Socio-economic Opportunities from Upland Catchment Environmental Services: A Negotiation Support System

FINAL TECHNICAL REPORT

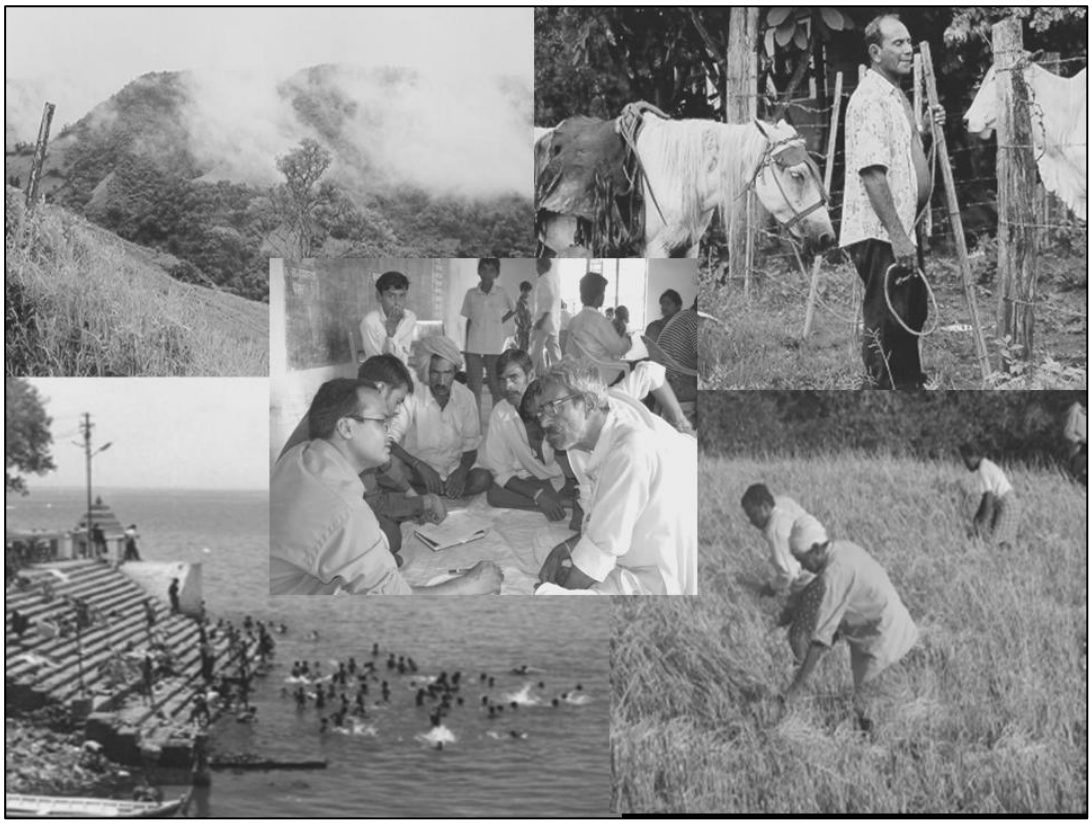
Forestry Research Programme (FRP)

Renewable Natural Resource Knowledge Strategy (RNRKS)

UK Department for International Development (DFID)

(ZF0184/R8174)

January, 2006



UNIVERSITY OF NEWCASTLE UPON TYNE
CLUWRR Centre for Land Use and Water Resources Research
WINROCK INTERNATIONAL INDIA
CINPE
DFID Department for International Development
iied
FRP FORESTRY RESEARCH PROGRAMME

Executive summary

Ensuring adequate water of sufficient quality to society and nature is a pressing global challenge. Improved upper catchment management can play a key role in protecting and maintaining water flows for domestic use, agriculture, energy, industry and nature. However, attempts to improve upper catchment land management through regulatory approaches have been largely ineffective. This has led to interest in payments for environmental services as an alternative management mechanism. In effect, it is a negotiation process by which upstream land owners agree an opportunity cost of modifying land use behaviour that is paid for by downstream users' associated benefits or cost avoidance. This has generated development policy interest as small-scale poor farmers may benefit directly from payments for improved land management practices and the landless poor and urban poor may benefit indirectly by protection of natural resources with drinking water supply, food or fuel benefits. How new agreements can be effectively negotiated to meet the interests and priorities of stakeholder user groups remains a significant policy challenge but if overcome may hold multiple social and environmental benefits.

The purpose of this project was to explore the socio-economic opportunities of payments for environmental services in upper water catchments to apply new knowledge to land use and forest decision making for the benefit of small-scale farmers. Two project outputs were specified; a) increased understanding of the socio-economic impacts and market opportunities associated with land use and hydrological change, and, b) developing a generic negotiation support system tool. The first phase of the project was located in Costa Rica and was linked with a hydrological project investigating water flow impacts from forest or pasture land use change in a tropical montane cloud forest area (FRP R7991). The inputs of the hydrological analysis informed the off-site economic analysis to be compared with on-site compensation scenario analysis to estimate land use payment scenarios. Detailed qualitative and quantitative social studies were also conducted. Based on these findings, an extension phase developed and tested a negotiation support tool applying negotiation methodologies in a different social and environmental landscape in India.

Project outputs contribute to DFID's developmental goals by an improved understanding of the role of payments for environmental services as a poverty reduction strategy and increased policy awareness of methods and approaches that allow more objective decision-making in evaluating land use change opportunities for small-scale upland farmers. Policy action to achieve wider developmental benefits is identified.

Acknowledgements
The project team would like to thank the local people and officials in the study areas for their generous time in collecting the primary data and sharing their valuable views and insights, and for the interest and continuing support of policy makers in Costa Rica and India. The inter-exchange of ideas, information and perspectives with the sister 'Fiesta' biophysical project in Costa Rica (R7991) improved the understanding of land use and water resource impacts for the social 'Siesta' team (R8174); thanks are given to Sampurno Bruijnzeel, Jaap Schallekens, Arnoud Frumau, Conrado Tobon and Mark Mulligan.

This report is an output for a research project supported by the United Kingdom Department for International Development (DFID) for the benefit of Developing Counties. The views here are not necessarily those of DFID (FRP R8174).

Project dates: August, 2002 – January, 2006

Project team

Lead institute
Centre for Land Use and Water Resources Research (CLUWRR),
University of Newcastle-upon-Tyne, UK.
Principal Investigator: Ian Calder (i.r.calder@ncl.ac.uk)
Rob Hope (robert.hope@ncl.ac.uk)
Jaime Amezaga (j.m.amezaga@ncl.ac.uk)

Collaborating institutes
Environmental Economics Programme (EEP),
International Institute for Environment and Development (IIED), UK.
Ina Porras (ina.porras@iied.org)

Centro Internacional de Politica Economica (CINPE),
Universidad Nacional de Costa Rica.
Miriam Miranda (mmiranda@una.ac.cr)

Instituto Tecnologico de Costa Rica
Julio Calvo (julio.calvo@itcr.ac.cr)

Winrock International India,
Chetan Agarwal (chetan@winrockindia.org)
Mamta Borgoyary (mamta@winrockindia.org)

For further information and project documentation:

Write to: CLUWRR, Devonshire Building, University of Newcastle-upon-Tyne, NE1 7RU, UK

Visit: www.cluwrr.ncl.ac.uk;

Call: 00 44 191 246 4884;

Email: cluwrr@ncl.ac.uk

Front cover photos: Rob Hope and Ina Porras

CONTENTS

Executive summary 2

Project team 3

1. Background 5

2. Project purpose 6

3. Research activities 6

3.1 Costa Rica 6
3.1.1 Narratives 6

3.1.2 Livelihoods 8

3.1.3 Economics 9

3.1.4 Negotiation 9

3.2 India 9
3.2.1 Negotiation Support System 9

3.2.2 Choice Experiment 10

4. Outputs 10

5. Contribution of outputs 11

5.1 Contribution to DFID's developmental goals 11
5.2 Promotion pathways to target institutions and beneficiaries 12
5.3 Follow-up research to achieve developmental benefit 13
5.4 Further studies 14
5.5 Availability of project outputs to intended users 14
5.6 How, and by whom, will further project stages be developed and paid for? 15

Appendix 16

Project bibliography 16

1. Background

Attempts to reduce land, water and biodiversity degradation in the tropics are considered to have been largely ineffective. This is a problem as the failure of regulatory and public investment approaches to maintain ecosystems is associated with increasing deforestation, deteriorating water quality and reduced water flows. Environmental deterioration has social costs, particularly on poor people who rely on natural resources for drinking water supply, food, fuel and income. In regions facing water scarcity, such as Asia and sub-Saharan Africa, these environmental problems are being translated into conflicts with uncertain social, economic and political costs.

An approach that attempts to reconcile such resource problems is payments for environmental services. It is essentially a 'quid pro quo' arrangement in which upstream environmental service providers are compensated to maintain a socially optimum level of services demanded by downstream users[1]. It can be conceived of as a negotiation process by which upstream groups agree an opportunity cost of modifying land use behaviour (e.g. conversion of natural forests, over-grazing or pesticide use) that may be paid for by downstream users' associated benefits or cost avoidance (e.g. de-silting reservoirs or treating polluted water). Such agreements are negotiated on the perceived value of changing or maintaining upstream land practices which affect the production or consumption of downstream service users. Interest in these arrangements has increased since Costa Rica introduced the first Payments for Environmental Services programme in 1996. Since then major exploratory research programmes have been funded by the World Bank, Food and Agricultural Organisation, International Fund for Agricultural Development and several bilateral development funding agencies to further test and understand the potential and pitfalls of such locally-financed payment mechanisms.

Policy interest in payment mechanisms is understandable given that the approach suggests tapping new and local sources of finance to protect the environment and to help the poor. However, a global review of existing payment schemes was cautious, particularly in terms of helping the poor, based on evidence up to 2002. This project attempts to take that review forward based on new knowledge from an integrated hydrological, economic and social research project in Costa Rica[2]. Land use and water resource impacts of cloud forest conversion to pasture in the study location are conducted in a sister FRP project (R7991) led by the Free University of Amsterdam with the collaboration of Kings College London and the Costa Rica Institute for Technology. The inter-project exchange of information, ideas and disciplinary perspectives allowed a more integrated and evidenced-based analysis of the opportunities and limitations of payments for environmental services in terms of water flow

[1] Environmental services are generally classified as but not limited to: a) Landscape beauty, b) Biodiversity, c) Carbon sequestration, and d) Watershed Services.
[2] This, in turn, builds on an earlier environmental economics project in the 1990s led by IIED (CREED) and establishes a continuous research link with the project site through the experiences of Ina Porras.

services. Approaches, understandings and methods developed in Costa Rica are then tested in a different environmental and social context in India to develop and refine a more generic negotiation support tool to contribute to a more objective and generic negotiation support framework to evaluate socio-economic opportunities of negotiating watershed services.

2. Project purpose

Knowledge relating to land-use and forest decision making promoted for the benefit of small-scale farmers within the Forest/ Agriculture Interface. The project will contribute directly to Forestry Research Programme output objectives as a strategy developed and promoted to maximize the benefit of small-scale farmers and landless families and the urban and peri-urban poor accruing from current global issues and generic tools. Livelihoods of poor people will be benefited by improved methodologies for whole catchment management leading to greater access to water by poor people.

The specific research objectives of this project are to establish a better understanding of social responses and impacts from land use change from different land and water management scenarios in differing ecological zones in Costa Rica and India, and to develop a generic negotiation support system which promotes an improved understanding between beneficiaries and policy makers. The negotiation support system will be applicable to developing countries facing increasing water resource constraints and competition in Africa, Asia and Latin America.

3. Research activities

This section is structured by country-specific research activities undertaken in Costa Rica and India. Figure 1 illustrates how the research activities are linked in a flow diagram.

3.1 Costa Rica

Socio-economic research conducted in the Arenal area of the Northern Tilaran range of northern Costa Rica incorporated complementary qualitative and quantitative research methods (Figure 2). Four headings characterize the research activities: narratives, livelihoods, economics and negotiation.

3.1.1 Narratives

A Narratives, Perceptions and Beliefs study was conducted following a baseline analysis of the study area (Miranda et al., 2005). The narratives report has three components:

- A detailed review of the different stakeholders and economic activities in the study area;
- A narrative analysis, which collects information from local stakeholders, especially from the remaining pioneer settlers in the area and their descendants, and investigates the

historical settlement pattern of land use changes and its relation to water resources. It also provides information about future trends of land use changes in the study area.

- An analysis of the local perceptions and beliefs between land use and water. Information from this study contributes to the design of land use scenarios in the later economic analysis (Porras and Miranda, 2005).

Figure 1. Research activity flow diagram

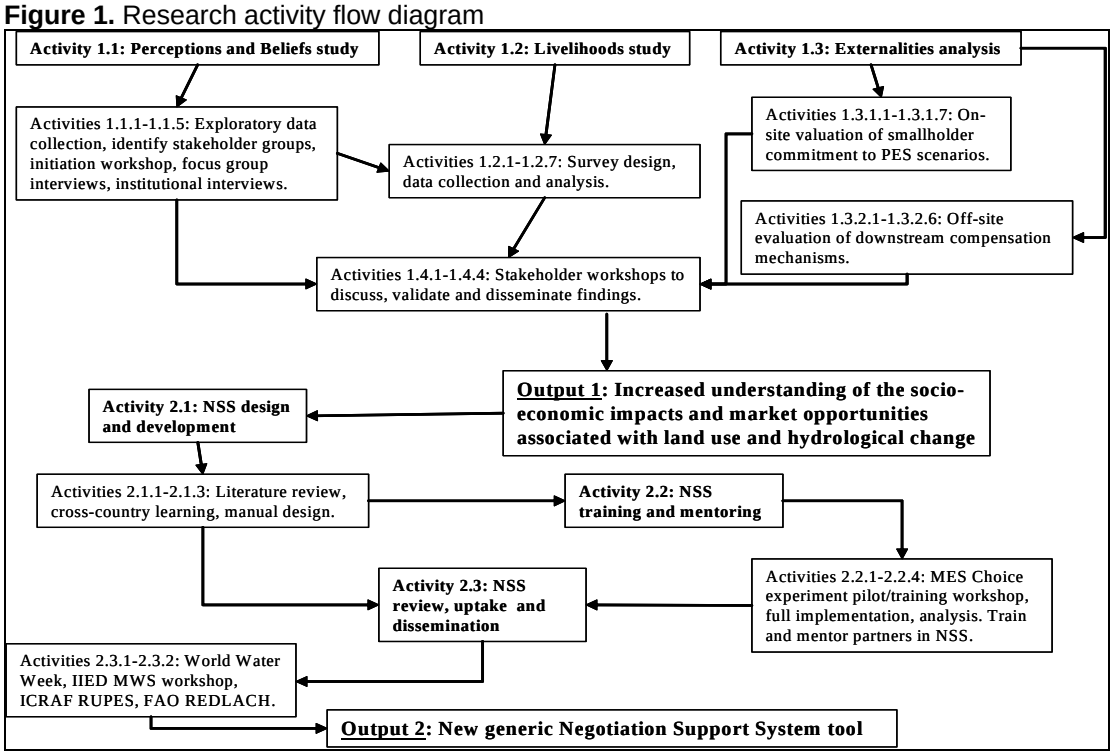


Figure 2. Location of Arenal study site, Costa Rica

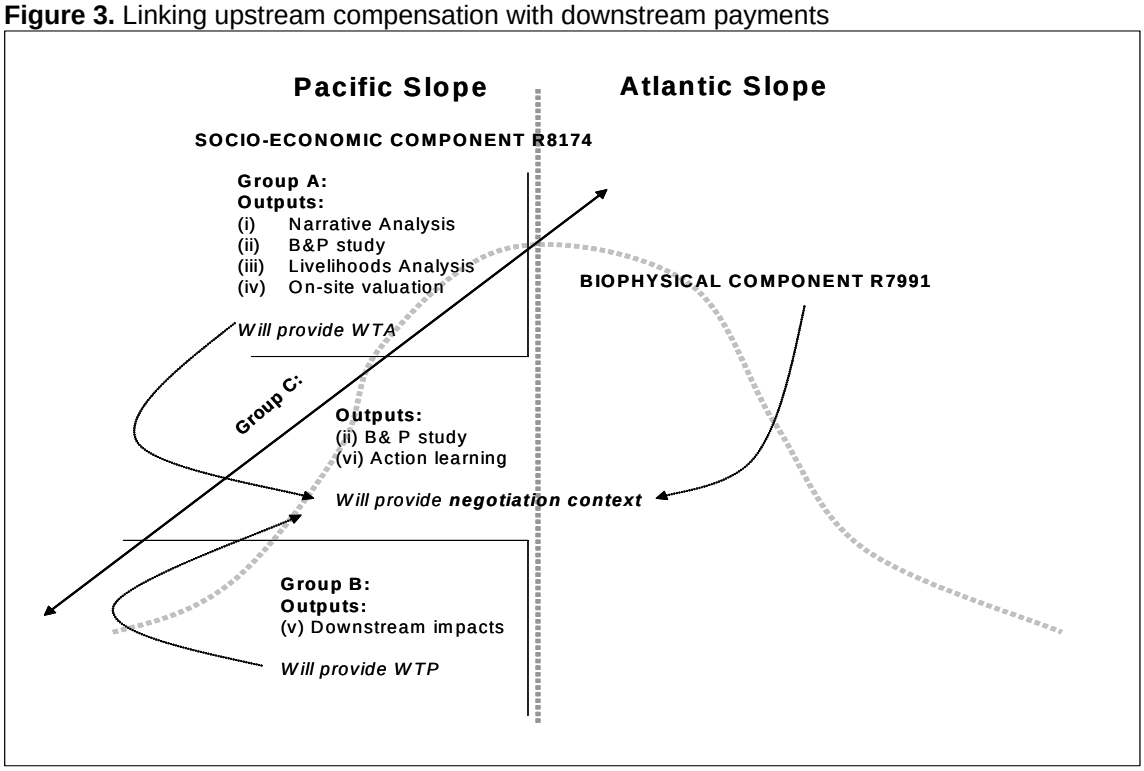
3.1.2 Livelihoods

Informed by Section 3.1.1, a quantitative livelihoods household questionnaire was designed and implemented in 2003 (Hope et al., 2005). The study attempted to answer three inter-related questions:

- Who are the rural poor, and will payments for environmental services release their primary development constraints?
- What have been the drivers of land use change in tropical forested areas and will MES reduce forest land conversion with pro-poor impacts?
- Should government and donors allocate funds to MES with the aim of rural poverty reduction?

In addition, the livelihoods questionnaire included a stated choice experiment which evaluated upstream land owners willingness to accept different compensation levels for different forest land use management scenarios (Porras and Hope, 2005). The experiment provides on-site estimates of land owners' willingness to accept alternative compensation scenarios to be compared with the off-site economics' analysis which estimates downstream willingness-to-pay for implied increased water flows from forested land use (Figure 3, see Section 3.1.3).

Figure 3. Linking upstream compensation with downstream payments



3.1.3 Economics

Complementing both the social research and the sister hydrological project (R7991), an economic study attempted to estimate the quantity of the water services provided in the study area (Porras, 2005). The report discusses:

- The process by which ecosystem services are measured as a first step to understanding impacts on economic production;
- Quantification of the (human) use of the watershed service examining the linkages between ecosystem functions and ecosystem services at the watershed and how these services become economic inputs;
- Estimating economic values of watershed services including the design of a replicable hydro-economic model for data collected in the study area.

3.1.4 Negotiation

As a first step in the development of a Negotiation Support System a short review of the theory, practice and challenges of incentive-based mechanisms is provided with particular reference to upper water catchment environmental services in developing countries (Hope, 2005).

3.2 India[3]

Research activities were conducted in the Kolans watershed which drains into the upper lake of the Bhoj wetland bordered by the state capital of Madhya Pradesh, Bhopal (Figure 4). The site was chosen to complement existing research activities led by Winrock International India since 2004, which formed part of a larger multi-country, DFID-funded Markets for Watershed Services programme managed by the International Institute for Environment and Development since 2002. Key research activities in India included a) the development of a negotiation manual, b) training and mentoring in negotiation methods, and, c) dissemination of the negotiation support approaches and methods.

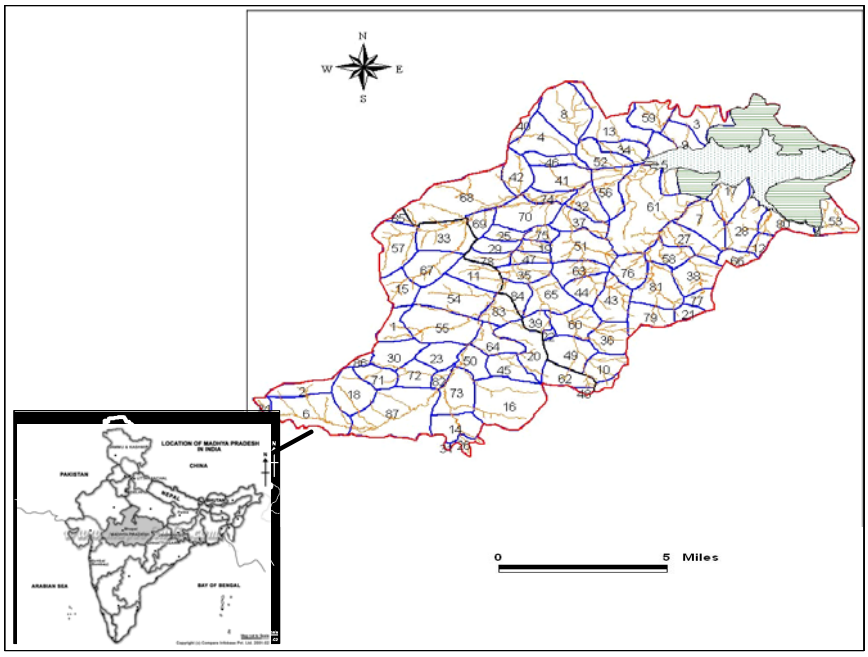
3.2.1 Negotiation Support System

The Negotiation Support System was conceived of as three inter-linking components building-on the Costa Rica research. First, it attempted to take forward the stated choice methodologies successfully applied in Costa Rica and build capacity in identified collaborating researchers interested in applying this approach (see Section 3.2.2). Second, it aimed to develop a conceptual understanding of institutional arrangements as a part of any sustained environmental negotiation (Borgoyary, 2005). Third, it supported continuing economic valuation work based on the extensive hydrological data set generated in Costa Rica (Porras,

[3] This phase of the project represented a 10-month extension to the earlier Costa Rica study.

2005). These three components represented in a non-automated way some of the key elements in building a negotiation support system for understanding socio-economic opportunities from watershed environmental services. They were illustrated in a negotiation support framework that was then applied to the two case study sites in a post-hoc analysis (Hope et al., 2005).

Figure 4. Kolans watershed, Madhya Pradesh, India



3.2.2 Choice Experiment

The main research activity in the India extension work was the design and implementation of a choice experiment in the Kolans watershed (Hope, et al., 2005a & b). The aim of this research was to identify incentives that worked for farmers and wetlands by experimental exploration of a range of organic farming adoption scenarios that would reduce agro-chemical runoff and leaching into surface and groundwater sources. Results would allow any implementation strategy to more fully respond to the opportunities and constraints of farmers committing agricultural land to organic farming across a range of likely scenarios.

4. Outputs

Project outputs provide an iterative sequence of new knowledge, methods and cross-country learning to develop a generic Negotiation Support System tool that will contribute to improve environmental management and poverty reduction. Three objectively verifiable indicators were identified to achieve the first project output of “increased understanding of socio-economic impacts and market opportunities associated with land use and hydrological change”:

- Analysis of the perceptions of stakeholder groups;

- A livelihoods analysis;
- On-site and off-site externalities analysis of land use change.

A further three indicators were identified to achieve the second project output of developing a generic negotiation support system:

- Conceptualizing a negotiation support system as a generic tool;
- Training in the development of the negotiation tool;
- Dissemination and uptake of the negotiation tool (Table 1).

Table 1. Mapping project outputs against indicators of achievement and means of verification

Project outputs	Objectively verifiable indicators	Means of verification	Project verifying outputs (see appendix)
1. Increased understanding of the socio-economic impacts and market opportunities associated with land use and hydrological change.	1.1 Analysis of the perceptions and beliefs of stakeholder groups to historical drivers of land use change and water resources policy in study area. 1.2 Livelihoods analysis of upland smallholders to market mechanisms for land use change in study catchment. 1.3 Externalities analysis of on-site valuation and off-site evaluation to land use change in the study catchment.	By June 2005, greater awareness of social impacts and market opportunities by client institutions.	A2.1 Policy brief (English) A2.2 Policy brief (Spanish) A4.1 Inception workshop report. A3.1.1 Key issues report. A3.1.2 Narratives report. A3.1.3 Livelihoods report. A3.1.4 Conjoint report. A3.1.6 Valuation report. A4.2 Maturity national workshop. A4.3 Maturity local workshop. A6.1 Geologica Acta A6.2 ETFRN A7.1 Blue Revolution
2. New generic Negotiation Support System tool.	2.1 Conceptualization of a NSS in a generic tool. 2.2 Training and mentoring of client institutions in the NSS tool. 2.3 Review, dissemination and uptake of NSS tool.	By January 2006, client institutions have increased awareness of the NSS tool and may have actively collaborated in its development, design or testing phases.	A2.3 Policy brief. A3.1.5 Conceptual negotiation report. A3.2.1 Briefing note. A3.2.2 Scoping report. A3.2.3 Impact assessment report. A3.2.4 Choice pilot report. A3.2.5 Incentives report. A3.2.6 Negotiation report.

5. Contribution of outputs

5.1 Contribution to DFID's developmental goals

The project has contributed to the UK Department for International Development's (DFID) goals of the elimination of poverty and encouragement of economic growth, which benefits the poor, in the following ways:

- A more evidence-based understanding of the opportunities and constraints of payments for environmental services as a poverty reduction strategy;

- Increased policy awareness of methods and approaches that allow more objective decision-making in evaluating land use change opportunities for small-scale upland farmers associated with payments for environmental services.

5.2 Promotion pathways to target institutions and beneficiaries

Target institutions and beneficiaries identified in the project memorandum may be classified into three groups: a) global policy influencers, b) local decision makers, and, c) local direct and indirect project beneficiaries. Specifically, the following institutions, organisations and beneficiaries were identified:

a) World Bank, International Fund for Agricultural Development (IFAD), International Centre for Research in Agro-forestry (ICRAF), Food and Agriculture Organisation (FAO), UK Department for International Development, World Conservation Union (IUCN), Worldwide fund for Nature (WWF), International Institute for Environment and Development (IIED)*;*
b) In Costa Rica, Ministry of Environment (MINAE), Forestry Finance Fund (FONAFIFO), Tropical Science Centre (CCT); and, in India, Lake Conservation Authority (Government of Madhya Pradesh), Bhopal Municipal Corporation (BMC, Bhopal), Department of Agriculture (Government of Madhya Pradesh), Rajiv Gandhi Mission for Watershed Development (Government of Madhya Pradesh);
c) Upstream small-scale farmers and land managers and downstream water users, including public, commercial and ecological stakeholder groups.

Pathways to reach and influence these groups were multiple, overlapping and are considered more likely to occur in the medium term (1-5 years) than the short term (immediate impact) due to the complex and contested nature of often contextually-based problems and the scope of the research. Given this understanding, a range of dissemination pathways were chosen to raise awareness (immediate impact) and provide accessible reports and information to support the recommendations (medium term impact). Email discussions, conference presentations, stakeholder meetings and on-going dissemination of reports on the project web-site ensured momentum and awareness levels during the project life-cycle. An international targeted mail-shot of the final project reports on CD-ROM, maintenance of the project web-site, continuing presentation of project reports and time-lagged journal articles will consolidate the awareness levels and project impacts over the medium term.

A number of recent and additional dissemination pathways and research uptake are noted as being considered of relevance and importance:

- World Conservation Union has invited two of the research team to author chapters on their forthcoming book 'Payments for Hydrological Services'. These chapters will focus on work conducted in this project following public presentations of the research;
- International Institute for Environment and Development will publish the project report 'Negotiating Watershed Services' (Appendix A4.2.6) on its website as part of its international series on Markets for Watershed Services;
- FONAFIFO has expressed interest in applying methodologies and learnings from the project in the implementation of proposed national '*Canon de Agua*' water abstraction legislation;
- Dr. J.S. Mathur, Chief Executive Officer, Lake Conservation Authority, Government of Madhya Pradesh, will host and fund an international workshop in 2006 as a mechanism to disseminate and implement the findings from the linked outputs of this project and the complementary work conducted under the IIED Markets for Watershed Services project;
- Mr. Manish Singh, Commissioner, Bhopal Municipal Corporation, is actively supporting uptake of the recommendations of the research findings;
- Mr. Ahirwal, Joint Director, Department of Agriculture, Government of Madhya Pradesh, is supporting uptake of the recommendations of the research findings.

5.3 Follow-up research to achieve developmental benefit

The two country sites reflect different requirements to achieve wider development benefits. In Costa Rica, the Payments for Environmental Services programme has become an internationally-acclaimed and replicated policy instrument. In 2003, the second generation of payments for environmental services have been launched as 'Agro-forestry Systems' by the Ministry of Environment and Ministry of Agriculture. Poverty reduction remains clearly cited as a programme objective. A promising entry-point for continuing dialogue would be to support FONAFIFO's stated interest in applying project methods and approaches to the 'Canon de Agua' water abstraction legislation. There are likely to be benefits of collaboration if funding is secured for this work in the short term as the legislation is still being planned offering an opportunity to influence and shape policy before implementation.

In India, developmental benefits are largely premised on farmers accessing premium price organic markets. This requires Government of Madhya Pradesh and donors to continue cooperation in further support of and funding for:

1. an institutional body formed from wetland stakeholder groups to:
    a) increase awareness and policy support for organic farming,
    b) further increase corporate and business sector support;
    c) negotiate incentives for farmers to adopt organic farm practices until farm certification is approved;

d) represent marginal and small-scale farmers; and,
e) assist formation of village-level farmer groups.

2. technical assistance. This will include:
   a) refining incentive mechanisms;
   b) identifying feasible and acceptable certification alternatives;
   c) training farmers in organic crop rotation options, soil management and other appropriate organic farm management practices; and,
   d) designing and testing a monitoring and evaluation programme of social and biophysical impacts of organic land use change.

5.4 Further studies

The project has influenced at least two international development projects exploring innovative financing mechanisms for environmental management and poverty reduction.

- Markets for Watershed Services, International Institute for Environment and Development. This GBP 2 million DFID-funded project has collaborated closely with this project since 2001 leading to mutually-beneficial cross-project learnings. The programme ends in September 2006 but will then inform the design phase of a larger DGIS-DANIDA funded project managed by WWF-Netherlands and including CARE International and IIED as principal programme partners exploring payments for environmental services in 10 project sites across five countries.
- Agro-forestry Systems, Food and Agriculture Organisation and World Conservation Union has funded one of the Costa Rican project collaborators in further studies linked to the Government of Costa Rica's introduction of the second generation of payments for environmental services through agro-forestry. This programme is jointly supported by Ministry of Environment and Ministry of Agriculture. With the aim of reducing the rural – urban income divide, Agro-forestry Systems will be promoted for rural development and controlling poverty by a) generating income for the rural poor, b) improving catchment management, c) sequestration of carbon dioxide, d) biodiversity conservation, e) increasing the contribution of payments for environmental services for poverty reduction, and, f) maintaining the international dialogue on new financial mechanisms.

5.5 Availability of project outputs to intended users

As noted above, there are a range of dissemination pathways to different research user groups, including:

- Personal networks: including meetings, telephone calls, conferences and symposia;

- Project workshops: maturity workshops have made available project technical reports, publicity, flyers and contact details of the project team;
- Project website: all project reports, including databases are being posted on the website (http://www.cluwrr.ncl.ac.uk/projects/);
- Project CD-ROMs including all written outputs will be sent to a targeted group of international organisations, international funding agencies, development research institutes and other interested stakeholders;
- Journal publications: stronger project reports will be sent to identified peer –reviewed journals for consideration;
- The forthcoming World Conservation Union book on 'Paying for Hydrological Services' will include at least three chapters authored by project researchers;
- IIED will publish 'Negotiating Watershed Services' on their Markets for Watershed Services website in 2006.

5.6 How, and by whom, will further project stages be developed and paid for?

Significant policy support and interest has been generated during the project life-cycle. In Costa Rica, this is most strongly articulated in support for the Canon de Agua legislation. In India, this is more firmly rooted in how project findings can be operationalised. Due to DFID re-focussing research priorities and research management at the conclusion of the Renewable Natural Resource Knowledge Strategy programme, it appears unlikely DFID will support further stages identified. Currently, a consortium of existing research partners and the World Conservation Union are considering bidding for new funds to support continue work in Asia.

Appendix

Project bibliography

Code	Outputs (pages)
A1.	Final Technical Report (pp17)
A2. Policy briefs	
A2.1	Cloud forests: Water, livelihoods and payments for environmental services (pp2)
A2.2	Los bosques nubosos: Agua, Sustentos y Pagos por Servicios Ambientales, Costa Rica (pp2)
A2.3	Incentives that work for farmers and wetlands (pp2)
A3. Project reports	
A3.1 Costa Rica	
A3.1.1	Miranda, M., Porras, I.T. and Hope, R.A. (2005) Introducing the key issues (pp43)
A3.1.2	Porras, I.T. and Miranda, M. (2005) Narratives, memories and water (pp65)
A3.1.3	Hope, R.A., Miranda, M. and Porras, I.T. (2005) Can Payments for Environmental Services contribute to poverty reduction? A Livelihoods analysis from Arenal, Costa Rica (pp63)
A3.1.4	Porras, I.T. and Hope, R.A. (2005) Using Stated Choice Methods in the design of Payments for Environmental Services schemes (pp38)
A3.1.5	Hope, R.A. (2005) Notes on a Negotiation Support System for Upper Water Catchment Environmental Services (pp20)
A3.1.6	Porras, I.T. Assessing and valuing watershed environmental services – methods and three case studies (pp111)
A3.2 India	
A3.2.1	Hope, R.A. and Agarwal, C. (2005) Negotiating socio-economic opportunities from upper watershed environmental services – the case of the Bhoj wetland, India (pp1)
A3.2.2	Borgoyary, M. (2005) Scoping report (pp42)
A3.2.3	Wanganeo, A. (2005) Water quality impacts from agriculture at the Bhoj wetland, Madhya Pradesh, India (pp45)
A3.2.4	Hope,R.A., Borgoyary, M. and Agarwal, C. (2005) Designing a Choice Experiment to evaluate the adoption of organic farming for improved catchment environmental services and poverty reduction (pp32)
A3.2.5	Hope, R.A., Borgoyary, M. and Agarwal, C. (2005) Incentives that work for farmers and wetlands – the case of the Bhoj wetland, India (pp44)
A3.2.6	Hope, R.A., Porras, I.T., Borgoyary, M., Miranda, M., Agarwal, C. Tiwari, S. and Amezaga, J.M. (2005) Negotiating Watershed Services (pp30) To be published by IIED in the MES series.
A4. Project workshop reports	
A4.1	Inception workshop report
A4.2	End-of-project workshop with national and regional stakeholders
A4.3	End-of-project workshop report with local stakeholders
A5. Powerpoint presentations	
A5.1	Project dissemination presentation to IIED, 2003
A5.2	Project dissemination presentation to Katoomba Group, 2003

A5.3	Negotiation Support Approach. Joint project meeting between biophysical (R7991) and socio-economic (R8174) teams in Newcastle, 2004
A5.4	Perceptions, narratives and beliefs. Joint project meeting between biophysical (R7991) and socio-economic (R8174) teams in Newcastle, 2004
A5.5	Livelihoods analysis. Joint project meeting between biophysical (R7991) and socio-economic (R8174) teams in Newcastle, 2004
A5.6	Water and Poverty. Presentation to DFID Central Research Division, June 2005
A5.7	Socio-economic presentation at national-level maturity workshop, San Jose, Costa Rica, June 2005
A5.8	Socio-economic presentation at local-level maturity workshop, Monteverde, Costa Rica, June 2005
A5.9	Negotiation Support Framework. Presented at IIED's international workshop on Markets for Environmental Services, London, 2005
A6. Journal and conference papers	
A6.1	Calder, I.R., Amezaga, J., Bosch, J., Fuller, L., Gallop, K., Gosain, K., Hope, R., Jewitt, G., Miranda, M., Porras, I. and Wilson, V. (2004). Forest and water Policies – The Need to Reconcile Public and Science Perceptions. Geologica Acta, Vol.2, Nº2, 157-166
A6.2	Hope, R.A., Porras, I.T., M., Miranda, M., Agarwal, C. and Amezaga, J.M. (2005) Are the upland poor benefiting from upland environmental service reward schemes? European Tropical Forestry Research Network, No. 45-46, Winter 2005-6, pp. 36-39.
A7. Books	
A7.1	Calder, I.R. (2005) Blue Revolution: integrated land and water resources management, 2nd edition. Earthscan, London.