

## WELCOME...

**T**he South Asian Network for Development and Environmental Economics (SANDEE) is a regional network that brings together analysts from different countries in South Asia to address their development-environment problems. It is based on the premise that the quality of economic growth matters and that environmental sustainability is key to the future of the region. SANDEE's activities cover Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

This newsletter provides information on SANDEE activities during the last six months. Please read on and, as always, we would love to hear from you.

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## Dear Friends and Colleagues

**S**everal of us SANDEEites had the opportunity recently to attend Planet Under Pressure, a major international conference motivated by the idea of getting a set of 'science' messages to Rio+20. Twenty years after the first Earth Summit, it is clear that we have mostly fallen behind in our stewardship of the Earth. At the global level, human-induced climate change is a reality, our oceans are warming and biodiversity losses continue unchecked. To assess the current state of the planet and offer solutions, Planet Under Pressure brought together 3000 scientists and decision-makers in London in late March, with an additional 3000 participants joining virtually every day. It was an exciting conference because of its focus on the urgent need for solutions, a huge learning experience, a major networking opportunity and perhaps one more step towards better earth stewardship. It was imminently clear to us that our environmental economics

work in South Asia is important and needed. What we do in the next decade matters — thus, isn't it fortunate that we SANDEEites are in a position to forge some new solutions?

SANDEE has seen change within its micro-environment. Prof. M.N. Murty, a long time SANDEE advisor, has now joined our group of Emeritus Advisors. We are grateful for Dr. Murty's years of consistent advice to SANDEEites and we know that we will continue to have his support when needed. We also warmly welcome two new colleagues, Celine Naughes, who is at the University of Queensland, Australia, and has joined the SANDEE Advisor's group, and Rizwana Hasan from the Bangladesh Environmental Lawyers Association, who is now part of the SANDEE Management Board.

Best wishes  
riya, Rucha and the Secretariat team

# Research

## Research Grants

In the latter half of 2011, SANDEE received 96 pre-proposals and the following seven grants were approved based on the Research and Training Workshop that took place in December. Several of the grants were in response to a special ‘policy’ call, and, focus on pricing policies, subsidies and regulations, and market failure in the garments sector.

Name	Country	Topic
Bhattarai, Dipendra	Nepal	Is the Renewable Energy Subsidy Policy in Nepal Inline to Obtain its objectives?
Chowdhury, Mehruna	Bangladesh	Compliance Standards in Pollution Management: A Case Study of the Textile Industry of Bangladesh
Hemachandra, Kinkini	Sri Lanka	Understanding Shifts to Environmental Management Systems in the Textile and Garment Industry in Sri Lanka
Inayat, Jan	Pakistan	Barriers to Adopting Improved Cook-stoves in Rural Northwest Pakistan
Khan, Muhammad	Pakistan	Valuating Health Costs from Dust Pollution in the Textile Industry in Faisalabad, Pakistan
Patra, Sudhakar	India	Does Non-timber Forest Products Price Policy in Orissa Need to Change?
Singha, Chandan	India	Revisiting Soil Conservation Benefits from a Watershed in Darjeeling, India



Prabath Edirisinghe from Sri Lanka discussing research on swidden agriculture with advisor J.M. Baland

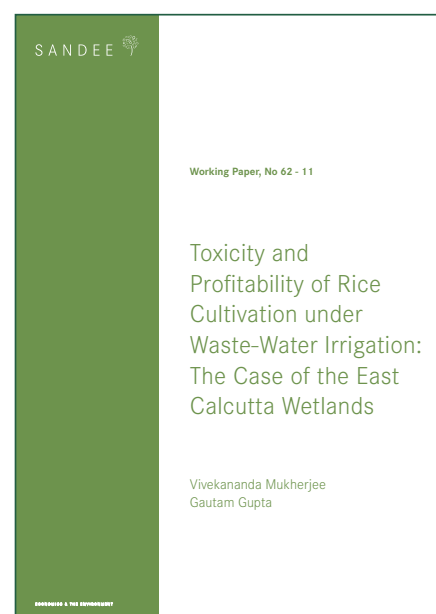
## Working Papers

### **Toxicity and Profitability of Rice Cultivation under Waste-Water Irrigation: The Case of the East Calcutta Wetlands, Vivekananda Mukherjee and Gautam Gupta, WP No. 62 - 11**

The study reports the results of an empirical study on the profitability of rice cultivation in the East Calcutta Wetlands region where untreated sewage water from the city of Calcutta, India, is used for the purpose of irrigation during the winter/summer crop. The results show that plots using wastewater containing organic nutrients earn higher profits than those using groundwater. However, the profitability of plots using wastewater is negatively affected by the presence of heavy metals such as Chromium, Lead and Mercury that are found in the water and soil. Of the two opposing effects of wastewater irrigation, the positive effects of organic nutrients outweigh the negative effects of heavy metal toxicity.

### **Estimating the Value of Statistical Life in Pakistan, Muhammad Rafiq, WP 63 - 11**

This study estimates the Value of Statistical Life and Limb in Pakistan based on the compensating wage differential among blue-collar industrial workers in the city of Lahore. The data for this study is from a survey of 680 workers who were above eighteen years of age with at least one year's work experience. According to the study, the Value of Statistical Life (VSL) in Pakistan ranges from PKR 28 million (USD 321,813) to PKR 67 million (USD 775,193). The variation in the results has to do with the use of different risk measures, that is, actual and perceived risk measures in alternative regression equations.



## **Indigenous Communities, Cooperation, and Communication: Taking Experiments to the Field, Rucha Ghate, Suresh Ghate and Elinor Ostrom, WP 64 - 11**

Experimental studies conducted in laboratory settings have shown that when subjects are anonymous and not allowed to communicate, they tend not to cooperate, and simply allowing subjects to communicate enables them to achieve far more cooperative outcomes. However, while carefully conducted laboratory experiments do have strong internal validity, external validity requires further research. This paper is based on a series of common-pool-resource field experiments, using two experimental designs – “no communication” and “communication”, in eight indigenous communities. The findings suggest that the shared norms in these communities are so deeply embedded that communication is not essential to arrive at cooperative decisions. However, communication does homogenize group and individual outcomes so that communities that are overly cooperative tend to reduce cooperation slightly while those showing small deviations in the other direction move toward the optimal solution.



## **Consumer Responses to Incentives to Reduce Plastic Bag Use: Evidence from a Field Experiment In Urban India, Kanupriya Gupta, WP 65-11**

This paper tests for appropriate policies that could help control the use of plastic bags in Delhi. The fact that 94% of the consumers continue to use plastic bags in blatant violation of rules was the motivation behind the study, which examined the effects of other possible price and non-price instruments requiring less monitoring and enforcement in order to control/reduce the use of plastic bags. The results indicate that cumulatively these interventions increase the proportion of consumers who bring their own bags from 4.6% in the baseline to 17.7% post treatment. The number of consumers who would only use plastic bags came down on average from 80.8% to 57.1%. The study concludes that in developing countries, instead of a blanket ban, low cost information interventions, availability of substitutes to plastic bags, and subsidies (taxes) on the use of reusable bags could constitute an important policy-mix.

## **Causes of Emissions from Agricultural Residue Burning in North-west India: Evaluation of a Technology Policy Response, Ridhima Gupta, WP 66-12**

The burning of agricultural field residue, such as stalks and stubble, during the wheat and rice harvesting seasons in the Indo-Gangetic plains results in substantial emissions of trace gases and particles, with adverse health and climate impacts. Using a representative sample of farmers from the seven districts of Punjab, the study finds that the use of coarse varieties of rice as opposed to fine-grained varieties such as Basmati increases the likelihood of farmers using the combine-harvester technology, which in turn makes burning almost certain despite a ban. A Happy Seeder machine, which plants seed into loose residue and makes burning of residue unnecessary without increasing the cost of field preparation and changing mean wheat yields, is not readily adopted by the farmers because it has no strong advantage or disadvantage from the view point of private profits.

## **Inclusive National Accounts: Introduction, Partha Dasgupta, WP 67-12**

The demand for green national accounts has been prompted by the recognition that contemporary accounts are an unsatisfactory basis for economic evaluation. This paper provides an outline of what would ideally be needed for a comprehensive set of national accounts. National governments and international agencies ought ideally to go even beyond green national accounts. The social worth of natural resources can be decomposed into three parts: use value intrinsic value, and option value. Being sensitive to ecological processes requires investment in early education on the connection between human well-being and the natural environment.





# Focus

## Planet under Pressure

In order to provide society with the knowledge it needs to assess risks from global changes, several international science groups came together to host the “*Planet under Pressure: New Knowledge towards Solutions*” conference, held in London during March 26th to 29th. The conference sought to focus the wider world’s attention on major global environmental and social concerns such as climate change, ecological degradation, food security, and poverty reduction, based on the latest scientific evidence. The main goal was to provide scientific leadership towards the UN Rio +20 summit to be held in Brazil in June 2012.

*Planet under Pressure* was designed to attract senior policymakers, industry leaders, NGOs, young scientists, the media and academics from many disciplines. Several SANDEEites attended the conference. It was an important conference because of the communities it brought together and the knowledge it imparted on planetary thresholds. We are increasing carbon in the atmosphere at an alarming rate, nitrogen levels are at twice their natural level and we are running down our biodiversity. Strangely, we may be even speeding up evolution to a matter of a few decades for some species. We don’t quite know what the implications are of this accelerated change, but we need to recognize the hazards and figure out ways to keep the earth within safe operating boundaries.

In Focus, we bring to you parts of the first ever declaration on the state of the planet presented by the Co-Chairs of the *Planet Under Pressure* conference. The full declaration is available on [www.planetunderpressure2012.net](http://www.planetunderpressure2012.net).

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*“The conference broadened my research horizons and reconfirmed my belief in the capability of people. Success stories like Green Economic Development in Korea and China, women in water harvesting or other innovative ways people have found to tackle climate challenges impressed me the most. The other bring home message was the role of communication. Every individual and every little change in behavior that reduces pressure on earth matters and constructive communication can change the behavior. What a nice Earth it will be when everybody behaves well!”* Saudamini Das

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The EEPSEA-SANDEE team at Planet Under Pressure (PUP) , London, March 2012

## State of the Planet Declaration

“1. Research now demonstrates that the continued functioning of the Earth system as it has supported the well-being of human civilization in recent centuries is at risk. Without urgent action, we could face threats to water, food, biodiversity and other critical resources: these threats risk intensifying economic, ecological and social crises, creating the potential for a humanitarian emergency on a global scale.

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*“Understanding science is so important. One afternoon I was at a data sharing and climate change related session at Planet under Pressure. It was a very good session, but I learned that climate change models are not able to predict current actual scenarios with much confidence. So, when our researchers do climate change impact and future prediction type of research, we need to be very careful in using future forecasts.”* Mani Nepal

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2. *In one lifetime our increasingly interconnected and interdependent economic, social, cultural and political systems have come to place pressures on the environment that may cause fundamental changes in the Earth system and move us beyond safe natural boundaries. But the same interconnectedness provides the potential for solutions: new ideas can form and spread quickly, creating the momentum for the major transformation required for a truly sustainable planet.*
3. *The defining challenge of our age is to safeguard Earth's natural processes to ensure the well-being of civilization while eradicating poverty, reducing conflict over resources, and supporting human and ecosystem health.*
4. *As consumption accelerates everywhere and world population rises, it is no longer sufficient to work towards a distant ideal of sustainable development. Global sustainability must become a foundation of society. It can and must be part of the bedrock of nation states and the fabric of societies."*

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*"A major take home message for me is mass acknowledgement of the human race entering the 'anthropocene' and emphasis on 'the greater need for stewardship in environmental management' by human society. I feel it is a very important challenge for social scientists and especially environmental economists to revisit their theories and practical solutions emerging out of that in this new paradigm." Joyashree Roy*

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The declaration asserts that the humanity has taken a huge leap and become a planetary-scale force. Thus, we seem to have driven the planet into a new epoch, the Anthropocene, in which Earth-system processes and the living fabric of the earth is dominated by human activities. There were many examples to support this point view presented at the conference. The earth system is a highly inter-connected and inter-dependent system. Such a system can be very stable, but it is also susceptible to abrupt and rapid changes. Such systems are possibly better governed at multiple scales through diverse partnerships, i.e. a polycentric approach.

There was a clear recognition at *Planet under Pressure* that we need inter-connected solutions to solve inter-connected problems. As we look for solutions, technological innovation alone will not be enough. The conference called for a transformation of values and aspirations. There was also a strong push to move away from income as a measure of well-being and the need for sustainability indicators at different scales. One solution proposed is a stronger contract between science and society with a focus on a new type of science that can inform policy. There was a strong call for capacity building and support for observation systems, particularly in developing countries. For Rio+20, *Planet under Pressure* offered three main recommendations: a) Fundamental reorientation and restructuring of national and international institutions to overcome barriers to progress and to move to effective Earth system governance; b) A commitment to the proposal for universal Sustainable Development Goals; and c) Recognition of the monetary and non-monetary values of public goods such as ecosystem services, education, health and global common resources such as the oceans and the atmosphere.

*Planet under Pressure* was an important conference that brought together thousands of people from different fields to jointly think about our living planet. We hope the new knowledge and new discussions generated help take us one step forward towards planetary stewardship.

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*Facts I learnt as a result of Planet under Pressure:*

- ▶ Human dominance of earth systems started with the industrial revolution in 1800, but the acceleration towards the Anthropocene started in 1950.
- ▶ CO<sub>2</sub> emissions are currently at about 394.45 ppm (monthly average for March 2012), while the pre-industrial value was 280 ppm.
- ▶ Since the early 20th century, earth's average surface temperature has increased by about 0.8°C (1.4°F), with about two thirds of the increase occurring since 1980.
- ▶ Ocean heat has increased in the past decade with global sea level increasing at an average rate of 1.7 ± 0.3 mm per year over 1950 to 2009.
- ▶ The extinction rate of species (no. of species per million species per year) is currently greater than 100 while the pre-industrial value was closer to 1.
- ▶ IUCN Red's List Index for biodiversity conservation shows that more than one-third of all species are threatened.
- ▶ Chemical fertilizer use increased from 50 to 300 million tons per annum from 1950 to 2000.
- ▶ The impact on the nitrogen cycle is huge, i.e. the amount of N<sub>2</sub> remaining in the atmosphere is 121 millions of tons per year, while the pre-industrial value was 0.
- ▶ Human population is at 7 billion and likely to stabilize at 9 billion.

Prasenjit Sarkhel

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# Publications and Presentations

## Publications

- Bandyopadhyay, S, P. Shyamsundar and A. Baccini, 2011. Forests, biomass and poverty in Malawi. *Ecological Economics* 70(12):2461-247
- Ferraro P.J., K. Lawer, K.L. Mullan and S.K. Pattanayak, 2011, 'Forest Figures: Ecosystem Services Valuation and Policy Evaluation in Developing Countries', *Review of Environmental Economics and Policy*, 6(1)
- Malla M. B., N. Bruce, E. Bates & E. Rehfuess, 2011. 'Applying global cost-benefit analysis methods to indoor air pollution mitigation interventions in Nepal, Kenya and Sudan: Insights and challenges, *Energy Policy*', *Energy Policy* 29 (12)
- Mukhopadhyay P. and G. Kadekodi, 2011. 'Missing the Woods for the Ore: Goa's Development myopia,' *Economic and Political Weekly*, vol. xlvi (46)
- Nepal, M., A. Nepal and K. Grimsrud, 2011. 'Unbelievable but improved cook stoves are not helpful in reducing firewood demand in Nepal', *Environment and Development Economics*, 16(1): 1-23
- Rafiq M. 2010. 'The Value of Reduced Risk of Injury and Deaths in Pakistan using actual and perceived risk estimates', *Pakistan Development Review (PDR) Paper & Proceeding*, 49(4)
- Udagama M, Jyasinge-Mudalige U., Anjali GHI, 2009. 'Managers' Environmental Altruism and Firms' Compliance to National Environmental Management Strategies: Evidence from the Food Processing Sector in Sri Lanka.' *Journal of Food and Agriculture*, 2(2)



## Presentations

- ▶ Embankments, Fisheries and Farmers – dissemination seminars by Prasenjit Sarkhel at Lalbaba College DRS on 13th August 2011, at Calcutta University on 10th Sept. 2011, and at Kalyani University on 20th Sept. 2011. Prasenjit Sarkhel discussed his research findings on private contributions to embankment maintenance in three different university settings in West Bengal. Each presentation was followed by a panel discussion, which helped Prasenjit further revise his manuscript.
- ▶ Khuda Baksh presented his work on BT cotton at several separate seminars in Pakistan, including at the Arid Agricultural University, Rawalpindi, November 1; COMSATS Institute of Information Technology, Lahore, October 27; and the Department of Economics, Baha-ud-Din Zakariya University Multan, December 2nd, 2011. Each presentation was preceded by a general presentation on SANDEE's activities. Thus, these seminars also served as opportunities to provide information on SANDEE to interested Pakistani participants.
- ▶ Naeem Akram participated in the Fourteenth Sustainable Development Conference, 13-15 December 2011. He was a part of a panel titled "Climate Change Concerns and their Possible Impact on South Asian Countries".
- ▶ Waqar Akram presented his research on "Endogeneity, Hausman test and Bt Cotton Productivity" in the 11th Islamic Countries Conference on Statistical Sciences, held on December 19-22, 2011, Lahore-Pakistan.





# Dissemination



Editors A.K.E.. Haque, M. N. Murty and Priya Shyamsundar launching Environmental Valuation in South Asia, Dhaka, Bangladesh, September 2011

## Environmental Valuation in South Asia

### Book Release, Dhaka, Bangladesh, 27 September 2011

SANDEE's latest book 'Environmental Valuation in South Asia' was launched on 27 September 2011 in United International University, Dhaka, Bangladesh. This book provides an overview of environmental problems in South Asia and discusses various techniques to value the benefits and costs associated with these problems. At the launch in Dhaka, the book was reviewed by two economists and then released by a group of five vice-chancellors from different universities: Hafiz G A Siddiqi, NSU; Ainun Nishat, BRACU; Md. Saleh Uddin, SUST; Mohammed Farashuddin, EWU; Rezwana Khan, UIU; and Wahiduddin Mahmud, Chairman, Economic Research Group.

### Book Panel, Indian Society of Ecological Economics (INSEE) conference, 19 October 2011, Hyderabad, India

SANDEE organized a panel at the INSEE conference based on 'Environmental Valuation in South Asia.' Presentations were made to a 'standing room only' audience by researchers Ratna Jha, SharadLele, Herath Gunatilake, and Umamaheshwari on issues ranging from pesticide use in Nepal to water and sanitation services in Sri Lanka. The book was also launched in India by Karl-Goran Maler in the inaugural session.

### Expert group on Greening National Accounts, Ministry of Planning and Implementation, Government of India, August 2011, Delhi, India

Priya Shyamsundar made a brief presentation at the first expert group meeting on the findings from 'Environmental Valuation in South Asia.' Different valuation techniques and their appropriateness for greening income accounts were discussed.

## Congratulations

INSEE President, Prof Kanchan Chopra has been elected a Fellow of the Academy of Sciences of Developing Countries, formerly known as the Third World Academy of Science (TWAS). It is an extremely prestigious award, considering the fact that the Academy has only one section, out of ten, in the social sciences. Prof. Chopra, an eminent environmental economist, is former Director of the Institute of Economic Growth, Delhi and a SANDEE Fellow.



## Expert Consultation meeting on Ecosystem Services organized with MoEF at IIFM, Sept 15-16th, 2011.

Pranab Mukhopadhyay participated and discussed valuation and ecosystem services research by SANDEE. This was part of a larger discussion on TEEB India and the kinds of valuation studies that may be useful to the Ministry of Environment, India.

TEEB, India is an on-going effort to recognize, realize and capture the value of ecosystem services and mainstream this value into development practice.



## KUDOS

- Bishnu Prasad Sharma received a Ph.D. degree from Tribhuvan University. His dissertation, funded by SANDEE, was entitled “Contributions of Leasehold Forests in Household Income and Poverty Alleviation in Nepal.”
- SANDEE Fellow Saudamini Das will join the Institute of Economic Growth, Delhi, India as Associate Professor in 2012.
- Muhammad Irfan received his Ph.D. degree in Economics from Federal Urdu University of Arts Science and Technology Islamabad, Pakistan in December 2011. The title of his SANDEE-supported thesis is “Evaluating the impact of dis-amenity (Open Sewerage System) on house rent in Rawalpindi City”.
- Santadas Ghosh has been made the coordinator of Ph.D. coursework in Shanti Niketan University, West Bengal (July – December semester).
- Mohammad Rafiq, University of Peshawar, initiated two new studies – ‘The Impact of Tourism on Local Livelihood in Klash valley’, funded by the HEC National Research Program for Universities ( PKR 1.8 million, 2012), and ‘Valuing the Environmental Health Effects: A Case study of Peshawar, Pakistan’, funded by the HEC National Research program for Universities (PKR 2.8 million, 2012-2013).



Bishnu P Sharma undertaking a survey in rural Nepal.



# Training

## Research and Writing Workshop in Environmental Economics, NEHU, Shillong, India (28 August-1st September 2011)

SANDEE partnered with the Omeo Kumar Das Institute of Social Change and Development (OKDISCD) and the Department of Economics, North East Hills University (NEHU) to jointly organize a Research and Writing Workshop on Environmental and Natural Resource Economics. The objective of this workshop was to enable researchers and teachers to take their research ideas and develop them into workable research proposals in the field of environment and development economics.



Research and Writing workshop at Tangail, Bangladesh

## Research and Writing Workshop in Environmental Economics, Tangail, Bangladesh (23rd-26th September, 2011)

SANDEE, jointly with the Economic Research Group, Bangladesh organized a second research and writing workshop in environmental economics. This workshop provided exposure to the field of environmental and natural resource economics and enabled researchers to learn about research methods and proposal writing and to join the pool of researchers working with SANDEE's network.

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*"I have learnt more about research and economics in the last three days than what I learnt in my 2 years of M. Phil and 2 years of PhD" Sudhakar Patra, Associate Professor, Ravenshaw University*

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Boat ride on the mighty Jamuna, Bangladesh, September 2011

## Ph.D. Scholars workshop in Environment and Economics, INSEE, Hyderabad, India (October 23, 2011)

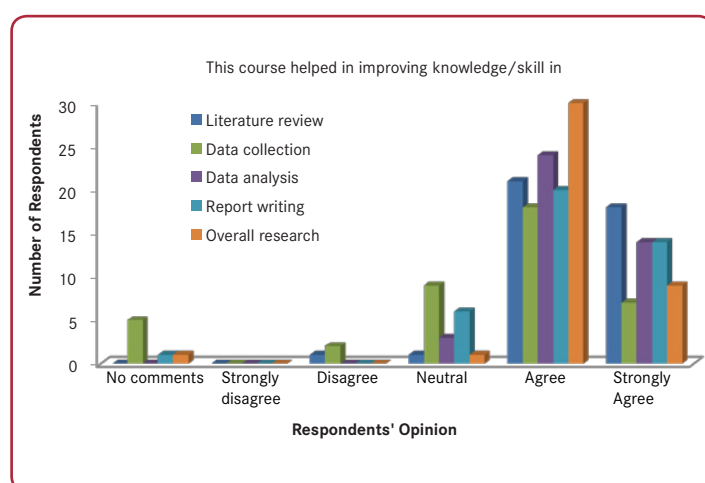
This workshop followed the biennial INSEE meetings in Hyderabad. It was a post-conference one day workshop for Ph.D. scholars working in the area of Ecology & Economics and focused on spatial and temporal ecological changes from anthropogenic intervention. Economic trade-offs and valuation issues were also addressed. Nilanjan Ghosh and Pranab Mukhopadhyay coordinated the workshop.



## Econometrics for Environmental Economics: Theory and Application, Dhulikhel Mountain Resort, Dhulikhel, Nepal (8th - 18th January, 2012)

SANDEE organized a two-week training course in 'Econometrics for Environmental Economics: Theory and Practice,' during 8th - 18th January, 2012. The course was meant for current SANDEE researchers who need to learn applied econometrics in order to complete their research projects. The workshop provided researchers with the basic skills necessary to analyze data. Participants were provided hands-on training in econometric software such as STATA. A.K. Enamul Haque, Kenuske Kubo and Mani Nepal were the faculty for the course.

*"As a milestone in career development, this training was sufficiently successful in addressing what is required for South Asian environment-economics research." Researcher, Econometrics for Environmental Economics Course.*



"The graph provides an evaluation of Econ 5213 (Environmental Economics) a Masters Level Class in Economics at Khulna University. The course was designed mostly based on some selected SANDEE Working Papers. The graph documents students' opinions in September 2011." SANDEE Research Associate, Prof. Ziaul Haider

SANDEE hopes to strengthen curriculum across South Asia through its researchers and their teaching activities.

Students evaluation of a Master's level course in Environmental Economics in Bangladesh based on SANDEE working papers.



Participants at the Econometrics Course, Dhulikhel, Nepal, January 2012

## Announcements

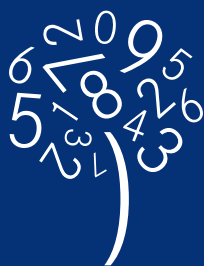
- ▶ The Centre for Studies and Research on International Development from the University of Auvergne is organizing its 2nd Conference on Environmental Economics and Natural Resources Management in Developing and Transition Economies, to be held 17-18-19 October 2012. Call for papers Deadline is June 30th, 2012.
- ▶ The Sustainable Development Policy Institute, Pakistan will host the Fifth South Asia Economic Summit between 17-19th September 2012. This year's theme is 'Making Growth Inclusive and Sustainable in South Asia'. The deadline for submission of abstracts is 9th April 2012. For details contact <http://www.sdpi.org/saes/index.html>.
- ▶ The European Network for Political Ecology offers 11 three-year Ph.D. scholarships available to candidates from all over the world. For further information please visit [www.politicalecology.eu](http://www.politicalecology.eu) email entitle2012@gmail.com.
- ▶ The International Centre for Integrated Mountain Development (ICIMOD) is looking for an Environmental Economist. For more information please visit [www.icimod.org](http://www.icimod.org).
- ▶ Edward B Barbier 2011. *Scarcity and Frontiers: How Economies Have Developed Through Natural Resource Exploitation and Capitalizing on Nature: Ecosystems as Natural Assets*, Cambridge University Press.



## Networking

CMDR, Dharwad initiated a study in January 2012 on “Options for Diversification in Tobacco Farming, Bidi Rolling and Tendu Leaf Plucking in India” with a grant of 200,500 CAD from IDRC, Canada. The study will cover 12 states in India with a sample of 7500 households including tobacco /non-tobacco growers, bidi/non-bidi rollers and tendu leaf pluckers/non-pluckers across the country. Former SANDEE researchers Nayanatara Nayak (Project leader), Amita Shah, Rucha Ghatge, and L. Venkatachalam and others will carry out different components of the research project in their respective states. Nayanatara's SANDEE project was on tobacco curing and fuel wood use in Karnataka and this new project is a natural and major extension of her SANDEE work.





## **SANDEE**

P.O. Box 8975, E.P.C 1056, Lalitpur, Nepal

Street address: c/o ICIMOD, Khumaltar, Lalitpur, Nepal

Tel: 977 1 5003222, Fax: 977 1 5003299

Email: [info@sandeeonline.org](mailto:info@sandeeonline.org) Website: [www.sandeeonline.org](http://www.sandeeonline.org)