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Dear Friends and Colleagues:

Global warming will mean that South Asia will increasingly experience a rise in temperatures, erratic rainfall and melting of glaciers, with implications for water and agriculture, coastal zones, and human health management. In this newsletter, we bring to you notes and perceptions on climate change from the different countries in South Asia. The articles suggest that our current understanding of climate impacts offer an opportunity for preparing for the future. We are honoured to have Dr. Pachauri, Chairman, Inter-governmental Panel on Climate Change write for FOCUS.

SANDEE's research grants will increasingly focus on climate change. We would like to see multi-disciplinary proposals between social and natural scientists on a variety of topics from impact valuation to mitigation and adaptation. Please be on the lookout for the next set of SANDEE guidelines.

Congratulations to Sir Partha Dasgupta for the John Kenneth Galbraith Prize 2007. As always we are delighted when our advisors are honored for their achievements.

Be well and take care,

Rucha, Priya and others from the SANDEE Secretariat

SANDEE....

The South Asian Network for Development and Environmental Economics is a regional network that brings together analysts from the different countries of South Asia to address environment-development problems. SANDEE's mission is to strengthen the capacity of individuals and institutions in South Asia 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.

RESEARCH NEWS

NEW SANDEE GRANTS

In response to SANDEE's 14th call for pre-proposals, SANDEE received 42 pre-proposals from around the region. A rigorous review process involving SANDEE's Management and Advisory Committee and regional and international reviewers was undertaken and the following projects were short listed to receive grants:

Post-tsunami coastal fishery aid in Sri Lanka, Asha Gunawardena and Kanchana Wickramasinghe, Sri Lanka

The fisheries sector was adversely affected by the tsunami of 2004 and in the rehabilitation effort received considerable attention from donors. Asha intends to study the issues related to the targeting of beneficiaries especially the distributional impact of post tsunami livelihood interventions such as boats for tsunami affected fishers. This would help us understand the current problems of fishers with reference to income, profitability, accessibility to fishing, input availability and input and output prices and recommend policy options to address fishery management.

Benefits and costs of air pollution regulations in Kathmandu Valley, Naveen Adhikari, Nepal

The government of Nepal has taken initiatives to improve the air quality through enactment of industrial and environmental acts, vehicle emissions exhaust test, ban on three wheelers diesel tempos, introduction of electric and gas powered vehicles, import of EURO-1 standard vehicle, ban on new registration of highly polluting brick kilns, etc. Naveen will study whether environmental policies to control the air pollution in the valley have worked or not. He will also estimate benefits to different stakeholders from air pollution regulation initiatives. This could have implications for

long term alternative energy initiatives in the valley.

The recreational use value of Diyawanna Oya wetland eco- system: An application of travel cost method, by Thusitha Dilhani Marawila and Manoj Indika Thibbotuwawa, Sri Lanka

Urban wetland eco systems generate a wide spectrum of ecosystem services. Diyawanna Oya wetland, an important recreational site in the greater Colombo area of Sri Lanka is prone to severe threats from reclamation and constructions for urban development purposes. Thusitha will study the preferences of regular visitors and their willingness to conserve this endangered resource using the Travel Cost method . The findings may give directions for policy formulation on sustainable utilization and conservation of this and other urban 'public space'.

The relative efficiency of water use in Bangladesh agriculture, Nasima T Chowdhury, Bangladesh (Study Grant)

Water is scarce in the non-monsoon months in Bangladesh and farmers cultivating boro rice, wheat and some other winter crops have to rely on irrigation. Nasima will estimate the cost of irrigation water for alternative modes of irrigation by farmers in 3 districts of the Northwest region (NW) of Bangladesh for different boro (winter) rice varieties. This region faces the severest water scarcity during the dry season due to low annual rainfall.

Valuation of the Storm Protection Services of Mangroves forests under storm surges and cyclones, Sakib Mahmud, Bangladesh

Bangladesh has been periodically hit by cyclonic storms impacting on life and property. One of the natural barriers to storm surges is the mangrove forest in the coastal areas of Bangladesh and these services of mangroves are not taken into account while deciding on land use choice.

Sakib wishes to examine whether the mangrove afforestation efforts is an effective strategy for sustainable development.

Estimation of marginal cost of electricity and elasticity of demand for ground water in agriculture in Karnataka, P.S. Srikantha Murthy, India (Conditional Grant)

Overdraft of groundwater resources is resulting in declining groundwater levels, initial and premature failure of wells, increased real cost of well irrigation and inefficiency and inequity in groundwater irrigation in the hard rock areas of peninsular India. Srikantha wishes to study if the provision of electricity subsidy either in terms of flat rate tariff or in terms of low pro rata tariff is responsible for indiscriminate drilling of irrigation wells and pumping groundwater.

Decentralization in forest management: Changing incentives and attitudes through JFM, by Rucha Ghate, India

Joint Forest Management (JFM) not only accepts that the forest dwellers have the first claim on the resource, but also promotes their active involvement in the management of the resource. Rucha Ghate had studied 23 (erstwhile) forest villages spread across Maharashtra (India) in 1985. She will revisit these villages and study whether there has been a shift in attitudes of communities and the forest department towards each other. She will also look at impacts of incentives offered under JFM including programmes for poverty alleviation.

SANDEE's Summer 2008 Research Competition

Visit www.sandeeonline.org for details

Deadline: 31st October, 2007

RESEARCH COMPLETED

This section presents abstracts from SANDEE's working paper series. Full papers are available online at www.sandeeonline.org

Can Participatory Watershed Management be Sustained? Evidence from Southern India - D. Suresh Kumar, SANDEE Working Paper No. 22

Watershed development is an important rural development programme in India. This paper is based on a study of 60 community groups in 12 micro-watersheds in South India to understand how villagers cooperate to manage watershed related tasks. The paper examines the factors that affect collective participation in watershed management, and how cooperation changes once the State withdraws and hands over control and management to *panchayat raj* institutions and other groups. The study finds that watershed institutions in most cases become inactive once the project period is over. The analysis of factors that influence on-going maintenance of watershed structures indicates that collective action emerges when user groups are small and homogenous and communities are dependent on a large number of wells. Wealthy user groups are likely to be more active when a project is on going. The results suggest that watershed development should be given more emphasis where wells are the predominant source of irrigation. Further, greater success is likely where user groups have more knowledge and control over funds available for maintenance activities after the state withdraws.

Who Collects Resources in Degraded Environments? A Case Study from Jhabua District, India - Neetu Chopra and Supriya Singh, SANDEE Working Paper No. 23

This paper examines the impact of the variation in stocks of three resources, namely, water, forests and fodder biomass,

on resource collection time of rural households in India, especially women. Using household level data from 543 households across 60 villages in the Jhabua district of Madhya Pradesh, we estimate gender-specific time allocation equations derived from a household production model. An increase in groundwater scarcity makes women and children spend more time in water collection. An increase in the total biomass availability in the commons increases the time spent by men and women in grazing activity in addition to making men and women more likely to go for fuel wood collection. This seemingly contradictory result can be explained by seasonal differences and savings behaviour. The results taken together indicate significant time impacts of natural resource scarcity. Our analysis has important implications for natural resource management initiatives such as community forestry and watershed development programmes, and these programmes have the potential to alleviate poverty by affecting the time allocation decisions of rural households, particularly women. This paper also tries to understand some of the trends emerging from the quantitative / econometric analysis using insights from social anthropology.

PUBLICATIONS & PRESENTATIONS

- Madheswaran, S. (2007), 'Measuring the Value of Statistical Life: Estimating Compensating Wage Differentials among Workers in India', Social Indicators Research.
- Devarajan, S. Ferro, M.V. Shah, S. and P. Shyamsundar (2007), 'Accelerating Poverty Reduction in South Asia by Scaling Economics Education and Policy Research', in F. Bourguignon, Y. Elkana and B. Pleskovic (Eds), *Capacity Building in Economics Education and Research*, the World Bank, Washington D.C.
- Atreya, K. (2007), 'Pesticide use knowledge and practices: a gender differences in Nepal', *Environmental Research* 104 (2): 305-311.
- Atreya, K. (2007), 'Farmers' willingness to pay for community integrated pest management training in Nepal,' *Agriculture and Human Values* 24:399-409.
- Kathuria, V. (2007), 'Informal Regulation of Pollution in a developing country - Evidence from India', *Ecological Economics* 63 (2-3): 403-17.
- Khan, H. (2007), 'Poverty, environment and economic growth: exploring the links among three complex issues with specific focus on the Pakistan's case', *Environment, Development and Sustainability*. DOI 10.1007/s10668-007-9092-5.
- Bhattarai, R. C. (2007), 'Transaction costs in farmer-managed irrigation systems in Nepal: A case of some selected FMIS in Kathmandu valley', in *Irrigation in transition: interacting with internal and external factors and setting the strategic actions*, Proceedings of the 4th International Seminar, 6-7 November 2006, Kathmandu, Nepal. P. Pradhan, L. P. Upreti, U. Parajuli, U. Gautam (eds) FMIS Promotion Trust, Nepal.
- Bhattarai, R. C. (2007), 'Elements of Transaction Costs in Farmer's Managed Irrigation System in Nepal: A case of Some Selected FMIS in Kathmandu Valley' at the eleventh annual conference of The *International Society for New Institutional Economics*, held at University of Iceland, Reykjavik during June 21-23, 2007.
- Usha Gupta presented a Paper entitled 'Valuing Morbidity: Air Pollution and Acute Symptoms' at a National Conference on 'Expanding Freedom: Towards Social and Economic

Transformation in a Globalising World', organised by Institute of Economic Growth, New Delhi, April 11-13, 2007.

- SANDEEites were an active presence in a conference on "Sustainable Development and Livelihoods" organized by the Centre for Development Economics (CDE), Delhi School of Economics from February 6-8, 2007. Subhrendu Pattanayak, Abhijit Banerji and E. Somnathan made presentations in the conference.
- SANDEE Fellow E. Somanathan was invited to discuss his SANDEE research with policy makers from Environment Ministries of Malaysia, Thailand, Hong Kong, Cambodia, Vietnam, and the Philippines at a workshop organized by the Universiti Sains Malaysia, the University of California at San Diego, and the World Bank. He presented his findings from his SANDEE research showing that households in urban India reacted to information about poor drinking water quality by engaging in home water purification. He also chaired a panel discussion on policy options for Vietnam and the Philippines. The workshop informed policy makers about public information and monitoring issues related to beach water quality as well as water and sanitation more generally.

ACHIEVEMENTS

We are delighted to announce that Professor Sir Partha Dasgupta has won the John Kenneth Galbraith Prize 2007 given by the American Agricultural Economics Association for 2007. The 2006 recipient was Prof. Ken Arrow. Congratulations from all of us!

SANDEE Fellow S. Madheswaran is now a Professor. Congrats Prof.

FOCUS

Addressing the challenge of climate change in South Asia

- R. K. Pachauri¹
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The three Working Group Reports of the IPCC, which constitute part of the Fourth Assessment Report of the panel, have clearly brought out the seriousness of the challenge of climate change at the global level but more significantly in different regions of the world. Climate change and its impacts are not uniform in their characteristics across different regions and it is now apparent that South Asia in particular would be vulnerable to several types of impacts. Firstly, the long coastline that at least five nations of South Asia are bounded by, makes sea level rise a major threat to the region. The vulnerability of the Maldiv Islands and Bangladesh in particular is a major challenge that would extend well beyond the 21st century. But India, Sri Lanka and Pakistan also have coastal locations that would be highly vulnerable to the impacts of sea level rise in the future.

The AR4 of the IPCC has clearly found that precipitation levels in the temperate regions of the northern hemisphere have been on the increase but in the tropical and sub-tropical regions there has been a decline in recent decades. These trends are likely to continue in the future. But these overall changes in these locations will also be accompanied by an increase in the frequency and intensity of extreme precipitation levels. Along with higher temperatures, more frequent heat waves and the melting of the Himalayan glaciers, the water regime in most of South Asia is likely to be affected adversely.

¹ Director General, The Energy and Resources Institute (TERI) & Chairman, Intergovernmental Panel on Climate Change (IPCC), India.

Consequently, a responsive approach will need to be developed in the countries of the region for management of water resources in view of growing scarcity in the future.

Another sector that would be affected adversely is agriculture where it is expected that yields of several crops are likely to go down with temperature increases between 1.5 to 2.5 degrees C. In India, for instance, recent research indicates a perceptible decline in the productivity of wheat in parts of North India. Overall the problem of food security in the region could become problematic in the years ahead, particularly with population growth, which continues in the region as a whole. Agricultural yields would also be adversely affected by the more frequent occurrence of floods and droughts in different parts of South Asia.

There is growing pressure on the emerging economies to assume some share in the required reduction of greenhouse gas emission globally in the future. For South Asia as a whole this would be a difficult condition to accept, given the fact that well over half a billion people on the subcontinent still have no access to electricity or modern forms of energy. Also, in the case of India, in particular, the availability of large coal resources makes it difficult to move towards other fuels for power generation. However, as the WG3 Report of the IPCC clearly brings out, there are several co-benefits associated with reduction in greenhouse gas emission. These are in the nature of benefits such as improved local air quality and associated health benefits as well as higher levels of energy security, which would accrue with reduced consumption of fossil fuels. Consequently, countries of the region would find it beneficial to chart out a path of sustainable development that highlights higher energy efficiency and lower dependence on fossil fuels. It is now becoming clear to policy makers in the developing countries that pursuing the path established by developed nations would lead to resource intensive patterns of growth which the developing countries

cannot possibly afford for a variety of reasons. Hence, overall, while it is essential for the developed countries to cut down on emissions of greenhouse gases at a rapid rate, developing countries such as those in South Asia would need to formulate a pattern of sustainable development that provides large local benefits to the population, even while it creates incidental global benefits through a lower trajectory of greenhouse gas emissions as compared with the developed countries.

Given the various commonalities of the challenge faced by the nations of South Asia, it would be extremely important for the governments of the region to come up with some common approaches for tackling the growing challenge of climate change.

DISCUSSION

Bhutan: Paying for others' sins

- Nyima Seldon²
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Bhutan situated on the Himalayan ranges contains a gamut of ecological systems ranging from the alpine to the sub tropical. Hence Bhutan has a wide variety of climatic conditions between valleys and within valleys depending on altitude and consequently a wide diversity in vegetation and farming systems. Bhutan has been designated as a biological hot spot and through government policy, it is known to have done more to protect its environment than almost any other country.

The Green House Gas inventory of 2000 has shown that Bhutan's own emissions were relatively small despite its high per capita use of fuel wood (1,27 tones per annum) and growing vehicle population. Though Bhutan strives to be environmentally sound it is affected by the environmental actions of the rest of the

² Managing Director, Ecotara carbon sequestration plantation, Bhutan.

world. Climate change is likely to have adverse impacts on Bhutan's goal of sustainable development in the form of declined agricultural production. Nearly 80 percent of around 600,000 people in Bhutan live by farming. Warming is likely to affect the low-income rural farmers dependent on traditional practices most adversely. Receding glaciers and erratic rains raise the possibilities of flooding as well as water scarcity in different places. Cropping practices and production, if unable to adapt, could be threatened. An increase in rain patterns increases soil erosion, which in turn can lead to the threat of flooding/landslides and affects sustainable water management. The adverse effects of global warming are also likely to affect Bhutan's biodiversity with the possible extinction of some species.

The potential impact of climate change can be witnessed by examining current Glacial Lake Outburst Floods (GLOF). As the Himalayan glaciers recede, lakes melt water all along the mountain range. In 1994 a GLOF in Lunana (a northern highland) seriously damaged the lower valleys in Punakha. Some studies predict that the wall separating two lakes in central Bhutan could burst as early as in 2010, unleashing 53 million cubic meters of water, twice the volume of the 1994 outburst.

In recent years too there have been signs of unusual changes in climate. A rare dry spell with no snowfall was experienced in 1998 winter and this led to higher incidences of forest fires. There was a freak snowfall in July 1999 in north Bhutan and flash floods claimed many lives in the year 2000. Increased rains and siltation also affects the hydropower industry and economy.

However, these are hypothetical extrapolations on the effects of climate change in Bhutan as detailed scientific studies are not yet available. Bhutan's government is drawing up a national plan to address the problems of climate change, with task forces looking at the effects on agriculture, forests and biodiversity, health,

water resources and energy, and the risk of natural disasters. To mitigate the possible effects of climate change Bhutan remains committed to follow the path of sustainable development while supporting international measures aimed at conserving the natural environment. However, since this is an issue of international origin and ramifications, it requires collective will and action.

Sri Lanka: The Tsunami as Accelerated Climate Change

- Nalin Wikramanayake³
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Much of the coastline of Sri Lanka and South India consists of barrier islands and sand pits – which may range in width from a few tens of meters to a few kilometers - backed by lagoons, estuaries and other wetlands. This structure of the coast is a result of two processes – transport of sand along the coast by wave action and the seasonal flow of water to the sea from the land.

Human settlement along the coast has, by necessity, been concentrated on the relatively narrow sandy high ground of these features because of the proximity to the sea, the availability of fresh water from the perched aquifer and the protection from inland flooding. Infrastructure such as roads and railways followed, resulting in the pattern of coastal settlement and development seen today.

These coastal settlements will be affected in many ways by the increase in sea level and changes in the wave climate is expected as a result of global climate change. Barrier islands respond to sea level rise by migrating inland. This will pose a threat to the existing and planned infrastructure. Sea

³ Department of Civil Engineering, Open University of Sri Lanka.

level rise will also raise the interface between the perched freshwater aquifer and the saline water below, resulting in wells becoming salty.

The Tsunami of 2004 caused severe damage to the infrastructure in such areas in Sri Lanka and Tamil Nadu. The seawater that covered the ground infiltrated the sandy soil, and mixed with the freshwater layer. This rendered thousands of wells unusable. Many communities along the east and south coasts of Sri Lanka are unable to use these wells even two and a half years after the Tsunami. It should be noted that the perched aquifer is only replenished by rainwater infiltrating the surface, and not by underground flows of fresh water from the hinterland. Therefore, the Tsunami can be said to have demonstrated in a few minutes – and with much greater severity and loss of life – the threats that sea level rise and increased storms will pose to these areas over a few decades. In other words reverting purely back to “life as before” is to miss an opportunity to plan adaptation to future climate change.

While this issue was considered when post-tsunami reconstruction was planned, the need for rapid decisions and implementation and the sheer scale of the task at hand meant that climate change was not always given the priority it should have been. For example, it was simply not possible to relocate roads in most places.

On the positive side, the vulnerability of the water supply from the coastal-perched aquifer has been considered when planning future water supply for the tsunami-affected coastal areas in Sri Lanka. Alternative sources of supply from inland water bodies, supplemented by rainwater harvesting, has been proposed as a solution for some areas.

In addition to the demonstration of some key vulnerability, the post-tsunami response also brought out many strengths and weaknesses of institutions and communities in terms of their ability to comprehend and

accept change. Thus, many lessons can be learned from the successes and failures of post-tsunami planning and reconstruction that will benefit future planning for climate change.

India: Global Climate Change: Why should it matter to us in India?

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Although the literature on climate change is still scanty and uncertain, the IPCC report has clearly given some grave warnings. The regional climate model predicts warming of Indian subcontinent by 2 to 4 degree Celsius by the end of this century. This implies that coastal zones, high altitude areas, already warm areas, already water stressed areas, flood plains and the Indo gangetic plain will witness the worst impact of climatic changes. Examples of some specific changes are:

1. Northern India will be warmer
2. All states will have increased rainfall except Punjab, Rajasthan and Tamil Nadu, where it will decrease.
3. Extreme precipitation will increase particularly in the west coast and west central India.
4. Krishna, Narmada, Cauvery, Tapi river basins will experience severe water stress and drought conditions and Mahanadi, Godavari, Brahmani will experience enhanced flooding.
5. Malaria will continue to be endemic in current malaria-prone states (Orissa, West Bengal and Southern Parts of Assam bordering north of West Bengal). It may shift from the central Indian region to the southwestern coastal states of Maharashtra, Karnataka, Kerala.
6. New regions (states like Himachal Pradesh, Arunachal Pradesh, Nagaland, Manipur and Mizoram) will become

⁴ Coordinator Global Change Programme-JU, Professor of Economics, Jadavpur University, India.

malaria prone and the transmission duration window will widen in northern and western states and shorten in southern states.

7. Increased CO₂ levels would be more favourable for wheat than for rice. Net yield losses in rice under irrigation could be around 13 to 22%, compared with losses of 16 to 34% for wheat.

At the projected rates, over next few decades, Indian subcontinent will have to adjust its crop calendar, irrigation technology, crop variety and seed variety to ensure food security, and will have to deal with water-borne diseases and water distribution. Coastal area projection will have to be planned with additional cost implications than currently planned development programs, to avoid high damage cost. Hence, the main question is how to make adaptation strategy efficient and cost effective without worsening the distributive justice.

Since India does not have any mitigation commitment at present, it gives us an opportunity for future preparedness. Infrastructure development plans, housing development plans, power sector expansion programs, automobile policies, solid waste management programs - all need to be designed keeping GHG implications in mind. Some simple solutions can be: fast track green building projects, comfortable mass/public transport systems, hybrid fuel automobiles, energy efficient appliance/equipment pricing policies, special pricing policy for fuels with low social costs; data collection, maintenance and publication of energy efficiency, material efficiency, and research support to universities and research institutes to provide targeted innovative policy, technology and scientific understanding. Mainstreaming of climate change in developmental agenda needs to be of the highest priority for India.

Pakistan: Sustainable policy: an imperative and a possibility

- Shaheen Rafi Khan⁵
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Pakistan is not expected to be a major player in global warming, although its energy based emissions are a major source of pollution and environmental damage within the country. On the other hand, Pakistan is vulnerable to the consequences of climate change. The potential impacts have been identified in the water, agriculture and forestry sectors. However, such impacts are likely to be incremental and a function of the imbalances generated by socio-economic pressures and structural constraints. It follows that adaptations to climate change have their genesis in such imbalances. The three key adaptations, which have been identified, are water storage, agricultural policies to enhance crop yields, and afforestation.

Climate change impacts and possible adaptations cannot be addressed in isolation from the underlying socio-economic conditions. Pakistan, like many developing countries, is a society in transition from agriculture to a modern industrial economy. The transition entails high population growth, rapid urbanisation, infrastructure degradation, soil erosion, water and air pollution, increased morbidity etc. Many of these processes create conditions very similar to those caused by climate change. For instance, sea level rise results in salt-water intrusion, but this can also be caused by diversion of fresh water outflows to meet the needs of agriculture, human consumption and sanitation. Or, climate change can erode watersheds and cause flooding but this can also be the result of deforestation. When socio-economic factors and natural elements combine in this manner, existing vulnerabilities tend to be exacerbated. It also follows that adaptive responses need not necessarily be climate specific, and that

⁵ Research Fellow, SDPI, Pakistan.

climate change may reinforce or alleviate them. A corollary is that policy sustainability becomes both an imperative and a possibility.

ECO-NEWS

Maldives

This summer the islands in Kolhumadulu experienced unusually high waves as high as eight feet, causing heavy flooding in the islands. The government in Maldives has appealed to people to participate in the “Plan for the Planet: Billion tree campaign” promoted by the UNEP, to minimize the negative impending threats and vulnerability which the Maldives faces as a result of global warming and sea level rise.

Pakistan

The first air-quality monitoring station has been set-up in Korangi industrial area in Karachi to gauge the environmental pollution caused by noise and smoke emissions. After banning plastic bags and creating awareness amongst motorists regarding noisy and smoke emitting vehicles, this step is seen as a provision of pollution free environment. The station will remain active round the clock and measure the quality of gases on daily basis.

Bangladesh

A seminar was organized by the Comprehensive Disaster Management Program of Flood and Disaster Management Program in which concerns regarding climate change were highlighted. It was noted that climate change is no more a far off topic, and global warming is not only a hot topic for a country like Bangladesh but a question of its existence. Bangladesh has given highest priority to the issues of climate change and has welcome strong UN initiatives, urging it to respond to global threats arising out of global climate change. Bangladesh is one of those countries likely to be hardest hit by global warming and consequent rise in the sea level.

The SANDEE gang!

Early this year, on 16th January 2007 to be precise, Natural Environment Research Council (NERC), UK had sent a call for proposal under its ‘Ecosystem Services and poverty Alleviation (ESPA) Research Programme’ for conducting situation analysis of the poverty-ecosystem link in the Indo-Hindukush region. A TERI-led consortium has been selected for the job. The core consortium of 6 regional as well as non-regional (UK-based) organizations is led by TERI and is headed by Dr Pachauri as the Consortium Director.

In the first meeting of the consortium, organized in the month of August at Delhi, there were eight persons with connections to SANDEE. From India Dr. Arabinda Mishra is in the TERI team, which is supported by Dr. Jodha, Dr. Murty, Dr. Adhikari and Dr. Ghate as experts in their respective fields. Dr. Shaheen R. Khan is heading the SDPI team in Pakistan. Lucy Emerton, who is also associated with SANDEE and represents the IUCN-Ecosystems & Livelihood Group, exclaimed “Hey, look the SANDEE gang is here too!”

This is no surprise – regional work these days is likely to see involvement by SANDEEites.

New Blog -- End Poverty in South Asia, Shanta Devarajan, Chief Economist, South Asia Region, World Bank

SANDEE management committee member and World Banker Shanta Devarajan has started a new Blog on poverty in South Asia. Please do visit this site and comment. SANDEEites get the word out and lets move into the brave new world of Blogging. <http://endpovertyinsouthasia.worldbank.org>

A SANDEE grantee writes: -

Dear SANDEE friends,

It is a pleasure and opportunity for me to join Visva-Bharati (Tagore founded central University, some 200 km away from Calcutta) as a Reader in Economics. While selecting me, the interview board must have found me eligible after knowing my present research. So SANDEE surely helped to secure my selection. After I got the appointment letter recently, I contacted the Head of the Department and he asked about my preferred topics for teaching. I expressed my desire to teach Environmental Economics among some other topics. It was granted. My SANDEE training - which is my first exposure to this field - prompted me to express this preference and the HOD must have counted my SANDEE exposure before entrusting me with this paper. Also, I have to partly teach a paper on Computer Applications. I intend to introduce a module on data exploration and STATA in my part of the course. All these I have learnt through SANDEE. So, SANDEE has played the crucial role in my academic career. I am thankful and indebted to all of you, the unforgettable members of SANDEE-family!

- Santadas, Kolkata.

My previous 1-month stint in Nepal in 2000, all of which was based in Kathmandu city, had left me with a longing to get out of the valley and see more of this spectacularly pretty country, presumably because pictures of its landscape have often graced the pages of National Geographic. So I jumped at the opportunity to visit field sites in Min Bikram Malla's SANDEE supported study of improved cook-stoves. This is neither a thesis outline (read the forthcoming SANDEE working papers) nor a travelogue (read Bruce Chatwin, please) - just some personal notes from 2.5 days bumping along some of the back roads of Rasuwa and Nuwakot districts in Central Nepal, notwithstanding the last minute advice from Som and Jean Marie.

One of the reasons I went is because over the last couple of years, SANDEE grantees have been singing praises of improved cook stoves. Several public health specialists claim that these stoves reduce indoor air pollution, fuel-wood consumption, cooking time, respiratory infections and associated medical costs, and even our 'carbon' footprint. For example, Min Malla's initial calculations show that the IRR on smoke hoods is about 48%. As Krishna Pant asked Min Malla during this presentation: "why then are so few households adopting this clearly beneficial technology?" Could it be possible that we are underestimating some of the costs and/or overestimating the benefits of improved cook stoves? Is it the case that the effective discount rate used by households is above 50%?

SPECIAL ARTICLE from the SANDEE Blog

(South Asia – the final frontier (oh well!): these are the voyages of SANDEEites; its many year mission to explore strange new environments; to seek out new puzzles, institutions and data; to boldly go where South Asian economists have gone before.....)

- Subhrendu Pattanayak
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The district of Rasuwa, headquartered in Dhunche, is no more than 150 kilometres from Kathmandu and the Tibetan border. If I had one more day, I could have walked to Tibet. Presumably, on a clear morning you can see the resplendence of the Chinese Himalayas. The first 110 km are easy – if you are used to swaying on mountain roads even without a skilful driver like Jog from 'Practical Action'. The last 40 km took a bone jarring 4 hours; like all good ex-post rationalists, I reminded myself that regular pounding helps keep bones less brittle! No

one was interested in fixing the landslide because lucrative commerce in the form of makeshift transport, teashops, and porter appear on either side of landslide. I was reminded of my nimbler college days and wished my knees didn't hurt as much now as I negotiated the rocks and shale.

Dhunche is no different from most road heads in the Himalayas. The one big difference is the influence of the Tamangs and the proliferation of Tibetan prayer flags. It was grey, cool, slightly drizzly and ideal conditions for sumptuous doses of *chai* and *pakora*. The father in me was particularly attracted to all the little kids – snot from almost every nose, inventing games on the fly, using every little flat box and smooth road to slide, and picking fights and making up for no rhyme or reason. I took lots of pictures but dared not point my camera at the equally pretty women. That is left as homework for the SANDEE grantees.

The communists had closed down the one Korean plant that bottled *Himalayan* water. The roads were clearly not in decent enough state for prices to be low; doctors and medicines to stock all health care centres; teachers and books to be present in all schools; and generally reap the benefits of connectivity. They were good enough, however, to weaken community ties; bring in the riffraff (which did not always include cheap back-packer tourists who spent little in the region); and allow local politicians to act as gatekeepers. Along the way, Minji had pointed out various communist command posts, where he had to negotiate his project with the local commander under the watchful eye of trigger-happy comrades.

It was hard to see how one reached these villages tucked into the mountainside, let alone convince people to consider and adopt strange new technologies, which as one cook put it – "involved moving the Gods in the cooking stone". Practical Action (PA) had their task cut out. Credit and the associated insurance, uncertainty and discount rate issues, seemed to be a key

determinant of PA's success. Stoves had penetrated where a small group had managed to organize and start a revolving fund: at each meeting everyone contributed, but only one person got to use the money to buy a hooded stove, for example. At the next meeting, again everyone contributed and the next person used the money on stoves and so on (Partha likened it to the ROSCA system, particularly effective in Indonesia). Nevertheless, DFID had to subsidize 50% of the capital costs via PA. So what justifies the heavy subsidy – equity concerns or environmental externalities? Som feels that CO2 emission and ambient air quality (even in these seemingly pristine villages) was sufficient reason!

I now own a perfect 2-2 record on departures from Nepal. In 2000 (when I used to run 40 miles a week) I had to race across the tarmac from Indian Airlines carrier to Nepal Airlines plane because only the first 20 off-loaded IC passengers could be accommodated on the departing NA flight. This year, tire-burning and chakka-jamming communist blocked my taxi on my drive to the airport. The 16 year old road block chief was not convinced about my case. In his words, if he lets me go, then he has to let the car behind me go and the one behind that too... and then his whole *bandh* would be ruined. He had a point! Anyhow, he reminded me that the 24 year commander would break my taxi's windows if we proceeded, and he could not be held responsible. Instead, he offered his 10 year old comrade as a porter for carrying one of my 2 bags for the remaining 30 minute walk to the terminal, in exchange for a 100 rupee payment. Who says communists don't realize the benefits of market prices!

SANDEE ACTIVITIES

An introductory course on Environmental and Natural Resource Economics for Economists April 30th -May 17th 2007

SANDEE organized a three-week training course in Environmental and Natural Resource Economics for Economists from April 30 -May 17, 2007. The course was meant for practicing South Asian economists interested in upgrading their skills and learning related to Environmental and Natural Resource Economics.

Advanced Training in Econometrics, Survey Design and Evaluation Methods Kathmandu, Nepal 3rd – 7th July, 2007

SANDEE organized a five days course in advanced topics related to econometrics, data collection and program evaluation in Kathmandu, Nepal from 3rd – 7th July, 2007. This course covered topics in Survey methods, Discrete Dependent variables and discussed problems arising from Endogeneity in Program Evaluation.

Dr. Dipankor Coondoo from Indian Statistical Institute, India and Dr. Subhrendu Pattanayak from Research Triangle Institute, USA taught various aspects of the course. Dr. Madheswaran from the Institute for Social and Economic Change provided training in STATA. Thirty two participants from Bangladesh, India, Nepal, Pakistan and Sri Lanka participated in this training workshop.

14th Biannual Research and Training Workshop

SANDEE's 14th Biannual Research and Training Workshop was held in Godavari, Kathmandu from 8th – 12th July, 2007. SANDEE's research associates presented their final and progress reports. The new researchers presented their research

proposal before SANDEE's Management and Advisory Committee.

PARTICIPANTS' EXPRESS

Training in Econometrics: Proof of SANDEE to be Caretaker of Young Researchers

*-Dadhi Adhikari
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Present day research in economics is heavily dependent on micro-econometrics. Thorough knowledge of econometrics and skills of using it in different situations ensures the quality of research work and credibility of researcher. For valid conclusions of any research work, it is fundamental to use right model and appropriate econometric technique to estimate it. Unfortunately, I feel, South Asian young researchers are relatively less familiar with econometrics or don't have hands on experience with it. In this context the training provided by SANDEE in Advanced Econometrics from 3rd -7th July, 2007 in Godavari, Nepal has become a milestone for shaping the career of economists like me who have just stepped into the field of research.

SANDEE is a forum mainly for environmental and resource economist. Cross sectional and panel data are the major instruments for the economists to analyze the problem. Dummy dependent variables are often encountered in this field. This training provided careful knowledge in this field. Long experience and wide exposure of faculty offered benefits to participants in understanding the theory in the context of real world problems. Simultaneous training in STATA increased the effectiveness of the training.

The econometrics training required prior knowledge of basic econometrics such as Ordinary Least Square method, problems of misspecifications etc. However the Nepalese participants (based on my

informal talk with Nepalese participants) lacked such knowledge. This made it a little difficult for them to grasp. It will be better for all Nepalese students (and for other as well who don't have such basic knowledge) if SANDEE could organize training in basic econometrics.

SANDEE is regularly providing training opportunities on the diversified field of resource and environmental economics. Few months ago (3-20 January, 2007) I got an opportunity to participate in another such type of training in Micro Economic Tools for Environmental and Natural Resource Economics. From these two trainings I can say confidently that this institution is providing international level of education in the field of economics. SANDEE organizes these types of training on demand from its grantees, which proves that it is truly a guardian of young and mid career researchers of South Asia.

Finally, simplicity with high level of knowledge of the faculty, and friendly behaviour of SANDEE staff never allowed us to feel that we are away from home. Thanks SANDEE!

Understanding Impact Evaluation

- Sakib Mahmud
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Dr. Subhrendu Pattanayak of Research Triangle Institute (RTI) conducted two separate sessions on "Impact Evaluation of Natural Resources and Environmental Programs and Policies" on the last day of the *Advance Training Workshop in Econometrics, Survey Design and Evaluation Method*. In the first session, Dr. Subhrendu discussed the three major steps of impact evaluation (IE) to establish the linkages between resources, activities, outputs, outcomes and impacts of a project; and, putting all this together in a logic model, how IE differs from the traditional monitoring and evaluation methods. The second session covered quantitative IE tools based on randomized trial method,

natural experiment, propensity score matching and computable general equilibrium (CGE) models with examples in assessing a particular environment and natural resource (ENR) related project. At the end of the second session, SANDEE participants were divided into three groups to present impact evaluation along with policy implications on three separate ENR issues. The sessions were helpful for the SANDEE researchers to understand how impact evaluation is used to estimate the causal impacts of specific programs, projects and policies.

Environment and Resource Economics course: rich experience and pleasant memories

- Sakiba Zeba
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The objective of the course was to help move a network of professionals in the region toward a deeper understanding of environmentally sustainable development. Experts, researchers and academics from reputed institutions from India, Pakistan, Bangladesh and Sri-Lanka participated in the workshop. The workshop commenced with the Mathematical review by Tanzir A. Chowdhury from BRAC University starting from simple differentiation, single-multi-variable optimization to dynamic optimization. After a thorough review, Dr. R. N. Bhattacharya of Viswabharati University took over for the next four days. His discussions mainly concentrated on the optimal extraction path for different renewable and non-renewable resources like forestry, fisheries, coal etc. He also focused on common property rights and game theory. One day Dr. Ganesh Shivakoti of AIT presented a paper on irrigation and water resources. And Dr. Priya Shyamsundar gave a brief description on poverty and environmental degradation. She also discussed with us topics of research proposals that each participant had to prepare. These formal discussions sustained into informal discussions during every break, and even at late nights.

In the second week, Dr. Karl Goran Maler of the Royal Swedish Academy of Science presented an in-depth discussion on microeconomics, welfare economics, market failures and externalities, pollution fees, charges, tradable permits etc. Dr. Enamul Haque taught evaluation of environmental goods and how to derive demand for the commodities that have both use and non-use value. Assignments were hectic that kept everyone busy up-till dinner but everyone enjoyed the brainstorming.

During last two days participants presented concepts notes for future research on topics like climate change, measuring health cost of pollution, cost of displacement, hedonic pricing models, game theoretical analysis of public goods/bads etc. We all went back home rich in experience, knowledge and pleasant memories.

OTHER NEWS

Ph. D Program: The University Ca' Foscari of Venice has just started a new Ph.D. programme on: Science and Management of Climate Change. This programme is jointly realised by the Center of Excellence for Sustainable Development (CESD) and the Euro-Mediterranean Center on Climate Change (CMCC). Detailed application instructions found at http://www.unive.it/ngcontent.cfm?a_id=35790. For further information on the Ph.D. programme, please contact the University Research Doctorate Office. E-mail: lauream@unive.it, Phone: +39.041.2347520.

Call for Applications: The Ronald Coase Institute, First Asia Workshop on Institutional Analysis, January 5-10, 2008, Singapore. For details visit www.coase.org

Course Announcement: The World Bank Institute in collaboration with the Asian Development Bank (ADB), Economy and Environment Program for Southeast Asia (EEPSEA), IDRC and the South Asian Network for Development and Environmental Economics (SANDEE) is

organizing a two week course on 'Environmental Economics for Development Policy' from January 14-25, 2008 in Bangkok, Thailand. Application deadline is 20th October, 2007.

Details and application requirements are in: <http://worldbank.org/wbi/environment/eedp10>

Forthcoming: 12th Biennial Conference of the International Association for the study of Commons, July 14-18th 2008 at Cheltenham, England. Abstract submission by 30th October 2007

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<http://www.iascp.org/iasc08>

BOOKS AND ARTICLES OF INTEREST...

We recommend the following interesting readings:

Stern, N. (2007), '*The Economics of Climate Change: The Stern Review*,' Cambridge University Press, U.K.

Kumar, M. D.(2007), '*Groundwater Management in India: Physical, Institutional and Policy Alternatives*'. Sage Publications.

Banerjee, L. (2007) 'Flood Disasters and Agricultural Wages in Bangladesh', *Development and Change* 38(4): 641–664

Banerjee A. (2007) 'Inside the Machine: Toward a new development economics', *Boston Review* 32 (2):12-18
(This is an interesting article that offers a broad perspective on economic growth and development while at the same time focusing on asking the right questions and doing the right kinds of evaluation. It has much that should be useful to environmental economists.)

Information about SANDEE, membership form, and our activities are available online at www.sandeeonline.org. Our mailing address is IUCN Nepal, PO Box 8975 EPC-1056 Kathmandu, Nepal. Telephone: 977-1-552 8761; Fax 977-1-553 6786. Please write to anuradhak@sandeeonline.org if you have comments or queries.