thailand.

58. *Economic Analysis of Salinity Problems in the Mahaweli - H Irrigation Project in Sri Lanka.*
Selliah Thiruchelvam, University of Peradeniya, Sri Lanka.

59. *The Distributional Impacts of Climate Change Mitigation Policies in Indonesia.*
Agus Sari, University of California at Berkeley, USA (PhD thesis award).

60. *Electricity Pricing for North Vietnam.*
Nguyen Van Song, Hanoi Agricultural University #1.

61. *Comparative Analysis of Alternative Forest Management Systems in the Mekong Delta, Vietnam.*
Mai Van Nam and Nguyen Tri Khiem, Cantho University.

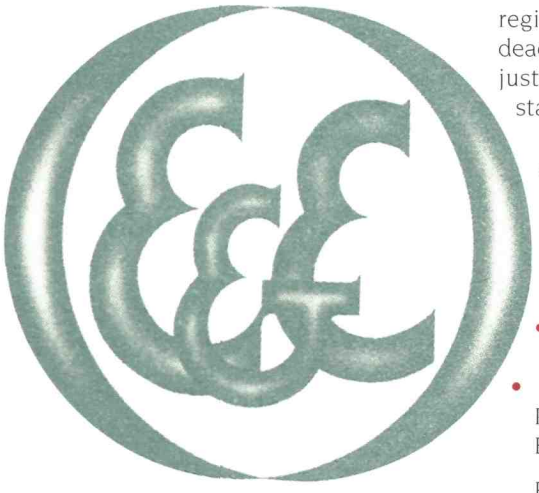
62. *Existence Value of Tropical Forests in Papua New Guinea.*
Billy Manoka, University of Massachusetts, USA (PhD thesis award).

63. *Transactions Costs of Coastal Community-Based Resource Management Projects in the Philippines.*
Zenaida Sumalde, University of the Philippines at Los Banos

64. *Cost-Benefit Analysis of Controlling SOx Emissions from Fossil Fuel Fired Plants in Manila.*
Elvira Orbeta, Resources, Environment and Economics Centre for Studies.

65. *The Economy-wide Impacts of Integrated Pest Management in Indonesia.*
Budy Resosudarmo, University of Indonesia.

HOW TO JOIN EEPSEA



RESEARCH WITH US..

EEPSEA provides research grants to nationals of EEPSEA member countries. These are awarded through twice-yearly competitions (in March and September). The organisation of these competitions is illustrated in the flow chart opposite. Grants are normally for a one-year period and are renewable. Proposals, interim reports and final reports are presented at EEPSEA's biannual workshops in May and November in Singapore.

Grants may also be used to cover the costs of PhD. fieldwork for Southeast Asian students studying in the region or overseas. In these cases, deadlines for application can be adjusted to suit the student's circumstances.

Researchers wishing to apply should obtain these documents from the Secretariat or the EEPSEA website:

- Guidelines for the Presentation of Research Proposals.
- Awards for Doctoral Field work.
- How to Design a Research Project in Environmental Economics.

Female researchers will find EEPSEA a congenial environment – more than half of EEPSEA's project leaders are women.

TRAIN WITH US..

EEPSEA provides many opportunities for training. The most important is its five-week course in Los Banos, the Philippines, for researchers from throughout the region. (See page 23 for details). EEPSEA also provides Post-doctoral training fellowships in Canada and considers applications for sponsorship for various other short courses overseas.

SPONSOR US...

EEPSEA represents an excellent partner for companies and institutions wishing to sponsor work in the field of environmental economics.

Its governance structure (see page 8) provides accountability, quality control and relevance to local problems with a minimum of bureaucracy. The Sponsors Group provides a forum for donors to meet and an entree to EEPSEA's world-wide network (see 'Connections', page 5). EEPSEA's communications and media outreach ensure that results are well-publicized and reach decision makers and the general public. By pooling resources, contributors can achieve a large impact with a relatively modest input.

In 1998, IDRC commissioned a team of consultants to evaluate the effectiveness of multi-donor consortia. The views of sponsors, including EEPSEA's, were important elements of the study.

When asked to compare the benefits and costs with those of other donor-funded activities, those interviewed rated EEPSEA "Far Above Average" (5 on a 5 point scale). Some comments from sponsors included:

"I am familiar with many development initiatives around the world and EEPSEA is one of the best."

"EEPSEA's approach outstrips every other. They use researchers from other countries in the region, from the south, who have immediate access to researchers from the north (via e-mail). This working method is effective and has a high benefit-cost ratio."

"... one of the best initiatives of IDRC. They set the framework and allow the Executive Director a lot of autonomy to get the job done."

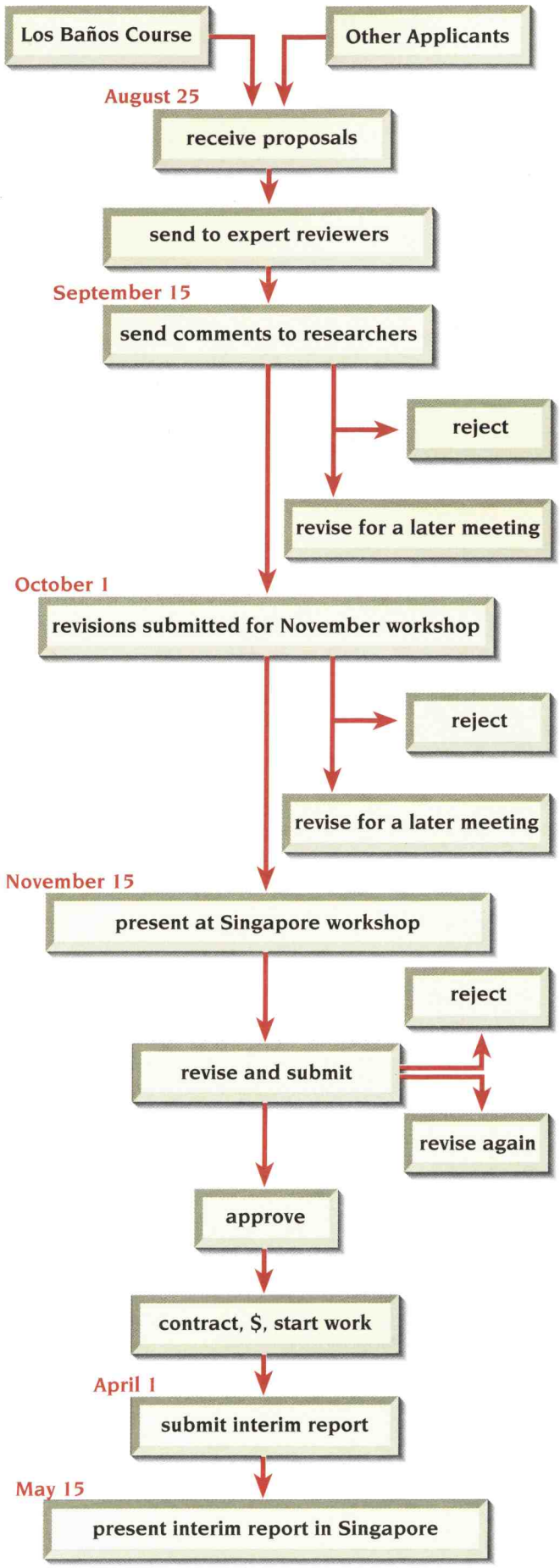
"EEPSEA is very focused and results-oriented. They have a clear focus on a single issue and a structure set up to deliver specific activities related to their mission. There is a high performance commitment."

OPINIONS

"As a global supplier of fertilizers, Norsk Hydro wishes to ensure that its practices are adjusted to local needs and that they are environmentally sustainable. We are in Asia for the long run and we know that this requires sustainable practices and good relations with host countries. EEPSEA's research gives us sound and objective information brought forward by qualified personnel at national institutions. Our sponsorship of EEPSEA has been a good investment and we look forward to continuing this partnership."

PER-CHRISTIAN ENDSJØ,
PRESIDENT, NORSK HYDRO ASIA PTE. LTD

EEPSEA Proposal Review
(September Competition)



Alumni

The benefits of working with EEPSEA are reflected in the careers of some of its alumni

Ms Tho Thi Thuy Hang joined EEPSEA as a teaching associate in the 1996/97 apprenticeship program in Vietnam (see page 22). She also acted as liaison with the Environment Committee of the Ho Chi Minh City government with which EEPSEA collaborated in a study of pollution charges. She was a participant in EEPSEA's five-week regional course in Los Banos in 1996. This training and experience were instrumental in her obtaining the position of Program Officer for the United Nations Development Program in Ho Chi Minh City, where she is responsible for environmental and resource management issues.

Mr Agus Purnomo was one of the 'pioneer' group of 16 researchers sponsored by EEPSEA to attend Harvard's five-week course in environmental economics in 1993. Agus had been the leader of an environmental NGO in Indonesia. After the Harvard course, Agus joined the Rockefeller Foundation in New York, before returning to Asia to join the World Wide Fund for Nature (WWF) International as the Country Representative in Indonesia. WWF Indonesia, now a national program, has staff of 300, an annual budget of about USD 7 million and is one of the most important players in the Indonesian environmental movement. Agus' EEPSEA training has helped him incorporate an economic perspective into WWF's approach and to bridge the gap between NGOs, government and the private sector.

Mr Jiahua Pan was sponsored by EEPSEA to undertake a study of one of China's major development projects. He reports that the EEPSEA work has been very useful to his later career. Since doing the research he has been promoted to Senior Researcher and appointed the Deputy Director of Development Studies of the Institute of World Economics and Politics. His research results have been used as case materials in his recent book *Economic Analysis on Alternative Approaches to Sustainable Development* – now widely used as a university reference book in China. He now holds positions in academic societies such as the China Ecological Economics Society and the China Centre for Sustainable Development of the Chinese Academy of Social Sciences.

Ms Phan Thi Giac Tam of Vietnam has worked with EEPSEA since 1993. She was one of 16 researchers sponsored by EEPSEA to attend the Harvard course in 1993. She then carried out a successful research project on rural sanitation and organized two five-week training courses with EEPSEA in Vietnam (along with the associated training materials, translations and media outreach). Mrs. Tam was subsequently invited to attend international seminars of the Beijer Institute, Sweden and spent time as a Visiting Researcher at the World Bank. In 1996, she received an EEPSEA Postgraduate Award for a year of advanced study at the University of British Columbia. She is currently the recipient of a Fullbright Scholarship for her PhD. studies in the US.

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EEPSEA's program will evolve to meet the needs of the rapidly changing region.

The organisation's recipe for success – a network of talented local researchers doing policy-relevant research – has proven itself. In coming years, this approach, and the expertise and information it embodies, can be extended more widely; for example by supporting national associations of environmental economists and holding seminars with journalists and NGOs. New information technology creates other possibilities to widen EEPSEA's reach: interactive websites, distance learning and electronic conferencing offer potential that can only be guessed at today.

The core of EEPSEA's program will continue to be rigorous applied research; by working with new partners and by working with new media, its impact can be extended still further. By continually adapting and improving its approach, EEPSEA will remain in a strong position to help Southeast Asia secure a prosperous and sustainable future for its people.

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OPINIONS

"Over the past five years, EEPSEA has proven itself a capable taskmaster; the Secretariat has helped build a cadre of talented economists uniquely suited to the difficult task of balancing economic growth with environmental protection. IDRC is proud to have been the catalyst that brought together the human and financial resources needed to do the job."

MAUREEN O'NEIL
PRESIDENT, INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

EEPSEA IS GRATEFUL TO THE FOLLOWING SPONSORS FOR THEIR FINANCIAL SUPPORT:

- INTERNATIONAL DEVELOPMENT RESEARCH CENTRE, CANADA*#
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PAGE 13	*THE STRAITS TIMES*
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DESIGN NOTES:

HAVE A LOOK AT THE MESSAGE IN THE CALCULATOR (CENTRE SPREAD)!
DID YOU SEE THE REFERENCE TO EEPSEA IN NORWEGIAN

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