



ICIMOD Proceeding 2018/8

Regional Symposium on
Ecosystem Services and Poverty Alleviation in South Asia

**Practical Approaches to Improving Human
Wellbeing and Natural Resources in South Asia**



About ICIMOD

The International Centre for Integrated Mountain Development (ICIMOD) is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush Himalaya (HKH) – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – based in Kathmandu, Nepal. Globalization and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream and downstream issues. ICIMOD supports regional transboundary programmes through partnerships with regional partner institutions, facilitates the exchange of experiences, and serves as a regional knowledge hub. We strengthen networking among regional and global centres of excellence. Overall, we are working to develop economically and environmentally-sound mountain ecosystems to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now and in the future.



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Regional Symposium on
Ecosystem Services and Poverty Alleviation in South Asia

**Practical Approaches to Improving Human
Wellbeing and Natural Resources in South Asia**

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International Centre for Integrated Mountain Development (ICIMOD)
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International Centre for Integrated Mountain Development (ICIMOD)
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Acronyms and Abbreviations

BDP	Bangladesh Delta Plan
CBOs	Community based organizations
CBD	Convention on Biological Diversity
Cu.ft	Cubic feet
CNY	Chinese Yuan
ES	Ecosystem Services
ESPA	Ecosystem Services and Poverty Alleviation
ICIMOD	International Centre for Integrated Mountain Development
HKH	Hindu Kush Himalaya
MEA	Millennium Ecosystem Assessment
MoFE	Ministry of Forest and Environment
MoU	Memorandum of Understanding
NCP	Nature's contribution to people
PES	Payment for ecosystem services
RBP	Result based payments
REDD	Reducing Emissions from Deforestation and Forest Degradation
SDGs	Sustainable Development Goals
UK	United Kingdom
USD	United States Dollar
Yr	Year
°C	degree centigrade
ΔDIEM	Delta Dynamic Integrated Emulator Model

Acknowledgements

The “Regional Symposium on Ecosystem Services and Poverty Alleviation in South Asia – Practical Approaches to Improving Human Wellbeing and Natural Resources in South Asia” was conducted jointly by the International Centre for Integrated Mountain Development (ICIMOD) under its Koshi Basin Initiative (KBI) and Ecosystem Services and Poverty Alleviation (ESPA), in close collaboration with the Reducing Emissions from Deforestation and Forest Degradation (REDD) Implementation Centre, Ministry of Forest and Environment (MoFE), Nepal.

The organizers would like to extend their sincere gratitude to the symposium’s chair, presenters, participants, session moderators, and rapporteurs for their contributions to the various sessions. We also greatly appreciate the financial support this symposium received from the UK aid.

In the wake of the tragic loss of lives in the US-Bangla Airlines Flight 211 incident at Kathmandu’s Tribhuvan International Airport on 12 March 2018, organizers dedicated the two-day event in honour of the individuals who lost their lives. Two of the deceased were employed at the National Planning Commission of Bangladesh, and on their way to participate in this symposium.

Executive Summary

South Asia is facing rapid and large scale changes in terms of social, environmental, and economic development with persistent challenges related to ecosystem degradation and increased poverty in the region. Solutions across spatial scales are needed to deal with complexity and uncertainty in order to deliver benefits to people and ecosystems. In this context, the International Centre for Integrated Mountain Development (ICIMOD) and the United Kingdom's Ecosystem Services for Poverty Alleviation (ESPA) programme, together with Nepal's Ministry of Forests and Environment, the Reducing Emissions from Deforestation and Forest Degradation (REDD) Implementation Centre, conducted a 'Regional Symposium on Ecosystem Services for Poverty Alleviation' on 13–14 March 2018 in Kathmandu. The symposium highlighted the critical role of ecosystem interactions across spatial scales in delivering services, particularly to the poor who are highly dependent on natural resources. It further showcased potential ecosystem services (ES) governance pathways to achieving wellbeing for the poorest, and environmental sustainability through research and knowledge programmes in South Asia.

Eighty-nine participants with interdisciplinary backgrounds from 12 countries deliberated on how upstream and downstream management of natural resources in South Asia (from the mountains to the deltas) could be key to sustainable development. Eighteen scientific talks categorized under six technical sessions focused on inter-linkages among ecosystems, poverty, and wellbeing; governance, policy, and institutions; complexity and social change; valuation of ES; rewarding environmental stewardship; and achieving development impact through research. Through panellist presentations and discussions, as well as open floor discussions, participants highlighted practical tools to manage complex interactions between constantly evolving ecosystems and human wellbeing. Key outputs of the deliberations were as follow:

- There is no simple or linear relationship between quantity and quality of ES, achieving poverty reduction, and enhancing wellbeing. This is because the contribution of ES in improving livelihoods of the poor depends highly on governance. Additionally, the political economy constrains the use of ES and equitable access to benefit the people. Decentralized, multi-layered, democratic governance will enable fairer ecological and social tradeoffs for poverty alleviation and sustainability of the ecosystems.
- The dependence of the world's poorest population on the environment and their contribution to its stewardship are often 'hidden' in public debates and decision-making processes.
- Policy interventions, institutional support, and research are key to shaping effective ES. Communication with stakeholders and policymakers must be easily understandable and efficient.
- ES-based action must complement other development activities and reduce the burden on incentives for ES for poverty reduction. Trade-offs and any potential human costs must be understood and explicitly addressed through open, just, and democratic processes.
- There is a need to better understand current challenges to ecosystems, bring research findings and knowledge into action, and upscale them to enhance development efforts, many of which could be transboundary in nature. Greater recognition of ES from cryosphere to downstream areas should be encouraged.
- Diverse stakeholder involvement in all aspects of ES approaches is crucial right from intervention design to implementation. South-South and North-South collaborations are essential for ensuring ecosystem sustainability and supporting poverty reduction efforts through ES.

The workshop further reinforced the need to think beyond ES and poverty alleviation by considering whether conservation of ecosystems would actually lead to greater wellbeing in general, and poverty alleviation in particular. In closing, ESPA Director, Kate Schreckenbergh emphasized the need to not only be multi-disciplinary, but also interdisciplinary and trans-disciplinary, co-producing-solutions with NGOs and policy makers from the beginning. She underscored the ESPA approach as having key elements that encourage recognition of people's rights and values, and understanding of how environmental services can be accessed to achieve wellbeing. She further stressed that any tradeoffs need to be explicitly addressed through open, just, and democratic processes.

Background

South Asia faces the challenge of tackling persistent poverty at a time of rapid and large-scale changes in social, environmental, and economic conditions. There is an immediate need for governance and management approaches across spatial scales to deal with complexity and uncertainty in order to deliver benefits to both people and the natural resources they depend on. Over the past eight years, the global, interdisciplinary ESPA research programme has set out to provide the evidence that decision-makers and natural resource users need to deal with this challenge. The result has been the production of a range of decision-support and management tools and frameworks that allow optimal choices to be identified between otherwise, 'hidden' trade-offs. At the same time, ICIMOD has been working with partners across the HKH region and beyond to develop programmes and share knowledge to enable sustainable and resilient mountain development for improved and equitable livelihoods.



The Workshop

ESPA and ICIMOD, in close collaboration with the Government of Nepal's Ministry of Forests and Environment (MoFE), brought 89 regional and global researchers together in Kathmandu for a two-day workshop. Through presentations, panel and group discussions, policy-makers, researchers, and practitioners explored pivotal questions around ecosystem services and poverty alleviation. Participants deliberated on whether smart upstream-downstream management of natural resources – from mountains to deltas – hold the key to environmentally sustainable and equitable development for South Asia. Further, participants discussed how smart upstream-downstream management of natural resources in South Asia could hold the key to sustainable development, with equity/trade-offs (academic findings) and Research for Development Impact (programmatic learning) as unifying lenses.

The sessions were arranged by thematic areas and included:

- New insights into the links between ecosystems, poverty, and wellbeing
 - How can a richer conceptual and quantitative understanding of the multiple dimensions of ecosystem services and human wellbeing – within political contexts – inform policy interventions to alleviate poverty?
- Governance, policy, and institutions
 - Case studies of how policies and institutional arrangements can be designed to provide effective governance for the stewardship of natural resources in South Asia.
- Complexity and social change
 - Tools and insights for dealing with complexity in the interactions between changing ecosystems and human migration.
- Valuation of ecosystem services
 - Exploring and connecting different approaches to assessing value in ecosystems
- Rewarding environmental stewardship
 - Learning from the latest experience on how to design and scale up governance schemes that incentivize and compensate local people for environmental stewardship
- Achieving development impact through research
 - Sharing lessons learned from the ESPA programme and individual case studies on how to design research programmes and co-generate knowledge in ways that achieve greater development impact.

Objectives

To inform stakeholders on more effective approaches to some of the most pressing issues in ecosystem services and poverty alleviation in the HKH region.

Workshop Day 1

Inaugural Session

Sindhu Dhungana, Joint Secretary, MoFE, Nepal, highlighted the role of ecosystems that interact across spatial scales to deliver services to people. He highlighted challenges in maintaining ecosystems, particularly in favour of the poor. He emphasized the crucial role of institutions, and the need for collaborative research and action in understanding ecosystems. Kanchan Shrestha, Programme Coordinator, KBI, ICIMOD, introduced the two-day programme and presented the conference objectives. Kate Schreckenber, Director, ESPA, emphasized the role of partnerships across sectors in maintaining ecosystem services. Featuring the participation of people from different sectors and different countries from South Asia and beyond, the conference, she said, provided a key platform to discuss and garner concrete ideas to protect and maintain ecosystems and their services.

Basanta Shrestha, Director of Strategic Cooperation, ICIMOD, highlighted the role of the HKH in delivering ES to over 140 million people living in the mountains and to millions more in downstream areas. He outlined unprecedented changes in the region over the last few decades in terms of population, landscape change, and social changes resulting from globalization, and the immense pressure this places on the available natural resources.

The session chair, Yubak Dhoj GC, Secretary, MoFE, Nepal, noted the relevance and timeliness of the symposium in bringing together civil society, policy makers, academicians, and researchers from around the globe to generate knowledge on ecosystems that can be scaled out and scaled up in the region collectively to resolve prevailing challenges. He said that though ES contribute to the local, national, and global economy, they remain degraded in South Asia, exacerbated further by poverty. He highlighted the importance of ecosystem conservation, with sound policies and research to underpin the services.



Workshop Sessions

An overview of all six technical session presentations and panel discussions is presented below. Detailed open floor discussions are presented in Annex III.

Session 1: Ecosystem Services, Poverty, and Wellbeing

Moderated by Sharachchandra Lele, Ashoka Trust for Research in Ecology and the Environment (ATREE)

Ecosystem Services for Poverty Alleviation (ESPA): key findings

Kate Schreckenberg, ESPA

Kate Schreckenberg presented ESPA's research findings. Launched in response to the findings of the Millennium Ecosystem Assessment (MEA) in 53 countries, ESPA's interdisciplinary partnership and innovative methods seek to tackle poverty, improve wellbeing, and reverse environmental degradation for current and future generations. Findings indicate that some ecosystems are highly degraded and unable to provide critical functions needed for human survival and wellbeing, while others are approaching danger zones where active measures are needed to avert ecological collapse and to safeguard human lives. She outlined how land use intensification and establishing protected areas to conserve biodiversity can both lead to negative impacts on food security and incomes, or affect adjacent people, particularly the poor. She introduced a range of ESPA models that explore trade-offs now and into the future, highlighting that such situations arise because different social groups use and value the environment differently.

Emphasizing that the environmental justice framework comprising recognition, procedure and distribution can help reconcile diverse perspectives on environmental management and change, Schreckenberg said that the core principles of good governance can highlight and address trade-off fairly. She outlined how recognizing and rewarding local stewardship on environmental resources, adaptive processes, and learning with regular monitoring help maintain the flow of ES and support human wellbeing. She emphasized the need to understand and address trade-offs and any potential human costs through open, just, and democratic processes when integrating social and natural assessments of decision-making over natural resources.



Cryosphere ecosystem services and their role in food security and poverty alleviation in the HKH region

Golam Rasul, ICIMOD

Golam Rasul presented insights into cryosphere ecosystem services and their role in ensuring food security and poverty alleviation in the HKH. He outlined immense vulnerability for close to 45% of those living in the region despite the rich natural resources, including HKH water towers, and stressed the importance of linking to the global 2030 Sustainable Development Goals (SDGs) 1 and 2 of no poverty and zero hunger respectively. He highlighted the climate benefits of cryosphere through its albedo effect (regulating service) – valuable cryosphere services including freshwater flowing downstream for drinking, irrigation, and hydropower projects (provisioning services) – and insights into how receding permafrost due to global warming is leading to increased greenhouse gas (GHG) emissions.



Rasul outlined the monsoon-heavy rainfall pattern in South Asia, and the importance of cryosphere-fed river systems in sustaining livelihoods – fisheries, livestock, agriculture, etc. He explained that upstream mountains are dependent on natural springs and snow melt over rivers. He highlighted the importance of glaciers in ground water recharge and spring revival and discussed the need to further research why natural springs are drying up in the mountains. Rasul also underlined the importance of the cryosphere to the development of hydropower projects, emphasizing that hydropower could be a major source of energy for millions in South Asia. He also stated the importance of cryosphere management to support livelihoods of both upstream and downstream communities, and to secure food and freshwater supply.

Political economy of ecosystem services and poverty reduction in Nepal

Naya Sharma Paudel, Forest Action

Naya Sharma Paudel discussed Nepal's timber production potential of 60–90m cu ft./yr. against the current domestic supply of 10m cu ft./yr, and highlighted that while the deficit is imported from Malaysia, Myanmar, Vietnam, etc., large volumes of timber decay annually in the country due to lengthy government procedures. He outlined ownership over resources as an important link between ES and human wellbeing, but noted that resource conflict undermines ES and poverty alleviation so that existing policies may need to be reconsidered. He stressed the value of institutions in conservation, management and utilization of resources, and said that governance should include policy, tenure, institutions, and conflict handling as the central issues in the management of ES, and linking it to poverty alleviation.



Session 2: Governance, Policy, and Institutions

Moderated by Kate Schreckenberg, ESPA

Key insights from ESPA's Political Economy of Water Resources project and governance synthesis

Bhaskar Vira, pre-recorded video

Bhaskar Vira presented a study between water supply and urbanization carried out in six small towns throughout the India and Nepal Himalaya, highlighting growing awareness and research into forest-water relationships, but also increasing stress points and multiple competing uses of water. He explained different trade-offs in forest water relationship with examples in migration, changes in land use upstream, conflict between urban and rural users, and increased demand for water. He explained how heterogeneity in both upstream and downstream communities resulted in different levels of wealth and poverty that affect availability, demand, and access to water. Vira further highlighted the need to challenge meaningful local participation in governance, existing power dynamics across and within levels of governance, and stressed that informal institutions and integrated holistic approaches remain critical for ES governance.

Governing ecosystem services: institutions and policies in Nepal

Santosh Mani Nepal and Ugan Manandhar, WWF Nepal

Ugan Manandhar indicated that Nepal's policies acknowledge the importance of ecosystems and its services for human wellbeing and sustainable development, while the national governance system responds to international governance systems, it may be missing at the local level. He suggested that while the constitution of Nepal protects, promotes, and encourages proper use of natural resources, changes in the national governance structure could challenge natural resource management. Manandhar outlined 118 ecosystems providing various payment for ecosystem services (PES) for conservation, poverty reduction, watershed, and landscape resource management, and developing an international market for carbon and mobilizing community based organizations (CBOs). He also pointed out challenges and strategies to sustaining ES, such as capacity building of stakeholders, institutional mechanisms, investments, and equitable benefit sharing. He outlined how structural changes also affect former REDD+ related institutions, and how Nepal's new federal structure poses challenges to grasp and relay technical issues, administration, capacity, baselines and timing, monitoring, reporting and verifications, pricing, benefit sharing, and trading and non-trading.



Multidimensional assessment of ecosystem and ecosystem services in the Himalaya

Pratikshya Kandel, ICIMOD

Pratikshya Kandel highlighted that with 25% of the terrestrial surface of Earth located in the Himalayan region, it has high ecological and economic importance for people living within it and downstream. Mountain ecosystems have high ecosystem value but also high human footprint, so are susceptible to stress. Mountain ecosystem conservation efforts need to balance ecological and socio-economic systems.



Increasing trends in ES assessment in the HKH indicate a decline in ES over the years due to urbanization and population growth. Kandel presented a case study from Barshong, Bhutan, where 90% of the communities depend on forests for their livelihoods, and over 90% of respondents placed high ecological, cultural, and socio-economic value on freshwater and forests.

Session 3: Complexity and Social Change

Session moderated by Golam Rasul, ICIMOD

SDG and trade-offs: a role for integrated systems (Δ DIEM)

Craig Hutton, University of Southampton

Craig Hutton introduced the ESPA Deltas project in Bangladesh, which aims to equip policy makers with knowledge and tools to evaluate the effects of policy decisions on ES and livelihoods. The project developed the Delta Dynamic Integrated Emulator Model (Δ DIEM) that links ES to livelihoods and interventions, based on biophysical and socio-ecological components and their interactions. The presented results indicate all interventions will have trade-offs between the SDGs. For example, though net incomes and food production have increased with progressive farming methods, water availability and quality have decreased. In the long term, traditional farming methods, it has been suggested, will lead to more stable economic growth. He also presented other factors that influence migration patterns, such as environmental, social, economic, demographic, political, and personal/household characteristics. He cautioned against using SDGs in isolation, and that integrated assessment models are valuable tools to address complex socio-ecological interactions and trade off.

Complexities in valuation of multiple ecosystem services: Learning from ICIMOD–SANDEE landscape programme

Mani Nepal, SANDEE–ICIMOD

Mani Nepal reinforced the difference between ecosystems and ES, the former being the stock concept and the latter the flow. There are different values of ES, and so different methods of valuation. He presented a Kailash Sacred Landscape case study where cultural services and water services from forests were seen to be valued the most



by local communities, who were willing to pay more for an increase in those services as shown by the revealed preference, production function, and stated preference valuation methods.

Nepal also highlighted complexities in valuing ES around method sophistication, validity and reliability of estimated values, concerns about empirical relationship between assets stocks, service flow, and valuation of the services at different stock levels, and uncertainty of scientific and economic data. Highlighting complexities in valuation due to climatic factors, and ecological and biophysical characteristics of landscapes, he suggested simplifying valuation through consideration of both socio-economic and biophysical characteristics. Repeated interactions with communities, involvement of experienced researchers, and well-trained enumerators for quality data collection and regular field supervision are other factors.

Key insights from ESPA's synthesis on urbanization

Mahesh Poudyal on behalf of Fiona Marshall, University of Sussex and Ritu Priya, Jawaharlal Nehru University

Mahesh Poudyal focused on how peri-urban ES and poverty alleviation interactions and their relationships with the urban core reveal possibilities for improving the health and livelihoods of both urban and peri-urban residents while supporting more effective, efficient, and equitable management of environmental resources. Nearly 54% of the world's population live in urban areas, and more will over time. The impact of urbanization on ES and the dependence of urban populations on ES is widely acknowledged but poorly understood. Urbanization implies ecosystems are under stress and subject to increased and often competing urban and rural demands. He noted that peri-urban ES and poverty linkages include decline in direct access to ecosystem products, and water and air quality, flood control, etc. He noted though that peri-urban agriculture and ecosystems have led to better income opportunities (for example: low input, polytunnel vegetable farming), yet are often neglected in formal policy and planning. He also cautioned on factors that impede effective peri-urban environmental management such as reframing debates, heterogeneous communities, etc., citing distinct opportunities for further research and engagement.



Group Work Session

Group Discussion: Key questions for South Asia

Following a short documentary on “Creating sustainable future for climate vulnerable deltas”, participants divided themselves into three groups and brainstormed on the three sessions from Day 1 and discussed on scaling up/out PES schemes and linking these to policy making.

Rajan Kotru from ICIMOD led the discussions around policy-relevant questions on ES and poverty alleviation, from mountains to deltas, and insights into this in South Asia.

Key points are presented below.

Group 1: Ecosystem Services, Poverty, and Wellbeing

- Poor and marginalized people are more dependent on natural resources. Therefore, access to ecosystem services should be maintained for the poor while conserving the natural resources and ensuring the flow of ecosystem services.
- Conservation may not contribute to poverty alleviation unless institutional governance explicitly empowers the poor and marginalized.
- Participatory action research is vital in order to generate good evidence and support the scaling up of research outputs.
- The establishment of a common platform of political leaders, local elected governments, and relevant stakeholders upfront prior to research or management interventions will ensure that all stakeholders are updated, well informed, and consulted. This will also foster opportunities for joint collaboration and strengthen policy making processes.
- Outreach through public forums like media, newspapers, and video messages are very effective in reaching out to policy makers, and are more effective than making two- or four-page policy briefs.

Group 2: Governance, Policy, and Institutions

- Science has a big role in making PES schemes efficient and effective. Along the upstream and downstream, we need to know how many land use managers share particular portions of the watershed, which parts are being protected, or where land use has changed and can affect water quality and quantity downstream.
- Identifying stakeholders and enabling dialogue between all water users – upstream and far downstream – is vital for irrigation, hydropower generation, etc.
- Engaging both marginalized peoples and those with decision making powers is essential.
- An integrated, cross sector approach focusing not just on agriculture, forestry, water or development, but cutting across all these sectors and through multiple levels of government and governance is necessary. However different sectors may have conflicting policies.
- There is need to make headway using various kinds of PES. One should start by focusing on players who have the ability to pay more often than the private sector.
- Existing inequalities in today’s society must be recognized in order to progress towards more equitable interventions.
- Governments and projects often operate in short term cycles, yet natural resources are long term issues. Long term continuity and investment is vital for effective natural resource governance.
- Better capacities are needed at all levels, with designated specialists along the process decentralizing governance at the local level. Better clarity is needed about which level of government has what rights and

responsibilities regarding the natural resources in question.

- To relay messages to policy makers, we need a package of success stories, and also local champions able to take ideas forward together with academics, scientists and civil society. It is very important to articulate key messages in a financial language easily understood by politicians.

Group 3: Complexity and Social Change

- To answer how to address the complexities, we need trans-disciplinary approaches from diverse fields of study and researchers.
- Scenario building and a model-based approach should be prioritized because most of the complexities and uncertainties lie in the future. A model based approach helps to project future scenarios for decision making. Though research areas have progressed, funding remains focused on urban and rural areas, ignoring peri-urban areas.
- There are institutional caveats where lack of focus of policies or interest on particular area may lead to degradation of ecosystem services. If there is not enough data then we may end up with even more complexities.
- Research and policy making do not have a linear approach. It is crucial to engage policymakers right from the beginning to consult on key issues, so the research has smart indicators and a more specific focus.
- Dynamic feedback mechanisms with policy makers and stakeholders within the research period are crucial so that even if the availability of data poses restrictions policy level interests are still incorporated.



Group Discussion: A Summary

Based on discussion from the group work session, Rajan Kotru from ICIMOD summarized four key points around ecosystem services and poverty alleviation:

1. There are models at smaller scales, like PES, which have most interventions and investments in project mode, particularly in the Hindu Kush Himalaya (HKH). Most interventions stop when projects end, so evidence at scale is very important, as the policy maker demands in ES. Talking about scale requires consideration of upstream-downstream linkages in the HKH context, beyond village and sub-watershed models to landscape and river basin ones, applying learning and PES models, and linking to poverty alleviation. Creating evidence at scale can make funding easier, as seen in Costa Rica.
2. Scale is very complex. Stakeholders upstream and downstream are diverse. Though different, they require a common stake in service delivery. Downstream communities need to honour payments for conservation efforts upstream. PES designs, the Sustainable Development Goals (SDGs), the Convention on Biological Diversity (CBD), etc. have not reached the poor adequately as these interventions are top-down approaches. Participation of all stakeholders is key. Representation of all interests and expectations including those of policy makers from the onset enables processes and tools to be mobilized accordingly. Learnings from such a model will also be honoured and owned by all stakeholders and policy makers.
3. Communities living upstream and downstream, and policy makers want to enable a sustainable flow of services such as provisioning, regulating, and cultural services. In the Himalaya, these services are valued very cheaply, although there could be other ways in which local people could benefit more. We need to explore how we can add value to, and link with cultural and supporting services of traditional systems functioning on the ground as a local policy in the HKH region with customary institutions, norms, and regulations.
4. Messages about scale, stakeholder, and services should be conveyed in simple and understandable language to those making decisions on ES and its links to poverty alleviation. Sustainability, integrated approach, and frameworks for natural resource management and its good governance need to be embedded into practice. There are some good practices in the HKH region, but standardization of how to scale up and communicate this so that policy makers can develop programmes is lacking. Although there are good models, there are no certification standards or norms, or eco-labelling, which could be the focus in the future. Furthermore, if we are selling services in the HKH region, it should be at a premium, with standardization according to performance-based systems. The private sector thus has a big role to play in the HKH region in terms of scale, stakeholder, services, and standardization. Policy makers may be persuaded to invest in PES models and link it to other SDGs.

Workshop Day 2

Keynote Address: Ecosystem Services and Poverty Alleviation

Sindhu Dhungana, MoFE, Nepal, deliberated on whether ES could contribute to poverty alleviation. He noted that the poor in developing and under developed countries lack alternative means of livelihoods and hence rely more on common ecosystem goods and services. Examples include plant biomass as energy source and wild plants, fruits, fishes, timber, etc. as sources of food, fibre, and shelter. The unsustainable use and harvest of such natural resources lead to the degradation of ecosystems and flow of services. Some ground level conflicts and issues identified from conservation experiences in Nepal have also affected ecosystem management: for example, land tenure, land use change (forest and agro ecosystem conflict), market issues (timber vs NTFPs), partnership and benefit sharing issues (park and forest authorities' conflict, department and communities conflict), human-wildlife conflicts, etc.

For holistic management of ecosystems, Dhungana emphasized the need to understand how ecosystems are perceived, conceived, and lived in. For the production of ES, there is an interplay between the theory of commons, epistemic communities, and political ecology. He outlined some promising initiatives in Nepal, which partly or fully recognize this concept for sustainable management of ecosystems; example include community-based ecosystem management, increased participation of women and socially disadvantaged groups, benefits and costs sharing, and increased recognition of incentive payments for ecosystem services. He outlined the ongoing discourse on whether ecosystem commons can make tangible contributions for poverty alleviation, and highlighted the need for further ground work and addressing emerging issues and conflicts within a 'black box' (policy, governance, management, tenure, etc.) so that the poor actually benefit from the common goods and services derived from ecosystems.





Session 4: Valuation of Ecosystem services

Moderated by Nand Kishor Agrawal, ICIMOD

Understanding ecosystem services valuation through the lens of wellbeing and justice

Kate Schreckenborg, ESPA

Kate Schreckenborg presented human wellbeing as the central component of the ES concept. The relationship between human wellbeing and ES can change with time and place, so it is important to understand the relation of the flow of ES and human wellbeing, as it could be both positive and negative. She argued that different conventional assessments of poverty alleviation are not sufficient to capture all aspects of wellbeing, and presented an example of multidimensional wellbeing encompassing objective conditions of people, and subjective and relational dimensions.

She stated that poor people are not defined by poverty alone, so wellbeing framing is a more holistic approach centered on the person rather than measuring their economic condition alone. Schreckenborg stressed that improving ecosystem quality does not always mean improving wellbeing and highlighted the need to introduce interventions according to situation. Besides, she also stressed on including a gender perspective in assessments and decision-making about ES. She referred to environmental justice frameworks, and equity and justice approaches as frontiers with great potential in the practice of ecosystem governance.

Valuation of ecosystem services in the Himalaya

Rajesh Rai, ICIMOD

Rajesh Rai highlighted the importance of ecosystem services in the HKH region and two key factors that affect equitable and sustainable development – failure to simultaneously address economic and environmental problems in the developing world, and lack of an ES approach and network to provide strategic direction to address poverty and environmental degradation. He suggested that these issues can be addressed by good governance, participatory approaches, and valuation of ecosystem



services. He said that stated preference (SP) as a suitable valuation method may overlook the concerns of the poor as willingness to pay is determined in the value of the dollar (USD). Occasionally SP studies in developing countries used non-monetary numeracies to elicit willingness to pay, such as using labour as a payment numeracy but this too may not be suitable for all. Determination of willingness to pay in monetary terms would be more appropriate for economic development in the long run.

Valuation of ecosystem services: projects in Southwest China

Tang Zhonglin, Chengdu Institute of Biology

Tang Zhonglin stated that key scientific problems related to ES are temporal and spatial variations, relationships between services, and the driving factors of service changes. He presented three projects in Southwest China – Erhai Lake, Eastern Tibetan Plateau, and Jiuzhaigou World Natural Heritage site – where valuation of ecosystem services was carried out using different techniques.

Erhai Lake provides ES with an economic value of CNY 469.96×108 , which was 1.41 times the GDP of this administrative region in 2014. He showed that the provisioning, supporting, regulatory, and cultural services of Erhai Lake Basin share 12.06 %, 4.75 %, 51.47 %, and 31.68 % of the total economic value, respectively. Besides providing unique values in tourism and culture, this basin provides huge indirect value from its regulating services. The Eastern Tibetan Plateau, among the best grasslands in the HKH and

among the three major forest areas in China, is facing different ecological issues such as landscape fragmentation, overgrazing, deforestation, etc. Using InVEST Model and CASA Model, he showed that ecosystem services are decreasing in the area and that the composition of each ecosystem varies with different driving scenarios, including climate change and land use change. Jiuzhaigou World Natural Heritage is a biodiversity hotspot in China. Based on InVEST Model, CASA Model, and economic valuation, ES excluding tourism have decreased thereby decreasing total economic value by 10% between 1990 and 2015.



Session 5: Payments/Compensation for Ecosystem Services

Moderated by *Chetan Agarwal*, Independent researcher

Key insights from ESPA's synthesis on PES on Conditional Transfers

Inna Porras, IIED

Inna Porras noted that people protect ecosystems for benefits from nature, with PES as a positive reward for actions that promote positive externalities downstream. She stated that natural resource management in rural areas still lags behind, and that conditional transfers (such as guaranteed job schemes, pensions, and food transfer) have been used to achieve social and environmental objectives to raise the living standards of vulnerable people. Conditional transfers need to be made more attractive for influencing policy makers as such transfers can assess short and long terms benefits for the poor. Financing mechanisms should target those who can (and should) pay. These should be clear, replicable, and have easy collection mechanisms. She cited governments as important players to scale up conditional transfer, and said that there should be clear rules, business propositions, and connections across government scales. She also cited the need for unambiguous upstream/downstream links, transparency in long chains, (performance, reporting and certifications) and links to existing value chains to ensure a clearly understood theory of change with actors who understand the perspective of change.

Designing a PES scheme at the watershed level, learning from Phewa watershed

Keshav Khanal, Purna Bahadur Kunwar, WWF/Hariyo Ban Programme

Keshav Khanal presented Phewa as one of the important lake providing different ES in Nepal, and noted that sedimentation in the lake is a major threat. Its current 11,000 hectare area, with a 42.18 million m³ water holding capacity, is projected to completely dry up by 2188. Change in land use and land cover practices is the main driver of soil loss intensity in different sub-watersheds and results in sedimentation. The reformed Phewa Watershed Ecosystem Management board constitutes of local and national governments, as well as the Institute of Forestry. The board has a monitoring and evaluation mechanism and has a Memorandum of Understanding (MoU) between upstream and downstream communities. Sediment retention activities in the watershed are being conducted with funds from service receivers and other sources, including the Hariyo Ban programme funded by USAID. Major interventions include PES sensitization; drainage construction along earthen roads; perennial crop cultivation, fodder and grass cultivation; check dams to control landslides; river embankments; and bio engineering. The learning is that PES needs institutional integration at the watershed level and commitment of service providers to improve ES, as well as willingness of service receivers to make payments against received services.

Designing an incentive based mechanism for REDD+ in the Himalaya

Bhaskar Karki, ICIMOD

Bhaskar Karki outlined deforestation, habit loss, species extinction, increase in air and water pollution, unplanned development, and landslides as key examples of environmental degradation. Market failure can also cause environmental degradation from the economic perspective, and while multilateral environment agreements that avoid negative impact on ES exist, the challenge is to implement them. We require a narrow definition PES, he said. The success factors for PES lies in identifying and valuing ES and getting the science right. He noted the benefits of additionality of services and stated the need for transparent and accountable pre-negotiation processes between buyers and sellers. While PES should be pro-poor, it is not a poverty reduction tool as it is a mechanism that favours landowners and the poorest of the poor may not have land. Therefore, non-monetary benefits to communities (rewards) such as road access and irrigation should be targeted. He ended by highlighting PES limitations in REDD+ and the need to transition from PES to results-based payments (RBP) through bilateral negotiations.

Session 6: ESPA learning/ICIMOD learning – ‘how to’ achieve development impact through research in South Asia/HKH

Moderated by *Arun Bhakta Shrestha, ICIMOD*

Research for development impact lessons learned from the ESPA programme

Mahesh Poudyal, ESPA

Mahesh Poudyal reflected that ESPA was the first UK-funded research programme to take an interdisciplinary knowledge co-production approach to address complex issues in the developing world through 125 ESPA projects that provided a great variety of ‘degrees’ and ‘types’ of impact. Through case studies, he specified that impact depends on time, relations with partners and stakeholders-based on mutual trust, capacity and resources, and clearly defined pathways.

Poudyal outlined co-production as engaging non-academic actors, mostly local communities, in the design and implementation of research, rather than just as end-users. When done properly, co-production can fundamentally change the research process. Poudyal highlighted how ESPA projects incorporate research results into communities creatively and beyond standard workshops, using illustrated books, songs, and community theatre to engage with semi-literate communities. Poudyal concluded that genuine community involvement in defining research questions and methods, and careful consideration of how various contributions should be acknowledged, attributed, and rewarded may help overcome challenges in coproduction.

ESPA Deltas and the integrated Δ DIEM Model: case study of the application to the Bangladesh Delta Plan 2100

Craig Hutton, University of Southampton, UK

Craig Hutton introduced the Δ DIEM as an integrated assessment model combining biophysical and socio-ecological components and their interaction through scenario development. The coastal zone of Bangladesh is highly vulnerable to flooding, sedimentation, salinization, sea level rise, etc. Most people living in this zone depend on provisioning ES, especially agriculture. ADIEM tests part of the Bangladesh Delta Plan (BDP) 2100 pre-specified engineering interventions on the delta. BDP 2100 is a structural plan for 50 years and is yet to be implemented. In this case, the model tests three intervention scenarios: the green belt, the sea wall, and the south central polder. Climate change assumptions set in this case study were: 148 cm relative sea level rise, 1.4°C temperature rise, and the continuation of economic growth in its present trajectory. The study indicates that maintaining polders already in existence and developing new polders could support sustainable management of the delta area and would provide benefits to human beings.

Generating knowledge on ecosystem services in HKH

Wu Ning, ICIMOD

Wu Ning stated that in the past ten years the definition of ES, and the four categories within them have become widely accepted, and studies have been conducted to further understand provisioning, and regulating services. Yet, knowledge gaps in cultural and supporting services remain. These are often the product of a specific way of seeing within the given cultural framework and are difficult to quantify. He noted that most rich people depend on supporting services, while the poor depend on provisioning services.

Wu further outlined that nature's contribution to people (NCP) can be both negative and positive, and may be perceived as benefits or detriments depending on the cultural context. Moreover, many direct and indirect drivers of change provide both negative and positive impact on ES. Wu talked about key ecosystems and their interface in the HKH, reinforcing that assessment of ES is uncertain without clear ecosystem boundaries. He highlighted major remaining challenges and uncertainties in the study of ES and concluded that ecosystem management with scientific understanding of its functioning can help build ecosystem resilience and sustain ES flow, and enable payments for ecosystem services.

Reflections of the Workshop, Days 1 and 2

Thought-leader in South Asia Perspective

Sharadchandra Lele, ATREE

Sharadchandra Lele highlighted how the supporting, regulating, provisioning, and cultural services provided by ecosystems are linked to human wellbeing. If there is more biodiversity on the earth then there is higher wellbeing, or greater biodiversity can be linked to higher wellbeing provided there are additional capital inputs. Addressing ESPA's overarching question of whether conservation of ecosystems would lead to greater wellbeing in general, and poverty alleviation in particular, he said that it depended on a long-term timeframe, and conditions such as what is being conserved, and which services relating to ecological trade-offs prioritized. He said that social distribution arrangements that clearly indicate who will get access to resources, and how, are crucial, as is understanding what opportunity costs. He also outlined the importance of understanding that there are ecosystem dis-services that may negatively influence human wellbeing in terms of social and financial security; how conservation is enforced from the sustainability perspective; and finally the use of technology, labour, and capital investments for co-production of solutions.

He disaggregated ES and wellbeing by categorizing biotic (forests, fisheries, wetlands, agriculture) and abiotic resources (petroleum, metals, minerals), and underlining that abiotic goods and services are actually the externalities, and only consideration of both can contribute to multi-dimensional human wellbeing disaggregated

by gender, class, caste, and location. He also pointed out that ES alone may not reduce poverty, but should be complemented by ecosystem-based rural development, and decentralized, multi-layered, and democratic governance for fairer ecological and social trade-offs, better returns to efforts, and long term sustainability. He outlined the importance of meaningful engagement to resolve conflict between ecosystem conservation and development works (e.g. mining, dams, thermal power, urban lifestyle) in post-ESPA efforts, recommending a post-ESPA approach of normatively explicit and multidimensional integrated methods to socially engage not just with policy makers, but also in social movements. He emphasized that future interventions should be problem driven and not donor driven, and mobilize South-South collaborations.

Policymaker/Practitioner Perspective

Atiq Rahman, Bangladesh Centre for Advanced Studies (BRAC)

Rahman contemplated whether work in the field of ES really has contributed to poverty alleviation, or only focused on ES, though there has been significant work on research methodology, case studies, and policy influence in the framework of good science, policy, and people. He praised ESPA for its ES and poverty alleviation research, and suggested continuation of efforts to strengthen networking among various groups in South Asia to reduce poverty and enhance wellbeing through sustainable management of ecosystems. SDG 1 targets poverty alleviation by 2030, but there is doubt about whether this can be achieved because the rich may remain market buyers and new labour might be required for emerging markets. Moreover, poverty alleviation cannot be absolutely attained. Human wellbeing has also shifted the discourse on poverty alleviation and welfare. He added that the interaction between ES as discipline and poverty may not have been adequate, as it is tied to other aspects like education, health, etc.



He outlined the first three Rio conventions, which focused on environmental poverty and developmental problems in the Global North. Rahman urged efforts to reduce poverty, though not at the cost of the environment. He noted that although the millennium ecosystem assessment (MEA) has already presented ecosystems as a basis of all productivity, there is still a need to generate sound knowledge through evidence-based science and research that can help governments formulate policies related to poverty alleviation.

In conclusion, he underlined the role of South-South cooperation with opportunity for the North to learn from the South, and for those in the South to understand what kind of services they have and can offer for poverty alleviation and human wellbeing.

Summing Up and Closing

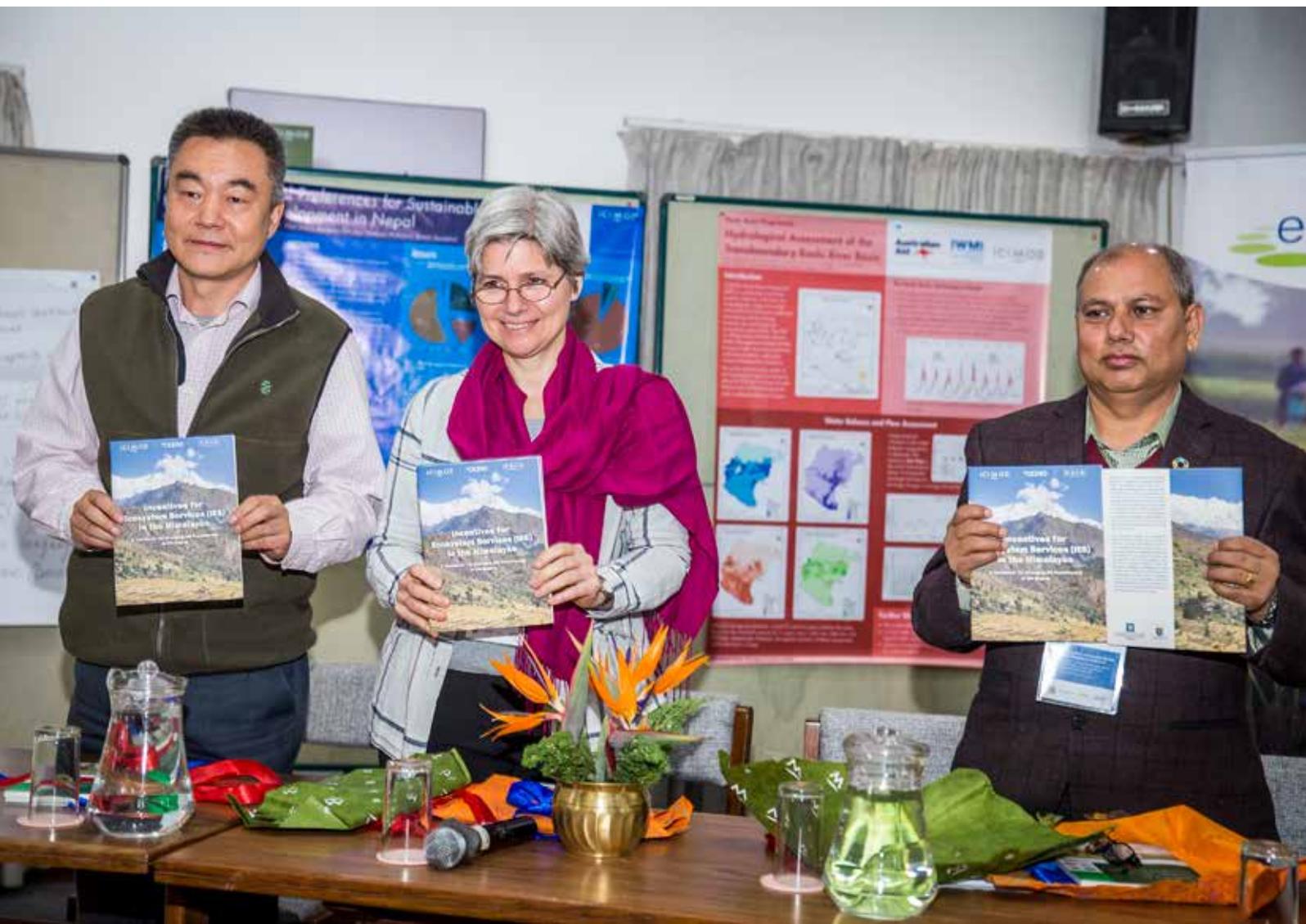
Kate Schreckenber, ESPA, outlined the need to move towards a joint agenda on how to improve wellbeing through sustainable use of ES in the South Asian region, highlighting the wealth of the ES in the region. She said that whether ES can contribute to improving livelihoods depends on governance, and that political economy is a critical issue able to constrain equitable access and use of ES to benefit people. She commented that governance needs to adapt in accordance to regional changes in governments, demography, environmental drivers, and aspirations to well-being. She highlighted the importance of the cryosphere in HKH region, but said that the issue of scale is extremely challenging and good governance is key.

She emphasized on that people's need to understand global processes – from reciprocal arrangements to conditional transfers, with more social to environmental focus – and incentives for ecosystem services, although ES alone cannot bear the burden of poverty reduction.

She stressed the need to be not only multi-disciplinary but also inter-disciplinary and trans-disciplinary in future research, co-producing with NGOs and policy makers from the start. She underscored ESPA elements recognizing people's rights and values, and how to access environmental services for wellbeing. She highlighted that any trade-offs need to be explicitly addressed through open, just and democratic processes. In conclusion, Schreckenberg expressed hope that ESPA ambassadors would take the legacy forward to align ESPA approaches in their programmes.

Vote of thanks and next steps

Laxmi Dutt Bhatta, ICIMOD, thanked all speakers and participants for making the symposium a productive, thought-provoking two days, and thanked ICIMOD and ESPA staff for making the event possible. He ended by urging everyone to continue efforts to generate learnings and to improve perspectives around ES for poverty alleviation.



Annexure

Annex I: Agenda

Overarching narrative/angle – ‘How smart upstream-downstream management of natural resources in South Asia could hold the key to sustainable development’. With equity/trade-offs (academic findings) and Research 4 Development Impact (programmatically learning) as unifying lenses.

Tuesday, 13 March – **Day 1**

08:30	Registration
09:10–09:45	<p>Inaugural session (host: ICIMOD)</p> <p>Chair: <i>Yubak Dhoj GC</i>, Secretary, Ministry of Forests and Environment, Nepal</p> <p>Welcome speech: <i>Sindhu Dhungana</i>, Joint Secretary, Ministry of Forests and Environment (MoFE), Nepal</p> <p>Introduction to event: <i>Kanchan Shrestha</i>, Programme Coordinator, Koshi Basin Initiative, ICIMOD</p> <p>Remarks: <i>Kate Schreckenberg</i>, Director, ESPA</p> <p>Remarks: <i>Basanta Shrestha</i>, Director of Strategic Cooperation, ICIMOD</p> <p><i>Remarks from Chair and closing</i></p>
09:45–11:05	<p>Session 1: Ecosystem Services, Poverty and Wellbeing</p> <p>Moderator: <i>Sharad Lele</i>, ATREE</p>
09:45	Presentation 1: An environment for wellbeing: pathways out of poverty (an overview of ESPA insights) – <i>Kate Schreckenberg</i> , ESPA
10:05	Presentation 2: Cryosphere ecosystem services and their role in food security and poverty alleviation in the HKH region – <i>Golam Rasul</i> , ICIMOD
10:20	Presentation 3: Political economy of ecosystem services and poverty reduction in Nepal – <i>Naya Sharma Paudel</i> , Forest Action, Nepal
10:35	<i>Session 1: Q&A /panel discussion</i>
11:05	Coffee/Group Photo (25 min)
11:30–12:45	<p>Session 2: Governance, Policy, and Institutions</p> <p>Moderator: <i>Kate Schreckenberg</i>, ESPA</p>
11:30	Presentation 4: Key insights from ESPA's Political Economy of Water Resources project and governance synthesis – <i>Bhaskar Vira</i> , University of Cambridge, UK
11:45	Presentation 5: Governing ecosystem services: Institutions and Policies in Nepal – <i>Santosh Mani Nepal</i> and <i>Ugan Manandhar</i> , WWF Nepal
12:00	Presentation 6: Multidimensional assessment of ecosystem and ecosystem services in the Himalaya – <i>Pratikshya Kandel</i> , ICIMOD
12:15	<i>Session 2: Q&A/panel discussion</i>
12:45	Lunch (1hr 15 min)
14:00–15:15	<p>Session 3: Complexity and Social Change</p> <p>Moderator: <i>Golam Rasul</i>, ICIMOD</p>
14:00	Presentation 7: Rapid change in the GBM Delta & potential trade-offs between the Sustainable Development Goals – <i>Craig Hutton</i> , ESPA Deltas project, University of Southampton, UK
14:15	Presentation 8: Key insights from ESPA's synthesis on urbanisation – <i>Fiona Marshall</i> , University of Sussex, UK and <i>Ritu Priya</i> , Jawaharlal Nehru University, India

Tuesday, 13 March – Day 1

14:30	Presentation 9: Complexities in valuation of multiple ecosystem services: Learning from ICIMOD-SANDEE landscape programme – <i>Mani Nepal</i> , SANDEE
14:45	Session 3: Q&A/panel discussion
15:15	Coffee (30 min)
15:45	Group Discussion: Key questions for South Asia Moderator: <i>Rajan Kotru</i> , ICIMOD
15:45	Scene setting for group discussions (“policy-relevant questions Around ES for PA, from mountains to deltas”) Thought leader: <i>Rajan Kotru</i> , ICIMOD
16:50	Group discussion: What is the demand for ES for PA insights in South Asia? (split groups into themes to discuss key knowns and unknowns)
16:50	Closing of Proceedings: Key message from Day 1 – <i>Laxmi Dutt Bhatta</i> , ICIMOD
18:00	Dinner for attendees (Hotel Himalaya)

Wednesday, 14 March – Day 2

09:10	Welcome and recap of Day 1 – <i>Laxmi Dutt Bhatta</i> , ICIMOD
09:15	Keynote address: Ecosystem services and poverty alleviation – <i>Sindhu Dhungana</i> , Ministry of Forests and Environment, Nepal
09:45–11:00	Session 4: Valuation of Ecosystem services Moderator: <i>Nand Kishor Agrawal</i> , ICIMOD
09:45	Presentation 10: Understanding ES valuation through the lens of well-being and justice – <i>Mahesh Poudyal</i> , ESPA
10:00	Presentation 11: Valuation of Ecosystem services in the Himalaya – <i>Rajesh Rai</i> , SANDEE, ICIMOD
10:15	Presentation 12: Valuation of ecosystem services in Erhai Lake, Yunnan, China – <i>Zhonglin Tang</i> , Sun Geng , Chengdu Institute of Biology, China
10:30	Session 4: Q&A/panel discussion (Focus of discussion: how do we bring these different approaches together? I.e. well-being and justice vs more traditional valuation)
11:00	Coffee (30 min)
11:30– 12:45	Session 5: Payments/Compensation for Ecosystem Services Moderator: <i>Chetan Agarwal</i> , India
11:30	Presentation 13: Key insights from ESPA’s synthesis on PES on Conditional Transfers – <i>Ina Porras</i> , IIED
11:45	Presentation 14: Designing PES scheme at watershed level, learning from Phewa watershed – <i>Keshav Khanal</i> , <i>Purna Bahadur Kunwar</i> , WWF/ Hariyo Ban Program, Nepal
12:00	Presentation 15: Designing an incentive based mechanism for REDD+ in the Himalaya – <i>Bhaskar Karki</i> , ICIMOD
12:15	Session 5: Q&A/panel discussion
12:45	Lunch (1hr 15 min)

Wednesday, 14 March – Day 2

14:00–15:15	Session 6: ESPA learning/ICIMOD learning – ‘how to’ achieve development impact through research in South Asia/HKH Moderator: <i>Arun Bhakta Shrestha</i> , ICIMOD
14:00	Presentation 16: Overview of ESPA learning on Interdisciplinary Research 4 Development Impact – <i>Kate Schreckenberg/Mahesh Poudyal</i> , ESPA
14:15	Presentation 17: Using ESPA research to support decision-making in Bangladesh – <i>Craig Hutton and GED representative</i>
14:30	Presentation 18: Generating knowledge on ecosystem services in the Himalaya – <i>Wu Ning</i> , ICIMOD
14:45	<i>Session 6: Q&A/panel discussion</i>
15:15	Coffee (30 min)
15:45–15:55	Reflection on Days 1 and 2
15:45	Reflections on Days 1 and 2: Presentation by <i>Sharad Lele</i> , ATREE (thought-leader in South Asia)
15:55	Reflections on Days 1 and 2: Presentation by <i>Atiq Rahman</i> , BRAC (policymaker/practitioner perspective, i.e. potential user of ESPA-like research)
16:05	Summing up and closing – <i>Kate Schreckenberg</i> , ESPA
16:15	Vote of thanks and next steps – <i>Laxmi Dutt Bhatta</i> , ICIMOD

Annex II: List of Participants

SN	Name	Organization	Country
EUROPE			
1	Kate Schreckenber	ESPA	United Kingdom
2	Mahesh Poudyal	ESPA	United Kingdom
3	Ina Porras	IIED	United Kingdom
4	Craig Hutton	University of Southampton	United Kingdom
5	Bhaskar Vira	University of Cambridge	United Kingdom
6	Bhopal Pandeya	Imperial College London	United Kingdom
ASIA (outside HKH region)			
9	Jyotiraj Patra	Oxfam	Cambodia
8	Moon Herrick	Green Climate Fund	South Korea
9	Ngo Thi Phuong Dung	Division of International Affairs and Public Relations, Plant Protection Department, Ministry of Agriculture and Rural Development	Vietnam
10	Shyam K Paudel	UNDP	Dili, Timor-Leste
HKH REGION			
11	Md. Nadiruzzaman	Independent University Bangladesh	Bangladesh
12	Atiq Rahman	Bangladesh Centre for Advanced Studies	Bangladesh
13	Jamyang Phuntsho	Watershed Management Division, DoFPS, MoAF	Bhutan
14	Jigme Winchuk	UWICER	Bhutan
15	Zhonglin Tang	Chengdu Institute of Biology	China
16	Sharachchandra Lele	Ashoka Trust for Research in Ecology and the Environment (ATREE)	India
17	Chetan Agrawal	Independent researcher	India
18	Ruchi Badola	Wildlife Institute of India , Chandrabani, Dehradun, Uttarakhand, India	India
19	Irfan Rashid	University of Kashmir	India
20	Tatsama Motilal	Nalanda University	India
21	Toe Toe Aung	Forest Department, Ministry of Natural Resources and Environmental Conservation	Myanmar
22	Thet Myat Yadanar Aye	Forest Department, Ministry of Natural Resources and Environmental Conservation	Myanmar
23	Roheela Amir	International Livestock Research Institute, National Agriculture Research Council	Pakistan
24	Muhammad Akhtar Cheema	IUCN Pakistan, Country Office, Karachi	Pakistan
25	Ashfaq Ahmad Shiekh	Pakistan Council of Research in Water Resources (PCRWR)	Pakistan
26	Ishwari Prasad Paudel	Department of Forests, Ministry of Forests and Environment	Nepal
27	Santa Maya Shrestha	Departments of Forests, Ministry of Forests and Environment	Nepal
28	Radha Wagle	Ministry of Forests and Environment	Nepal
29	Srijana Shrestha	REDD Implementation Center, Ministry of Forests and Environment	
30	Prakash Thapa	Department of Soil Conservation and Watershed Management, Ministry of Forests and Environment	Nepal
31	Kishore Aryal	Department of Soil Conservation and Watershed Management, Ministry of Forests and Environment	Nepal
32	Sumana Devkota	Department of Soil Conservation and Watershed Management, Ministry of Forests and Environment	Nepal
33	Pabitra Jha	Institute of forestry, Tribhuvan University	Nepal
34	Thakur Silwal	Institute of Forestry, Tribhuvan University	Nepal
35	Balram Bhatta	Faculty of Forestry, Agriculture And Forestry University	Nepal
36	Madhav Karki	Centre for Green Economy Development, Nepal (CGED-Nepal)	Nepal

37	Kiran Timilsina	Green Governance	Nepal
38	Ugan Manandhar	WWF	Nepal
39	Ishana Thapa	BCN	Nepal
40	Keshav Khanal	The Mountain Institute	Nepal
41	Naya Sharma Paudel	Forest Action	Nepal
42	Rahul Karki	Forest Action	Nepal
43	Suchita Shrestha	SIAS	Nepal
44	Kaustuv Neupane	SIAS	Nepal
45	Jagannath Joshi	Hariyo Ban Program, CARE-Nepal	Nepal
46	Rabindra Roy	Symboisi Associates (SYMASS), Nepal	Nepal
47	Rajesh Rai	SANDEE	Nepal
48	Mani Nepal	SANDEE	Nepal
49	Anand Shrestha	Shardu watershed, Dharan	Nepal
50	Krishna Thagunna	SADA, Baitadi	Nepal
51	Dambar Rogu	Dhankuta Municipality	Nepal
52	Nandita Baruah	The Asia Foundation	Nepal
53	Preeti Thapa	The Asia Foundation	Nepal
54	Menaka Pant	IUCN	Nepal
55	Srijana Shrestha	Helvetas	Nepal
56	Ganesh Paudel	Departments of Forests, Ministry of Forests and Enviroment	Nepal
57	Sindhu Dhungana	REDD Implementation Center, Ministry of Forests and Enviroment	Nepal
58	Nilu Basnyat	PANI, USAID /DAI	Nepal
59	Narayan Belbase	PANI, USAID /DAI	Nepal
60	Bina Ghimire	Central Department of Environmental Science, Tribhuwan University	Nepal
61	Shambhu Dangal	RECOFTC Nepal	Nepal
62	Shekhar Kumar Yadav	NFA	Nepal
63	Indra Sapkota	District Forest Office, Solu	Nepal
64	Yubak Dhoj GC	Secretary, Ministry of Forests and Environment	Nepal
65	Rajendra KC	Joint Secretary, Ministry of Forests and Environment	
66	Subodh Sharma	Dean, School of Science, Kathmandu University	Nepal
67	Prahalad Thapa	Country Representative, IUCN	Nepal
68	Chudamani Joshi	Adviser, Development Cooperation, Embassy of Finland	Nepal
69	Kai Windhorst	GIZ	Nepal
70	Top Khatri	Consultant	Nepal
ICIMOD Expertise and support			
71	Arun Shrestha	ICIMOD	Nepal
72	Basant Pant	ICIMOD	Nepal
73	Basanta Shrestha	ICIMOD	Nepal
74	Bhaskar Karky	ICIMOD	Nepal
75	Erica Udas	ICIMOD	Nepal
76	Golam Rasul	ICIMOD	Bangladesh
77	Govinda Shrestha	ICIMOD	Nepal
78	Kanchan Shrestha	ICIMOD	Nepal
79	Laxmi Dutt Bhatta	ICIMOD	Nepal

80	Mona Sharma	ICIMOD	Nepal
81	Nand Kishor Agrawal	ICIMOD	India
82	Nishikant Gupta	ICIMOD	India
83	Pratikshya Kandel	ICIMOD	Nepal
84	Rajan Kotru	ICIMOD	India
85	Ruijun Long	ICIMOD	China
86	Sunita Ranabhat	ICIMOD	Nepal
87	Utsav Maden	ICIMOD	Nepal
88	Wu Ning	ICIMOD	China
89	Yi Shaoliang	ICIMOD	China

Annex III: Floor Discussions and Panellist Comments

Session 1: Ecosystem Services, Poverty and Wellbeing

Questions:

- The relationship between ecosystem services and poverty alleviation might be linked with welfare, so is there any research showing results that ecosystem services function as a combination of both, or either one or the other?
- Do you have any information on how much it costs to use or implement the activities that link ecosystem services to poverty reduction because sometimes, believing and implementing are different?
- With regard to the approach of land sharing or land sparing, could the panel shed light on its benefits and disadvantages when it comes to poverty alleviation?
- In a sociological and ecological system, there is continuous interactions between human and natural ecosystems and there are always trade-offs and synergies. In ESPA research, have you explored or is there a need to explore trade-offs, and are there any efforts done to minimize such trade-offs; or should we also be exploring synergies because both exists?
- The cryosphere ecosystem services have both benefits and risks in terms of a scenario suggesting too much or too little water. If PES is propounding the idea of nature's contribution to people, then in this case the contribution could be either positive or negative, so have you explored the positive and risk aspect or not? The larger question however might be how you frame your research.
- Nepal is very rich in biodiversity but the people are poor and there are constraints which are well recognized. The solutions that you provided relate to governance, which is certainly a good thing to look at, but since the climate and socio-ecological changes are impacting the ecosystems, shouldn't there be institutions for conflict management, awareness raising, and knowledge generation apart from policies?

Panellist Responses

Golam Rasul

- When we talk about connection between ecosystem services and human wellbeing, in many cases we don't see any connection because there are many trade-offs in ecosystem services and not only synergies. But the relationship between ecosystem and poverty is direct; if ecosystem services are high, poverty is higher. The question is why? This is because many ecosystem services, agro-biodiversity, for example, have lots of benefits to the society but how these benefits are shared is questionable. We cannot compare farmers growing high value traditional crops with highly mechanized farmers coming from the green revolution because in the latter case, productivity is higher and governments may also provide subsidies on water, irrigation, and fertilizers. On the other hand, farmers growing traditional crops do not get any government support, nor a higher price for the product they produce. So there are huge tradeoffs, and the poor are not getting adequate benefits. Hence, a mechanism needs to be developed that directly provides payments or rewards, and recognizes the services. However, the rewarding and recognition of services is still not well established in terms of institutional mechanism development. Payments for ecosystem services exist currently in most cases as pilots where projects pay some money and the practice discontinues after these projects phase out.
- In relation to biodiversity and ecosystem services, land sharing and land sparing approach, particularly land sharing, are not much practiced in HKH region. But there is the argument that if one is conserving biodiversity, then they should also get benefits, or that there should be a policy and an institutional support system in place to reward those who conserve biodiversity.
- Cryosphere ecosystems are water towers that store freshwater and regulate its flow in the rivers. However, due to the changing climate, there are increasing risks. ICIMOD has conducted several studies on Glacier Lake Outburst Floods (GLOFs) and mapped high altitude lakes with risks to avoid damages to downstream regions.

Kate Schreckenberg

- In ESPA research, there were many synergies, and many spill over impacts were also seen. For example, in a marine system, fish catch increases with the use of improved fishing nets that which only trap fish that have reached a certain size to ensure smaller ones are allowed to grow and hence support conservation. However, trade-offs are obvious and need to be compensated. The translation of scientific research from academicians to policy makers is crucial.
- Regarding land sharing and sparing, a thematic position common across all our past projects, has looked for land intensification. This wider project, which is beyond the ESPA programme, aims to synthesize the issue of land intensification. One of the ideas behind land intensification is that intensifying one area for private production will spare other areas for conservation. However, there does not seem to be any evidence to suggest that intensification in one area has actually spared other areas for biodiversity. The ESPA synthesis has found that food productivity was going up in intensified areas at the cost of ecosystem services in those areas. So land sparing is not an easy option and it is not providing solutions. Land sharing and sparing should be looked at in a context specific manner taking a landscape approach. This is where we need governance arrangements again, which are cross-cutting and involve all sectors and disciplines. Different levels of government should look at multi-functional landscapes that produce benefits to different parts of the society.
- Regarding ecosystem services and poverty alleviation, the first thing is to remind ourselves that everybody is dependent on ecosystem services. It is just a question of how directly we are dependent and often it is too easy to just say that these services help the poor. With or without research, it is certain that ecosystem services can help people, regardless of poverty. However, this depends entirely on governance arrangements and on whether we talk about access and how ecosystem services can be used to reduce poverty. The function of safety nets is important as these are needed each year, either seasonally or when there are floods or droughts or other intermittent events. We need environmental interventions to evaluate how people use the environment today and how they try to compensate for potential opportunity cost. example, if protected areas were a safety net for the people we have accounted for, then compensation could be done by providing them with alternative livelihood options. More importantly, we should enable and use the environment to move people out from poverty.

Naya Sharma

- There are almost 20,000 community forest user groups (CFUGs) managing an average of 85 ha of forests. To implement varieties of activities that better link ecosystems with poverty alleviation, the cheapest way was to link locally organized institutions to conserve resources locally with technological interventions. In terms of cost, an activity started at the state or international agency level will be expensive, but if the same activity are carried out by local institutions will cost much less. Thus, it is crucial to provide management responsibility to local groups and institutions.
- We have to identify who the right actors are and what the good approaches for conservation and protection are. A better way is to ascribe a value to the resources and acknowledge the local people or institutions who are conserving these resources. There might be the issues on access, conflicts, and degradation, but the right approach is important if we are to protect resources by handing over responsibilities to local communities.
- Much focus regarding ecosystem services for the poor is on questions like from where the services come, who get the benefits related to shared ecology, and economic benefits for the poor. There is a big challenge that we often forget to address. For example, it is evident that anthropogenic interventions have contributed to climate change; the highest levels of emissions come from some of the richest nations. Likewise, when we talk about pollution, big industries and huge government investments in industries are polluting the environment. The resultant pollutants are mostly dumped into riverine and lake ecosystems or landfills against the consensus of communities, and again, the poor are the victims as they are most dependent on these ecosystems and often have little choice but to continue to be dependent on them even after they become polluted. It is important to ask whether the costs that the poor and ordinary people are paying for such development are worth the gain? The poor are linearly affected by such interventions, moreover have ecological degradation. Wellbeing is a function of those realities; Dhaka, for example, has the largest number of Asthma patients per capita.

Session 2: Governance, Policy, and Institutions

Questions

- The existence of ecosystems is linked to their use by people. There are very few people living in Barshong. Does this mean the value of the area's ecosystem is very low?
- REDD+ has pictured a win-win situation. There is sharp trade-off between carbon and other provisioning services. REDD+ governance issues are central. How do people switch from PES mechanisms?
- The PES policy seems progressive. Ecosystem management is linked with decision making. Institutionally, how will ES be valued and feed back to Ministry of Finance (MoF)? What are the institution mechanisms between different institutions at higher levels? At the implementation stage, is there any mechanism?
- What kind of governance framework would you suggest for upstream downstream linkages? Who has the right to suggest these?

Panellist Responses

Pratikhsya Kandel

- The value of ecosystem services in Bhutan is quite high. More than 90% of the population is highly dependent on the ecosystem services for its livelihood and wellbeing. Close to 85% of the sources of income in Barshong come from provisioning services. The ecosystem is quite intact. People are using it to the maximum level.

Ugan Manadhar

- We are looking into designing a programme for whole REDD+, that incorporate many issues such as carbon and forest management. Particularly focused on handing over national forest to community, as community based forest management is increasingly being recognized as one of the best management forest practices available. Another idea regarding the use of fuel wood is to provide alternative solution. As long as the forests stand, there are economic incentives for forest management, Biogas, improved cook stoves programmes are alternative to fuel wood that we are trying to look into.
- WWF like to engage with MoF, since this is not the technical institute which deals with REDD + issues/ PES mechanism. So technical institutions, such as Ministry of Forest and Environment, or National Planning Commission, which works on the concept REDD and PES , deals with MoF. As the international transaction on REDD+ will happen and MoF has authority of sign that legal entity of international trading in Nepal.

Chetan Agrawal on behalf of Bhaskar Vira

- Palampur gets its water from springs located upstream where communities manage the forest. The locals want to preserve the forest for themselves. Hydrological assessment has identified that forests are very important for water supply in Palampur. To supply water downstream, negotiations between upstream and downstream settled on rotational logging. Any intervention at the local level made by the central level – such as hydropower development or irrigation – impact local people and supply of water. So local people's concerns and interests should be taken into consideration while making such decisions.

Session 3: Complexity and Social Change

Questions

- How did you decide on a sample in the server for value addition? What methods do you apply to value water management issue?

Panellist Responses

Craig Hutton

- Sample numbers depend on the availability of money and resources. What we have learned from the past is that if we have 300 plus households, sample size is enough. Method of production value approach is also recommended. We don't need to take whole population for research. A sub sample within population would be good to represent the population.

Session 4: Valuation of Ecosystem Services

Questions

- Is it true that people with money are willing to pay cash instead of contributing in kind?
- We are interested to know about equity and justice when you change a boundary of the justice system. You showed a figure with three different scenarios – with a person, community, and state. For example, in the Nepali context, the state is changing and both the political and geographical boundaries are also shifting. Likewise, the judiciary boundaries are shifting too and the municipalities are more independent now. How do you see this context in terms of positive or negative signs? Do you see that changing the boundary of justice will also change something on equity and wellbeing?
- When you talk about benefit transfer and the value of money for a similar kind of context, you do not need to do multiple valuations. Based on your findings of the monetary and non-monetary numerates, would it be possible to develop factors so that we can apply them to study the monetary approach?
- The question always asked is from whose perspective is a valuation of ecosystem services being done? If it is in favour of the environment, for example, water resources in the Himalaya, this is extremely important for the local communities and their livelihood. On the other hand, there is huge development of hydro-electric projects ongoing along the Himalayan region. We have transparency in governance and so called good governance in all the counties in the region but, the fact of the matter is that these development projects are taking place and they are impacting the communities, ecosystems, and their services. The negotiation power and the articulation of the primary stakeholders match in no way, except in places where people like us sit and talk about it. Whatever they may say in terms of civil society organizations, we have seen that these organizations are not really able to stand up to the power of those big projects. The other aspect is moving one step forward to what Amartya Sen's theory of entitlement suggests, by actually addressing the issues and conflicts inside the 'black box'. Although, we have been constantly striving to increase the entitlements of the communities, they have not really come to a place where they match in any way. Do you think valuation field work can actually result in some intervention.
- Is the judiciary aware of these ESPA related issues and interventions? And are they sufficiently capacitated to be able to take rational decisions?
- Bringing in the non-monetary aspects, how do you see these type of studies contributing to specific interventions – for example, the design of incentive based initiative like PES – in the region? The labour-cash study, is not as proof that people are willing to pay or be charged but it is proof that there is an economic value attached to certain interventions so that the government can then estimate what is the aggregated economic benefit in the area. This is until they include the cost for implementation and see these as a cost of approximation of economic return to the society of the is particular area in question rather than a way of charging the people directly. On the other hand, it may be the influence of a sign of the reciprocal agreements, more at the local level, that people are contributing labour. There is also the question of how much labour we are talking about. It would be interesting to move from detail study to policy actions.

Panellist Responses

Rajesh Rai

- In the Himalaya, people's incomes are normally measured by their landholding size, which means that those who have more land are willing to pay more in cash. Also, the livelihood opportunities of people further determines which payment mechanism is to be chosen, either cash or labour. For example, if a person is going to forests more frequently, then they choose to contribute in labour instead of cash. So the marginal value of money is of course different for different people. The case for labour contribution is similar. Society's preference to labour contribution depends on variables like age, income, education level and land holding size.
- Regarding benefit transfer, there is complexity; and as there are different socio economic scenarios even on a small spatial scale so it is very difficult to transfer benefits. For benefit transfer, we need a large number of studies which can capture the heterogeneity of society. Based on that, we can conduct benefit transfers.
- There is a fundamental discussion about valuation but if we first decide on why to value, this will give us many answers to what to value and whose value to consider. Why are we doing valuations is therefore a crucial question to answer because this valuation is not just about ascertaining a price. We can incorporate this information into decision making or policy making processes. When we do a valuation, we have to inform the stakeholders throughout the process, from designing the valuation to finalizing the results. If we involve the stakeholders from the very beginning, there will no problems, but if we only conduct academic research and present values, then there will be no ownership. The major thing about valuation study is the designing phase involving all stakeholders throughout the process; this makes the valuation more robust and also helps to address key issues.

Kate Schreckenberg

- The spatial boundaries of justice are always a global system, right down to the locals. We can contribute in different places as the problems persist at all levels. In the theory of decentralization, you take the decision down to the local level to people who are most directly using ecosystem services and dependent on the environment. But there are still differences, and when coming back to these issues, governance and representation are very important. Simultaneously, effective accountability upwards and downwards is also extremely important. But, we don't have a system yet to place to show how accountable the governance at different levels – from the lowest to different levels of federal systems to national and global systems – is to really take accountability of people's need, equity, and decisions about the environment.
- I very much agree with the statement – valuation for who and from whose perspective – given the elements of the justice triangle and the recognition that those who hold decision making positions decide what to value and what methods to use for valuation. Although civil societies are trying to come up with a valuation method for ecosystem services, it is hard to overcome vested interests and understand the conflict between national development interests and environmental issues. The local level use of ecosystem services is extreme, but we need to move forward in that direction and we have to keep pushing and keep coming back, perhaps to the core issues and figure out how we compensate or how we reward people for their stewardship and compensate for loss, which may be inevitable trade-offs.
- There are good laws and judiciary are aware of them. There are laws which state people should not be displaced and their consent should be taken prior to taking any actions. However, there is a capacity gap in some judiciary bodies, certainly in some countries. Often, local people are not aware of their rights in terms of the laws from which they can benefit. There is need for adequate awareness raising and trust building at both the judiciary and local levels.
- The question that we were discussing now is about wellbeing and justice versus more traditional valuation. I do not agree that these frameworks are traditional valuation, that they are conventional. Traditional valuation is basically where you go out and enjoy the landscape instead of ascribing monetary value to it. We should not confuse with traditional and conventional economic valuation methods. Rethinking different kinds of values relevant to policies and thinking at a landscape approach might be one way of looking at it. Rather than ecosystem services and individual services individually, we need think and value ecosystem as a whole. When one is aiming for total economic valuation, one is still missing things. We have to think about other ways of valuating, which can work for the whole ecosystem.

Zhonglin Tang

- The true reflection of ecosystem services is in terms of physical quantity of economic value. The foundation of the environmental conversation is a combination that reflects the quantity of the ecosystem services and its valuation, and has reliable data to formulate policies.

Session 5: Payments/Compensation for Ecosystem Services

- **Have you been able to consider some other issues downstream, like encroachment?**

PES has to go beyond the watershed level: Ecosystem services are not limited within the catchment. Are there robust mechanisms that can address such services outside the catchment?

- **When you deal with ES, are you dealing with private land management as well? If yes, how do you collect payment from downstream regions?**

We have found that no certain linkages. The service provider cannot maintain the quality of their service and the buyer is unaware of the quality of services they are buying. Changes in climatic patterns may also affect the quality of PES. How would you deal with PES uncertainty?

Panellist Responses

Bhaskar Karky

- PES is about modifying individual behaviour. We are now in a position where we can redefine PES. We should redefine PES in new contexts. Joint Forest Management will fit into PES. We are trying to build a new model of individual behaviour for the Ganga River basin where the traditional definition of PES will not be applicable. We are polishing the necessary skills and working on further development.

Keshav Khanal

- According to the new constitution of Nepal, local resource belongs to local bodies. Fewa Lake does not fall under the jurisdiction of one municipality. The Fewa Lake management board constitute of two municipalities. All concerned bodies are included.
- If there is a plan that contributes additional services, activities that help environmental protection should be included. Monitoring of performance should be strong.
- Social transfer is realized more quickly and has greater impact. In the environment sector, this is not that easy. We need to customize the narrow definition of PES to make it more comprehensive.

Inna Porras

- When I say beyond watershed, I mean something different. I am not sure about transboundary watersheds. We need to also look at other ecosystem services. We need to link ecosystem services to our business proposal and need to link between different ecosystem services.
- Creating an incentive to comply with the law, PES should be more competitive. In terms of outcome, we cannot be certain. In a way, we have to introduce good management practices. We need to build resilience.

Session 6: ESPA learning/ICIMOD learning- 'how to' achieve development impact through research in South Asia/HKH

- What are the uncertainties in the coastal region? How do you deal with data deficiency in the coastal region? How are model results connected with policy process?
- Is there any kind of synergy to modelling areas other than the Sundarban, such as including delta from India and Bangladesh as whole?
- Have you had the change to look at research partnership in the global south?
- Research does not give direct benefits. How you compensate local people for the time they invested while involved in research?

Panellist Responses

Craig Hutton

- You can validate each model. There are statistical ways to manage each model – prediction, high casting etc. There is no single way to reach a prediction; you need to run many scenarios through the system to see trends and probabilities. We also use primary data, census data, data CGS, GED, international data online, and discharge data. We conduct substantial household surveys – 1,500 households, three time a year. We did a combination of quantitative and qualitative data analysis. Stakeholders are involved from the beginning.
- Conflict over rights/common rights is a universal problem. There have been conflict over polders when the value of land rises. A model is set up to show what might happen. It is not about what should be done by policy makers. Based on the predictions made by models, policy makers should decide what should be done. We are developing substantial models on migration, gender, and climate change adaptation. This might help policy makers decide with what should be done.
- We worked with Indian partners but only in Bangladesh in one of the projects. We should be thinking about the whole delta –both from India and Bangladesh- as a system. We are publishing a paper on the management of the whole delta.

Mahesh Poudyal

- We had initially debated with our local partner. We had to convince them and we gave in kind compensation. ESPA tries to promote South-South collaboration. One of the strategies is to bring southern researchers together. We have tried to build the capacity of the enumerators and are conducting writeshops to publish in scientific journals.



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