SANDEE

South Asian Network for Development and Environmental Economics

NEWSLETTER

No. 20 Spring 2010

SANDEE....

The South Asian Network for Development and Environmental Economics is a regional network that brings together analysts from across South Asia to address its environment-development problems. SANDEE's mission is to strengthen the capacity of individuals and institutions to undertake research on the inter-linkages among economic development, poverty, and environmental change and to disseminate practical information that can be applied to development policies.

In This Issue

Editorial:

Dear Friends and Colleagues

In this edition, you will find a quick review of new research being undertaken by SANDEEites, successfully completed projects and news of how many of you are doing in your various professional roles. To further support high-quality research in the field of environment and development economics, we are glad to announce a Research and Writing fellowship in honor of SANDEE's founder, Sir Partha Dasgupta. This Fellowship will be open to economists interested in environment and development issues in South Asia.

Carbon releases through forest loss contribute significantly to green house gas emissions. Reduced emissions from avoided deforestation and degradation (REDD)' is a mechanism that is now being considered by many countries in their on-going effort to control carbon emissions. However, much has to be done before a country is ready to implement REDD. Some of these challenges are discussed in 'Focus'.

News of the SANDEE secretariat is that we have successfully completed our transition to ICIMOD. We will also hold our 10th year celebration this year in Nepal (see our website for further details). We look forward to seeing many of you during SANDEE@10.

With every best wish

- Priya, Rucha and others from the SANDEE Secretariat

Trekking in Dhampus, R&T Pokhara, December 2009

Research News

New SANDEE Grants

As always SANDEE's core activity is research support. SANDEE received 40 pre-proposals and invited 7 research proposals for grants in the winter of 2009 (cycle 19). Five grants and one study grant were made based on the Research and Training Workshop that took place in December 2009. The topics range from organic agriculture to household response to natural disasters.

Table 1: SANDEE Research Support (Cycle 19)

Name	Country	Research Topic
Ziaul Haider	Bangladesh	Economics of Rice Residue Burning in the South-West Region of Bangladesh
Iftikar Husnain	Pakistan	Is Organic Agriculture Economically Viable?
Prajna Paramita Mishra	India	Recreation vs. Pollution? A study of Hussain Sagar Lake and its surrounding in Hyderabad
Santadas Ghosh	India	Dynamics of Household Responses to Natural Disasters -Observations from Sundarban after cyclone Aila
Saravana Kumar	India	Economic Impact of Climate Change on Yield Variability of Major Food Crops in Tamil Nadu
Moshahida Sultana (Study Grant)	Bangladesh	Factors that Influence Two Conflicting Groups - Farmers and Fishermen - to Participate in the Integrated Water Resource Management: The Case of Coastal Areas of Bangladesh

Research Completed

Can Mangroves Minimize Property Loss during Big Storms? An Analysis of House Damages due to the Super Cyclone in Orissa

Saudamini Das
SANDEE Working Paper No. 42-09

Theoretical as well as empirical research shows that mangroves provide protection from storm surge. But whether mangroves protect inland static property during storms is less explored. This paper estimates the storm protection benefits due to mangroves during the super cyclone of 1999 in Orissa. The analyses suggest that the percentage of fully collapsed houses in the study area would have increased by 23% without the benefit of mangrove protection. The total protection benefits of mangroves in terms of averted damages to residential property in Kendrapada are estimated to be INR 592,647,800 (USD14, 110, 662).

Productivity of Pesticides in Vegetable Farming in Nepal

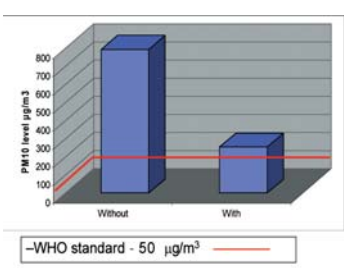
Ratna Kumar Jha
SANDEE Working Paper No. 43-09

This paper examines the effectiveness of damage control mechanisms such as pesticides to reduce crop losses. The study finds that the average farmer in Bhaktapur uses 3.9 times as much pesticide as the optimal amount, and over 70% of the farmers do so despite very small increases in yield. The marginal productivity of pesticides is close to zero for the average farmer, indicating excessive use of pesticides.

Revisiting the Need for Improved Stoves: Estimating Health, Time and Carbon Benefits

Min Bikram Malla Thakuri
SANDEE Working Paper No. 44-09

About 85 percent of Nepalese households depend on these fuels for cooking energy, and most cook in poorly ventilated kitchens using inefficient stoves. Based on a survey of 400 households in Nepal, this study finds that stove improvements and a smoke-hood in the kitchen can reduce the consumption of fuel, improve air quality and reduce the health costs borne by households. This study finds that the average indoor air pollution level in traditional stove user households is 15 times higher than recommended safe levels.



Indoor air pollution (PM 10) levels in kitchens with and without improved kitchen stoves and chimneys in Nepal (Malla, 2010)

Climate Sensitivity of Indian Agriculture. Do Spatial Effects Matter?

K.S. Kavi Kumar
SANDEE Working Paper No. 45-09

This study uses the Ricardian approach to examine the impact of climate change on Indian agriculture. Using panel data over a twenty year period and on 271 districts, the study estimates the impact of climate change on farm level net revenue. The findings reveal that there is significant positive spatial autocorrelation – both in the dependent variable, farm level net revenue, and in the error term – and that accounting for this can improve the accuracy of climate impact studies. Climate change results in a 9% decline in agricultural revenues in the base model but incorporating spatial effects lowers this effect to 3%.

Prevalence and Costs of Childhood Diarrhoea in the Slums of Dhaka

Muhammad Jahangir Alam
SANDEE Working Paper No. 46-09

Diarrhoea is a common water-borne disease among slum children in Bangladesh. This study seeks to identify the engineering, behavioral and socio-economic determinants of childhood diarrhoea and its duration through a survey of 480 slum households in Dhaka. Nearly 50 percent of slum households reported diarrhoea episodes during the recall period of 15 days, with an average duration of 3.76 days of diarrhoea. The yearly cost of child diarrhoea for a representative household ranges from USD 6 to 12 or 0.6 percent to 1.3 percent of annual household income.

Publications and Presentations

Das, S. and J. R. Vincent *(2009),'* Mangroves protected villages and reduced death toll during Indian super cyclone*', Proc Natl Acad Sci USA*, 106:7357–7360.

Devi, P. I. (2009), 'Pesticide Application and Occupational Health Risks among Farm Workers in Kerala-An Analysis using Dose Response Function', *Indian Journal of Agricultural Economics*, 64(4):557-572.

Devi, P. I. (2009), 'Health risk Perceptions, Awareness and Handling Behaviour of Pesticides by Farm Workers', *Agricultural Economics Research Journal*, 22(9):263-268.

Gunawardena, A. and K. Wickramasinghe (2009), ' Social and Economic Impacts of Resettlement on Tsunami Affected Coastal Fishery Households in Sri Lanka' , in Fernando P., Fernando K. and M. Kumarasir (ed). *Forced to move - –Involuntary Displacement and Resettlement: Policy and Practice*, 8th Annual Symposium, Centre for Poverty Analysis (CEPA), Sri Lanka.

Pokhrel, R. (2009) ,'Pro-poor programs financed through Nepal's Community forestry funds: Does income matter?,' *Mountain Research and Development*, 29 (1).

Shah, A. (2010), 'Land degradation and migration in a dry land region in India: extent nature and determinants', *Environment and Development Economics,* 15 (2): pp 173-196

Yusuf, M. (2009), 'Legal and Institutional Dynamics of Forest management in Pakistan', *International Journal of Sustainable Development, Law and Policy,* McGill University.

Kavi Kumar K.S., P. Shyamsundar and A. A. Nambi (2010), 'Economics of climate change adaptation in India', *Economic and Political Weekly,* XLV No. 18

Nayantara conducted a discussion on SANDEE funded project "Alternative Fuel Sources to curing of Tobacco", at meeting organized by Centre for Multi Disciplinary Development Research (CMDR) in collaboration with Central Tobacco Research Institute (CTRI) at Hunsur, Mysore district, April 17, 2010.

Rucha Ghate gave a presentation on her SANDEE work entitled 'Non-commercial attitude of indigenous communities', at GIDR, Ahmedabad on 9th February, 2010 at a seminar on '*Development of tribal communities in Gujarat and Maharashtra'.*

The Economics of Climate Change Adaptation in India – Research and Policy Challenges Ahead

The Madras School of Economics, the M.S. Swaminathan Research Foundation and SANDEE organized a brain-storming workshop on the *Economics of Climate Change Adaptation* during 12-13 February 2010 to identify policy gaps, research questions and capacity-building requirement related to India's need to adapt to climate change. Please look out for a policy note on the discussions at and conclusions from this workshop on our website, www.sandeeonline.org

Focus

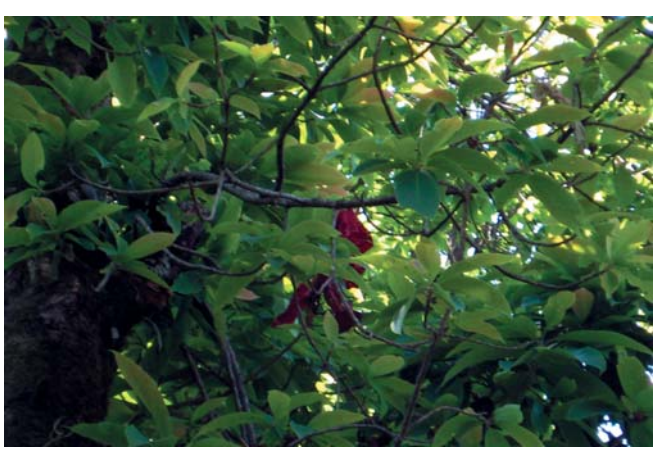
Forest land use change and forest Carbon emission models

Keshav Raj Kanel
keshavkanel@yahoo.com

Green house gas (GHG) emissions are the main contributors to global warming since the industrial revolution. Deforestation and forest degradation are estimated to account for about 17 percent of GHG emissions in the world, mostly from developing countries. Some also suggest that containing deforestation and degradation is the cheapest means of reducing GHG in the world. Therefore, global interest on retaining forests and their enhancement has become one of the important GHG mitigation strategies since 2007.

Forests are both a source and sink of carbon emission. Once, depleted and burned, they emit significant amount of GHGs, but if they are retained and better managed, conserved and enhanced, they absorb atmospheric CO_2 (which constitute about 50 percent of global emission) through photosynthesis. If forests provide so much of a global public service in terms of emission reduction, why are forests equivalent to about the size of Nepal annually deforested? The economic logic of deforestation lies in the fact that forest lands have alternative uses, although they contain much higher amount of carbon than other land uses. Those who retain forests do not get any financial compensation for preserving carbon in the forests. Thus, if local decision makers are compensated for carbon retention in the forests through attractive financial incentive mechanisms, the rate of forest depletion and carbon emissions could be drastically reduced.

Reduced Emission from Deforestation and Degradation (REDD), or REDD+ has become a global agenda to compensate developing countries for conserving forests. There was agreement on mechanisms for payment during the latest meeting of UNFCCC in Copenhagen in 2009. For a country to be ready for implementing REDD, the magnitude of forest area saved with REDD needs to be known and verified through satellite and other remote sensing techniques. The forest area saved can be translated into total carbon stored in the forests by multiplying the total forest area saved by the carbon content per unit area. Of course, carbon content per unit area will depend on forest type, species composition, forest stock, density of biomass etc. These parameters can be obtained from forest agencies or from IPCC default values. The most difficult component of the REDD exercise is to generate the forest cover baseline and current trend (or business as usual) scenario and the incentives to induce a REDD scenario. The difference between the current trend and future with REDD scenarios for a particular year, provides the total forest area saved due to the implementation of REDD.



Future forest scenarios are generated through different deforestation models. These models can be categorized into: (a) analytical models, (b) empirical or regression models, and (d) simulation models. They can also be differentiated according to (a) household or firm level models, (b) regional models, and (c) national or global models based on the scale of analysis. The first wave of deforestation models were global models that focused on cross-country data. These models attempted to explain deforestation in terms of say GDP and its growth, population density etc. The second wave of models incorporated spatial and price variables through regression equations to explain the magnitude of forest land use change and its location. These models have been extensively used in analyzing deforestation in Amazon forests, for example, and rely on GIS and Remote Sensing data of at least two time periods. Spatial regional regression models of land use change can also be embedded into computable general equilibrium (CGE) models. With CGE models, decision makers can identify macro outcomes of shocks and assess the overall ramifications for carbon emissions.

Spatial regional regression models can be useful in assessing the levels of deforestation and degradation and their emission potential in South Asian countries. However, lack of GIS related spatial information is a bottleneck, particularly in smaller countries such as Nepal. Using sample GIS information of land use changes in different regions of the country may be a way forward as this gap needs to be urgently addressed. REDD is a very important mitigation strategy as we try to address global climate change. There is, however, much work to be done to develop the basic building blocks for countries to be able to take advantage of the opportunities to implement REDD.

Discussion

Understanding deforestation in order to mitigate climate change in India

Kalyan Das
kalyanaugust@yahoo.com

The Forest Survey of India (FSI) has, since 2003, made available information on growing stock (volume of wood) of forests in a cycle of two years. Growing stock (GS) leads to quantification of the biomass, which helps in assessing the carbon stored in the forest. Information on GS of trees is also vital to understand the productive capacity of forest and prepare working plans for sustainable use of forest resources. India now adopts a

well defined methodology to estimate GS of forest and carbon sink potential. As per the estimates released by FSI (2009), a total of 6,622 million cubic tones of carbon are stored in India's forest and tree covers.

The more important issue now revolves around 'Reduced emissions from deforestation and degradation (REDD)' and management of forest stocks to mitigate climate change. In recent times India has seen significant changes in the composition of forest cover. During 2005-07, India gained 728 square km of forest mostly in the category of open forest and lost 936 square km of moderately dense forest. Loss of quality forest has serious repercussion in India's effort in climate change mitigation. India expects to raise forest and tree cover at a rate higher than the historical rate of increase and increase the total carbon stored in India's forests to 7,283 million cubic tones by 2015 (MoEF, 2009). Towards this end, India has launched a series of progressive policy initiatives on Sustainable Management of Forests as well as afforestation and reforestation, which involve investment of significant additional resources. Yet, MoEF data shows that growing forest stock in India declined by about 2% between 2005 and 2009.

The general assumption is that poverty and livelihood needs put immense pressure on degradation of forest resources in the country. Loss of forests in the forested north-eastern states of Arunachal Pradesh, Nagaland and Tripura is attributed to shifting cultivation, and the gain in some states is to regeneration of abandoned shifting cultivation areas and afforestation by the forest department. This explanation that a disproportionate amount of quality forests in the thinly populated hill states is lost because of shifting cultivation alone seems questionable. There is a need to better understand the process of degradation in different states in India. Without a deeper understanding of the reasons underlying forest loss, India will not be able to implement REDD as part of its climate change strategy.

Nepal: Economic Costs and REDD+ Readiness in Nepal

Mohan B Gurung
mgurung@winrock.org.np

Though the financing mechanism is still under discussion, REDD+ (reducing emissions from deforestation and forest degradation) has gained much attention in recent climate change negotiations opening new avenues to bring the forestry back into business. To decide whether or not to participate in the REDD+, individual counties need to quantitatively identify and compare different REDD+ scenarios using local, regional and country specific data. Since the processes of deforestation and forest degradation are fundamentally different from region to region and country to country, using global parameters and models can give misleading information.

What does REDD+ mean for Nepal? To answer this question, some pilot projects have been initiated. Nepal is a member country of the World Bank funded Forest Carbon Partnership Facility (FCPF), which is designed to set the stage for a large-scale system of incentives for reducing emissions from deforestation and forest degradation. The REDD Cell under the Ministry of Forest and Soil Conservation is involving a wider networks of stakeholders and preparing REDD readiness plan for the country. WWF / Winrock are testing carbon accounting methodologies, carrying out carbon inventories in the 14 districts of the Terai and proposing benefit sharing mechanisms. Similar efforts are ongoing in three watersheds through ICIMOD / ANSAB and FECOFUN collaboration, particularly focusing on community forests at watershed level. In addition, the Nepal Federation of Indigenous Nationalities (NEFIN), among others, is undertaking awareness raising and capacity building activities of indigenous and local communities.

SANDEE Board member David Glover and Researcher Kalyan Das trekking in the degraded forest

These initiatives will identify some appropriate REDD+ design options for the country. However, several issues, particularly economic aspects, are still uncertain. The question of economic viability of REDD+or costs that the country has to bear for avoided deforestation and degradation needs further investigation. This is particularly important in Nepal where about 70% of the total population rely on forests for subsistence. We need further disaggregated research on local and regional drivers and rates of deforestations and degradation, carbon stocks per unit area, and costs of avoiding emissions.

Forestry Policy evolution in Bhutan

Phub Dem
phubd@hotmail.com

Bhutan is endowed with a rich heritage of renewable natural resources and past policies and practices of the Government have successfully protected this heritage. Rural Bhutanese have traditionally depended heavily on forests for subsistence goods and services (fuel wood, non-wood forestry products, construction timber, leaf litter for animal bedding, etc). In addition, Bhutan is increasingly interfacing with an external globalised world, and, among other things, taken on international treaty obligations.

Until the 1960s, rural populations used natural resources in their immediate vicinity with little interference from the Government. However, during the latter part of the

20th century, the Government took on an increasingly interventionist role and many resource management functions, which had traditionally been carried out at village level, were centralized. The contemporary political landscape in Bhutan is one where this trend is reversing, with increasing democratization and associated decentralization. There has been a shift from a primary focus on protection and conservation towards a focus on balancing conservation with sustainable utilization. A key feature of the National Forest Policy is the application of an integrated landscape level approach to forest management. Forestry is now part of plans for poverty reduction. It is in this context that Bhutan has to think about implementing REDD.

Over 60 percent of land in Bhutan is forested. Thus, Bhutan conserves a great deal more forests than most countries in the world. But it is not clear how such efforts toward sustainable forest conservation will be rewarded under financing mechanisms such as REDD. REDD is expected to create incentives for *avoiding* deforestation and degradation. It is yet to be seen how a country that puts so much effort into conservation will become part of the REDD effort.

Valuing forests in Pakistan

The World Wide Fund for Nature - Pakistan (WWF-P) convened a consultative workshop on Jan 28th 2010 in Islamabad to finalize a set of national guidelines on the conduct of economic valuation studies in Pakistan's forest sector. The guidelines, a first of their kind in Pakistan, are intended for those commissioning / overseeing and those carrying out forest valuation studies (drafts posted at: http://www.wwfpak.org/wwf-projects/valuation.php). Review of the technical content was largely made possible due to the active participation of one SANDEE Fellow, Dr. Rehana Sidiqqui, Dean Research at the Pakistan Institute of Development Economics, and eight current and past SANDEE grantees. This well-attended workshop included representatives from the Ministry of Environment, the Planning Commission, provincial forest departments, the United Nations Development Programme, the Food and Agriculture Organization of the United Nations, and IUCN Pakistan.

SANDEE Associate Ali Dehlavi, WWF Pakistan

SANDEE group at WWF, Pakistan

Announcement

The South Asian Network for Development and Environmental Economics (SANDEE) announces the Sir Partha Dasgupta Fellowship in Environment and Development Economics for 2010. The Fellowship is open to individuals with a Ph.D. in Economics and a demonstrated research record. We will also consider proposals from small teams of researchers who want to undertake joint research. Researchers working on South Asian environmental issues will be given priority. Please visit the SANDEE website for additional details.

Training through SANDEE

Estimating Limited Dependent Variables Models in Valuation Studies, 13th – 14th Dec 2009, Kathmandu, Nepal

The objective of this workshop was to provide theoretical as well as hands-on knowledge on the use of limited dependent variables in econometric analyses, particularly in research pertaining to environmental valuation. The workshop also allowed researchers to learn and use STATA to undertake data analyses. The course was taught by Jeff Vincent of Duke University. Participants included SANDEE grantees and new researchers.

How to conduct Household Surveys, 9th – 10th Dec 2009, Pokhara, Nepal

In the first session on "Household Surveys" Prof. Jean Marie Baland stressed the importance of improving the quality of the data collected through the household survey method. His talk was designed to provide 10 tips related to survey implementation and content. He discussed sampling issues at length. Another key point related to the measurement of household "income" and different indicators of well being. He ended with a note on the accuracy of data entry.

The next session focused on survey instrument design as well as respondent-enumerator interactions. Several issues such as clarity of questions, logical sequencing of questions, consistent coding and units of measurement that are comprehensible to the respondent were discussed.

SANDEE Advisor Jean Marie Baland, University of Namur, Teaching at the household surveys course.

SANDEEites having fun while duing research, 9th -10 th Dec 2009, Dhampus, Pokhara

Field visit to Sukhomajari, Chandigarh, India ...during the SANDEE - TERI Climate Change Workshop (Feb, 2010)

Introduction to Quantitative Environmental Economics, 23rd – 27th Jan 2010, Pokhara, Nepal

This course was a practic al course and was designed for teachers and researchers who want to understand and apply economic tools to valuing environmental goods and services. The course tried to provide a general introduction to environmental economics and to inform students about specific methods and strategies for undertaking valuation exercises. This course was for Nepali participants.

TERI – SANDEE Policy Workshop on Climate Change, 5th - 11th Feb 2010, New Delhi, India

The Climate Summit in Copenhagen in December 2009 was not as successful as desired in setting implementable targets for reducing climate change. Thus realizing the importance for researchers and professionals in South Asia to understand the implications of the Copenhagen meetings for climate policies in our countries the TERI - SANDEE Policy Workshop on Climate Change was organized. The workshop was for understanding immediate research and training requirements in South Asia in general and India in particular. It was organized in conjunction with TERI's Delhi Sustainable Development Summit 2010.

Policy Research and Proposal Writing Workshop, 30th March – 2nd April, 2010 Kalutara, Sri Lanka

SANDEE, jointly with Institute of Policy Studies of Sri Lanka (IPS), organized a four day proposal writing workshop in Colombo, Sri Lanka**.** This workshop enhanced skills in writing proposals and participants worked on improving the literature reviews, focusing on research questions and methods during the workshop. Only Sri Lankan researchers participated in this course.

Congratulations to SANDEE Associates

- Kalyan Das recently received a competitive research grant from the V.V. Giri National Labour Institute, India on 'Valuing Life in a Regulated Labor Market: Study on Tea Plantation in Assam'. The grant is for INR 527,986 over eight months.
- Considering his involvement in research activities with SANDEE, the University of Agriculture, Faisalabad awarded Khuda Baksh a one-year research project for PKR 1.3 million on the extent of adoption of fertilizers in Pakistani, Punjab.
- Amita Shah is now Director of GIDR, the Gujarat Institute of Development Research.
- Khuda Baksh is now promoted as Assistant Professor.
- Indrila Guha was invited to discuss her SANDEE and related work on tourism at the World Bank Environment Strategy meeting in Delhi and to participate in WWF's Ganga-Sunderban River Delta integrated management planning/visioning process.

The SANDEE Team- Pranab Mukhopadhyay, Krisha Shrestha, Mani Nepal, Priya Shyamsundar, Malvika Joshi, Anuradha Kafle at SANDEE Secretariat retreat, April 2010, Colombo, Sri lanka.

Events

A Training course in Environmental and Natural Resource Economics
3rd - 20th May, 2010
AIT, Pathumthani, Thailand

ABCDE 2010 - Development Challenges in a Post Crisis World
31st May - 2nd June, 2010
Stockholm, Sweden

Fourth World Congress of Environmental and Resource Economists
June 28 to July 2, 2010
Montreal, Canada

20th Biannual Research and Training Workshop
7th - 10th July, 2010
Colombo, Sri Lanka

A conference on the Environments of the Poor
23rd - 24th November, 2010
Delhi, India

SANDEE@10 - Learning from 10 Years of Research in South Asia
6th - 7th December, 2010
Kathmandu, Nepal

Thirteenth Biennial Conference of the International Association for the Study of Commons (IASC)
Theme: Sustaining Commons: Sustaining our Future
January 10-14, 2011
Hyderabad, India

SANDEE

Our mailing address:

SANDEE, C/O ICIMOD Nepal
P.O.Box: 8975, E.P.C 1056
Khumaltar, Lalitpur, Nepal
Tel. No. 977 1 5003222 / 977 9751009272 (Direct)
Fax No. 977 1 5003299
Email: info@sandeeonline.org
Information about SANDEE and our activities can be obtained online from www.sandeeonline.org