

# Annual Report 2006



South Asian Network for Development  
and Environmental Economics

## Table of Contents

Message from the Program Director .....	3
Research Support .....	5
Biannual Workshops .....	10
Taking Research Forward .....	14
Publications and Presentations .....	16
Training .....	25
Capacity Building in Underserved Areas .....	28
Networking and Information Dissemination .....	31
Expeience Shared by SANDEE Colleagues .....	32
Governance and Organization .....	34
Financial Information .....	36
Key Environmental Indicators .....	37



## Message from the Program Director

SANDEE saw many changes in 2006. We welcomed Pranab Mukhopadhyay, an economist from Goa University as a colleague and I made an across-the-world move to settle in Bangkok, Thailand for a few years. Karl-Goran Maler, a founding member of SANDEE, no longer officially sits on SANDEE governing body, but we will surely continue to enjoy his friendship, support and advice. We are also pleased that we now have Yoginder K. Alagh as a new member to SANDEE's Management and advisory Committee.

On the research front, we made some significant programmatic choices. Over the last few years, we have had a strong focus on resource institutions, poverty and valuation of environmental-health costs. We will continue to address these issues but we have also taken on another challenge – global climate change and its implications for South Asia. This is a very important and topical area of work in South Asia and we hope we can contribute in our own way toward better understanding its implications and identifying some workable solutions. We have new research guidelines related to climate change and we are looking forward to supporting some exciting research in this area. Our research support for coastal communities, adaptation and vulnerability continues to slowly evolve.

SANDEE's research also met an excellent market test of its viability and usefulness – a recent marketing review by Cambridge University Press to the editorial board of the journal Environment and Development Economics indicated that three of the top 10 articles viewed online during May 2005 to May 2006 were related to SANDEE. Bhim Adhikari, SANDEE Fellow's paper got the top spot as the most viewed article.

We had a full slate of training activities in 2006. We held our flagship course – an introduction to environmental and resource economics —

in Dhaka in May. We followed this up with a workshop that was jointly organized by SANDEE and the Institute for Social and Economic Change on proposal writing and policy analyses in Bangalore. In December, to launch our work on climate change, we organized a workshop on the economics and science of climate change. We were privileged to have faculty such as V. Ramanathan from the University of California, San Diego, Will Steffen from Australian National University and Partha Dasgupta, from Cambridge University, teach at this workshop.

A highlight from 2006 was SANDEE's strong showing at global academic congresses. SANDEE organized two panels at the Third World Congress of Environment and Resource Economics in Kyoto in July 2006. The first panel was on health and the environment and the second on natural resources management and poverty. Similarly, SANDEE hosted three panel presentations at the Ecological Economics Conference in Delhi showcasing different aspects of SANDEE research, including our forthcoming book on common property resources. We understand that all three sessions enjoyed packed audiences, a clear sign of SANDEE's growth and maturity. We are pleased to report that SANDEE researchers are now beginning to seriously publish their work – we are delighted that we have an almost 100% publication rate.

2006 has been a very full year. While there have certainly been some hiccups, we have made progress in our evolution as a network.

With every best wish

Priya Shyamsundar

## Research Support

SANDEE provides research grants to young and mid-career South Asian Researchers working in the field of environmental and natural resource economics. These grants are made through a biannual competitive small grants program. Researchers then meet twice a year to present their work and discuss research methods with peers and senior colleagues from around the world. SANDEE's research grants program is at the core of SANDEE's activities.

SANDEE made 7 grants in 2006, including 3 study grants.

### CYCLE 12 (JULY 2006)

In response to SANDEE's 12<sup>th</sup> call for pre-proposals, SANDEE received 73 concept notes from around the region. A rigorous review process involving SANDEE's Management and Advisory Committee and regional and international reviewers was undertaken in late 2005. The following four projects received the final and study grants.

*Reducing vulnerability against natural disasters: A study of risk coping behavior of coastal communities in Sundarban, India - Prasenjit Sarkhel, India*

Coastal communities in the Sundarban Delta are highly vulnerable to hazards like high tide surges, cyclones and floods. The degree of damage varies within different occupational groups but the government aid that follows in the aftermath of disaster is largely ad hoc. Prasenjit will prepare a Local Disaster Risk Index, which will rank each occupational group so that the policy makers can prioritise their relief efforts accordingly. The study will document mitigation efforts and coping strategies adopted by different occupational classes. He will also examine the feasibility of augmenting mitigation and coping capacity through different income diversifying projects designed by micro-finance organizations or self-help groups.

*Evaluating the impact of disamenity (open sewerage system) on Housing prices (rent) in Rawalpindi City-Muhammad Irfan, Pakistan*

Rawalpindi, the third largest city in Pakistan, has a population of two million people. The existing sewerage system only covers about 30% of the city area and there is no sewage treatment plant. In the remaining 70% of the city, raw sewage is discharged into street-side drains which ultimately flow into the Lai Nullah, the main drain that passes through city. Open sewerage systems have a negative impact on house rent. The objective of this study is to estimate the benefits to residents from an improved ground sewerage system. This study will estimate how much households are willing to pay for improved sanitary conditions (from open sewerage system to ground sewerage systems).

*An ecosystem approach to a renewable resource management: Incorporating biological and socio-economic aspects into fishery management - Susmita Sabu, India (Study Grant)*

The resource management of a renewable resource like fishery, to be sustainable, requires integration of ecological and economic components. Susmita intends to develop a bio-economic model for the Bhitarkanika National Sanctuary, Orissa, India where conflicts exist over fish harvest and mangrove management. The study will develop a bio-economic model of optimal labour time allocation between extraction of NTFP from mangroves and fishing while maintaining a sustainable stock of mangroves in the sanctuary.

*Transactions costs and innovations of new institutions in community-based water resource management in Nepal - Ram Chandra Bhattarai, Nepal (Study Grant)*

The experience of local community cooperation in water management in South Asia is mixed. Ramchandra will analyze the evolution of formal water users association (WUAs) in selected irrigation systems of Nepal. The study will examine how the nature and structure of transaction costs would determine or shape a formal WUA in the case of already existing community managed irrigation systems. His study will be based on field studies in two districts in the Kathmandu Valley. Additionally, it will look at the distribution of transaction costs among different socio-economic groups and its relative importance as compared to costs for individual households.

## CYCLE 13 (DECEMBER 2006)

SANDEE received 95 concept notes from around the region in the 13<sup>th</sup> round. After the usual rigorous review process, the following three projects received grants:

### *Poverty alleviation through forest resource management: An analysis of Leasehold Forestry in Nepal, Bishnu Prasad Sharma*

Nepal adopted the Leasehold forestry (LHF) programme in the 1990s to tackle the twin issue of regenerating degraded land as well as alleviating rural poverty. This programme provides a poor household with about one hectare of degraded land for raising forest-based products for 40 years, extendable by another lease. The LHF programme is a demand based programme that has rapidly expanded to 26 of the 75 districts of Nepal within a short span of time. Bishnu will study the degree of success LHF has had in reducing poverty among participating households. The results of this study will provide policy makers with important insights on management of degraded land for poverty alleviation and will be useful not only in Nepal but in other countries in South Asia, where similar problems are faced.

### *Economics of an urban drainage system: A case study of Cuttack City, Orissa, India, Jogasankar Mahaprashasta (Study Grant)*

Cuttack was the capital of Orissa, India, from 1135 AD till 1952 and continues to be an important city on the eastern coast hosting a large urban population. Flanked by two rivers, Cuttack is now beset with problems of unplanned urbanization and inadequate drainage. A major difficulty it faces is periodic flooding and water-logging. This creates health hazards, foul smell, disrupts communication and endangers lives and property. Jogasankar believes that efforts to improve drainage infrastructure run into financial difficulties with local authorities that underestimate the demand for it. This study, therefore, seeks to estimate the willingness to pay by urban households for an improved drainage system in Cuttack City. There is already a plan to invest in drainage infrastructure and Jogasankar's study will identify the benefits of



undertaking this action. It will aid policy makers in devising revenue instruments that would help pay for improved urban drainage.

*Transactions costs and innovations among new institutions in community-based water resource management in Nepal – Ramchandra Bhattarai*

National governments struggle with managing irrigation systems in most countries and operations and maintenance is rarely done adequately. In Nepal, as elsewhere, there is now a major push to strengthen community managed irrigation systems, which devolves more responsibilities to farmers. In this context, Ramchandra seeks to estimate the transaction costs associated with farmer managed irrigation systems. In an attempt to understand the evolution and sustenance of institutions, his study will identify transaction costs, evaluate their components and examine factors influencing them. The study will collect and use both secondary and primary data from about fifty irrigation systems and four hundred households. The results of this study will guide policy makers in the context of their support for community managed irrigation.

✓ SANDEE research associate during  
✓ field Survey



## Research Grants 2006

S. No	Research Topic	Principal Investigator	Institution	Country	Starting Date	Duration
<b>Cycle 12 – July 2006</b>						
1.	Evaluating the impact of Disamenity (open sewerage system ) on Housing prices (rent) in Rawalpindi City	Irfan Md.	Federal Urdu University of Arts Science and Technology Islamabad	Pakistan	Aug. 2006	18 months
2.	Reducing vulnerability against natural disasters: a study of risk coping behaviour of coastal communities in Sundarban, India	Sarkhel Prasenjit	Lal Baba College	India	Dec. 2006	24 months
3.	Transactions costs and innovations of new institutions in community-based water resource management in Nepal (Study Grant)	Bhattarai Ramchandra	Patan Multiple Campus	Nepal	July 2006	6 months
4.	An ecosystem approach to a renewable resource management: Incorporating biological and socio-economic aspects into fishery management - Susmita Sahu, India (Study Grant)	Sahu Susmita	Teri School	India	July 2006	6 months
<b>Cycle 13 – December 2006</b>						
5.	Assessment of Transactions Costs and Evolution of New Institutions in Community Managed Irrigation System in Nepal	Bhattarai Ram Chandra	Patan Multiple Campus	Nepal	Jan. 2007	24 months
6.	Economics of Urban Drainage system: A case study of Cuttack city, orissa India (Study Grant)	Mahaprashasta Jogasankar	Christ College	India	Jan. 2007	6 months
7.	Poverty Alleviation through Forest Resource Management: An Analysis of Leasehold Forestry Practice in Nepal	Sharma Bishnu	Patan Multiple College	Nepal	Jan. 2007	18 months

## Biannual Workshops

SANDEE's small grants program supports South Asian researchers working in the field of environmental and natural resource economics. Researchers are invited to two meetings every year either to present the progress of their on-going research or to present new research ideas to peers and senior colleagues from the region and around the world. On the basis of rigorous discussions among participants and resource persons some of these new research ideas are taken up as SANDEE research projects.

### a) Twelfth Biannual Research and Training Workshop, July 2006

The twelfth biannual research and training workshop was held at the Asian Institute of Technology, Bangkok, Thailand from the 26<sup>th</sup> June – 1<sup>st</sup> July, 2006. The workshop included two plenary sessions and four days of parallel sessions on ongoing projects and new proposals.

Our workshops are also an occasion for training and teaching. One of the highlights of the July Research and Training workshop in Thailand was the active participation of Karl-Göran Mäler, who made a presentation on the recently published "The Handbook of Environmental Economics", published by North Holland as a three volume set, which he co-edited with Jeff Vincent. He gave an overview of the topics covered in this encyclopedic collection which ranges from Valuation of Eco-systems to Property Rights issues. What was interesting and useful was that he discussed several chapters and their findings in relation to understanding and evaluating mangrove eco-systems and their services. This book would be a first-stop reference manual for emerging trans-disciplinary areas like non-convex ecological models as well as traditional concerns of Externalities and Institutions. Gunnar Köhlin from University of Gothenberg presented a paper entitled 'Welfare Implications of Community Forest Plantations in

Developing Countries: The Orissa Social Forestry Project.' Köhlin made a presentation on social forestry programmes in Orissa, India and its welfare impact on the community. Summarising his work in this area, Köhlin, explained how welfare of the participating community had increased. Welfare gain was measured by valuing the opportunity cost of time saved due to easier access to wood lots in the presence of community forests. He also found that there were differential gains to heterogeneous households from community forestry in Orissa.

SANDEE colleagues, Rucha Ghate and Pranab Mukhopadhyay discussed SANDEE's forthcoming book "Promise Trust and Evolution: Managing the Commons of South Asia." The volume will have sixteen papers with a theoretical overview by Sir Partha Dasgupta and the rest being empirical studies from different countries of South Asia – Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka. It covers different themes like forestry, fisheries and water with a special focus on institutions.

√ 13th Biannual Research & Training  
√ Workshop, Thailand



## b) Thirteenth Biannual Research and Training Workshop, December 2006

The thirteenth biannual research and training workshop was held in AIT Center, Bangkok, Thailand from the 6<sup>th</sup> – 10<sup>th</sup> Dec, 2006. The workshop included two plenary sessions and four days of parallel sessions on ongoing projects and new proposals. The plenary session included the following presentations.

In the December 2006 Research and Training workshop, Jean-Marie Baland, from the University of Namur, Belgium, who has done pioneering work on natural resource management, made a presentation on his recent work titled: “Deforestation and managing growth in the Himalayas.” Based on field level data collected in Uttarakhand and Himachal Pradesh, he discussed issues of deforestation, collective action and fuel choice. He highlighted the impact subsidized fuel would have on fuel wood use and its policy implications from the conservation point of view.

Also, Jeff Vincent, University of California, San Diego, made two presentations. The first presentation ‘Producer theory and the Environment’, illustrated how researchers could use cost and profit functions to evaluate the benefits or costs of environmental changes. He very usefully developed the theory and then illustrated his ideas by using econometric models.

Jeff Vincent’s second presentation was on the ‘Impact of climate change on Indian Agriculture’. This paper suggests that atmospheric brown clouds and green house gases are causing a slow down in India’s rice harvest growth implying that cleaning up the earth’s atmosphere could have significant impacts on poverty and nutrition in India. This work which was done jointly with Maximilian Auffhammer and V. Ramanathan, has just been awarded the 2006 Cozzarelli Prize by the US National Academy of Sciences.

## **SANDEE Working Papers and Policy Briefs**

SANDEE published the following working papers and policy briefs based on its research in 2006.

Heterogeneity, Commons and Privatization: Agrarian Institutional Change in Goa, by Pranab Mukhopadhyay, SANDEE Working Paper No. 14-06

Common Property Resources as Development Drivers: A Study of a Fruit Cooperative in Himachal Pradesh, India, by Purnamita Dasgupta, SANDEE Working Paper No. 15-06

Local Institutions and Forest Products Extraction: Evidence from Forest Management in Nepal, by Arun Khatri-Chhetri, SANDEE Working Paper No. 16-06

Valuation of Urban Air Pollution: A Case Study of Kanpur City in India, by Usha Gupta, SANDEE Working Paper No. 17-06

Transaction Costs and Institutional Innovation: Sustainability of Tank Aquaculture in Sri Lanka, by Athula Senaratne and Kalpa Karunanayake, SANDEE Working Paper No. 18-06

Groundwater Irrigation in North India: Institutions and Markets, by A. Banerji, J. V. Meenakshi and Gauri Khanna, SANDEE Working Paper No. 19-06

Making Tribal Land Profitable - A Study from the Western Ghats of India, Policy Brief 12-06, by Seema Purushottaman

Privatization, Co-operation and Sustainability - Understanding the Implications of Land-Reform in Goa, Policy Brief 13-06, by Pranab Mukhopadhyay

Common Land - Commercialization vs. Conservation, Policy Brief No. 14-06, by Purnamita Dasgupta

Non-timber Forest Products and Community Forestry - A Tale of Two Villages, Policy Brief No. 15-06, by Arun K.C

The Benefits of Clean Air - Case Study from India, Policy Brief No. 16-06, by Usha Gupta

## Taking Research Forward

### Policy Dialogue and Disseminations

E. Somanathan discussed results from his SANDEE Working Paper on Information and Water Quality at a forum that included the Deputy Chairman of the Planning Commission of India, Montek Singh Ahluwalia and the President of Harvard, Larry Summers. This was at a high-level workshop on health in India and China organized by the Harvard School of Public Health and Harvard Business School in March 2006.

Rucha Ghate and Narpat Jodha publicized the forthcoming book of SANDEE CPR studies 'Promise, trust and evolution: Managing the commons of South Asia', at the 11<sup>th</sup> Biennial Conference of the International Association for the Study of Common Property Resources (IASCP) Bali, Indonesia, in June 19-23, 2006. Pre-publication pamphlets by Oxford University Press were distributed to conference participants.

Vinish Kathuria organized a meeting of policy-makers on industrial pollution control and the role of the media. Present were officers from the Tamil Nadu Pollution Control Board, Department of Environment, and National Environmental Engineering Research Institute and academics from Chennai. The constraints to pollution control were of particular interest to this group, who agreed that some of the institutional fixes promoted by Vinish could be considered. The workshop got considerable media coverage.

Indira Devi brought together the large community of practitioners, policy makers and scientists interested in pesticide use in Kerala for a one-day state-level workshop on pesticide application in rice production. The workshop, which included 110 pesticide inspectors, the Director of the Agricultural Department of Kerala and various scientists, received widespread local media coverage and was video-taped for broadcast on national television. This was a useful venue to discuss not only Indira's study on the costs of illness associated with pesticide applications but also

to bring together other experts (doctors, veterinarians and agronomists) so that policy practitioners received a holistic understanding of the impacts of pesticides. As a result of Indira's study, the Department of Agriculture plans to: 1) build a registry of pesticide applicators and train them in safe handling of pesticides; 2) provide protective gadgets at subsidized rates, when funds permit; 3) re-focus their training programs on pesticide workers (applicators) and not just farmers; and 4) discuss requirements for introducing health insurance for applicators. The university extension services are also preparing a pamphlet on safe pesticide application practices.

Das, S. (2006), 'Coastal Protection in the aftermath of the Indian Ocean Tsunami: what role for forests and trees?' Presented at FAO Regional Technical Workshop, 28-31 August, Khao Lak, Thailand. FAO organized an international workshop to discuss and debate the role of natural barriers in mitigating the effects of natural calamities. The gathering had a number of experts, scientists working on oceanography, fluid dynamics, shelter belts, and forestry. Saudamini was the only social scientist among them. Also present were representatives of the governments of the tsunami affected south east Asian countries and representatives of international, national and regional organizations working on tsunami rehabilitation or on forest regeneration. Saudamini's research and methodology were highly appreciated. There were a few suggestions to do similar kinds of analysis for a tsunami affected area. Bioshields may become an important measure of disaster preparedness. Saudamini's field based careful research gave credence to this point of view.

Amita Shah served as the Member Secretary for a Group on Land Reforms, Decentralization, Rural Credit and Gender Issues in Agriculture, for the formulation of XI plan, Planning Commission, Govt. of India. She was also involved in 2006 as a Member of the expert Group on Agriculture for the Pre-budget consultation with the Finance Minister. Her learning from SANDEE research was useful in furthering policy dialogue on sustainable land use.



## Publications and Presentations

Numerous peer-reviewed papers emerged from SANDEE research

Adhikari, B. and J. C. Lovett (2006), 'Transaction costs and community-based natural resource management in Nepal', *Journal of Environmental Management* 78(1): 5-15.

Das, S. (2006), 'Storm protection Value of Mangroves from the valuation of Expected damages to Properties and Lives due to cyclones in Coastal Orissa' in "Ecology and Human Well-being" P. Kumar and S. Reddy (Eds), Sage Publication, Delhi

Ghate R. and H. Nagendra (2006), 'Role of Monitoring in Institutional Performance: Forest Management in Maharashtra, India', *Conservation and Society* Vol. 3(2), July-December: 509-532.

Kathuria, V. (2006), 'Controlling Water Pollution in Developing and Transition Countries: Lessons from three successful cases', *Journal of Environmental Management* 78(4): 405-26.

Mukhopadhyay, L. (2006), 'Potential of successful voluntary participation in effort regulation programme in common property resource field nested in private property regime with inequality' in "Ecology and Human Well-being" P. Kumar and S. Reddy (Eds), Sage Publication, Delhi

Mukhopadhyay, P. (2006), 'Goa: Been there, done that, now what?' in R. Parathasarathy and Sudarshan Iyengar (eds.) *New Development Paradigms and Challenges for Western and Central India*, New Delhi: Concept Publishers.

Kathuria, V. and S. Mukherjee (2006), 'Is economic growth sustainable? Environmental Quality of Indian States after 1991' *International Journal of Sustainable Development*, Vol. 9(1): 38- 60.

Khan, H. (2006), 'Willingness to pay Margalla Hills National Park: Evidence from Travel Cost Method', *Lahore Journal of Economics* Vol. 11(2): 43-70.

Shah, A. (2006), 'Exploring Sustainable Production Systems for Agriculture: Implications for Employment and Investment under North-South Trade

Scenario', *Ecological Economics*, Vol.59: 237-241.

Shah, A. and D. C. Sah (2005), 'Migration in Remote Tribal Areas: Evidence from South Western Madhya Pradesh', *Indian Journal of Agriculture Economics*, Vol. 60 (2): 184-204.

## SANDEE PANELS AT KYOTO AND ISEE

*Third World Congress of Environment and Resource Economists, Kyoto, 2006*

The 3<sup>rd</sup> World Congress of Environment and Resource Economists was held at Kyoto during July 3-7, 2006. This mega event brought together about 1000 participants from a large number of countries. The five-day Congress had 190 technical sessions and symposiums focusing on wide ranging themes like climate change policies, renewable energy, theories on environmental policy, health valuation, imperfect competition, recreational activities, etc. More than 500 papers were presented in these technical sessions. SANDEE had organized two panels at this Congress.

✓ Kyoto Panel



### *Panel 1 - Managing Natural Resources for Growth and Poverty Reduction in South Asia* *Chair: Amita Shab*

The first panel focused on various strategies, institutional and economic to finance and improve natural resource management. The presentations made under this panel were as below:

1. Local Institutions and Forest Products Extraction: Evidence from Forest Management in Nepal, Arun K.C.

2. Can Common Pool Resources Drive Development? – A Study from Himachal Pradesh, India, Purnamita Dasgupta
3. Land Degradation and Poverty in Dry-Areas of India: Implications for Migration Policies, Amita Shah
4. Can Participatory Watershed Management Be Sustained? Evidence From Southern India, D. Suresh Kumar

*Panel 2 - Environmental Quality and Health – Assessing Incentives, Costs and Benefits*  
*Chair: E. Somanathan*

The second panel focused on the health impacts of environmental change. The presentations made were:

1. The Benefits of Clean Air – Valuing Urban Air Quality in Kanpur Nagar, Usha Gupta
2. Managing the Arsenic Disaster in Water Supply – Risk Measurement and Policy Choices for Bangladesh, A.K. Enamul Haque and Zakir Hussain Khan
3. Economics of acute respiratory infections and indoor air pollution: Evidence from Nepal, Krishna Prasad Pant and Subhrendu K. Pattanayak
4. The Importance of being Informed: Experimental Evidence on the Demand for Environmental Quality, Jyothsna Jalan and E. Somanathan
5. Pesticide Use in the Rice Bowl of Kerala, India – Health Costs and Implications, Indira Devi

The Ninth Biennial Conference of the International Society for Ecological Economics, New Delhi, 2006

SANDEE disseminated its research through three panels at the Ninth Biennial Conference of International Society for Ecological Economics

(ISEE) on “Ecological Sustainability and Human Well-Being” , held during December 15-18, 2006 at the India Habitat Centre, New Delhi.

*Panel 1: Promise, Trust and Evolution – Managing the Commons of South Asia, Lessons from SANDEE research*

Chair: Narpat Jodha

1. Ensuring “Collective Action” in “Participatory” Forest Management, by Rucha Ghate, India
2. Is Cooperation Costly With Diverse Economic Agents?, by Bhim Adhikari, Nepal
3. State Control, Devolution & Community Action, by Arabinda Mishra, India
4. The Stake-net fisheries association of Negombo Lagoon, Sri Lanka – Why has it survived over 250 years and will it survive another 100 years?, by Asha Gunawardana and Paul Steele, Sri Lanka

*Panel 2: Examining the links between poverty and the environment – A SANDEE panel*

Chair: Kanchan Chopra

1. Who Collects Resources when the Environment Degrades? by Shreekant Gupta, Neetu Chopra, Supriya Singh Urvashi Narain and Klaas van 't Veld
2. Burden of Indoor Air Pollution and Viability of its Mitigation Efforts: A Case Study of Rural Nepal, by Min Bikram Malla Thakuri, Nepal
3. Economic Analysis of Health Impacts of Households: Case of Cement Air Pollution in Puttalam District, Sri Lanka, by C. Bogahawatte and J. H. Bandara, Sri Lanka
4. Conservation and Tourism: A Case Study in Indian Sundarbans, by

Indrila Guha and Santadas Ghosh, India

5. Valuing Benefits of Soil Conservation in Hill Areas of Bangladesh, by M. A. Monayem Miah and S. M. Fakhurul Islam

*Panel 3: Environmental Problems and Economic Analyses – The South Asian Network for Development and Environmental Economics*

*Chair: Karl Goran Maler*

1. Ground Water Irrigation in North India: Institutions and Markets, by A. Banerji, Gauri Khanna and J.V. Meenakshi, India
2. Acute Health Damages from Pesticides Pollution in Nepal: Cost-of-illness Approach, by Kishor Atreya, Nepal
3. Value of Mangroves in reducing human casualties cyclones, by Saudamini Das, India
4. Estimating Economic Benefits from Arsenic Removal in India: A Case Study of West Bengal, by Joyashree Roy, India

✓ EE Course, Dhaka  
✓



## OTHER PRESENTATIONS

Atreya, K. (2006) 'Health and environmental costs of pesticide pollution in Nepal', Paper presented at the International Seminar on Environmental and Social Impacts of Agricultural Intensification in Himalayan Watershed held from October 15-17, 2006 in Kathmandu, organized by Kathmandu University in collaboration with Norwegian University of Life Sciences and Bioforsk, Norway.

Atreya, K. (2006), 'Acute health symptoms and costs of pesticide pollution in Nepal', paper presented in National Conference on Integrated Pest Management held from August 25 - 26, 2006 in Kathmandu, Nepal, jointly organized by Plant Protection Society, Nepal, Plant Protection Directorate and FAO.

Dasgupta, P. (2006), 'Commons as development drivers: Economic incentives and the conservation of forest resources in India', Paper presented at the Conference on Economics of Poverty, Environment and Natural Resource Use, held at Wageningen, The Netherlands, May 17th - 19th, 2006.

Dasgupta, P. (2006), 'Conservation and Poverty Alleviation: Some recent evidence from Himachal Pradesh on the implications of interventions for rural women.' Paper presented at the Seminar on Gender Issues in Development: Concern of the 21<sup>st</sup> Century, May 2006, Council for Social Development, New Delhi.

Das, S. (2006), 'Coastal Protection in the aftermath of the Indian Ocean Tsunami: what role for forests and trees?' presented at FAO Regional Technical Workshop, 28-31 August, Khao Lak, Thailand.

Devi, P. Indira (2006), 'Pesticide or "Healthicides"? An attempt at estimating the health costs of pesticide applicators', presented at the International Seminar on Environmental and Social Impacts of Agricultural Intensification in Himalayan Watersheds in Nagarkot, Kathmandu, Nepal, Oct. 15-17, 2006.

Mukhopadhyay, L. (2006), 'Institutional dysfunctionality: A case study in participatory management of forest in Buxa Tiger Reserve in North Bengal, India', presented at the 11<sup>th</sup> Biennial Conference of the International Association for the Study of Common Property Resources (IASCP) held in Bali, Indonesia, in June 19-23, 2006.

Mukhopadhyay, L. (2006), 'Institutional dysfunctionality: A case study in participatory management of forest in Buxa Tiger Reserve in North Bengal, India' presented at the Ninth Biennial Conference of International Society for Ecological Economics (ISEE) on "Ecological Sustainability and Human Well-Being" held in New Delhi, India from December 15-18, 2006.

Mukhopadhyay, P. (2005), 'Natural Resource Management and Impact of Institutional transition - A Case study in Goa, India', presented at the Centre for Study of Globalizations and Regionalization, University of Warwick, UK, as a visiting fellow in November 2005.

Mishra, M. and Sahu, N. C. (2006), 'Air Pollution and Health of Women: A Case Study', paper submitted and abstract published in the Ninety Annual Conference of Indian Economic Association at Kurukshetra University, Haryana, India in December, 2006.

Mishra, M. and Sahu, N. C. (2006), 'Economic Value of Benefits from Air pollution control in Angul-Talcher in Orissa, India', paper presented at the Ninth Biennial Conference of International Society for Ecological Economics on 'Ecological Sustainability and Human Well-Being' at New Delhi, India from December 15 - 18, 2006.

Mishra, M. and Sahu, N.C. (2006), 'Air Pollution and Daily Morbidity in Angul-Talcher Industrial Agglomeration in Orissa: An Environmental Economics Analysis', paper presented at the National Seminar on Environment and Development, organized by the Environmental Planning and Coordination Organisation, Bhopal, 16-17, January 2006.

Ravirajan, K. and L. Umamaheswari (2005), 'Economic analysis of salinity and its impact in different rice production environments', presented at the National Conference on Natural Resource Management for Eco Development and Livelihood Security in Southern India, Central Soil and Water Conservation Research and Training Institute, Udhagamandalam, November, 2005.

Syed Shabib Haider, made a presentation on environmental issues at a seminar organized by Research Center of Forman Christian College, Pakistan. It was attended by 25 Professors and Rector and 5 American Professors from different universities. He also presented his research proposal (grant awarded by SANDEE) at a seminar in his Institute to get comments and feed back on his ongoing research and also create awareness about pollen- allergy in Pakistan.

## TEACHING

Many of the SANDEE researchers as well as colleagues trained by SANDEE teach environmental economics or some aspects of it. We highlight only a few of the examples of teaching being undertaken.

R. Balasubramaniam is using his SANDEE research – “Poverty, Private Property and Common Pool Resource Management: The Case of Irrigation Tanks in South India, by R. Balasubramanian and K. N. Selvaraj, SANDEE Working Paper No. 2-03” as a case study reading material for the course AEC 812 Advanced Natural Resource Economics, which he has offered to Ph.D. students in Agricultural Economics for the last three years.

Shabib Haider Syed, based on the course he took from SANDEE on environmental economics, started for the first time in the history of Forman Christian College (a Chartered University), Pakistan, a course on environmental economics. It has become a very popular course and 39 students are enrolled in this course. He has also been promoted as a Chairman, Department of Economics in his institute. In this capacity he has sent a proposal to the rector for adding new courses in catalogs relating to environment, natural resource, energy and sustainable development in his institute.

Himayatullah Khan introduced Natural Resource Economics and Environmental Economics in North West Frontier Province Agricultural University for the first time and now these courses are taught on regular basis. He will also start teaching a course in Environmental Economics to MS level students of Environmental Sciences Department in CIIT, Abbottabad from the next semester.

## SANDEE ASSOCIATES ACHIEVEMENTS

We try to keep track of our researchers and to gather information about their achievements. This tells us a great deal about the value addition that happens through the SANDEE process. Policy dissemination from research almost never occurs immediately unless the



researcher is responding to a specific questions raised by a decision-maker. But SANDEE research over time does have a steady impact through the work that our researchers continue to do. Here are some their achievements.

Rucha Ghate, SANDEE fellow, has been appointed as a member of a working group, set up by the Planning Commission, Government of India for the Eleventh Five-Year Plan (2007-2012). The working group will make recommendations on various policy matters on wildlife, biodiversity, traditional knowledge and animal welfare for the Environment and Forests Sector.

SANDEE's research also met an excellent market test of its viability and usefulness – a recent marketing review by Cambridge University Press to the editorial board of the journal Environment and Development Economics indicated that three of the top 10 articles viewed online during May 2005 to May 2006 were related to SANDEE. SANDEE Fellow, Bhim Adhikari's paper got the top spot as the most viewed article published in EDE, while Purnamita Dasgupta's was the fifth most viewed article and Pranab Mukhopadhyay's was the eighth. Purnamita's work was related to her previous Ph. D research.

SANDEE Associate, Vinish Kathuria got a Fulbright fellowship in the Fulbright senior research fellowship category. He is visiting University of Colorado, Boulder for a period of 8 months starting from 29<sup>th</sup> September 2006.

Purnamita Dasgupta, SANDEE Associate, has been awarded a Visiting Fellowship at the University of Cambridge, UK, for the forthcoming Easter term. This fellowship is very much connected to SANDEE. While applying for the fellowship, she had drawn upon her experience with SANDEE and in the statement of purpose had explicitly mentioned SANDEE and stated that she would like to further develop the ideas in her SANDEE study. She would also be presenting a seminar in their seminar series based on the SANDEE study either on May 9 or 16, 2007.

## Training

SANDEE's effort 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 is supported by our training activities. To meet this objective, SANDEE organized three training courses in 2006 in partnership with a number of regional and international institutions.

*An introductory course on Environmental and Natural Resource Economics, Dhaka, Bangladesh  
5<sup>th</sup> – 24<sup>th</sup> May, 2006*

In May 2006, SANDEE organized a three-week basic training course on Environmental and Natural Resource economics jointly with IUCN Bangladesh in BCDM Center, Rajendrapur, Bangladesh. The course was meant for economists interested in upgrading their skills and learning related to environmental and natural resource 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 five participants, mainly researchers, teachers and practitioners from the region attended the three week workshop. Faculty included



experts from within South Asia region. Dr. Enamul Haque from East-West University, Dhaka, Dr. Rabindra Bhattacharya from Kalyani University and Dr. Shreekant Gupta Delhi School of Economics, Delhi, India. Dr. Ainun Nishat from IUCN Bangladesh, Prof. Q. K. Ahmed from Bangladesh Unnayan Prishad, and Dr. Priya Shyamsundar from SANDEE were among the faculty of the workshop.

*Proposal Writing Workshop in Environmental Economics, Bangalore, India 21<sup>st</sup> – 25<sup>th</sup> August, 2006*

In August 2005, SANDEE jointly with the Institute for Social and Economic Change organized a 'Proposal Writing Workshop in Environmental Economics', in Bangalore, India. The main objective of this workshop was to enable the participants to develop skills required to prepare serious research proposals on issues related to environmental economics. The workshop trained participants in logical thinking, research proposal writing and presentation skills. It provided technical inputs and comments on research concepts developed by the participants.

The training faculty included colleagues from East-West University, Bangladesh, Institute for Social and Economic Change, University of Agricultural Sciences and SANDEE. The participants included young as well as mid-career researchers. Of the ten participants, two were from Bangladesh, two from Nepal and the rest from India.

*Global Warming: Climate Science and Economics, AIT, Thailand, 1<sup>st</sup> - 4<sup>th</sup> December, 2006*

SANDEE organized a four-day advance workshop on "Global Warming: Climate Science and Economics" in AIT Center, Bangkok from the 1<sup>st</sup> – 4<sup>th</sup> of Dec 2006. Climate change is regarded as one of the biggest environmental crises facing life on planet earth. There is a broad scientific consensus that human beings are primarily responsible for the current heating of the planet. Scientists involved in interdisciplinary research have revealed the causes and consequences of

global warming. Economists on the other hand are debating the extent of damages climate changes would cause and the costs that would be incurred to undertake adaptation or mitigation. What is indeterminate is the predictability of climate change (how quickly, how much) and how this would irreversibly alter life on earth.

SANDEE's Advanced course brought together leading climate scientists and economists to talk about the current state of knowledge on climate change. This course provided an overview about causes and consequences of global warming, climate models and their predictions of future climate cycles, as well evaluations of alternate scenarios with different levels of public and private intervention to slow down climate change.

There were twenty participants from South Asia. The faculty were Partha Dasgupta, Cambridge University, UK, Will Steffen, Australian National University, Australia, V. Ramanathan, Scripps Institute of Oceanography, University of California, San Diego, Satya Priya, RMSI India and Ram Manohar Shrestha, AIT, Bangkok.



## Capacity Building in Under-served Areas

South Asia has certain countries and region which we think need some additional SANDEE support. As part of this effort, we organized a set of activities in Nepal which is described below.

### NEPAL SOCIETY FOR ENVIRONMENTAL ECONOMISTS

SANDEE graduates and colleagues from Nepal, who have been associated with our training and research activities, got together in July 2006 to start a forum to promote environmental economics in Nepal. From this emerged the Nepalese Society for Environmental Economics (NSEE), which is currently in the process of being registered.

### POLICY DISSEMINATION

Nepalese Society of Environmental Economists, jointly with SANDEE and IUCN Nepal organized the first of a seminar series on 'Community Forestry – sharing experiences from India and Nepal' on August 16<sup>th</sup>, 2006 in Kathmandu. Rucha Ghate, from India and Keshav Raj Kanel, Director General, Soil and Watershed Management Department, Ministry of Forest and Soil Conservation from Nepal talked about the issues in community forestry in India and Nepal respectively. N. S. Jodha, President, ISEE and Prabhu Budathoki, Country Representative, IUCN Nepal discussed the changing scenario in community forestry issues. Government officials, academicians, researchers and forestry experts from a variety of



NGOs participated in the program. This also marked the launching of the Nepalese Society for Environmental Economics.

A second environmental economics discussion titled “Pesticides or ‘Healthicides’? an attempt at estimating the health costs of pesticide applicators” by P. Indira Devi was organized on 19<sup>th</sup> October 2006 at the Department of Agriculture, Harihar Bhawan, Lalitpur. Dr. Indira Devi talked about the hazards of pesticide use and the loss incurred by villagers in Kerala. This program was organized by the Plant Protection Society Nepal jointly with Nepalese Society of Environmental Economists and IUCN/ SANDEE. The talk program was well attended by experts and senior officials from the Agriculture Department, Ministry of Agriculture.

### **BOOK SUPPORT**

In Nepal, even in institutes that teach environmental economics the academic resources in the library related to environmental economics is very minimal. Taking this into consideration, SANDEE distributed copies of 18 books on environmental economics to five institutes: Central Department of Economics – Tribhuvan University, Central department of Economics - Patan Campus, Institute of Forestry, Pokhara, Department of Agricultural Economics, Institute of Agriculture and Animal Sciences, Rampur and Kathmandu University. The books are kept in the references sections of Department libraries for the faculty and students.

### **SANDEE’s role in fostering cross-border academic exchange Bridging minds and hearts in South Asia:**

#### **-Madhavi Moni, Richa Maurya, Sambhrant Krishna and Shreekant Gupta Delhi School of Economics, India**

A group of 20 students and two faculty members (Shreekant Gupta and Hemanshu Kumar) from the Delhi School of Economics (DSE), University of Delhi, India, visited Pakistan on a study tour from December 24-January 7. The trip was partially supported by SANDEE and covered Lahore, Islamabad and Karachi with side trips to Nankana Sahib, Taxila and Mohenjo Daro.

The group visited several academic institutions in these cities, including Lahore University of Management Sciences, WWF-Pakistan, the International Islamic University, the Higher Education Commission, Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology, Islamabad and the International Youth Hostel Association. Apart from academic activities like quizzes, debates, discussions, interactive sessions and field visits, information regarding SANDEE and its activities was disseminated at many of these institutions. Dr. Shreekant Gupta made power-point presentations about SANDEE at three fora. He also took part in a conference hosted by SZABIST on “Synergizing Pakistan and India Economies”.

The trip came to an end on January 7<sup>th</sup>, when the group crossed the border at Wagah. As the participants say, “Our bags were full of gifts and mementos and hearts and minds were full of the warm and spontaneous hospitality that we received wherever we went. Indeed, it was an enriching experience in all ways and brought us closer to our neighbors.”

Delhi School of Economics Groups  
✓ in WAGA Border, Pakistan



## Networking and Information Dissemination

### SANDEE NEWSLETTERS

SANDEE published two newsletters in 2006 (No. 12 and No.13). The newsletters report on SANDEE activities and analyze key environmental policy issues in the different countries in the region. Young economists and researchers are given an opportunity to publish interesting analysis. The newsletters also serve as a reliable means for information dissemination about environmental economics and new developments around the world. The newsletters are available on our website.

### WEBSITE, DATABASE AND LIST-SERVE

SANDEE's website hosts a wide range of information for environmental economists around the world. The information varies from SANDEE related activities to information on international organization. The website is also very useful to young researchers as it provides valuable information on techniques for research and writing. The website gives information about international organizations and institutions working in the field of environmental economics. Teachers can also avail information related to teaching tools and techniques. An online database provides a forum for South Asian researchers to interact with each other and share academic achievements. Membership is free of costs for individual members but institutional members within the region have to pay the equivalent of US\$ 50 per year as a membership fee while international organization have to pay US\$250. We offer hard copies of various publications to our institutional members.

### GOVERNANCE AND ORGANIZATION

SANDEE operates with the support of a small secretariat based in Kathmandu, Nepal and a governing board of researchers, donors and practitioners. We are a virtual network that is anchored by the secretariat, providing administrative support, and the biannual meetings in different parts of South Asia, providing technical support.



## Experience Shared By SANDEE Colleagues

*Communicating with tribal communities: A different challenge*  
-Arabinda Mishra

Carrying out participatory surveys in tribal villages calls for a different approach as compared to what is usually practiced in non-tribal settings. The introductory meeting with the villagers is often crucial. For building trust and mutual respect, apart from keeping absolute transparency regarding motives, it is useful to start communication by expressing curiosity for small things close to their lives, like cultivation techniques, or in case of women, maternal homes or jewellery. This eases the artificial atmosphere created due to the presence of 'foreign' researchers.

Though the common research strategy of relying on external facilitators (field level bank officials, NGO activists, political workers) to get introduced works in some villages, many times we found the facilitators adopting a patronizing tone and creating false expectations among the villagers regarding the outcome of the discussion. In such cases, it was often difficult to rectify the damage done, clarifications notwithstanding. Also, with officials/activists in company, villagers tend to say what they think these people want to hear.

No village in Orissa, however remote, is free from surveys by some government/non-government agency. Dealing with the legacy of the resultant apathy and bitterness among villagers requires that the researcher is completely honest with the community regarding the purpose of the survey. Our experience is that villagers do understand the larger gain to their community as a whole when explained with sincerity. The simple act of listening attentively and responding rather than querying often serves the purpose.

We learnt that it is very important that one goes to the field with some understanding of the culture and social norms peculiar to particular tribes. Take, for instance, the norms regarding tribal women's

interaction with outsiders in the presence of elder male members of the community. Is the researcher offending the elders by asking the women to come forward and sit alongside the male members? In many of our study villages, the introductory discussions took place in the community centre with male elders of the community where the village deity is also installed and sacrificial rituals are carried out. It can be a social blunder to ask women to join the discussion since they are not allowed inside the centre.

Communication is key to successful participatory research, and especially so in tribal settings. Some grounding in the community's own rules of communication go a long way.

*Gravity ropeway: An alternative transport option for Nepal*  
*-Min Bikram Malla Thakuri*

Improving accessibility is an important developmental challenge in the mountain areas of Nepal. In rugged hills and mountain areas, communication and transportation is carried out by human and animal carriers on pedestrian trails.

The national transport plan of Nepal is heavily focused on the construction of roads and bridges requiring high investments of money and time. Air transport is also unaffordable in transporting low priced agricultural products. The experience of six gravity ropeways installed by Practical Action Nepal in Mustang and Heading districts in Nepal has shown that the gravity ropeway can be an appropriate alternative for hilly regions in Nepal. It is inexpensive, costing roughly NRs.600, 000 per kilometre.

According to 'Practical Action Nepal', this technology is socially, economically and environmentally viable. The Government of Nepal is likely to give preference to ropeways over road building in the hilly areas and in a novel way usher development into inaccessible areas.

## Governance and Organization

### THE SECRETARIAT

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

- Priya Shyamsundar, Program Director
- Pranab Mukhopadhyay, Environmental Economist
- Kavita Shrestha, Administrative Officer
- Anuradha Kafle, Research and Information Officer
- Sunita Khanal, Account Assistant

### MANAGEMENT AND ADVISORY COMMITTEE

SANDEE was governed and overseen by the following committee members.

1. A.K. Enamul Haque, Professor, East West University, Bangladesh
2. Anna Maria Oltorp, Swedish SIDA Representative
3. David Glover, Program Director, EEPSEA, (IDRC Canada Representative)
4. Jeffrey Vincent, Professor, Graduate School of International Relations and Pacific Studies, University of California at San Diego, USA
5. Lucy Emerton, Head, Ecosystems and Livelihoods Group 2, IUCN – The World Conservation Union, Asia
6. Partha Dasgupta, Frank Ramsey Professor of Economics, Cambridge University, UK
7. Priya Shyamsundar , Program Director, SANDEE
8. Shanta Devarajan, Chief Economist, South Asia Region, The World Bank, Washington
9. Rehana Siddiqui, Professor, Pakistan Institute of Development Economics, Pakistan

## KEY DONORS

In 2006, SANDEE's programs and activities were sponsored by several regional and international agencies. These include:

1. Institute of Development Research Centre, IDRC, Canada
2. The Norwegian Agency for Development Cooperation, Norad, Norway
3. The Swedish International Development and Cooperation Agency, SIDA, Sweden.

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

1. The World Bank Institute, USA
2. IUCN, The World Conservation Union (Bangladesh)
3. The Beijer International

Institute for Ecological  
Economics, Sweden

4. Institute for Economic and  
Social Change, ISEC,  
Bangalore, India
5. East West University, Dhaka,  
Bangladesh

We are extremely grateful to our donors and partners for their continued support and encouragement.

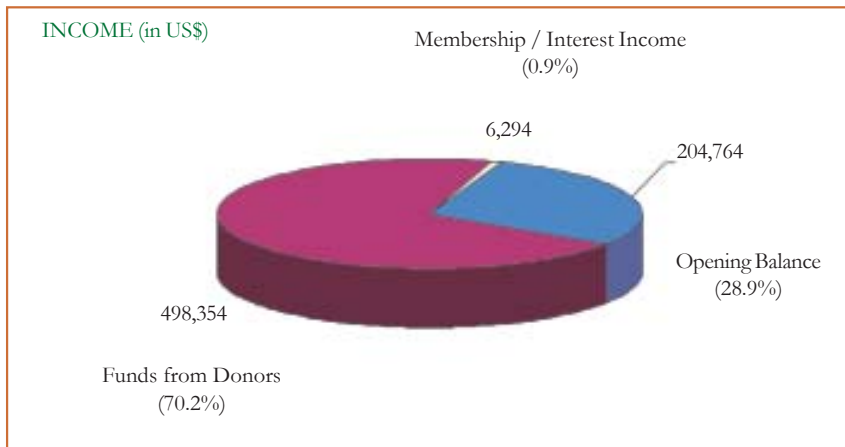
✓ SANDEE Family at the R&T  
✓ Workshop



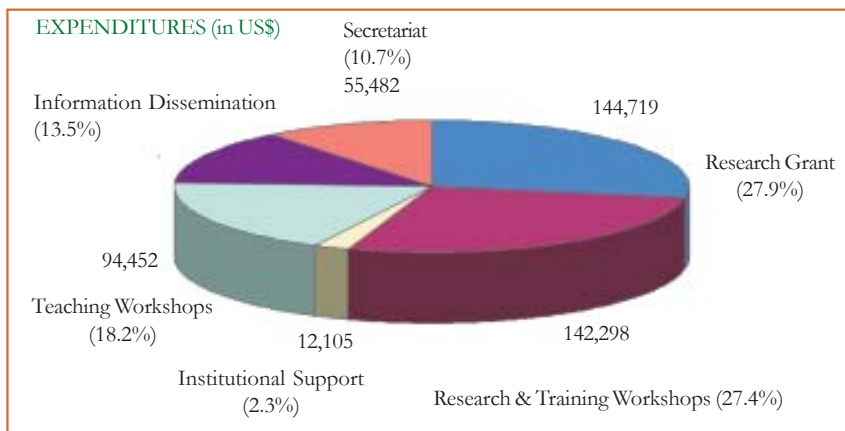
## Financial Information

Income and Expenditure (January – December 2006)

### INCOME CHART



### EXPENDITURE CHART



## Key Environmental Indicators for South Asia

	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka	Region
Population (millions)	139.2	0.9	1,079.7	0.3	26.6	152.1	19.4	1,446.8
GNI per capita, Atlas method (\$)	440	760	620	2,410	250	600	1,010	594
GDP (\$ billions)	56.6	0.7	691.2	0.8	6.7	96.1	20.1	880.2
<b>Agriculture</b>								
Land area (1,000 sq. km)	130	47	2,973	0	143	771	65	4,781
Agricultural land (% of land area)	69	12	61	47	30	33	36	54
Irrigated land (% of crop land)	56.1	31.3	32.9	..	47.0	90.6	38.8	39.6
Fertilizer consumption (100 grams/ ha of arable land)	1,780	0	1,008	..	377	1,371	3,103	1,040
<b>Forests and Biodiversity</b>								
Forest area share of total land area (%)	6.7	68.0	22.8	3.3	25.4	2.5	29.9	16.8
Annual deforestation (% change, 1990-2005)	0.1	-0.4	-0.4	0.0	1.6	1.6	1.2	-0.2
Nationally Protected Area (% of land area)	0.8	25.1	5.2	..	8.9	4.9	13.5	4.8
<b>Energy, Emissions and pollution</b>								
GDP per unit of energy use (2000 PPP\$ / kg of oil equivalent)	10.4	..	5.3	..	4.0	4.2	8.8	5.3
Electricity generated by coal (% of total)	..	..	68.3	..	..	0.2	..	58.2
Electric power consumption per capita (kWh)	128	..	435	..	68	408	325	394
CO2 emissions per unit of GDP (kg/2000 PPP\$ GDP)	0.2	..	0.5	..	0.1	0.4	0.1	0.4
CO2 emissions per capita (metric tons)	0.3	0.5	1.2	3.4	0.2	0.7	0.5	1.0
<b>National accounting aggregates -2003</b>								
Access to improved water sources (% of total population)	75	62	86	84	84	90	78	84
Access to sanitation in rural areas (% of rural population)	39	70	18	42	20	87	89	23
Internal freshwater resources per capita (cubic meters)	754	106,026	1,167	93	7,454	345	2,575	1,255
Total freshwater withdrawal (% of internal resources)	75.6	0.4	51.2	..	5.1	323.3	25.2	51.8
Under-5 mortality rate (per 1,000 live births)	77	80	85	46	76	101	14	92
<b>Water and Sanitation</b>								
Gross national savings (% GNI)-	29.0	..	23.0	37.7	26.9	23.6	19.4	23.6
Consumption of fixed capital (% GNI)	8.2	9.7	9.3	11.5	8.1	8.2	10.3	9.1
Education expenditure (% GNI)	1.9	4.0	4.0	3.0	2.6	2.3	2.6	3.6
Energy depletion (% of GNI)	2.4	0.0	2.5	0.0	0.0	5.3	0.0	2.7
Mineral depletion (% GNI)	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.3
Net forest depletion (% GNI )	0.7	4.2	0.7	0.0	2.8	0.5	0.4	0.7
CO2 damage (% GNI)	0.4	..	1.3	0.8	0.4	0.8	0.4	1.2
Adjusted net savings (% GNI )	18.7	..	12.0	27.8	18.2	9.7	10.4	12.4

Source: Little Green Data Book, 2006, World Bank



South Asian Network for Development  
and Environmental Economics

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