

Knowledge Development and Brokering on Payment for Environmental Services

A Technical Report of the Scoping Work Conducted between August-December
2009

To

SNV Nepal

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Submitted by ForestAction Nepal



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Acronyms

ACOFUN	Association of Collaborative Forest Management Users, Nepal
BISEP-ST	Biodiversity Sector Programme – Siwalik and Terai
CFMGs	Community forest management groups
CIFOR	Center for International Forestry Research
CSWCRTI	Centre For Soil And Water Conservation Research And Training Institute
DDC	District Development Committee
DFCC	District forest Coordination Committee
ES	Ecosystem/ Environmental services
FA	ForestAction
FECOFUN	Federation of Community Forestry Users, Nepal
FONAFIFO	Costarican National Forest Trust Fund
ICIMOD	International Center for Integrated Mountain Development
ICRAF	International center for Research in Agroforestry
IUCN	World Conservation Union
LFP	Livelihood of Forestry Programme
MOU	Memorandum of Understanding
NGOs	Non governmental Organization
NRM	Natural resources management
PES	Payment for environmental services
RECOFTC	Regional Community Forestry Training Center
REDD	Reducing Emissions through Deforestation and Degradation
RUPES	Rewarding Upland Poor for Environmental Services
USD	United state Dollars

1. Background

In June 2008, SNV ForestAction Nepal started dialogues on the possibility of partnering in knowledge brokering on Payment for Environmental Services (PES) in Nepal. Accordingly, an agreement was reached between the two organisations with a broader objective to “explore and develop operation and management modalities for a PES in Terai, and provide preliminary policy inputs for anchoring PES as a development approach in state’s investment programmes in natural resource management”. The partnership activity was designed for the period between August-December 2008.

The three specific objectives agreed were:

1. Analyse the current knowledge in the field of PES and propose a framework for framing policy and programmes on incentive-based mechanisms between upstream-downstream communities
2. Establish generic selection criteria for piloting of PES in central Terai
3. Establish multi-stakeholder forum on PES at national and central Terai level

This report summarises the achievements made during the above period, lessons learned, and possible direction to be taken in the future.

2. Methodology and activities

The project involved close collaboration between ForestAction (FA) staff and SNV staff in a learning based process. Key activities undertaken include:

- Internet searching of PES documents encompassing journal articles, policy briefs, case studies, workshop proceedings, research reports
- Email and telephone communication with key informants in Nepal and outside
- Field visits in central Nepal including Makwanpur, Bara and Chitwan districts
- Organization of a regional workshop in Hetauda
- Regular sharing meeting between FA and SNV staff
- Review of policy documents
- Knowledge brokering in various multi-stakeholder forums in Kathmandu as well as Hetauda

3. Achievements

Achievements made in relation to the project outputs and outcomes are outlined below according to the three specific objectives.

Review of current knowledge on PES

The PES team at ForestAction reviewed all important forms of knowledge that exists globally on PES. The important source of the knowledge was internet, contacts and communication with key experts and scholars in the field, and participation in various PES related forums.

The main finding is that the idea and the approach of PES is evolving globally, notably in Latin America, China, India, Indonesia, and the Philippines. Several international as well as national agencies have spearheaded the processes, including donors, national forestry agencies and international research organizations (such as World Agroforestry Centre). Initiatives can be found in all of the four major types of environmental services – carbon sequestration, watershed, and ecotourism. In Nepal, Kelekhani is projected as a successful pilot PES site. There several other emerging initiatives in Nepal – such as financial rewards to communities in the buffer zone around national parks – which are not explicitly known as PES schemes and yet carry certain aspects of it.

Table 1. Summary Notes of PES review

Case	Status	Summary Description
1. China – Forest Ecological Compensation	Ongoing since 2004	- Provides support to managers of forests with special ecological interests, with stricter land management requirements. Compensation for foregone options.
2. China – Sloping Land Conservation Programme	On-going since 2002	- Farmers rewarded when they set aside erosion-prone areas of their farmland in critical areas of the watershed of Yagtze and Yello river (also known as Huanghe river) - USD 4.3m a year
3. Costa Rica – National PES programme	On-going since 1997	- Government-led national scheme that rewards forest owners for protection of water, carbon, biodiversity and landscape beauty - Funding derived from fuel tax (3.5% for PES programme), increasing participation of hydro-electric companies, newly approved water tax - Managed by National Forest Fund (FONAFIFO)
4. India – Sukhomajiri (Chandigarh)	ongoing since the 1970s	- Upstream villagers refrain from allowing their animals to graze on the watershed hills - Compensation includes access to other pasture areas, construction of rainwater dam that improved water supply in the village - Due to the sedimentation problem of the lake serving the downstream town of Chandigarh, the CSWCRTI constructed soil conservation structures that, apart from reducing siltation of the lake, also stored rainwater for irrigation for the upstream village (purchased with water rights and later user fees). Other in-kind compensation was organized to provide additional incentives for villagers to give up free grazing and tree felling in the hills.
5. India –		- Upland residents ceased grazing to protect a dam

Kuhan		<ul style="list-style-type: none"> - Payments in cash and in-kind - Buyers and sellers are villagers
6. Indonesia – Sumberjaya (Western Sumatra)		<ul style="list-style-type: none"> - Issue: coffee farming and threat to watershed - ICRAF research – coffee based agroforestry as watershed friendly practice - Two forms of rewards: conditional tenure (5 →25 years) – if 400 trees per hectare are planted along with coffee, RiverCare group around hydropower would receive incentives for reductions in sediment load (initially covered by RUPES)
7. Philippines - Bakun watershed		<ul style="list-style-type: none"> - Payment by hydro-electric company to upland indigenous communities - Company directly paying the communities (not through local government) - Payments from the hydroelectric companies to the upland people have helped in the development of Bakun through road construction, interest-free loans, health services, and more. Project. implementers worked to increase the capacity of the Bakun people to produce and market ES, and develop understanding of the environmental functioning that integrates indigenous and scientific knowledge.
8. Kulekhani		-
9. France – Vittel		<p>In order to address the risk of nitrate contamination caused by agricultural intensification in the aquifer, the world leader in the mineral water bottling business is financing farmers in the catchment to change their farming practices and technology.</p> <p>Water comes from a 6,000 ha aquifer 80m below ground and is lifted naturally to the surface through a natural geological fault. A ten year process of participatory research and negotiation</p>
10. Bakun - Philippines		Down stream hydro-power paying the upstream indigenous communities for watershed services.

Explorations of possible methodology for the operationalisation of PES in Nepal was primarily based on the review of global cases and interactions with local stakeholders. Table 2 lists specific lessons from the global cases.

Table 2. Lessons from Global PES cases

Lessons
1. PES can be effective for both environmental conservation and poverty reduction , but should not be considered as a panacea
2. Analysis of linkages between land-use practices and the production of environmental services (such as hydrology, carbon) is important for agreement but difficult to ascertain
3. Organise PES project in phases or sub-programmes , move from simple to complex
4. PES is not just about transferring money. Combine market with state regulations and civil society facilitation to develop a system of institution, resource management and economic flows.
5. Subsidize start up costs for PES; there is often no market to facilitate this
6. If well designed, PES negotiation can augment the voice of the poor

7. Conduct continuous monitoring of effects with a baseline of success indicators
8. Create stronger negotiation position of local community , especially when the buyers are big companies or public institutions
9. Facilitator input is crucial, including in negotiation and development of local champions
10. PES mechanism indeed increases the user-base of watershed (even in upstream areas), and high moral value of local payment than donor or government funding. Exchange visits and field trips are useful in developing understanding between upstream and downstream groups
11. To be successful, PES requires both decentralization and local empowerment
12. For full fledged PES programme, build capacity at the national level , with a focus on monitoring and enforcement
13. Create endowment fund to ensure payment beyond the first time establishment of plantation.
14. Watershed PES work best when there is perceived scarcity of clean water, and water users have the capacity to pay (e.g urban citizens, companies)
15. Bundled PES approaches are particularly relevant for the landscape level
16. Functional institutions of buyers and sellers are important part of PES
17. Link PES with regulation, public investment, zoning, tenure, community ownership, and participation

Strategy for operationalisation of PES in central Terai/Nepal

The global lessons support that it is important to follow a careful and step-by-step approach to mainstreaming PES schemes in natural resource management. These can be conceptualised as:

- a) Scoping
- b) Piloting
- c) Policy mainstreaming
- d) Wider upscaling
- e) Monitoring, learning and on-going revision

The current ForestAction-SNV initiative is a scoping exercise that entails reviewing global lessons and exploring the perceptions and expectations of local stakeholders.

Piloting is the essential key step for influencing policy. It can potentially allow stakeholders to test their own working assumptions and institutional and technical methodologies, and provides a platform for

stakeholders to work together in an experimental mode, in a small scale but still sufficient to generate knowledge and insights for policy influence.

While doing scoping exercise, undertaking field visits through inner and outer Terai in central Nepal, the PES team realised that it is not a right time to talk about upstream-downstream linkages in the outer Terai region. Political issues are not yet settled, and so are the issues around the governance of forestry. Our review of lessons from outside showed that, as with any other pilot activity, the initial sites should be relatively less complex, with no fundamental political conflict. Our conclusion was also supported by other related attempts¹.

While such conflict situation is itself captured as one of the criteria, several others have been identified as being relevant while selecting a pilot site for the PES. The criteria which we have developed through global review and local experience are listed below:

- 1. Buyer attributes**
 - a. Overall economic potential of downstream to pay for environmental services
 - b. Corporate environmental awareness
- 2. Supplier attributes**
 - a. Poverty situation and potential for shift to alternative land management regimes
 - b. Presence of disadvantaged groups in the upstream communities
- 3. Enabling sub-national and sectoral policies**
 - a. Land tenure of upstream land users relatively secure to claim and access payments or incentives
 - b. Policies of DDCs and VDCs and prior experience in NRM
 - c. Potential for policy linkages and dissemination
- 4. Environmental considerations**
 - a. Perception of environmental crisis or some visible problems such as concerns for drinking water quality or sedimentation in irrigation canal
 - b. Nature and quality of available scientific evidence in relation to the problem
 - c. Corporate environmental awareness
- 5. Status of collective action and social capital**
 - a. Functioning institutions of local land managers upstream
 - b. Functioning institutions of buyers of environmental services
 - c. Size of watershed and the potential of creating visible outcomes on ecological systems and income streams of providers
 - d. Transaction costs of interaction and negotiation
- 6. Local government and local politics**
 - a. Awareness on prior experience of local political leaders on the issue
- 7. Possible intermediaries**
 - a. Availability of empowerment services
 - b. Availability of enterprise services
 - c. Availability of watershed analysis and verification services
- 8. Market structure**

- a. Potential for bundling various environmental services from the same land manager to create added incentives
- b. Price structure and trends for the key substitutes of feulwood, fodder and timber

9. Cultural and political tensions between upstream and downstream communities

Based on these criteria, we have identified the following five potential PES sites for piloting. These sites vary in terms of geographic scale (from small to medium size), environmental services with a potential to bought (such as flood control, ground water, run off water etc), as well as several other selection criteria. A summary charateristicis of these potential sites are given below.

Tentative sites for piloting

Site	Downstream characteristics	Upstream characteristics	Opportunity for PES/ES/IBM
<p>1. Lothar Khola sub-watershed</p>	<ul style="list-style-type: none"> • 19km+9km dam protecting eastern Chitwan (including Sauraha tourist town) • (many settlements below the river bed) • Negative effects on National Park – rhino, crocodiles etc • Buffer zone – area limitations to upstream conservation • Roads and bridges in danger – bridge only 2 m high • Dozens of small irrigation canals affected • Approx 1 crore/km of dam (excluding bridge and buffer zone compensation) • Several events of flood damages and human casualties over the past 40 years • People and leaders appreciate the need for upstream conservation and integrated river basin management 	<ul style="list-style-type: none"> • Poor communities, Khoriya still continues, stone mining in the river bed • Stone quarrying in the river bed • Fragile hills 	<ul style="list-style-type: none"> • Sensitize downstream users/losers on the importance of upstream conservation and rewards • Analyze land use upstream and explore anthropogenic floods • Analyze the economic costs of flood and derive the potential to conserve upstream
<p>2. CFUG network around Hetauda municipality</p>	<ul style="list-style-type: none"> • Carbon trade, watershed users (Municipality), value of landscape beauty • Several small drinking water schemes 	<ul style="list-style-type: none"> • Well-organised CFUGs with visible improvement in forest 	<ul style="list-style-type: none"> • Carbon monitoring • Analysing forest management practices and the production of various

		condition	environmental services <ul style="list-style-type: none"> • Linking voluntary carbon markets • Getting municipality, industries and DDC to pay for environmental services
3. Pithuwa-Jutpani drinking water project	<ul style="list-style-type: none"> • High water pollution (only 60% users use for human use) • Large project (second in the country?) • Water user committee appreciates the need to support sanitation activities upstream • 	<ul style="list-style-type: none"> • People perceive that big projects are launched for the people downstream, with little benefits upstream 	<ul style="list-style-type: none"> • Rewarding the upstream communities to contain household wastes • Linking upstream and downstream groups for negotiation
4. Kelekhani	<ul style="list-style-type: none"> • Kulekhani pays about 3.5 crore annually to DDC Makawanpur • Winrock study and data 	<ul style="list-style-type: none"> • 14 CFUGs organised into network • After one slot payment of Rs 40 lakh, DDC has not made another payment 	<ul style="list-style-type: none"> • To facilitate negotiation • Long term monitoring of social and ecological aspects • Use the site to sensitize policy makers on the idea and scope of PES
5. Ground water regime around Simra	<ul style="list-style-type: none"> • Industrial state, high ground water usage • People in the south have a sense of shortage of ground water (Kalayia) • Industry managers willing to support upstream ground water recharge activities (if policy and methodology is there) 	<ul style="list-style-type: none"> • Forest degradation, forest management not linked to recharging ground water • Formation of CFUGs and FECOFUN 	<ul style="list-style-type: none"> • Ground water regulation • Forest management innovations for ground water recharge

4. Operational methodology for Piloting PES

Once sites are selected based on the above criteria, following steps may be taken to initiate PES piloting process:

1. **Selection of pilot site** through scoping exercise (such as the one mentioned above)
2. **Selection of entry point environmental service:** the selected pilot sites have the potential to market multiple environmental services, but it is useful and practicable to select on entry point environmental service at the beginning. Depending on the strategic interests of the piloting organization, a mix of watershed, carbon and biodiversity services may be bundled at the project level (covering different sites). In the context of carbon, the scale should be sufficient to attract potential buyers.
3. **Undertake rapid analysis of various aspects of socio-ecological systems linked to the selected environmental service (s)** – such as value chain analysis, resource status analysis, stakeholder analysis, and hydrological analysis (in the case of watershed related service)
4. **Facilitate dialogue among and capacity building** of upstream communities, intermediaries, local government and other related government agencies – such as upstream-downstream interaction workshop, training to local facilitators and intermediaries
5. **Create policy linkages** through sharing in the sub-national and national forums in an-ongoing basis
6. **Facilitating negotiation and/or marketing strategies for selected PES**, including specific payment mechanisms

The diagramme below presents a schematic overview of the piloting process, and the tables provide lists of possible activities that can be undertaken as part of the PES process.

Figure 1. Schematic overview of PES piloting methodology

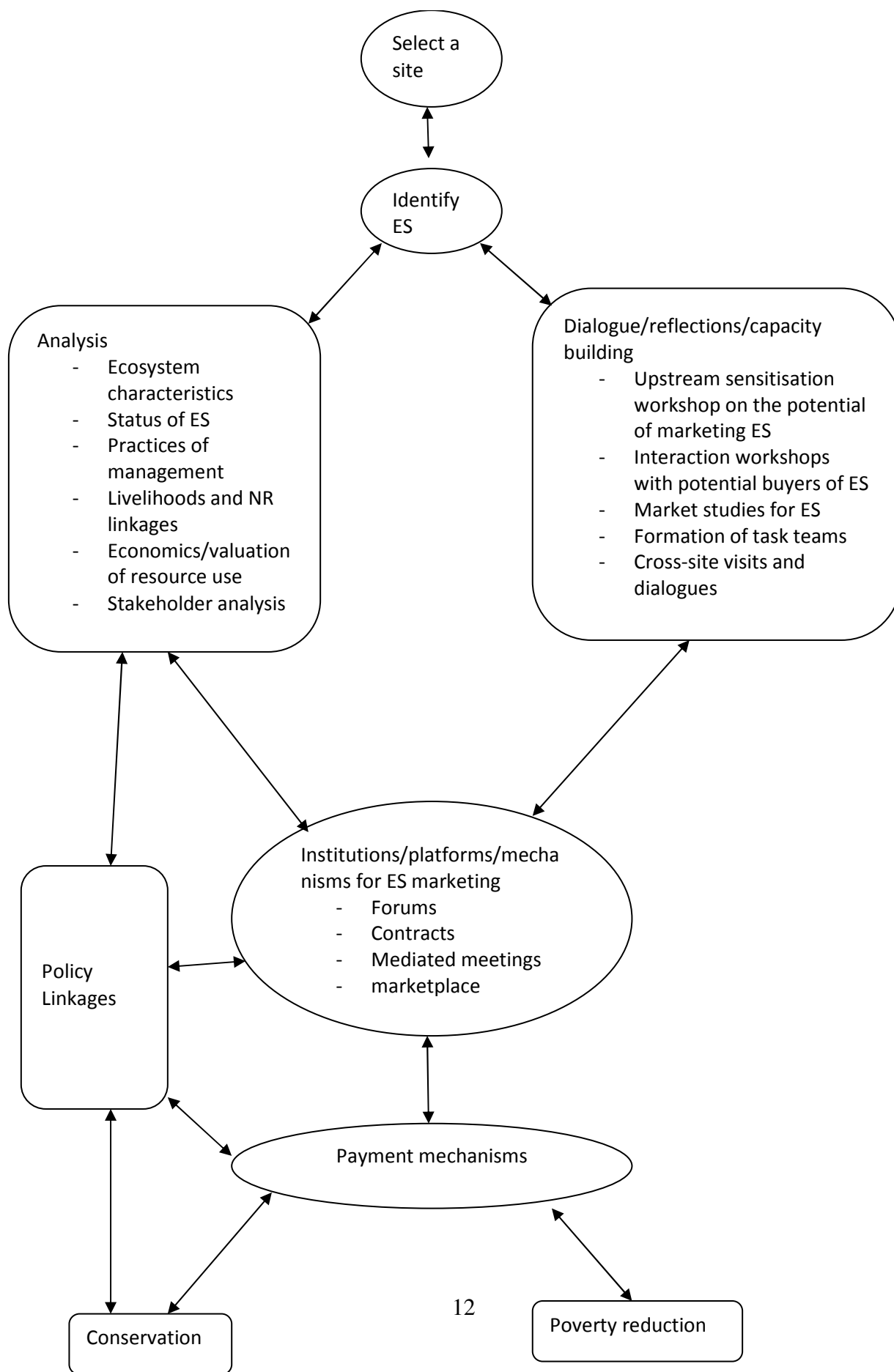


Table 3. Possible activities under Analysis and Dialogue/Capacity Building in the context of carbon/REDD environmental service

<p>Analyses should be focussed on the issues such as:</p> <ul style="list-style-type: none"> - Ecosystem characteristics and the potential of the production of ES (forest types, growing stock and carbon sequestration) - Practices of forest management in CF and effects on carbon sequestration - Carbon value chain analysis, including valuation of carbon in the local towns or industrial area) - Analysis of carbon markets trends and opportunities (voluntary, REDD) - CFUG-stakeholder linkages and possibility of carbon marketing services delivery - Participatory carbon monitoring methodologies development 	<p>Dialogues/capacity building could involve activities such as:</p> <ul style="list-style-type: none"> - Holding awareness raising and sensitisation workshops for CFUGs/CFMGs to raise awareness and mobilise the group - Creating a task team within CFUGs/CFMGs - Training on participatory carbon monitoring - Workshops among community, local government and central government officials workshops to clarify/identify regulatory issues - National level stakeholder workshop to create broader ownership on process - Development of subsidized REDD mechanisms involving local municipalities and industrialists
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Table 4. Possible activities under Analysis and Dialogue/Capacity Building in the context of watershed services

<p>Analyses should be strategic and focussed on the issues such as:</p> <ul style="list-style-type: none"> - Ecosystem characteristics and the potential of the production of ES (forest types, stocking levels, and water yield/erosion potential) - Micro watershed delineation and mapping of drinking water sources, irrigation water sources etc - Mapping erosion prone areas in the upstream - Analysis and documentation of current land use practices and its links with water yield - Practices of forest management and their possible effects on water yield - Current water pollution level (in case of drinking water service) and costs of treating water to make drinkable (carbon leakage – use of gas in boiling water?) - Analysis of rainfall data (trends and patterns) - Demand for and valuation of water as ecosystem service in the upstream (such 	<p>Facilitating dialogues could involve activities such as:</p> <ul style="list-style-type: none"> - Holding awareness raising and sensitisation meetings of stakeholders in the watershed - Creating a multi-stakeholder task team representing facilitating stakeholders (local and central government) - Joint site visits and dialogue with upstream land managers - Creation of a technical team to monitor and verify linkages between land management practice and watershed services - Development of common institutions in the upstream land managers - Development and signing of contract for watershed services provisioning and purchase - inter-party dialogues of members residing upstream and downstream, and multi-party dialogues and site visits
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<p>as equivalent to the land irrigated and crops raised?) areas</p> <ul style="list-style-type: none"> - Stakeholder analysis in the upstream – CFUG, subsistence farmers, commercial farmers, business groups etc and their land management practices in relation to water quality and quantity 	
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5. Knowledge brokering and multi-stakeholder forums

Several knowledge brokering and multi-stakeholder engagement processes were undertaken under this project:

- Sharing of lessons and insights as well as the methodologies at a recently held regional PES consultation workshop by ICIMOD at Dhulikhel. A joint presentation was made by SNV and ForestAction Nepal as well as BISEP-ST (Dr Rajan Kotru, Dr Hemant R Ojha, Laxmi Bhatta and Keshav Khanal) (December 10-12, 2008)
- Upon invitation, Dr Hemant R Ojha shared the lessons from global PES review with staff of CARE Nepa (September 2008).
- Sharing of PES concept with a FECOFUN organised mass meeting in Hetauda (September 2008)
- Formation of joint PES action plan between ForestAction, SNV Nepal and Livelihoods and Forestry Programme (now MOU is being negotiated)
- Sharing with BISEP-ST programme management – in an ongoing basis
- Sharing/interactions with DFCCs of Chitwan and Makawanpur

6. Capacity development for the operationalization of PES

The project has enhanced the capacity of both ForestAction and SNV through the review and sharing of global lessons and joint field works and reflections. It has enhanced the capacity of ForestAction in PES analysis, process facilitation and knowledge brokering. This has also enabled ForestAction to have greater interface with FECOFUN, ACOFUN, Ministry of Forest and Soil Conservation and several international agencies, such as RECOFTC, IUCN, LFP, CIFOR and ICIMOD.

Local stakeholders have also been sensitised on the prospects and potential of PES. They seem to be receptive and ready to learn and go further with PES.

7. Lessons and way forward

The project has generated a) several field level insights into when, how and to what extent PES based NRM is feasible in central Nepal, b) identified possible methodologies and approaches for piloting, c) developed specific criteria for selecting PES sites. By linking global lessons with local realities as well as perceptions and expectations of the diverse stakeholders, we have arrived at a number of lessons for the future PS initiatives. These are briefly outlined below.

Key insights from the field

- People downstream strongly agree that they need to support upstream conservation activities. Business groups in Sauraha are also willing to contribute to upstream development and conservation, provided there is credible government machinery to implement the plan. Local leaders appreciate the idea of integrated river basin management to address the problems downstream. A member of the Constituent Assembly, Lilamani Chaudhari, is also of the opinion that upstream conservation is a must for downstream protection against flood.
- Stakeholders have already realised that they need to go beyond the boundaries of existing institutions, and talk to each other for collaborative actions. For instance, joint committee has been formed representing local government and line agencies of Chitwan and Makawanpur DDC to address flood.
- Local government agencies, such as DFCC of both Chitwan and Makawanpur, are willing to test the PES approach. Officials of Department of Soil Conservation are also willing to follow the river basin approach (there is already a new policy under discussion).
- A huge amount of money is being spent on downstream; there is a real possibility to divert some of this amount for long term solution of flood in the upstream areas, if appropriate intermediaries facilitate dialogues.
- Institutions and actors, who are currently divided into different institutional segments (VDC, municipality, districts, buffer zones etc) can be brought together so that they can see how they are losing when they act without institutional coordination, and what opportunities exist to work collectively in the watershed basis.

Global insights

- A wide array of PES schemes exist, not necessarily fitted into the single theory. Nepal should develop its own approach drawing insights from the global lessons and working through local stakeholders in a participatory multi-stakeholder process at the site level.
- PES is not a phenomenon of the western developed countries alone; there are equal possibilities of this approach in developing countries. If carefully facilitated, PES or incentives based mechanisms have to potential to contribute to poverty reduction.
- In terms of process, PES intervention should start from simple and then move to complex levels. It is important for facilitators to demonstrate that this works on the ground before a concrete policy proposal is developed.

Way forward

Since PES concept is new in Nepal, with limited experience in the field, it is important to focus on generating field based lessons through piloting. ForestAction and SNV Nepal have together created a critical base of knowledge through which field based piloting can be initiated. There is an increasing level of interests among national and international institutions to experiment PES in Nepal. These organizations together may create around 10 pilot sites. These pilot sites should be in different ecosystems specificities – in terms of eco-region as well as ecosystems types. Since carbon and other environmental services vary in terms of market locations and complexity of marketing, different piloting methodologies are required for carbon and non-carbon services. The policy makers may also like to treat carbon and other environmental services through different policy agenda. There is indeed a need for more analysis and experience regarding whether a single policy instrument can be designed for all ecosystems services or each service should be integrated into different sectoral policy instruments. In any case, there is a strong argument to support generic PES approaches and methods.

A strong policy link can be established through the knowledge brokering activities with national stakeholders and organizing annual sharing workshops at national levels. Field based actions should also be linked to district or sub-national deliberative processes and networks of stakeholders – such as local governments, government line agencies, NGOs and local political leaders. Site-level piloting should be undertaken with full ownership of the district or sub-national stakeholders. There is also a need for some conceptual works especially with regard to designing institutional structures at the landscape level

to organize the marketing of environmental services. By synthesizing piloting experience, a set of analytical and facilitative tools should be developed for wider use.

8. Annexure

1. Draft PES Discussion Note (English)
2. Hetauda workshop report (Nepali)
3. PES booklet (Nepali)
4. Hetauda workshop CD

ⁱ Such as CARE Nepal trying to initiative PES schemes in a sub-watershed in Dhanusha district also had the similar lesson (Personal Communication, Popular Gentle, CARE Nepal, September 2008).