

ANNUAL REPORT 2004



South Asian Network for Development
and Environmental Economics



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SANDEE grantees, researchers, and resource persons at the Research and Training Workshop in Bangalore, India

Message from the Program Director

Dear Friends and Colleagues:

The year 2004 was all about starting phase two of SANDEE's activities. Endorsed and bolstered by an external evaluation, we set out to consolidate and strengthen some of our activities. We emerged with some more streamlined processes and improved ways to support the community we serve.

Our core activity of grant support for research continues. Last year we made 11 new grants. Our goal this year is to work harder on bringing in researchers from smaller countries in the region, including the Maldives. We have strengthened our ability to provide technical support to researchers with grants by drawing additional help from various scholars in and outside South Asia. We have made it easier for new researchers to apply for grants by asking first for brief concept notes instead of full proposals.

We continue to offer introductory and advanced training workshops. Our environmental economics course held in the summer of 2004 is a basic course that introduces participants to various aspects of economics that deal with the environment. We have increasingly tried to link the course and its participants to our research program. The advanced course we offered in 2004 was related to survey methods and implementation. We continue to support younger researchers in smaller countries in the region by hosting the policy research and proposal writing workshop.

We published several working papers and policy briefs in 2004. Please do visit our website (www.sandeeonline.org) to obtain these publications. We also have a whole new set of bibliographies that will be useful to researchers interested in different areas of environmental and natural resource economics.

On the policy front, our research studies are slowly beginning to enter the policy debate either among researchers or amongst policy makers and practitioners. For example, Somanathan's work on water purification behavior was presented to and discussed at the World Bank; and Bhim Adhikari's work was reflected in discussions on new challenges in community forestry in Nepal. Rucha Ghate's contribution to tribals in central India has been to keep them fully informed about joint forest management and its rules and regulations. Amita Shah has been invited by the Planning Commission of India to write a chapter for the State Development Report of Gujarat, where she is incorporating a substantial part of her SANDEE research to examine the links between natural resources, livelihood and migration

I am delighted to welcome a new donor and two new Board members to SANDEE. Our latest donor is the Canadian International Development Research Center. David Glover represents them and brings to us his skills and experience as Director of the Economy and Environment Program for Southeast Asia. We also welcome, Shanta Devarajan, Chief Economist, South Asia Region, who brings experience from policy making at the World Bank and from serving as an advisor to another research network, the African Economic Research Consortium.

SANDEE has become a professional family in South Asia these days. We are delighted with how much SANDEEites interact outside our workshops and are drawn into each others activities. I look forward to more of this kind of interaction as SANDEE grows.

Be well and take care

Priya Shyamsundar
Program Director

Research Support

SANDEE supports South Asian Researchers working in the field of environmental and natural resource economics through a biannual small grants program. Researchers meet twice a year to present their work and progress and discuss research methods with peers and senior colleagues from the region and from around the world. SANDEE's research grants program is at the core of SANDEE's activities.

SANDEE made 11 research grants in 2004, including 2 conditional grants and 2 study grants.

Cycle 8 (June 2004)

Pesticide Use, Human Health and Household Productivity in a Mid-hills Watershed, Nepal, Kishor Atreya, Kathmandu University, Nepal.

The goal of this study is to examine health disorder due to pesticide use and exposure, and the costs associated with it. The study focuses on vegetable farming, which is subject to very high doses of pesticides in Nepal. Kishor also seeks to understand the behavior of farmers and the actions they take to mitigate the effects of pesticides.

Economic Inquiry into Collective Action and Household Behavior in Micro Watersheds, D. Suresh Kumar, Tamil Nadu Agricultural University, India.

This research focuses on the existence and extent of collective action in managing micro watersheds in Coimbatore District of

Western Tamil Nadu. Suresh Kumar seeks to identify the factors responsible for the emergence and existence of collective action at community and household levels. He also seeks to understand why collective action often fails after project implementation agencies withdraw from managing the watersheds. This research will contribute to policy makers' understanding of what needs to be done to make watershed management sustainable.

Economic Impacts of Changes in Hydrological Services from Forest Ecosystems: Studies in Two Agro-climatic Regions of the Western Ghats of India, Sharachchandra Lele, Centre for Interdisciplinary Studies in Environment and Development, India.

This study aims to estimate the impact of changes in hydrological regimes on downstream communities in the Western Ghats. The study intends to analyze the influence of eco-climatic conditions and water extraction technology on agricultural production.

Managing Recyclables for Effective Urban Waste Management: A Case Study in Thimphu, Bhutan, Anjana Giri, Bhutan.

This project aims to review existing solid waste management practices in Thimphu, Bhutan. Anjana will analyze gaps, problems and economic constraints associated with recycling in particular. She will examine the recycling sector to assess the feasibility of successful public-private partnerships in waste management in Thimphu. (The grant is yet to be disbursed because the grantee has been unable to find an affiliate institution in Bhutan).

Cycle 9 (November 2004)

The Analysis of Heterogeneity Effect on Peoples' Participation in Joint Management of Protected and Reserved Forests in West Bengal, Lekha Mukhopadhyay, JadHAVpur University, India.

Designing voluntary collective action programs for managing common pool resources is a difficult task in heterogeneous societies. Lekha proposes to highlight this issue in the context of forest management around the Buxa Tiger Reserve in West Bengal, India. She will examine the impact of economic, political and ethnic heterogeneity on household and village community decisions to participate in forest management programs.

Estimation of Pro-Poor Tourism Potential in Indian Sundarbans, Indrila Guha and Santadas Ghosh, Global Change Program, Jadavpur University, India.

The government's latest strategy to involve large Indian business houses to lure tourists to Sundarban National Park (SNP) is a positive effort to promote tourism in this biodiversity- rich mangrove area. But this can have negative impact on the vibrant informal economy of the local poor, who are the small service providers. In this study, the researchers propose to measure the value of recreational services provided by SNP and also understand



Resource persons advising a researcher

the role of tourism in reducing local poverty. They will objectively investigate whether the government could have generated greater revenue for itself through an improved pricing policy while keeping the current pro-poor mode of tourism intact.

The Effect of Natural Resource Scarcity on Household's and Women's Time Allocation Decisions in Rural India, Neetu Chopra and Supriya Singh, Delhi School of Economics, India.

Resource scarcity has a direct effect on women and girls in rural communities, as they are the primary collectors and users of natural resources. Neetu and Supriya propose to examine whether resource degradation causes women to spend more time in resource collection and less time on income-generating activities. An important goal of this analysis is to inform the policy debate on whether, and to what extent, improved natural resource management—e.g., reforestation, regeneration of grasslands, building water-conserving structures, can alleviate poverty by increasing the time that households and women spend in income-generating activities.

The Power Purchase Agreement in the Wind Energy Sector: A Comparative Study of Tamil Nadu and Karnataka, Pushkala Ratan, Indian Institute of Technology –Madras, India

Wind energy is an important source of emission-free clean energy. In India, efforts are underway to encourage project developers from the private sector to finance and install new wind energy generation plants. However, the development of wind energy sector has been very slow thus far. The primary research question in Pushkala's study will be to address whether and if performance of wind farms in Tamil Nadu and Karnataka can be explained through the features of existing purchasing power agreements. Our study will contribute to the development of an important alternate energy sector in India.

Demand for Alternative Technologies for Reduction of Indoor Air Pollution in Rural Areas of Central Nepal, Krishna Prasad Pant, Center for Economic Development and Administration, Nepal

Traditional fuels are the primary source of energy for cooking, lighting and heating in rural households of Nepal. Since most of the traditional Nepali houses are designed with few windows or ventilation (mainly to conserve heat), they do not generally have flues or chimneys. Therefore, concentration of indoor air pollution is believed to be high within the rural households. In this study, Krishna Pant seeks to assess households' existing demand for interventions that reduce health risks from indoor air pollution. The findings of this research are expected to provide a foundation for developing pragmatic intervention programs to address the problems of IAP in rural households and will contribute to alleviation of rural poverty and reduce child mortality.

Impact of Pesticide Use in Rice Cultivation on Fresh Water Fishes in the Chalan Beel of Bangladesh, Md. Abdul Wadud, Rajshahi University, Bangladesh (Conditional Grant).

Rice production and fish production in the Chalan Beel have a close mutual relationship with the use of water and land resources. First, they are competitive in the use of land and water. Second, rice production discharges pesticide into water bodies causing an external cost to fish culture, which, in turn, leads to an increase in fish prices. In this project, Abdul will study the joint production of rice and fish and suggest policies for reducing the rice related externalities on fish farming.

Social Cost-benefit Analysis of Shrimp Farming in Coastal Tracts of Tamil Nadu and Union Territory of Pondicherry, L. Umamaheswari, Pandit Jawaharlal Nehru College of Agriculture & Research Institute, India (Conditional Grant).

The short-term financial returns from shrimp farming are high but shrimp aquaculture in coastal rice paddies has long-term welfare

implications. The present study attempts to examine if it is socially desirable to go in for shrimp farming in rice fields when the effects of environmental externalities such as salinization are taken into consideration. This micro-level study will identify appropriate policy measures for the development of sustainable shrimp aquaculture in the region.

Study Grants

SANDEE's Management and Advisory Committee recommended small study grants to two researchers in the 8th cycle to refine, strengthen and revise potentially good research proposals. The following two study grants were made.

The Analysis of Heterogeneity Effect on Peoples' Participation in Joint Management of Protected and Reserved Forests in West Bengal, Lekha Mukhopadhyay, Jadhavpur University, India.



SANDEE Committee Members having a lively discussion

Lekha was able to refine and strengthen her proposal with the help of the SANDEE study grant and was ultimately awarded a full SANDEE research grant in the 9th cycle. Please see above for details.

Rural Poverty and Forest Dependence: Empirical Evidences from Rural Areas of Sri Lanka, Widanage Rupananda, University of Ruhuna, Sri Lanka.

This study seeks to investigate non-timber forest product extraction by poor households in Sri Lanka. The focus of the project will be to study the effect of rural development policies on household use of non-timber forest products.



SANDEE Working Paper Series

In 2004, SANDEE published five working papers based on SANDEE supported research. We also published one special paper by Sir Partha Dasgupta and Prof. Karl Goran Maler. The complete papers are available in our website at www.sandeeonline.org. The list of the working papers published in 2004 are:

Awareness and the Demand for Environmental Quality: Drinking Water in Urban India, by Jyotsna Jalan, E. Somanathan and Saraswata Choudhuri, SANDEE Working Paper No. 4-03

Demand for Eco-tourism: Estimating Recreational Benefits from the Margalla Hills National Park in Northern Pakistan, by Himayatullah Khan, SANDEE Working Paper No. 5-04

Informal Regulation of Pollution in a Developing Country: Empirical Evidence from India, by Vinish Kathuria, SANDEE Working Paper No. 6-04

Environmental and Resource Economics: Some Recent Development, by Partha Dasgupta and Karl Goran Maler, SANDEE Working Paper No. 7 -04

The Importance of Being Informed: Experimental Evidence on the Demand for Environmental Quality, by Jyotsna Jalan and E. Somanathan, SANDEE Working Paper No. 8-04

Measuring the Value of Life and Limb: Estimating Compensating Wage Differentials among Workers in Chennai and Mumbai, S. Madheswaran, SANDEE Working Paper No. 9-04

Research Grants 2004

S. No.	Research Topic	Principal Investigator	Institution	Country	Starting Date	Duration
<i>Cycle 8 – Summer 2004</i>						
1.	Pesticide Use, Human Health, and Household Productivity in a Mid-hills Watershed, Nepal	Atreya, Kishor	Kathmandu University	Nepal	Aug 2004	18 months
2.	Economic Inquiry into Collective Action and Household Behavior in Micro Watersheds	D. Suresh, Kumar	Tamil Nadu Agricultural University	India	Aug 2004	24 months
3.	Managing Recyclables for Effective Urban Waste Management: A Case Study in Thimphu, Bhutan	Giri, Anjana		Bhutan	Aug 2004	15 months
4.	Economic Impacts of Changes in Hydrological Services from Forest Ecosystems: Studies in two Agro-climatic Regions of the Western Ghats of India	Lele, Sharachchandra	Centre for Interdisciplinary Studies in Environment and Development	India	Aug 2004	18 months
<i>Cycle 9 – Winter 2004</i>						
1.	Estimation of Pro-Poor Tourism Potential in Indian Sundarbans	Guha, Indrila and Santadas Ghosh	Vidyasagar College for Women	India	Dec 2004	18 months
2.	The Analysis of Heterogeneity Effect on Peoples' Participation in Joint Management of Protected and Reserved Forests in West Bengal	Mukhopadhyay, Lekha	Jogamya Devi College	India	Dec 2004	18 months
3.	Valuation of Indoor Air Pollution in Rural Areas of Central Nepal	Pant, Krishna Prasad	Tribhuvan University	Nepal	Dec 2004	12 months
4.	The Power Purchase Agreement in the Wind Energy Sector: A Comparative Study of Tamil Nadu and Karnataka	Ratan, Pushkala	The Indian Institute of Technology	India	Dec 2004	18 months
5.	Impact of Pesticide Use in Rice Cultivation on Fresh Water Fishes in the Chalan Beel of Bangladesh, Abdul Wadud, B'desh (conditional)	Wadud, Abdul	University of Rajshahi	Bangladesh	Dec 2004	24 months
6.	Social Cost-Benefit Analysis of Shrimp Farming in Coastal Tracts of Tamilnadu and Union Territory of Pondicherry (Conditional)	L. Umamaheswari	Pandit Jawaharlal Nehru College of Agriculture & Research Institute	India	Dec 2004	24 months
7.	The Effect of Natural Resource Scarcity on Household's and Women's Time Allocation Decisions in Rural India	Chopra, Neetu and Supriya Singh	Center for Development Economics, Delhi School of Economics	India	Dec 2004	14 months

Taking Research Forward

SANDEE researchers disseminate their research findings to policy makers, practitioners or in class rooms. We give details of a few here.

- Bhim Adhikari's research on forestry user groups was cited by Dr. Keshav Kanel, Deputy Director General, Community Forestry Division in discussing new challenges to community forestry in Nepal. Adhikari's work focuses on distributional concerns related to community forestry and it is clear that the next phase of community forestry needs to address these concerns.
- E. Somanathan and Jyotsna Jalan gave several talks based on their two SANDEE research papers. Their work on water quality and awareness has generated considerable interest in the impact of information on household behavior and was discussed at the Indian Institute of Management Kolkata, the World Bank, New Delhi, and the Global Development Network's 6th annual conference in Dakar, Senegal.
- Rucha Ghate held a series of workshops for raising awareness among tribals in Gadricholi district in Maharashtra about Joint Forest Management and other tribal development schemes. She was able to bring together officials and tribal members and facilitated increased interaction between these two important stakeholders. For many of the officials and tribals, this was a first attempt at direct communication.

Capacity Building & Training Support

SANDEE organized four training courses in 2004 in partnership with a number of regional and international institutions. The objective of these training workshops is to develop institutional capacity in environmental and natural resource economics in the region and to increase the number of South Asian professionals who can use economic tools to analyze environmental problems and who can then teach these tools to other colleagues.

Policy Research and Proposal Writing Workshop in Environmental Economics, Nepal 13th – 16th, May 2004



Participants and Resource persons - Regional Policy Research and Proposal Writing Workshop at Kathmandu, Nepal

SANDEE organized a four day “Policy Research and Proposal Writing Workshop” between the 13th and 16th of May 2004 in Kathmandu, Nepal. The main objective of this workshop was to introduce economists to key policy concerns in environmental economics and to enable the participants to develop skills required to prepare serious research proposals on these issues.



Participant with resource persons - Regional Policy Research & Proposal Writing Workshop at Kathmandu, Nepal

The workshop was organized jointly with IUCN – The World Conservation Union, Nepal and was sponsored by IDRC Canada. The workshop exposed participants to important environmental policy issues in Nepal and the region. Policy experts discussed strategic concerns related to biodiversity, forest, water, waste management, and air pollution.

SANDEE resource people presented case studies and pilot projects and demonstrated the application of environmental economics in research and policy. The workshop also trained participants in logical thinking, research proposal writing and presentation skills. It provided technical inputs and comments on research concepts developed by the participants.

Dr. Mahesh Banskota, Country Representative, IUCN Nepal, Dr. Keshav Raj Kanel, Department of Forest, Dr. Toran Sharma, Nepal Environmental & Scientific Services (P) Ltd. and Mr. Ajaya Dixit, Nepal Water Conservation Foundation presented policy relevant papers on the economic aspects of biodiversity,

forestry, solid waste management and water respectively. Dr. Madhav Karki from IDRC, Canada also presented a paper on issues related to poverty, economics and development.

The training faculty included Dr. Enamul Haque from North South University, Bangladesh, Dr. Joyashree Roy from Jadavpur University and Dr. Vinish Kathuria from Madras School of Economics, India, Dr. Bishwanath Tiwari from Tribhuvan University, Nepal, Dr. Madhusudan Bhattarai from IWMI, Sri Lanka and Mr. Manik Duggar from SANDEE. The participants included young as well as mid-career researchers. Of the seventeen participants, two were from Bangladesh, one from Sri Lanka, one from Pakistan and the rest from Nepal.

An Introductory Course in Environmental and Natural Resource Economics, Sri Lanka **June 17 - July 4, 2004**

SANDEE, jointly with IUCN Sri Lanka, organized a three-week basic training course in Environmental Economics for Economists, in Sri Lanka from June 17 – July 04, 2004. This basic course was meant for economists interested in upgrading their skills and learning related to Environmental Economics.

The course covered economic issues underlying sustainable development, poverty-environment interactions, natural resource use and pollution management. Participants were exposed to basic theoretical issues and economic tools and methodologies for analyzing environmental problems in developing countries.

Twenty three participants, mainly young researchers, teachers and EE practitioners from the region attended the three-week workshop. Faculty included experts from within and outside the South Asia

region. Dr. Enamul Haque from East-West University, Dhaka, Dr. Rabindra Nath Bhattacharya from Kalyani University and Dr. M. N. Murty from Institute of Economic Growth, Delhi, India, Dr. Sunil Chandrasiri from Sri Lanka, Prof. Partha Dasgupta from Cambridge University, UK, Prof. Karl-Goran Maler from the Beijer International Institute of Ecological Economics, Sweden, Prof. Jefferey Vincent from the University of California, USA, Dr. Maureen Cropper from WBI and Dr. Priya Shyamsundar from SANDEE were among the faculty of the workshop.



Participants of the EE course on a field visit in Sri Lanka

A Course in Survey Methods for Environmental Economists Bangalore, India November, 1 - 3, 2004

SANDEE, jointly with the Institute of Social and Economic Change, organized a three-day Course on Survey Methods for

Environmental Economists at Manipal County, Bangalore from November 1-3, 2004. The purpose of this course was to help researcher's better design household surveys, better construct random samples, and improve survey implementation, all in an effort to improve the quality of the data that is collected. Improved quality data, in turn, will help researchers to better answer the research questions for which the surveys are designed in the first place.

Dr Shreekant Gupta from Delhi School of Economics, India, Dr. Urvashi Narain from Resources for the Future, Washington D.C. USA. and Dr. Arbinda Mishra from Center for Multi-disciplinary Development Research, India facilitated the training. Altogether 21 researchers from Nepal, Bhutan, Sri Lanka, Pakistan, India and Bangladesh participated in the training.

Training workshop on 'MDG Needs Assessment– Resource Costing and Information Requirement', Kathmandu, Nepal November 10 -11, 2004



Certificate distribution at the MDG Training workshop

SANDEE jointly with Nepal Forum for Environmental Journalists (NEFEJ), organized a two-day technical training on “MDG Needs Assessment–Resource Costing and Information Requirement” from November 10-11, 2004 at the Godavari Village Resort in Kathmandu. The objective of the training workshop was to enhance the capacity of researchers and civil society for better understanding of MDGs and to progressively monitoring its implementation. This was a technical training program, which dealt with data needs and requirements and associated costs for the implementation of the MDGs in Nepal. Chief expert and Training Director was Dr. Sajjad Zohir, Executive Director of Economic Research Group (ERG) and Senior Research Fellow at Bangladesh Institute of Development Studies, Dhaka Bangladesh. About 28 participants from different academic, research and the NGO community attended the training workshop in Kathmandu.

New Projects initiated in 2004

SANDEE Book on Institutions and Common Property Resources (CPR)

SANDEE is planning to publish an edited book on CPR Management and institutions, based on studies conducted by SANDEE grantees and SANDEE associates. Drs. Narpat Jodha, Rucha Ghate and Pranab Mukhopadhyay are editing the book jointly. This book will focus on institutions that govern the use of CPRs. While there is considerable work in South Asia on the use of CPRs, much less is understood about governance structures and when and how institutions work to manage the commons. We see this book as adding to teaching material in the region and as a source of information and analyses related to CPR management. It also provides an opportunity for SANDEE grantees to work with other grantees and develop a new set of skills and knowledge.

SANDEE Discussion on Policy - A Talk Program linking Water, Sanitation and Poverty in Nepal

SANDEE, jointly with IUCN – The World conservation Union Nepal, organized a day-long talk program on March 17, 2004 at Hotel Himalaya, Lalitpur, Nepal. The topic of the talk program was “Water, Sanitation and Poverty in a Macro-Economic Context-Myths and Realities facing Decision Makers” and was delivered by Dr. Stein Hansen of Nordic Consulting Group A.S, Norway. Dr. Hansen mainly discussed the linkage between water management and poverty reduction and identified some key issues that need to be addressed in order to tackle poverty. Around 58 people from

government, NGOs, INGOs, research and academic institutions participated in this program.



Dr. Stein Hansen speaking
at a SANDEE talk program in Kathmandu

Nepal Capacity Development Program in EE

In order to strengthen the capacity of EE in Nepalese institutions, SANDEE has launched the Nepal Capacity Development Program in EE. The basic aim of this project is to develop both individual and institutional capacity in EE in Nepal by acting as a facilitator and supporter.

To this end, SANDEE invited Dr. Joyashree Roy from Jadavpur University, Kolkata, India for a scoping exercise. Dr. Roy visited key Nepalese institutions including Tribhuvan University, Kirtipur, Institute of Agriculture and Animal Sciences, Rampur, Institute of Forest, Pokhara, Patan Multiple Campus, Lalitpur and other faculty and experts from Kathmandu University, SchEMS, and Nepal Economic Association. The outcome of the scoping exercise was shared with all the institutions and individuals engaged in the process, which strongly suggested the need for developing EE capacity both at institutional and individual levels in Nepal. It also suggested to organize a broader brainstorming workshop to develop an outline of an EE Capacity Development Program for Nepal.

Networking and Information Dissemination



SANDEE Newsletters

SANDEE published two newsletters in February and September 2004 (Newsletter No. 8 and 9). These newsletters carry both analytical and newsworthy writings on policy issues in the different countries in South Asia. The contributors are mostly young researchers from the region. This enhances their capacity to write and publish interesting analysis. Reporting SANDEE's activity is another important feature of the newsletter. The newsletter also tries to disseminate information regarding environmental economics and new developments around the world. SANDEE newsletters are available free of charge from our website.

Website, Database and List-Serve

SANDEE's website hosts different types of information on environmental economics. This ranges from details of SANDEE activities to information about international institutions and organizations working in the same field. Publications from SANDEE research are an additional feature of our website.

SANDEE has introduced an online database containing information about individual researchers as well as institutions mostly in South Asia with an interest in issues related to Environmental Economics. The database also has bibliographical information on publications in Environmental Economics by individual researchers. Membership for individuals is free.

The list-serve with 1600+ members offers a direct link to our members. We disseminate information about publications, jobs, conferences, meetings and grant opportunities through this list-serve.



Please visit our website www.sandeeonline.org to view a wide variety of information on environmental economics.

Bibliographies

Access to appropriate and adequate information is key to good research. For many SANDEE researchers, who are away from major urban centers and without good libraries, lack of information about research ideas and publications has been a key constraint. Thus, SANDEE develops and provides bibliographies on issues that are relevant to researchers. Currently, our website has bibliographical information on more than fifteen different topics in Environmental Economics. In 2004, we published 3 new bibliographies. These include:

- a) NTFP Conservation and Management
- b) Pesticide Use and Health Costs, and,
- c) Valuation of Statistical Life

The detailed references associated with these bibliographies are available to SANDEE researchers and course participants.

Questionnaires on the web

In order to enable new researchers to build on pre-tested and well developed questionnaires, SANDEE now collects questionnaires from researchers who have already finished their research and publishes these on our website. This means that colleagues who are beginning their field research do not need to start from scratch and can learn from work already undertaken. We hope eventually to make the data from previous research available on our website.

Publications and Presentations by SANDEE Researchers

Atreya, K. (2004), 'A Pilot Study on Pesticide Use, Acute Symptoms and Willingness to Pay for Safer Pesticides in a Commercial Area, Nepal', GDN Net Document Store.

Ghate R. & D. Mehra (2004), 'The Land on which the Forest Stands is not ours, so what? Forest Products are ours! A Study of Three Collective Action Based Forest Regimes Operating Without Land Tenure', *Forests, Trees and Livelihoods* 14 (2, 3, 4).

Ghate, R. (2004), 'Equity in Decentralized Forest Management in India', presented at WOW-III at Bloomington, June 2-6 2004. A modified version was presented at the 10th biennial IASCP conference at Oaxaca, Mexico, August 9-13, 2004.

Ghate R. & D. Mehra (2004), 'Ensuring Collective Action in Participatory Forest management', presented at 10th biennial IASCP conference at Oaxaca, Mexico, August 9-13, 2004.

Kathuria. V. (2004), 'Informal Regulation of Pollution in a Developing Country: A study of India', Working Paper No. 2, Madras School of Economics. Chennai.

Kathuria. V. (2004), 'Controlling pollution from SSIs', *Economic and Political Weekly* XXXIX (26), June 25 - July 2, 2004.

K.C., A, (2004), 'Extraction of NTFPs from the Community Forest: Analysis of Benefit Distribution Pattern in the Household level', *Journal of Forest and Livelihood* 4 (1), Forest Action, Nepal.

Lahiri, D. (2004), 'Economics of Sewerage Feed Multivarietal Fish Farming in West Bengal', presented at the International Institute of Fisheries Economics and Trade Conference (IIFET 2004) at Tokyo, Japan, July 21-30, 2004.

Mukhopadhyay, K. and S. Bhattacharjya (2004), 'Estimation of Abatement Costs of Air Pollution in Durgapur City of West Bengal', presented at the conference on Sustainable Energy and Environment jointly organized by the Joint Graduate School of Sustainable Energy and Environment & Kyoto University, Kyoto, Japan, held at Hilton Hua-Hin Resort and Spa, Hua-Hin, Thailand, December 1-3, 2004.

Ojha, V.P. (2004), 'Trade-Off Between Carbon Emissions, Economic Growth and Poverty Reduction in India', presented at the International Conference on Policy Modeling organized by EcoMod Network, held at University of Paris I Pantheon-Sorbonne, June 30 – July 4, 2004.

Purushothaman, S. (2004), 'Economic Analysis of Stakeholder Perceptions on Land Use Options in the Peripheries of Tropical Dry Deciduous Forests of Southern India', presented at the 1st World Congress of Agro-forestry 'Working Together for Sustainable Land-use Systems' at Florida, June 27- July 2, 2004.



Governance & Organization

SANDEE is mainly a virtual network that is anchored by a small Secretariat in Kathmandu and by biannual meetings in different parts of South Asia. We operate with the help of a small Secretariat and a governing board of senior researchers and practitioners from within and outside South Asia. We have institutional and individual members and a group of international donors who support and participate in our activities.

The Secretariat

SANDEE is administered with the help of small staff. The Secretariat staff includes:

1. Priya Shyamsundar, Program Director
2. Manik Duggar, Program Manager
3. Kavita Shrestha, Program Assistant
4. Anuradha Kafle, Research and Information Assistant
5. Sunita Khanal, Accounts Assistant

Management and Advisory Committee

SANDEE's Management and Advisory Committee directs and facilitates SANDEE's programs and activities. The committee meets every year and reviews progress on research, identifies new or additional research themes, and meets with SANDEE grantees and new researchers. There have been some changes last year in the committee with one new member joining in and one of the older members finishing his term. The current members of SANDEE's Management and Advisory Committee are listed in the box:

Management and Advisory Committee

1. **Prof. Kanchan Chopra**, Professor, the Institute for Economic Growth, India,
2. **Sir Partha Dasgupta**, Frank Ramsey Professor of Economics, Cambridge University, UK,
3. **Dr. Shanta Devarajan**, Chief Economist, South Asia Region, The World Bank
4. **Dr. David Glover**, Program Director, EEPSEA, (IDRC Canada Representative)
5. **Dr. A. K. Enamul Haque**, Professor, East West University, Bangladesh,
6. **Prof. Karl-Göran Mäler**, Director, Beijer International Institute for Ecological Economics at the Royal Swedish Academy of Sciences, Sweden,
7. **Dr. Rehana Siddiqui**, Professor, Pakistan Institute of Development Economics, Pakistan
8. **Dr. Priya Shyamsundar**, Program Director, SANDEE
9. **Prof. Thomas Sterner**, Professor of Environmental Economics, Gothenburg University, Sweden
10. **Prof. Jeffery Vincent**, Professor, Graduate School of International Relations & Pacific Studies, University of California at San Diego, USA.
11. **Country Representative**, IUCN – The World Conservation Union, Nepal

Key donors are invited to join the Committee

Sponsors and Partners

Key Donors

In 2004, SANDEE's programs and activities were sponsored by several regional and international agencies. These include:

- * The Department for International Development (DFID), UK
- * The Ford Foundation, New Delhi, India
- * The MacArthur Foundation, USA
- * The Swedish International Development and Cooperation Agency (Sida), Sweden
- * The World Bank Institute, Washington DC, USA
- * International Development and Research Centre (IDRC), Canada
- * Norwegian Agency for Development Co-operation (NORAD), Norway

Many partners collaborated with SANDEE in sponsoring workshops or helped SANDEE with special guidance and assistance. Some of our key partners include:

- * IUCN, the World Conservation Union
- * The Beijer International Institute for Ecological Economics, Sweden
- * Institute of Economic and Social Change, India
- * IDRC Canada, Delhi
- * Nepal Forum for Environmental Journalists, Nepal

We are extremely grateful to our donors and partners who have continued to be supportive to our efforts.

Institutional Members

SANDEE offers an institutional membership to institutions that want to become annual members and obtain information about SANDEE and its products. Our members in 2004 were:

- * Bhutan Trust Fund for Environmental Conservation, Thimpu, Bhutan
- * Centre for Development Alternatives, Ahmedabad, Gujarat
- * Centre for Development Studies, Kerala, India
- * Centre for Organization Development, Hyderabad, India,
- * Centre for Science and Environment, New Delhi, India
- * Department of Agricultural Economics, University of Agricultural Sciences, Bangalore, India
- * Gujarat Institute of Development Research (GIDR), Gujarat, India
- * Indian Institute of Forest Management (IIFM), Bhopal, M.P. India
- * Indira Gandhi Institute of Development Research (IGIDR), Mumbai, India
- * Institute of Social & Economic Change (ISEC), Bangalore, India
- * Institute of Rural Management Anand (IRMA), Gujarat, India
- * Institute of Development, Environment and Strategic Studies (IDESS), Dhaka, Bangladesh
- * Institute of Economic Growth (IEG), Delhi, India
- * IUCN Pakistan, Karachi, Pakistan
- * Madras School of Economics (MSE), Chennai, India
- * Post Graduate Institute of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka
- * Sherubtse College, Kanglung Trashigang, Bhutan
- * Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan
- * University of Madras, Tamil Nadu, India

Experience Shared By Our Colleagues

SANDEE covers many economics and environment related issues from across South Asia. While some colleagues are part of the SANDEE community because they undertake SANDEE sponsored research, others participate through training programs and sharing their experiences. We include in this section some research and other environmental economics news shared by SANDEE colleagues.

The Importance of Being Informed - Jyotsna Jalan & E. Somanathan

In SANDEE Working Paper 4-03 “Awareness and the demand for environmental quality: Drinking water in urban India” we used National Family Health Survey data from 1998-99 to show that schooling and exposure to news media raised the probability that a household would purify its drinking water at home in some way. We controlled for wealth and other variables in the regressions in order to ensure that schooling and news media exposure were not simply picking up income effects. Richer households are more likely to spend money on purifying their water at home. But they are also more educated. So what appears to be a relationship between schooling and purification could simply be one between purification and wealth, unless one controls for wealth. However, because wealth can never be perfectly measured, the control could be imperfect.

To solve this dilemma, we decided to develop experimental data from Gurgaon near Delhi in India. We undertook a household survey where about half the households from our sample were

randomly selected (using a random-number generator) to be given information about their water quality while the other half were not told until the experiment was over. This random selection ensured that information about water quality was not correlated with any characteristics of the households. Consequently, the effect of information on changes in purification behavior could be estimated without any possibility that it was picking up the effect of wealth or any other characteristics. It is for this reason that the medical literature refers to randomized trials as the “gold standard” for evaluating whether a drug is an effective cure.

With quality of drinking water as a representative of environmental quality, we randomly selected about 1000 households from census lists in Gurgaon, India. The city of Gurgaon was chosen since it is a residential urban area near Delhi and the quality of water supply was of non-uniform quality. Also the heterogeneity among the population in terms of their general awareness of sanitation and health issues made it suitable for our enquiry.

The first round was a household survey conducted for 1000 households, to gather information on household demographics, source and quality of drinking water, purification methods (if any) and general awareness of the household about health and sanitation issues. Water samples, both purified and unpurified, were collected from these households in bottles, which were sealed immediately after collection. Each bottle contained a slip of filter paper impregnated with nutrients, the major one being peptone. The bottles were kept in an incubator at body temperature for 48 hours after which, if they contained faecal bacteria, they would produce hydrogen sulphide, which would create iron sulphide, a black precipitate, otherwise remaining clear.

A month later, the second round of the survey was undertaken in which, 540 randomly selected households out of 1000 were given

their test results and a handout explaining the results. The handout also contained information on different methods of purifying water, their efficiency in removing pathogens and their cost, with suggestions on safe water storing and handling practices.

The households not visited during the second round, were visited during the third round and were first resurveyed for changes in purification behavior and were then given the test results and handouts. In the third round, the 540 households, that were informed about their water quality during the second round were also visited and re-surveyed for changes in purification behavior. This way the 540 households were revisited 7-8 weeks after they were informed about the quality of their water, thus allowing the respondent reasonable time for acting upon or ignoring the information provided.

The results revealed that, households that were initially not purifying their water, and were told that their drinking water was contaminated, were 11 percentage points more likely to begin some form of home purification in the next 7 weeks than households that did not receive any information (the control group).

By way of comparison, an additional year of schooling of the most educated member of the household is associated with a 4.4 percentage point rise in the probability of initial purification, while a move from one wealth quartile to the next is associated with a 15 percentage point rise in this probability (using the first-round survey data). Thus the effect of information from a single test of a household's own water quality on purification behavior was comparable in magnitude to the effect of a whole year of schooling or a large change in wealth.

Post Tsunami Operations: Another Disaster? - Shamen Vidanage, IUCN, Sri Lanka

The Indian Ocean Tsunami that hit Sri Lanka was the worst natural disaster in the living history of the nation claiming over 31,000 lives, 5,000 missing, leaving over 800,000 people displaced and destroying coastal infrastructure on a mammoth scale within the coastal area covering over 1000 km of the Sri Lankan coastline. The damage stretches from Jaffna in the north down the entire eastern and southern coast, and covers the west coast as far north of Colombo as Chilaw.

Given the size of its economy, the impact of tsunami was severe. Even as detailed assessments are underway, following estimates are being widely accepted. The destruction amounted to about 100,000 housing units (75,000 of which completely destroyed), 143 schools (100 of them completely destroyed) 150,000 vehicles, 10 out of 12 major fishing harbors damaged including support facilities, about 23,000 fishing vessels of various capacities were lost or damaged (almost 60 percent of the total number of fishing vessels in the country).

After the initial wave of relief and rescue operations, the question of ensuring future safety was the next to draw attention of the government. In this regard, one of the most interesting, yet debated, decisions made by the Government of Sri Lanka is the announcement of the strict adherence to the rule of 100m “no build” zone for all new construction in the coastal areas in southern and western coastal areas and 200m in north and the eastern coast. The above decision was to discourage concentration of population near the coastal zone and therefore minimize the loss of life in a future natural disaster and to minimize the impact of human interference on sensitive coastal ecosystems, which acted as buffers against the tsunami (e.g. well-established sand dunes, mangroves

and coral reefs). Earlier there was a coastal zone of 300m declared by the Coast Conservation Act (CCA), 1981 and all construction in the coastal zone was supposed to be subjected to approval under the CCA, however there were many unauthorized buildings constructed irrespective of the act. The result was apparent in the 26th December calamity.

While the new policy ensures safety of the coastal dwellers, it also creates hindrances for about 75,000 fishing households in pursuing their livelihood activities. Fishery related pressures are already immense as the tsunami impacted the 2/3rd of the country's coastline.

Another group that is opposing the decision is that of coastal tourism enterprises. Thus this well-meaning regulation is also likely to cause negative economic implications for at least two industries.

On more of a technical ground the proposed setback should have been decided individually within the 100m (200m for north and the east) 'no build zone' after considering the elevation from the coast and presence of important habitats rather than on pure distance. If strictly enforced, 'no build' zone would prevent utilizing lands which are not even vulnerable to natural disasters due to high elevation and do not contain ecologically important habitats. This might increase the difficulties of rehabilitation especially as alternative lands are hard to find in coastal urban areas.

What is needed now is to develop rehabilitation and reconstruction policies, strategies and plans based on sound Integrated Coastal Zone Management (ICZM) principles, and their implementation through effective coordination among all the parties involved in post tsunami reconstruction and rehabilitation.

Pollution Control In An Environmentally Rich Nation: Case of Vehicular Pollution in Bhutan

- Shivaraj Bhattarai, Bhutan and Prabhat Pankaj, India

The latest health statistics of Bhutan has come up with a startling revelation that acute respiratory infections (ARI) top the list of all common ailments in the country. ARI is found to be the cause of 14 % of deaths of children below the age of five. Prevalence of Bronchitis and Asthma has increased by about 7% points in the nineties and there is evidence of increases in other respiratory ailments as well. With this disclosure, indoor and outdoor pollution have emerged as major concerns.

The contribution of motor vehicles to overall urban air pollution in Bhutan is increasing. The number of vehicles in the kingdom is increasing at the rate of 15 to 20 percent every year. About 25,000 vehicles are registered in the country so far with maximum in Thimphu (16000) and Phuntsholing (7000). One of the reasons for this growth in demand is the availability of liberal bank loans. What causes greater concern is the fact that around 60 percent of the petrol and 96 percent of the diesel engine vehicles do not meet the Indian emission standards. Diesel vehicles in particular are in high demand owing to the low diesel prices as compared to petrol. Diesel vehicles emit higher carbon monoxide, nitrogen oxides, hydrocarbons and particulate matters. In addition, with high sulphur and wax content in diesel and lack of high altitude compensators (without these the vehicle needs 15 minutes of pre-heating), more soot is emitted.

Poor quality of road network, inadequate public transport, weak implementation of laws all seem to be worsening the scenario in addition to the above reasons. For example, the Road Safety and Transport Authority has the powers to ground vehicles that do not

comply with emission standards. But implementation is weak since reconditioned diesel vehicles (purchased before a ban was placed on their import) and other old cars are still running.

In a country like Bhutan, where industrial development is at an early stage and the pollution problem has not taken alarming dimensions as yet, some concerns over air quality have been raised recently. These have been taken up seriously by policy makers as well. Due to largely undamaged environment in Bhutan, adoption of locally suitable standards, which do not compromise the social costs, are justifiable. Stricter implementation of the existing laws, public investment in improvement of public transport system and repair and construction of proper roads are few important steps that need to be taken urgently. Fiscal incentives for petrol vehicles and vehicles fitted with high altitude compensators together with statutory control on monetary incentives for purchase of diesel driven vehicles would add to the effectiveness of the whole pollution control mechanism.

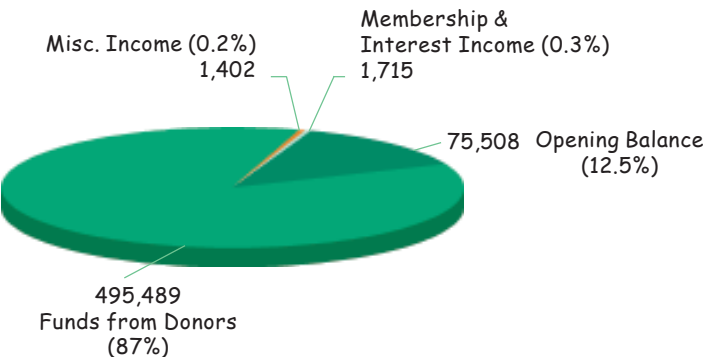


Honoring a veteran with a SANDEE cap:
Prof. K-G Maler (left) and Prof. Madhav Gadgil

Financial Information

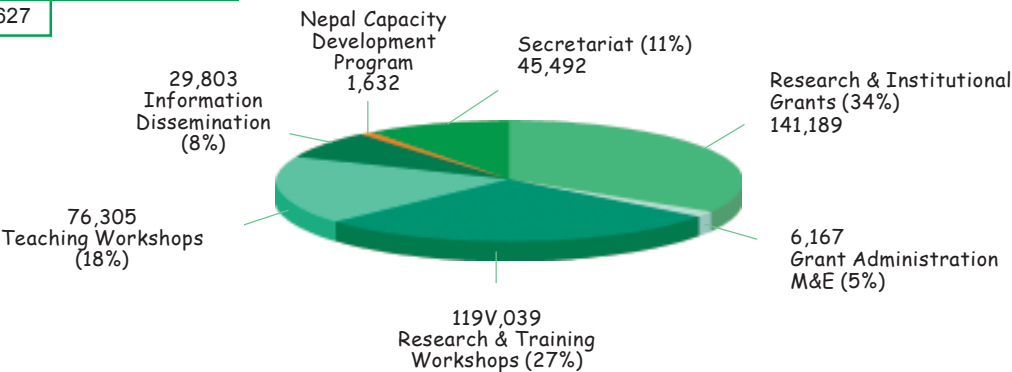
INCOME (in US\$)

Total: \$ 574,114



EXPENDITURE (in US\$)

Total: \$ 419,627



Key Environmental Indicators for South Asia 2004

	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka	Region
Population (millions)	135.7	0.9	1,048.6	0.3	24.1	144.9	19	1,401.5
GNI per capita, Atlas method (\$)	380	600	470	2,170	230	420	850	460
GDP (\$ billions)	48	1	510	1	6	59	17	649
AGRICULTURE								
Land area (1,000 sq. km)	130	47	2,973	0	143	771	65	4,781
Agricultural land (% of land area)	70	12	61	33	35	35	36	55
Irrigated land (% of crop land)	52.1	24.2	32.3	--	35.6	80.4	31.2	39.9
Fertilizer consumption (100 grams/ ha of arable land)	1,676	0	1,073	--	227	1,360	2,617	1,080
FORESTS AND BIODIVERSITY								
Forest area (% of total land area)	10.2	64.2	21.6	3.3	27.3	3.2	30.0	16.3
Annual deforestation (% change 1990-2000)	-1.3	0.0	-0.1	0.0	1.8	1.1	1.6	0.1
Forest Area (1,000sq km)	13	30	641	0	39	25	19	782
Nationally Protected Area (% of land area)	0.8	25.1	5.2	--	8.9	4.9	13.5	4.8
ENERGY, EMISSIONS AND POLLUTION								
GDP per unit of energy use (PPP \$ per kg of oil equivalent)	9.7	--	5.5	--	3.5	3.8	7.3	4.6
Share of electricity generated by coal (%)	--	--	78.3	--	--	0.4	--	67.1
Electric power consumption per capita (kWh)	94	--	365	--	61	358	285	331
CO2 emissions per unit of GDP (kg/PPP \$ of GDP)	0.2	--	0.5	--	0.1	0.4	0.2	0.4
CO2 emissions per capita (mt)	0.2	0.5	1.1	1.8	0.1	0.8	0.6	0.9
WATER & SANITATION								
Access to improved water sources (% of total population)	97	62	84	100	88	90	77	84
Access to sanitation in rural areas (% of rural population)	41	70	15	41	22	43	93	21
Freshwater resources per capita (cubic meters)	8,922	111,633	1,819	--	8,713	1,534	2,636	2,684
Total freshwater withdrawal (% of total water resources)	1.2	0	26.2	--	13.8	70.0	19.6	19.5
Under-5 mortality rate (per 1,000 live births)	73	94	90	77	63	101	19	95
NATIONAL ACCOUNTING AGGREGATES -2002								
Gross national savings (% GNI)	28.5	--	22.3	--	22.1	25.6	19.9	23.1
Consumption of fixed capital (% GNI)	5.8	9.1	9.7	--	2.4	7.7	5.1	9.0
Education expenditure (% GNI)	1.3	2.4	3.2	--	3.2	2.3	2.9	2.9
Energy depletion (% of GNI)	0.8	0.0	2.3	--	0.0	3.6	0.0	2.2
Mineral depletion (% GNI)	0.0	0.0	0.3	--	0.0	0.0	0.0	0.3
Net forest depletion (% GNI)	0.8	4.9	1.0	--	4.2	1.0	0.6	1.0
CO2 damage (% GNI)	0.4	0.6	1.7	--	0.4	1.2	0.3	1.5
Adjusted net savings (% GNI)	21.7	--	9.8	--	18.2	13.4	16.3	11.3

Source: Little Green Data Book, 2004, World Bank.

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South Asian Network for Development
and Environmental Economics