

Payments for Ecosystem Services

Legal and Institutional Frameworks

Thomas Greiber
Editor



IUCN Environmental Policy and Law Paper No. 78

Payments for Ecosystem Services

Legal and Institutional Frameworks

Payments for Ecosystem Services

Legal and Institutional Frameworks

Thomas Greiber
Editor

The designation of geographical entities in this book, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of IUCN or the Swiss Agency for Development and Cooperation (SDC) concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The views expressed in this publication do not necessarily reflect those of IUCN or SDC.

This publication has been made possible in part by funding from SDC.

Published by: IUCN, Gland, Switzerland in collaboration with the IUCN Environmental Law Centre, Bonn, Germany

Copyright: © 2009 International Union for Conservation of Nature and Natural Resources

Reproduction of this publication for educational or other non-commercial purposes is authorized without prior written permission from the copyright holder provided the source is fully acknowledged.

Reproduction of this publication for resale or other commercial purposes is prohibited without prior written permission of the copyright holder.

Citation: Greiber, Thomas (Ed) (2009). *Payments for Ecosystem Services. Legal and Institutional Frameworks*. IUCN, Gland, Switzerland. xvi + 296 pp.

ISBN: 978-2-8317-1176-8

Cover design by: IUCN Environmental Law Centre

Cover photo: Thomas Müller, Sociedad Peruana de Derecho Ambiental
Alejandro Iza, IUCN

Layout by: ceterum printdesign – Dieter Müller, 53340 Meckenheim, Germany

Produced by: IUCN Environmental Law Centre

Printed by: medienHaus Plump, 53619 Rheinbreitbach, Germany

Available from: IUCN Publications Services
Rue Mauverney 28
1196 Gland
Switzerland
Tel +41 22 999 0000
Fax +41 22 999 0010
books@iucn.org
www.iucn.org/publications

A catalogue of IUCN publications is also available.

The text of this book is printed on Claro 90 g/m² paper made from raw materials originating from responsibly managed forests.

Table of Contents

Foreword	vii
Editor and Authors	ix
Acknowledgements	xi
Key Messages	xiii
Chapter 1 Introduction	1
1.1 Background	1
1.2 Problem Response	2
1.3 Objective of this Publication	2
Chapter 2 Understanding Water-related Ecosystem Services	5
2.1 What are Water-related Ecosystem Services?	5
2.2 PES Types and Criteria	6
2.3 Different Governance Approaches to Ensure the Provision of Water-related Ecosystem Services	7
2.3.1 Scale	7
2.3.2 Stakeholders	8
2.3.3 Measuring Benefits	9
2.3.4 Drivers	9
2.3.5 Payments	10
Chapter 3 Legal Frameworks	11
3.1 Importance of a Legal Framework for PES	11
3.1.1 Private PES Schemes	11
3.1.2 PES Trading Schemes	12
3.1.3 Public PES Schemes	13
3.2 Appropriate Legal Instruments	16
3.2.1 Constitution	16
3.2.2 Specific PES Law	17
3.2.3 Sectoral Environmental Legislation	19
3.2.4 Indirectly Relevant Laws	20
3.3 Scope and Content of PES-related Legislation	21
3.3.1 Scope	21
3.3.2 Content	23

Chapter 4 Property Rights	29
4.1 Understanding Property Rights	29
4.2 Importance of Property Rights for PES	30
4.3 Challenges of PES Schemes Related to Property Rights.....	31
4.4 Finding Property Rights Solutions for PES	32
Chapter 5 Enabling Institutions	37
5.1 Importance of Law and Policy	37
5.2 Types of Institutions and their Roles.....	38
5.2.1 Public Institutions	38
5.2.2 Private Institutions	40
5.3 Challenges of Building a Sound Institutional Framework.....	41
5.3.1 Financial constraints.....	41
5.3.2 Decentralization vs. centralization	42
5.3.3 Coordination	43
Chapter 6 Contract Issues	45
6.1 Project Plan	45
6.2 Identification of Parties.....	46
6.3 Form and Legal Nature of the Agreement	46
6.4 Objective and Scope	48
6.5 Rights and Obligations	48
6.6 Payment Structure.....	50
6.7 Duration	51
6.8 Risk Allocation	52
6.9 Monitoring and Reporting.....	53
6.10 Remedies and Dispute Settlement.....	54
Chapter 7 Governance	63
7.1 Importance of Good Governance for Watershed PES	63
7.2 Public Participation.....	64
7.3 Transparency and Access to Information	65
7.4 Accountability and the Rule of Law	66
Annex I Brazil Report	69
Annex II Bolivia Report	125
Annex III Colombia Report	187
Annex IV Peru Report	239
Annex V Guiding Questionnaire for Country Assessments	287

Foreword

The Millennium Ecosystem Assessment has shown that despite their importance to human well-being and biodiversity, the world's freshwater ecosystems as well as water-related ecosystem services are rapidly being degraded. In order to stop this development and achieve the Millennium Development Goals (MDGs), in particular the MDG 7 to 'ensure environmental sustainability', governments and international processes are searching for the most effective way to govern water-related ecosystem services. In this context, two approaches exist: the traditional strategy of command and control, and the use of economic or market-based instruments.

The traditional approach to deterring environmental degradation has been to establish a legal norm coupled with a sanction for non-compliance. Such command and control policies may be effective in controlling pollution from well-defined point sources, such as factories or sewage treatment plants. However, they are less effective in regulating non-point sources of pollution, such as those occurring when numerous upstream landholders dedicate their land to intensive agricultural or cattle-ranching activities, or when forest owners convert their forest land to agricultural land. In these cases, downstream water pollution (or scarcity) is the result of the combination of individual actions carried out by geographically diffuse and heterogeneous upstream users. Commercial mechanisms and incentives, in particular payments for ecosystem services (PES), that can ensure the internalization of environmental externalities are increasingly being proposed as a promising conservation approach.

Analysis and engagement with partners working on ecosystem services transactions, policies and laws over the past 10 years have demonstrated a clear need to better understand the legal and institutional frameworks that have the potential to promote or hinder the development of PES schemes, as well as the complex legal considerations that affect ecosystem services projects. In response, since December 2007, the IUCN Environmental Law Centre and The Katoomba Group have worked on a joint initiative to analyze the legal and institutional frameworks of water-related payment for ecosystem services (PES) schemes and projects in four Andean countries: Brazil, Bolivia, Colombia and Peru.

Country-based analysts with experience in ecosystem services transactions have developed country and project assessments to define existing and recommend future regulatory and institutional frameworks that enable equitable and long-lasting ecosystem services transactions. Partners from Costa Rica, Mexico, Ecuador and the United States provided feedback on the assessments. The country assessments yielded lessons and offered recommendations on the future development of PES schemes.

We would like to congratulate the authors of this volume for developing a diagnostic tool which helps to better understand the necessary legal and institutional basis for water-related PES schemes. The lessons presented in the national assessments, and in particular the recommendations from the legal

workshop held in August 2008, provide valuable insights that are not limited to the four countries reviewed for this analysis, but also extend to other countries interested in developing water-related PES schemes.

Dr. Alejandro Iza

Head, IUCN Environmental Law Programme
Director, IUCN Environmental Law Centre

Michael Jenkins

President, Katoomba Group
President, Forest Trends

October 2009

Editor and Authors

Edited by Thomas Greiber, IUCN Environmental Law Centre

Chapter 1: Thomas Greiber

Chapter 2: Slayde Hawkins, Hannah Murray (Katoomba Group) and Thomas Greiber

Chapter 3 – 7: Thomas Greiber, Jim Salzman (Duke Law School)

Annex I: Renata Everett Valladares (Ambiental PV)

Annex II: Carla Cecilia Gomez Wichtendahl (IUCN Commission on Environmental Law)

Annex III: Fabian Navarrete Le Bas (Corporación Ecoversa)

Annex IV: Milagros Sandoval, José Luis Capella (Sociedad Peruana de Derecho Ambiental – SPDA)

Annex V: Thomas Greiber, Carla Cecilia Gomez Wichtendahl, Milagros Sandoval, Jim Salzman

Acknowledgements

Many individuals have contributed to making this publication come to light through their generosity in sharing ideas and experiences on the development and implementation of payment for ecosystem services schemes related to water resources. These inputs were a vital contribution to the planning and completion of the book. The IUCN Environmental Law Centre (ELC), The Katoomba Group, the editor and the authors wish to thank them for their interest in the project.

We are particularly grateful for the contributions made by Alejandro Iza, Director of the IUCN ELC and Head of the IUCN Environmental Law Programme, and Michael Jenkins, President of The Katoomba Group and President of Forest Trends, whose ideas and support were important in the planning phase of this publication.

The authors of this publication would also like to thank the following individuals and their organisations for their worthwhile feedback and contribution during the joint IUCN ELC-Katoomba Group workshop on 'Legal and Institutional Frameworks and their Impact on Ecosystem Services Transactions' which took place in Lima, Peru from 6-8 August, 2008:

Alejandro Iza (IUCN ELC), Carina Bracer (Tropical América Katoomba Group), Miguel Pulgar Vidal (Sociedad Peruana de Derecho Ambiental - Perú), Warwick Manfrinato (Plant BR - Brasil), Sabrina Macedo (Ambiental PV - Brasil), Javier Blanco (Corporación Ecoversa - Colombia), Robert O'Sullivan (Climate Focus - USA), Gunars Platais (World Bank - Washington DC), Natalia Calderón (Fundacion Amigos de la Naturaleza - Bolivia), Rodrigo Sales (Baker Mackenzie - Latin America) Raúl Telles do Vale (Instituto Socioambiental - Brasil), Manolo Morales (Ecolex/Cedenma - Ecuador), Eduardo Rolón (Instituto Nacional de Ecología - México), Rolando Castro (CEDERENA - Costa Rica).

We would also like to extend our thanks to Juan Carlos Sánchez and Simone Schiele, IUCN ELC Secretariat, as well as Fiona Mulligan and Tommie Herbert, Katoomba Group, for their support in editing different chapters; to Linda Starke for copy-editing the final manuscript; to Patricia Odio for the translation into Spanish; and to Ann DeVoy and Anni Lukács, IUCN ELC Secretariat, for their assistance in the finalization of the publication.

Finally, we gratefully acknowledge the financial contributions to the production of this book provided by the Swiss Agency for Development and Cooperation (SDC) as well as the co-funding provided by the German Federal Ministry for Economic Cooperation and Development (BMZ) and the UNDP GEF (Global Environmental Facility). Furthermore, this publication is made possible by the generous support of the American people through the United States Agency for International Development (USAID), under the terms of the TransLinks Cooperative Agreement No.EPP-A-00-06-00014-00 to The Wildlife Conservation Society. TransLinks is a partnership of WCS, The Earth Institute, Enterprise Works/VITA, Forest Trends and The Land Tenure Center. The contents are the responsibility of the partnership and do not necessarily reflect the views of USAID or the United States government.

Key Messages

LEGAL FRAMEWORKS

Importance of a Legal Framework for PES

Private PES schemes do not require a specific legal framework beyond basic contract law, but they are usually limited to local water problems. However, scaling their positive results up through a nested approach may require a specific policy and legal framework.

PES trading schemes require a specific legal framework as they are rather complex and usually need to be established at the regional or national scale.

An appropriate legislative framework which regulates public PES schemes has the potential to stimulate the development of trustworthy markets and to ensure good governance.

Appropriate Legal Instruments

While there is no need for constitutional recognition of PES, the constitution must not prevent the development of PES schemes. Instead, the constitution has a great potential to recognize the value of nature and/or ecosystem services, thus creating an enabling environment for PES.

If PES is regulated in a specific PES law, attention must be paid to its integration in the existing legal and institutional frameworks, in particular those laws that regulate the different ecosystems.

Introducing specific PES provisions through amendments to existing legislation requires less legal drafting and synchronization work. It also provides an opportunity to clarify or further develop existing economic instruments.

Efficient and effective legal frameworks for PES demand compatibility with indirectly relevant laws in order to avoid further barriers for watershed PES initiatives. At the same time, such laws may need to be assessed either to use their full potential to promote PES or remove perverse incentives that obstruct PES.

Scope and Content of PES-Related Legislation

PES legislation at all levels – from local to national – can play an important role in the further promotion and implementation of watershed PES. Its development should gain from practical experience, with local projects informing regional and national legislation which, in turn, provides greater legal certainty and a framework that enables rather than restricts regional and local initiatives.

The content of PES provisions depends on the type of legal instrument as well as the level where such provisions are introduced. A comprehensive legal regime should comprise provisions regulating general issues, such as scope, cross-cutting principles or terminology, as well as finance, institutional and implementing issues.

PROPERTY RIGHTS

Understanding Property Rights

Property is not a single right which is by necessity clearly attributed to only one person. In fact, the right of ownership and different use rights regarding the same property can be held by different actors and be transferred individually.

Importance of Property Rights for PES

Clearly defined property rights enable parties to enter into PES contracts and ensure the sustainability of PES schemes.

Challenges of PES Schemes Related to Property Rights

Conflicts between statutory and customary law, unclear or not existing property rights legislation, and ambiguous property rights arrangements on the ground can pose challenges to the implementation of PES schemes.

Finding Property Rights Solutions for PES

Flexible approaches to property rights and open criteria for participation in PES contribute to the success of PES schemes and their sustainability.

ENABLING INSTITUTIONS

Importance of Law and Policy

Law and Policy create the general basis for the establishment and functioning of an institutional set up that supports PES; in particular the involvement and roles of public institutions are clarified.

Types of Institutions and their Roles

There is no blueprint for an ideal institutional set up. Instead, institutions should be adjusted to national and local circumstances, in particular the prevailing governing structure.

Public institutions at all levels fulfil important PES related functions. Local institutions connect PES to realities on the ground; regional institutions help to overcome administrative boundaries; and national institutions can introduce PES visions and coordinate related policies.

Private institutions may complement public institutions in the development and implementation of PES schemes. They can bring in more flexibility and independence, important external capacities, as well as additional financial resources.

Challenges of Building a Sound Institutional Framework

An appropriate institutional framework for PES needs to consider three financial dimensions: increasing available funds through specialized fundraising and fund managing institutions; limiting institutional transaction costs; and providing sufficient financial means to ensure institutional performance.

As far as management and administration of PES schemes are concerned, national institutions should perform only those activities which cannot be performed effectively at a more immediate or local level.

PES schemes demand coordination between public and private institutions of various sectors at different levels. This requires developing a common PES vision, clarifying responsibilities, identifying institutional complementarities, and formalizing communication channels.

CONTRACT ISSUES

Project Plan

Different types of contracts may be necessary to create an effective PES scheme. These different contracts must be framed within a larger project plan which should be based on an overall strategy. PES contracts should reinforce each other and work toward a common goal.

Identification of Parties

A wide range of players can be involved in PES transactions as buyers, sellers or intermediaries. If PES transactions are to be legally binding, all parties must have legal authority to enter into a contract.

Form and Legal Nature of the Agreement

Binding contracts, contracts in writing or registered contracts provide more legal certainty. However, depending on the local circumstances this may be too costly, time-consuming or not feasible in practice. A contract therefore may not need to be legally binding to prove effective.

Objective and Scope

Including a preamble in the contract helps clarify the objective and scope of a PES contract, as well as its interpretation.

Rights and Obligations

Contractual obligations of sellers tend to focus on the implementation of an activity (input) rather than on ensuring that specific water quality and quantity target outputs are met.

When demonstrating ownership or control over the land to be managed, recognizing de facto rather than de jure ownership/control can help overcome unclear or incomplete land title processes.

Payment Structure

The type, manner, and timing of payments must be explicit in the agreement. These terms must take into account factors such as prevailing economic interests, cultural values, requirements of initial investments, and the need to create strong incentives for compliance.

Duration

When determining the contract duration, both parties must balance their interests in establishing a long-term and stable PES scheme against maintaining the flexibility needed to react to changing circumstances.

Risk Allocation

Market risk, party risk, and risk of innocent loss are the most significant risks that require regulation in PES contracts. Clauses that govern renegotiation of contract terms, remedies and dispute resolution, or risk-bearing are possible instruments.

Monitoring and Reporting

PES contracts should address compliance monitoring as well as the terms and consequences of non-compliance. Establishing at the outset a process for monitoring and defining non-compliance in the contract reduces the possibility of future disagreement.

Remedies and Dispute Settlement

Without an adequate deterrent, non-compliance may be more likely. However, determining the nature of the deterrent requires careful consideration, since extra-contractual penalties, while seemingly weak, may prove effective within particular social contexts.

Failure to sanction non-compliance can send a counterproductive message. PES contracts should set out the potential consequences of non-compliance as well as the procedure for its determination.

GOVERNANCE

Importance of Good Governance for Watershed PES

Trust is fundamental to the long-term success and sustainability of PES programmes. Good governance – in particular public participation, transparency and access to information, as well as accountability and the rule of law – helps to build trust and is therefore key in the context of watershed PES.

Public Participation

Public participation is essential to watershed PES design, particularly during initial scoping and negotiations. The creation of PES management committees can provide a stable forum for stakeholder participation, build a platform for engaging different PES interests, allow stakeholders to learn from one another and engage directly in the process.

Transparency and Access to Information

Transparency and access to information are essential during the planning stage of a PES programme, as well as once the programme moves to implementation. In projects carried out at smaller and more manageable scales, it will be easier to achieve appropriate transparency and access to information.

Accountability and the Rule of Law

Ensuring accountability and respect for the “rule of law” will increase the reliability and predictability of the PES scheme, which will in turn facilitate its overall development.

1 Introduction

1.1 Background

Water is essential to any form of life on earth. Ensuring a sufficient freshwater supply plays a key role in the development and functioning of any human society. Ecosystems provide a wealth of services that are fundamental to ensure the necessary freshwater supply – sufficient quantity and quality of freshwater (CBD Secretariat 2007).

As the Millennium Ecosystem Assessment has shown, despite their importance to human well-being and biodiversity the world's freshwater ecosystems and the services they provide are constantly being degraded. The Millennium Ecosystem Assessment determines (Millennium Ecosystem Assessment 2005):¹⁾

- Due to growing demands for natural resources (such as timber, fresh water, food, fibre, fuel, etc.), humans have extensively changed ecosystems which has resulted in a substantial and largely irreversible loss in the diversity of life on earth.
- On the one hand, these changes have contributed to economic development and net gains in human well-being of many people; on the other hand, they have also resulted in degradation of ecosystems and their services, increased poverty of large groups of people, and risks for future generations whose livelihoods depend equally on ecosystem services.

If humanity continues to misuse its water resources and the ecosystems on which these depend, individuals and societies will ultimately suffer social and economic insecurity engendered by severely degraded rivers, lakes and groundwater reserves, and will be confronted with increasingly serious conflicts in time of scarcity (IUCN 2000).

Bearing this in mind, in September 2000 world leaders adopted the United Nations Millennium Declaration, committing to the Millennium Development Goals (MDG). MDG 7 – Ensuring Environmental Sustainability – sets among others the targets to

- Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources; and
- Halve, by 2015, the proportion of people who are unable to reach, or to afford, safe drinking water.

Still, almost half of the world's population face a scarcity of water, and about 1 billion people do not have access to safe drinking water (United Nations 2008).

1 For example, since 1980, Swiss farmers have received direct payments for the application of sustainable farming practices which lead to the provision of ecosystem services.

1.2 Problem Response

In order to stop the further degradation and loss of the world's ecosystems as well as their services, and to achieve the MDG 7, countries need to overhaul and modernize their water governance regimes. Experiences from around the world show that appropriate concepts for sustainable freshwater governance have been developed in the past. Two main approaches can be distinguished: the traditional way of command and control, and the use of economic or market-based instruments.

The classical way of deterring environmental degradation is to establish a legal norm coupled with a sanction for non-compliance. Such command and control policy may be effective in controlling pollution from well-defined point sources, e.g. factories or sewage treatment plants. However, they are less effective in regulating non-point sources of pollution, such as those occurring when numerous upstream landholders dedicate their land to intensive agricultural or cattle-ranching activities. In those cases, downstream water pollution (or scarcity) is the result of the combination of individual actions carried out by geographically spread and heterogeneous upstream users.

Therefore, economic mechanisms and incentives, especially payments for ecosystem services (PES), are increasingly being proposed as a promissory conservation approach. PES is based on the internalization of environmental externalities by establishing appropriate prices and giving financial incentives. Under a PES scheme, users of land upstream may accept voluntary limitation or diversification of their activities in return for an economic benefit. In this way, the interests of landowners and outside beneficiaries are bridged, and both 'sellers' and 'buyers' of ecosystem services can profit while helping to protect ecosystems.

Water-related PES schemes are expected to complement traditional command and control measures. They fit well into the current trend towards decentralized and self-organized systems for water and natural resources management. Furthermore, depending on the circumstances they might be more flexible, cost-efficient and effective than a command and control approach.

1.3 Objective of this Publication

Although examples of PES can be traced back at least as far as the 1980s, it is still a relatively new instrument, and the experience to date in many parts of the world is not yet extensive, or based on a very long timeframe. In addition, PES is being introduced in more and more sectors (agriculture, water supply, carbon sequestration, biodiversity conservation, etc.) and in relation to more and more ecosystems (surface water, groundwater, forest, etc.). But such PES can only work with good governance in place, comprising an effective political, legislative as well as institutional system. This is not the case in every country which indicates the demand for water governance reform.

While the social, economic and hydrological aspects of water-related PES have received considerable attention in the past, less analysis exists on the legal and institutional implications of PES schemes. Many PES studies simply ignore the legislative and institutional requirements for effective and efficient PES systems. Those analyses that discuss the legal issues are mostly limited to theoretical and very general recommendations. This is due to different reasons.

As mentioned before, PES schemes are still rather new instruments. As a consequence, the experiences made so far are neither numerous, nor based on a longer timeframe.

Second, defining tangible rules for PES systems which apply all around the world is hardly possible, since the particular legal and institutional framework of a country must always be reflected in the set up of a policy instrument. Thus, if the findings of legal PES analyses are nevertheless generalized, they often have to stay rather vague. This is also proved by the draft Code of Conduct on PES in Integrated Water Resources Management which has been prepared under the auspices of the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

Finally, PES sometimes appears to have become a ‘catch phrase’ which needs further clarification on what it actually embodies – virtually all financial and legal incentive mechanisms for promoting conservation and good environmental citizenship, or only specific ones. Depending on the concrete definition of a PES mechanism, its legislative and practical requirements will differ considerably.

The overall goal of this publication is to ‘close’ this gap of legal and institutional analysis. It has the objective to give recommendations for the future development of legal and institutional frameworks which support water-related PES schemes and their implementation. The following chapters will therefore explain:

- What we understand by water-related ecosystem services and PES (Chapter 2);
- What policy-makers should consider when assessing and potentially revising the legal and institutional frameworks for water-related PES schemes (Chapters 3 – 5); and
- What contractual and governance issues should be addressed by PES project developers (Chapters 6 and 7).

In order to ensure that these recommendations are well connected to reality on the ground, they are supported by lessons learned from selected Latin American countries (Brazil, Bolivia, Colombia and Peru)²⁾. The lessons learned are based on country assessments which were undertaken in collaboration with IUCN and Katoomba Group partners working on PES. The assessments which can be found in the Annexes 1 – 4 of this publication comprise a legal and institutional gap analysis as well as an evaluation of succinct PES case studies in each country. Key topics addressed in the assessments include:

- Existing and future legal and institutional frameworks related to PES;
- Property rights in the law and in practice;
- PES contract design;
- Securities and risk allocation;
- Negotiation processes;
- Monitoring, non-compliance and enforcement;
- Dispute resolution; and
- Public participation.

2 Latin America was chosen as a target region, since substantive PES experience in the developing world has been accumulated here, and many PES schemes and projects are currently under development.

The guiding questionnaire used for the country assessments is included in Annex 5. This questionnaire is intended to provide a tool for policy-makers and project developers in other countries to assess their legal and institutional frameworks.

2 Understanding Water-related Ecosystem Services

2.1 What are Water-related Ecosystem Services?

Every ecosystem on earth exists within a watershed. A watershed can be defined as 'the area of land that feeds water into a river, through the process of precipitation draining through the landscape, into tributaries and into the main river channel' (Smith, de Groot, Bergkamp 2006).

As water moves through the landscape, the various ecosystems within the watershed provide benefits in the form of goods and services to downstream water users and ecosystems. These benefits include the provision of fish and clean water, regulation of hydrological flows and the climate, support for soil formation and nutrient cycling, and enhancement of cultural, educational, aesthetic and spiritual activities. Water-related ecosystem services can thus be defined as the benefits to nature and human welfare provided by ecosystems within a watershed.

The chart below provides an overview of the main water-related ecosystem services (Smith, de Groot, Bergkamp 2006).

Type of service	Description	Examples
Provisioning services	Focused on directly supplying food and non-food products from water flows	Freshwater supply Crop and fruit production Livestock production Fish production Hydro-electric power
Regulating services	Related to regulating flows or reducing hazards	Buffering of runoff, soil water infiltration, groundwater, maintenance of base flows Flood prevention, peak flow reduction, landslide reduction Soil protection and control of erosion and sedimentation Control of surface and groundwater quality
Supporting services	Provided to support habitats and ecosystem functioning	Wildlife habitat Flow regime required to maintain downstream habitat and uses
Cultural services	Related to recreation and human inspiration	Aquatic recreation Landscape aesthetics Cultural heritage and identity

Land management in upstream ecosystems has profound effects on the services delivered downstream. Once these services are valued and linked to markets, ecosystem health can become a collective interest for upstream stewards and downstream water users.

An innovative way to bring upstream and downstream interests together is through payments for upstream ecosystem services. PES can provide an incentive for upstream stewards to maintain upstream ecosystems using effective land management, which will generate benefits for people and ecosystems downstream. ‘The hope with PES is that it will provide new revenue streams for protection of environmental services and that, through the use of market mechanisms, it will be more effective in achieving environmental goals’ (Dillaha et al. 2007). Thus, the market can be harnessed to improve the health of upstream and downstream ecosystems, generating benefits for the people who live in and rely upon these natural areas.

2.2 PES Types and Criteria

As mentioned in Chapter 1, PES sometimes appears to have become a ‘catch phrase’ which needs further clarification on what it actually embodies – virtually all financial and legal incentive mechanisms for promoting conservation and good environmental citizenship, or only specific ones. Depending on the concrete definition of a PES mechanism, its legislative and practical requirements will differ considerably.

What makes a PES a PES is that in any payment arrangement those who pay are aware that they are paying for an ecosystem service that is valuable to them or to their constituencies – and those who receive the payments engage in meaningful and measurable activities to secure the sustainable supply of the ecosystem services in question.

Three types of possible PES schemes – private PES schemes, cap and trade schemes and public PES schemes – need to be distinguished (Smith, de Groot, Bergkamp 2006):

- **Private PES**

Private PES are self-organized schemes between private entities which involve

- Direct payments by service beneficiaries to service providers for the protection or restoration of watershed services;
- Cost-sharing among involved private parties;
- Purchase of land and lease back to former owner with the objective to ensure watershed services originating from the land in question; or
- Purchase of development rights to land which are separated from property rights.

- **Cap and Trade**

Cap and trade schemes

- Establish a cap (an aggregate maximum amount) for water pollution or abstractions;

- Allocate pollution or abstraction permits which divide the allowable overall total among water users; and
- Allow trading of permits between those who do not need permits and those who need more than their allocation.

- **Public PES**

Public PES are government driven schemes which involve public agencies and include user fees, land purchase and granting of rights to use land resources as well as fiscal mechanisms based on taxes and subsidies.

Each PES transaction will be unique, depending upon its environment and the stakeholders' needs. However, PES transactions do share certain characteristics. For example, because water-related benefits from land management are local (up/down stream), watershed services are generally limited to localized markets. Furthermore, benefits must be measurable, high, and directly attributable to watershed protection actions and costs must not exceed the value of positive assessed impacts.

The following criteria can be identified as common to all PES transactions (adjusted from Robertson and Wunder 2005):

- Transaction is voluntary and legally-binding
- Ecosystem service and/or land use to deliver that service is well-defined/valued
- Minimum of one service buyer/user
- Minimum of one ecosystem service seller/provider
- Payments are conditional on continued provision of the ecosystem service by the seller/provider

The shared characteristics between PES transactions, and the common criteria necessary for such transactions to take place, make it possible to identify governance approaches that facilitate PES.

2.3 **Different Governance Approaches to Ensure the Provision of Water-related Ecosystem Services**

This section will outline the essential aspects and central design issues for water-related ecosystem services schemes. Projects vary in regard to geographic scale, involved stakeholders, how benefits are measured, drivers, and payment types.

2.3.1 **Scale**

Ecosystem services projects usually take place on the local level, but may be part of larger national and international schemes (Porras et al. 2008: 23). In a national-level programme, PES are often a main feature or component of country-wide ecosystem policy. International water-related PES schemes are generally donor-led projects supporting the introduction of environmental payments in targeted areas – emphasizing baseline studies and lessons learned. In any case, because water-related ecosystem services are closely tied to the particular watershed and ecosystem(s) from which

they originate, local governance over a PES project is likely to be important to the project's success.

2.3.2 Stakeholders

In order to come to an agreement on a watershed PES scheme, the right parties have to be involved in the planning, negotiation and implementation processes. The following categories of stakeholders can be distinguished (Porras et al. 2008; Smith, de Groot, Bergkamp 2006).

- **Donors**

Donors provide the funds for the provision of water-related ecosystem services, and most commonly are:

- Government – providing municipal and national government funding;
- Private sector – making voluntary and required payments for water-related ecosystem services;
- Private individuals – paying household and agricultural fees for use of water;
- Charitable foundations – making donations from their assets.

- **Beneficiaries**

Beneficiaries are private or public entities who have a demand for the provision of watershed ecosystem services. Beneficiaries and donors will often overlap.

- **Suppliers**

Typical suppliers of water-related ecosystem services, in order of prevalence, are:

- Private landowners – individual owners with clear and undisputed property rights;
- Communal landholders – farmers living on or drawing their livelihood from communal property;
- Private reserves – whether an individual or group, private entities registered as reserves and committed to ecosystem conservation are the third most common supplier of watershed services;
- Governments or non-governmental organizations (NGOs) – land owned and managed by governments or NGOs for conservation purposes;
- Informal occupiers of public lands – farmers living on public property, oftentimes designated as a protected area, who may have long-standing rights to the land.

- **Intermediaries**

Intermediaries (governmental entities, international agencies or NGOs) may link donors, beneficiaries and suppliers of water-related ecosystem services, and aid in the development, administration or operation of a PES scheme. Specific roles for intermediaries comprise:

- Scientific advice to project developers, particularly regarding the identification of expected downstream services;

- Design of payment mechanisms, feasibility studies, management plans and monitoring systems;
- Facilitation of negotiations among all stakeholders;
- Land management capacity-building;
- Collection of hydrological data;
- Contract administration, allocation of funds and payments; and
- Provision of buying and selling services as an intermediary.

2.3.3 Measuring Benefits

Due to the difficulties inherent in measuring the output of water-related PES projects – water quantity, quality, and flow will vary from month to month and year to year regardless of land management – changes in watershed services are most easily quantified by measuring inputs, in this case actual changes in land use. Such a scheme will involve payments for landscape management changes that deliver indirect but markedly positive impacts for water quantity, quality, and flow. Possible landscape management changes include (Porras et al. 2008: 35):

- Improved land practices;
- Reforestation for commercial plantations;
- Conservation and protection of existing ecosystems; or
- Rehabilitation of degraded ecosystems for protection.

2.3.4 Drivers

Drivers of water-related PES schemes, or incentives for positive upstream land management, may be demand, supply, or solution-led. All three drivers are capable of creating the initial interest for a PES scheme.

- **Demand-led**

Downstream water problems serve as a demand-led driver for PES. When downstream users are willing to pay, landholders are incentivized to change land management in exchange for compensation.

- **Supply-led**

Supply-led drivers occur when there are threats to upstream natural or protected areas or the upstream land use is unsustainable. Payments from downstream water users can provide funds to meet the need for upstream resource management changes that benefit both the downstream water users and the threatened upstream ecosystem(s).

- **Solution-led**

A solution-led market driver is an external organization seeking to identify situations where a PES scheme would be ideal and feasible.

2.3.5 Payments

Payments for ecosystem services, which may come in the form of cash payments, technical or financial assistance, tenure rights, or a share in the benefits generated by watershed protections, are central to any PES transaction. The transfer of some payment from downstream water users to upstream providers of water-related ecosystem services is vital to induce suppliers to cooperate where their cooperation will not generate any direct upstream rewards. A different kind of payments may also be needed to induce participation by downstream water users. Where participating (i.e. paying) downstream users have no way to exclude non-participants from enjoying the benefits generated by a water PES scheme, non-monetary payments, for example in the form of strengthened land tenure, may be required to induce participation by downstream users. The issue of payments will be further addressed in Chapter 6 where different contractual issues are explained in greater detail.

Taken together, these aspects – the scale of the project, how benefits will be measured, the stakeholders, the drivers, and the payment structure – dictate the ways in which an effective payment scheme for water-related ecosystem services may be structured. As schemes become more complex, involving more stakeholders, they are likely to require more complex and formalized payment, monitoring, and enforcement mechanisms, and will involve higher transaction costs. Simpler schemes can incorporate individuals that need not be knowledgeable about capital markets, are likely to be less costly, and will take less time to get up and running. These various considerations must be balanced in designing a sound scheme for water-related PES.

3 Legal Frameworks

If appropriately drafted, the legal framework of a country can enable the successful development and implementation of watershed PES schemes. In the worst case, however, the legislation in place can prove cumbersome or even obstruct efficient and effective PES projects.

Therefore governments as well as PES project developers who may have a great influence on policy-makers, need to realize the importance of developing new or revising existing legal frameworks in order to promote future PES schemes. They also have to clearly understand the potential scope and content that new or revised legislation should have to support watershed PES, as well as the appropriate legal instrument for this purpose.

3.1 Importance of a Legal Framework for PES

The importance of a legal framework for the successful development and implementation of watershed PES depends on the particular type of PES scheme and the legal personality of the parties involved in the PES deal, the objective behind the use of PES as an instrument, as well as the scale at which the PES scheme shall be established. As explained before, three types of PES schemes have to be distinguished: Private (self-organized) PES; PES trading schemes; and public (government-driven) PES.

3.1.1 Private PES Schemes

Private PES schemes have the least government intervention. In this case, both buyers and sellers of ecosystem services are private entities, such as private companies, individuals, or groups of individuals. If involved at all, government entities (or other public institutions) act only as intermediaries within such schemes. The Brazilian Project Oasis provides one such example where contracts are signed between private landowners and the O Boticário Foundation.

Since markets are driven by supply and demand, private PES deals need little legislation to start off beyond basic contract law protections. If a private person has a demand for ecosystem services to be provided and another private person is in a position to offer such services, a PES contract can develop independently of any governmental support.

Private parties are generally free to sign any contract as long as its subject matter is not prohibited by the law. In other words, if two private entities come to an agreement that one shall manage land in a particular manner – namely, maintaining or restoring watershed services – for a particular period of time in exchange for compensation to be paid by the other, this will not require a specific legal framework. Instead, private PES schemes depend on the following general legal requirements:

- A legal system which is based on ‘*pacta sunt servanda*’, a basic legal principle of civil and international law meaning agreements must be kept;
- Absence of any legal provision which would outlaw watershed PES contracts;

- A civil law which provides contract parties with sufficient legal remedies to enforce contract rights in cases of non-compliance with contract obligations; and
- General respect for the rule of law.

It must be recognized that such private projects will mostly develop at a small scale with the objective to solve a specific local water problem. At this limited scale, it is easier for private investors to identify appropriate service providers, to clarify the cause-effect relationship between payments for upstream activities and the provision of downstream watershed services, and thus to limit the investment risk.

In contrast, PES schemes will usually not be an option to address regional or national water problems through market instruments unless a 'nested approach' is employed. A nested approach takes advantage of different local private investments which already exist (or might develop) and devise a framework aimed at achieving meaningful water quality or quantity improvements at a larger (provincial or even national) scale. Appropriate policies as well as implementing legislation would need to facilitate a better connection of different small scale private PES schemes, and to find ways for scaling and integrating them up into a larger initiative. One such approach can be found in Bolivia at the departmental level where the prefecture of Santa Cruz has adopted the so called Policy for the Recognition of Ecosystem Services. However, while this policy is an important first step to promote collaboration and synergies between local PES initiatives as well as clarify the prefecture's supervisory role in this regard, the policy suffers from its generality and the lack of more concrete implementing legislation.

Key Message: Private PES schemes do not require a specific legal framework beyond basic contract law, but they are usually limited to local water problems. However, scaling their positive results up through a nested approach may require a specific policy and legal framework.

3.1.2 PES Trading Schemes

PES trading schemes – e.g., cap-and-trade – refer to the establishment of markets in which established rights (or permits) and/or quotas can be exchanged, sold or leased. For example, in such a scheme an individual who restores and/or protects watershed ecosystem services will be issued credits by a responsible authority. These credits can then be sold to another party that is responsible for a negative impact on ecosystem services elsewhere and thus faces a mitigation obligation imposed by statutory law.

While no examples for such watershed PES trading schemes can be found in the four countries that have been analyzed in this project, other countries are already more advanced in this respect. For example, the United States' Clean Water Act introduces a so-called wetland mitigation banking scheme. The Clean Water Act requires land developers who damage or destroy wetlands to restore, create, enhance, or – in exceptional cases – preserve wetlands either on site or somewhere else, or pay a third-party entity to do it for them. In other words, the wetland mitigation banking scheme allows developers to meet their mitigation obligations by purchasing 'credits' from another party – the wetland banker – who has created or enhanced wetland resources elsewhere.

Such trading schemes are usually rather complex, requiring for example:

- Clear definition of those activities that have a negative impact on ecosystem services and thus lead to mitigation obligations;
- Development of transparent standards to quantify the unit of exchange (e.g. based on their actual value and/or function, or based on the size and/or geography of the concerned land);
- Determination of units of restored, created, enhanced or preserved ecosystem services which will be converted into tradable credits;
- Establishment of procedural frameworks for opening, managing and closing mitigation banks, for protecting the resulting ecosystem services in perpetuity, and for ensuring fair trade;
- Creation of insurance and liability systems to guarantee long-term offsetting and stewardship success; etc.

Furthermore, such trading schemes will usually be developed at the regional or national scale in order to allow the participation of a critical mass of people and ecosystem services. If the number of potential traders and tradable services is too limited, no efficient and effective trading scheme can ever develop. All this clearly indicates the need for a comprehensive and coherent legal framework in order to establish and regulate a PES trading scheme.

Key Message: PES trading schemes require a specific legal framework as they are rather complex and usually need to be established at the regional or national scale.

3.1.3 Public PES Schemes

Public PES schemes have the highest level of involvement by public entities, as they are defined by the involvement of at least one public entity as a contract party. A municipality or local or national government acts as the sole or primary purchaser or provider of a specified ecosystem service or a related land use or management practice.

To date, public PES schemes are the most common form of watershed PES schemes. The great majority of the schemes analyzed in the country reports for this study involve municipalities, local governments or other public entities, such as public water suppliers, as PES parties. As the country reports show, many of these public PES schemes have been developed (or are still being developed) without any legislation that regulates PES in a comprehensive and coherent way. These schemes have mostly evolved on an ad hoc basis due to initiatives by NGOs and overseas development corporations which have brought together the different parties, directed their attention toward PES, collected the necessary financial resources and facilitated the development and implementation processes. The schemes are also highly fragmented and mainly limited to the local scale. While this approach might be sufficient to address specific water problems at a small scale and for a certain period of time – as is the case with private PES schemes – it limits the real potential of PES as an innovative instrument that might be applied more often, more efficiently and at a larger scale to combat prevailing water problems.

Having said that, a legal framework which regulates the development and implementation of PES schemes has concrete advantages which can be summarized as follows:

- **If a market for ecosystem services does not yet exist, PES related legislation can help stimulate the creation of a market.**

Legislation can implement a policy vision that uses and shapes market instruments for conservation, such as PES. Building off success stories at the local level, this kind of a vision can be an important catalyst for the acceptance and thus future development of PES schemes in other areas. One example for this phenomenon can be found in Bolivia. Here, early PES schemes developed between neighbouring communities were regarded as successful and more institutions became interested in participating in PES schemes. This, in turn, led to PES at a larger geographical scale, finally resulting in the development of the departmental PES policy in Santa Cruz and a National Forest Policy that help formalize and promote PES.

Legislation can also establish important financial instruments, such as 'green' funds, taxes, fees, levies, tariffs or even tax exemptions, in order to ensure a continuous flow of financial resources for PES. Examples of such financial instruments that can fund PES are found in all four countries studied. The Colombian legal framework, for example, foresees water pollution and water use taxes, as well as fees to be paid by water project developers, irrigation districts or the hydro-energy sector, all of which could be dedicated to PES activities. So long as the allocation of these revenues remains uncertain, however, the long-term success of PES schemes cannot be guaranteed. The Amazonas State legislation seems more transparent, requiring the revenues generated by its Conservation Units (e.g., visitor fees, environmental fines, sales of natural resources stemming from the Unit) to be deposited into a specific account out of which at least 50 per cent have to be invested in the Bolsa Floresta Programme and other conservation initiatives in the State Conservation Unit System.

Furthermore, legislation can mandate the maintenance of national inventories of natural resources, including ecosystem services, as well as their value. Such inventories are foreseen, for example, in the General Environmental Law of Peru, as well as in different planning instruments in Colombia. They can prove very helpful in strategic watershed planning to help identify regional priorities when implementing PES.

- **A clear and coherent legal framework will ensure that good governance is taken seriously in public PES schemes.**

Often times, a public entity needs to be authorized in order to take particular actions, such as signing a contract as a party. As a result, the legal framework should provide this authority as well as the proper process for entering into legal agreements. This is entirely appropriate, since a public entity participating as a purchaser or seller of ecosystem services either invests public funds or uses public goods (land or natural resources held by the public authorities as custodian). These public funds and goods need to be collected, spent or used on the basis of a clear legal and procedural framework. Furthermore, in order to ensure transparency and to avoid mismanagement and corruption, the use of public funds and goods should be monitored and supervised by an independent authority which again has to be given clear rights and responsibilities to be determined in the statutory legislation.

- **If properly drafted, PES related legislation is a means to create legal certainty and consequently trust among the parties.**

As the country reports show, many legal frameworks still lack sufficient clarity with regards to PES. The existing regulatory frameworks might already include certain provisions which can be interpreted as accepting and promoting PES as an instrument. However, incoherent legislation, lack of clear criteria for interpreting relevant provisions, as well as lack of implementing regulations can often discourage the adoption of PES in practice. In Bolivia, certain sectoral laws include economic instruments which can be interpreted as a basis for PES development. At the same time, the use and implementation of these instruments is hampered by contradictory policy approaches and legal interpretations which result in a clash between agricultural and forest conservation policies. The Peruvian and Colombian cases show that recognition of water-related ecosystem services and their compensation can be found in different legal texts at different levels. But often implementing regulations which would create the necessary mechanisms to value, reward and maintain the provision of ecosystem services are lacking. As a result legal uncertainty prevails, providing a disincentive for both buyers and sellers to enter into agreements.

At a basic level, the development of PES-related legislation should focus on solving the existing challenges of PES deals. When introducing new or revised legislative text, policy-makers need to balance the goals of guiding PES development and implementation on the one hand, and making only a minimum of interventions/changes in the legislation – especially in those with an already well-developed and often complicated legislation in place – on the other hand. If policy-makers and legislators do not find the right balance, they run the risk of either creating overregulation and bureaucracy which could hinder the success of PES, or missing an opportunity to develop regulated and trustworthy markets.

This is not an area where uniform laws can be adopted in every country. Legal frameworks differ among jurisdictions. The key point, therefore, is that the appropriate legal framework for PES development will depend both on the legal and market environment on the ground. At the same time, it must be recalled that markets are not always 'perfect'. Once a market is established and has reached a certain size, it is often advisable to ensure that it grows and operates within a legal framework that is adjusted to the specific needs and conditions. This shows the potential need for governmental intervention.

Key Message: An appropriate legislative framework which regulates public PES schemes has the potential to stimulate the development of trustworthy markets and to ensure good governance.

The chart on the next page provides an overview of the need for and the importance of legal frameworks for different types of PES schemes.

Type of PES scheme	Need for legal frameworks	Importance of legal frameworks
Private PES scheme	Medium to low	Promote a nested approach
		Upscale from local to regional/national level
PES trading scheme	High	Create trading scheme Regulate complexity of trading system 'Control' the market
Public PES scheme	High	Promote PES development Create legal certainty Ensure good governance

3.2 Appropriate Legal Instruments

Based on the advantages described above, countries have become increasingly interested in assessing their legal frameworks. Water-related PES schemes can be promoted through different legal instruments at different levels. These are briefly described below.

3.2.1 Constitution

In theory, the constitution of a country could include references promoting PES. However, it is important to understand that the constitution is usually a set of rules establishing the overall conception, character, and organization of a state's government, prescribing the extent of its sovereign power and the manner of its exercise, introducing the most basic legal principles that can 'never' be abolished, and guaranteeing certain rights to the people. The constitution is thus the fundamental and organic law of a state. As such, its objective is rather to build the basic national order than to introduce specific environmental policy instruments or regulate their details. Furthermore, in reality, changing the constitution is a very difficult (if not impossible) exercise in many countries due to high legal prerequisites and political constraints. As a consequence, including specific PES provisions in the constitution of a country remains a theoretical option limited by general legal doctrine as well as practical constraints.

Nevertheless, while there is no real need for recognition or regulation of PES in the constitution, it can still be an important instrument to indirectly support its development. Introducing a legal provision which gives people a right to a clean or healthy environment, or even recognizes the value of nature and its ecosystem services can be important to build an enabling political environment and a strong legal basis from which PES can be developed. The Colombian Constitution, for example, includes three main principles which can have a positive influence on the development of PES:

- Environmental protection as a constitutional goal and joint obligation of the state and citizens;
- A healthy environment as a basic right of citizens; and
- Public participation as a procedural requirement.

These three principles support future collaboration between the state and individuals in the protection of the environment and the conservation of natural resources, both of which are beneficial for the

development and implementation of PES schemes.

If a country decides to include such general enabling provisions, these should be complemented by more specific and comprehensive legal provisions developed within the implementing environmental legislation. An example of the constitution setting very ambitious goals without the necessary implementing legislation can be found in Ecuador, where a new constitution was approved in September 2008. This constitution made Ecuador the first country in the world to recognize legally the inalienable rights of nature, called ecosystem rights. Nature itself shall have the right to exist, persist, maintain and regenerate its vital cycles, structure, functions and its processes in evolution. Furthermore, people shall have the right to benefit from the environment and from natural resources. At the same time, however, the production, provision, use, and exploitation of ecosystem services shall be regulated by the State. How these ambitious goals can be realized in legal practice is still unclear, since the necessary implementing legislation is not yet in place. This has led to a situation where the further development of PES may well be hampered rather than facilitated, as confusion is created which leaves practitioners with legal uncertainty.

Furthermore, since a country's constitution is normally given supremacy over ordinary statutory law, if there is any conflict between a legal statute and the constitution, all or part of the statute can be struck down by a court as unconstitutional. Therefore, it is crucial that the constitution does not include any provision that could impose indirect obstacles for, or even directly prohibit, the development of watershed PES schemes. Otherwise, PES schemes will be overshadowed by legal uncertainty and lose credibility as they can be challenged at any time.

Such problems have been faced by PES developers in Bolivia, where the previous Constitution considered natural resources as purely economic goods, giving priority to extractive and industrial uses of natural resources over conservation activities. This approach led to the misconception of the so-called 'socioeconomic function requirement of the land', which linked the maintenance and acquisition of rural lands to active work, meaning deforestation. As a consequence, people participating in PES schemes were not entirely sure if their forested areas could be subject to appropriation by any third person. This legal uncertainty created confusion and distrust which had to be overcome first before developing PES initiatives.

Key Message: While there is no need for constitutional recognition of PES, the constitution must not prevent the development of PES schemes. Instead, the constitution has a great potential to recognize the value of nature and/or ecosystem services, thus creating an enabling environment for PES.

3.2.2 Specific PES Law

A country could also decide to include a specific PES (or ecosystem services) law in its legal framework. The objective of such a specific law would be to introduce PES as an accepted policy instrument, to promote its use, and to regulate the further particulars of its implementation (see section 3.3 below). Experience, however, shows that this approach is not yet common practice. Currently, such specific PES laws only exist in very few countries (e.g., Costa Rica or Argentina).

In the four analyzed countries, specific PES laws can only be found in Brazil. Here, the so called Substitutivo law aims at institutionalizing PES at the national level. Furthermore, at the regional level, the States of Amazonas and Espírito Santo have adopted legislation which establishes a legal framework for PES. In Peru where watershed PES schemes are still in a developing stage, a first law has been proposed to define, regulate and promote compensation for ecosystem services. Its adoption, however, is pending.

Drafting a specific PES law or ecosystem services law can have several advantages as well as disadvantages:

A specific law can draw the attention of the government as well as the public to the institutionalization of PES as a policy instrument to ensure the future provision of water-related ecosystem services. Such attention is crucial to raise the general awareness and possibly also the acceptance of an innovative policy instrument that has been put in place.

Regulating PES in a special law also provides the possibility to draft a comprehensive and well structured legal framework from scratch. This makes it easier to compile, arrange and systematize the different PES related provisions in an ordered way, tailored to the particular legal and market environment. Creating a consolidated set of PES provisions and including them in one legal document can be very helpful to improve the overall understanding of PES, to clarify the scope and content of the PES instruments, and to support implementation.

However, from a practical point of view, the drafting of a specific PES law might also be a challenge, since there is a clear danger of fragmenting or complicating the existing environmental legal framework. If it is not carefully drafted so that it is aligned with the environmental legislation already in place, an additional PES law can easily become yet 'another' law that is not achieving its objective due to increased complexity of the legal framework. The direct result can be lack of legal implementation or compliance. The creation of a 'parallel' legal instrument can be avoided by a specific PES law properly integrating the overall legal and institutional framework of a country, particularly laws that regulate the different ecosystems and their relevant services. Such integration, however, can be a great challenge because many existing legal instruments may need to be checked for potential legal conflicts and possibly revised or adjusted as a consequence.

The chart below sets out the potential advantages and disadvantages of a specific PES or ecosystem law.

Advantages	Disadvantages
Attention drawn to PES in general	
Awareness raised for PES as a legitimate policy instrument	
Comprehensive codification developed	Environmental legislation further fragmented
Scope of PES instruments clarified	Complexity of legal framework increased
Legal certainty created	Conflicting legal framework created
Implementation supported	Implementation hampered

Key Message: If PES is regulated in a specific PES law, attention must be paid to its integration in the existing legal and institutional frameworks, in particular those laws that regulate the different ecosystems.

Regardless of the potential advantages and disadvantages of a specific PES law, there is certainly a need for and value in developing specific PES policies. In Colombia, for example, a Draft National PES Strategy calls for the establishment of an operative framework for PES. In Bolivia, PES policies have been developed at the provincial level and have proved to have positive effects for the further development of PES. Such policies are important instruments to officially introduce the PES vision and to stimulate and create a momentum for the future development of PES programmes.

3.2.3 Sectoral Environmental Legislation

If the development of a specific PES or ecosystem services law (and/or policy) is too cumbersome, or simply not feasible due to lack of political support for new instruments, a preferred option might be to amend already existing sectoral environmental legislation (and/or policies). Sectoral environmental legislation includes laws which regulate environmental protection and nature conservation in general (such as general environmental laws, environmental framework laws, etc), laws which address specific ecosystems that provide relevant services, or related implementing regulations. In such sectoral legislation, specific provisions for the development, implementation and regulation of watershed PES schemes can be included.

It is important to note that, although water quality and quantity are the main targets in watershed PES projects, the actual activities foreseen in these projects are primarily land use-related, specifically involving reforestation, forest maintenance or sustainable farming practices. For this reason, it is most appropriate to include PES provisions not only in water legislation, but also in forestry legislation as well as legislation related to agriculture.

Introducing specific PES provisions through amendments to already existing legislation is advantageous because it requires less legal drafting and synchronization with other laws. Also, in many countries, the sectoral environmental legislation already includes references to the concept of ecosystem services and to economic instruments for their conservation. Such provisions could be interpreted as supporting PES development.

However, laws that date back to the late 1960s or 1970s, such as the Water Law in Peru, do not contain such progressive concepts or instruments. In addition, even if the laws contain PES relevant provisions, they often lack sufficient clarity, precision or even implementing regulations. This problem exists in all four countries that have been analyzed. For example, in Colombia the existing regulatory framework is theoretically sufficient to support the development of PES schemes. Nevertheless, the prevailing lack of unified criteria for interpreting the relevant provisions still discourages PES initiatives. In Brazil, again, the Water Law foresees the collection of water use fees and charges which could provide an important financial source to fund PES initiatives. The allocation of these funds to PES, however, is yet to be put in practice. Currently, the main application of the generated funds is to water infrastructure, operations, and maintenance, but not to PES schemes.

While these deficiencies indicate a clear challenge for using existing sectoral environmental legislation for PES purposes, a potential co-benefit becomes obvious – PES related amendments might provide an opportunity to further clarify and thus improve the existing legislation with the least interventions.

Key Message: Introducing specific PES provisions through amendments to existing legislation requires less legal drafting and synchronization work. It also provides an opportunity to clarify or further develop existing economic instruments.

3.2.4 Indirectly Relevant Laws

Regardless of whether a specific PES law is developed or existing environmental legislation is amended to integrate certain PES provisions, an efficient and effective legal framework for PES also requires compatibility with so-called indirectly relevant laws. Indirectly relevant laws are those related to natural resources management in general or financial issues, such as land laws (see Chapter 4 below), agricultural laws, mining laws, planning or land development laws, fiscal laws, etc.

Agricultural laws, for example, often tend to create perverse incentives which clash with the objectives of watershed PES initiatives. This is the case in Bolivia and Peru where the agricultural legislation aims at redistributing and clarifying land rights while at the same time creating incentives for deforestation.

Fiscal laws also have a clear potential to introduce perverse incentives, for example, by exempting certain activities with a negative impact on ecosystem services from tax payments or providing outright subsidies for destructive activities. However, they can also include certain provisions that can support PES initiatives. In Colombia, for example, Law 99 of 1993 requires the investment of a certain amount of money coming from water use projects, the energy sector or irrigation districts into watershed conservation activities. Such mandatory investments thus provide a potential source of funding for PES projects.

The planning of human settlements, agricultural land use, or different kinds of infrastructure projects (such as roads) is again subject to land development legislation. Depending on the way such land development legislation is drafted, it can introduce an ecosystem (services) approach, value ecosystem services projects or promote the establishment of ecosystem inventories; but it can also completely ignore ecosystem services, give priority to other activities, or in the worst case create perverse incentives promoting land use changes and advancing the further degradation of ecosystems and their services.

These examples clearly show the potential negative, but also positive impacts, of indirectly relevant legislation on watershed PES projects. As a consequence, it is crucial to take into account, analyze and, if necessary, revise such legislation when developing a legal framework for PES.

Key Message: Efficient and effective legal frameworks for PES demand compatibility with indirectly relevant laws in order to avoid further barriers for watershed PES initiatives. At the same time, such laws may need to be assessed either to use their full potential to promote PES or remove perverse incentives that obstruct PES.

3.3 Scope and Content of PES-related Legislation

If PES-related legislation shall be drafted in whatever form, two main questions arise: At which level of government do we need to introduce PES legislation? And what shall be actually regulated in such legislation?

3.3.1 Scope

Regarding the level of governance, it should be noted that legal provisions at all levels – from local to national – can play an important role and have an added value in the further promotion and implementation of watershed PES. At the same time, it is important to understand that there is not a universally valid formula or recipe which would explain the best way to allocate PES related legislation at different levels of government. Instead, the appropriate level for PES legislation will depend on two main factors:

- **Experiences with PES development gained through a policy-practice loop ('learning-by-doing')**

Legal policy frameworks need time and experience to be developed and implemented. A cautionary approach should be taken throughout their development. Even if relevant strategies, plans, policies or legislation are not yet formulated in extensive and great detail (or even do not exist at all), the first PES initiatives represent a key first step in the policy-practice loop. In other words, in a first stage, before such frameworks can be established, it is important to develop and implement PES projects in order to build capacity through trial and error.

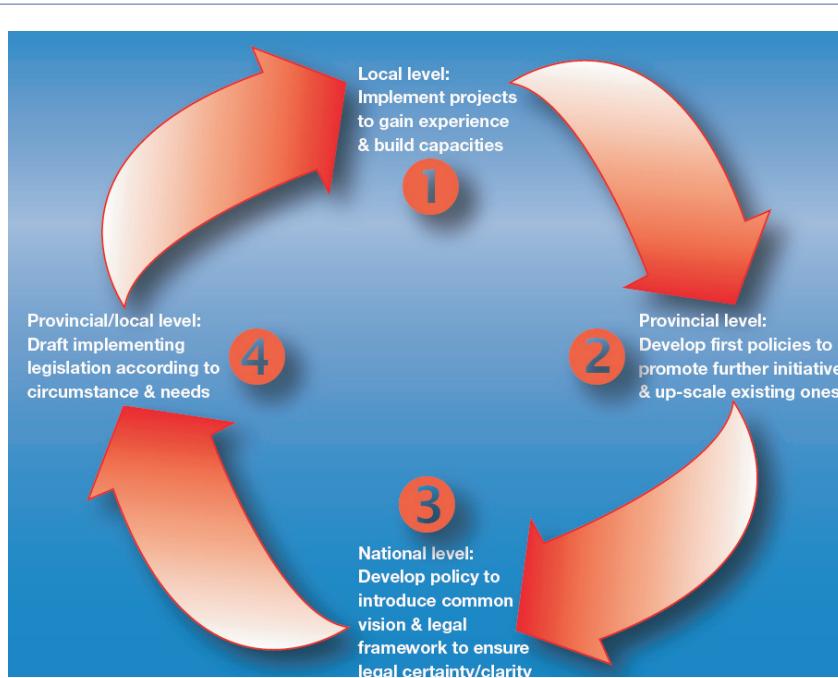
At a second stage, and after the first success stories (or failures) have been documented, an effort has to be made at the provincial level to learn from and duplicate the positive PES experiences in other areas, and if possible at a larger scale. In order to build a strategy and a first 'official' framework for such up-scaling, a first PES policy at the provincial level can be the appropriate instrument.

For further coordination of such provincial policies across administrative boundaries, and in order to promote PES developments at the most efficient and effective level, namely the watershed, national PES legislation need to be developed as a third step. Such national PES legislation has the potential to create a common (nationwide) understanding and vision of PES as an instrument. Such unification bears advantages as well as disadvantages. On the one hand, it can support widespread legal clarity and certainty by establishing certain criteria as well as requirements where necessary. On the other hand, such unification must not lead to a simple top-down approach where the national legislation regulates and steers PES processes without taking into consideration the different local contexts. Therefore, the national PES legislation should regulate both as much as necessary and as little as possible.

The regulation of further details can be left to the implementing legislation to be drafted at the provincial and local level in a fourth stage. Such decentralized regulation can be an important means to adjust to local circumstances and to close the policy-practice loop.

The successful implementation of such a policy-law-practice loop leads to a two-way information flow which aims at ensuring that the development and implementation of PES projects, on the one hand, and the drafting of PES policies and laws, on the other hand, are continuously informed by each other and responsive to the respective developments. In other words, lessons learned from the first watershed PES initiatives on the local level will be fed to decision-makers at the local, provincial and national levels, and the following policy responses and decisions will then be communicated again to the PES practitioners. When one policy-practice loop ends, the next one immediately starts.

The figure below visualizes the 4 steps of the PES policy-practice loop at different levels.



- **Specific government system prevailing in the country**

Furthermore, the appropriate level for PES legislation depends on the specific government system that prevails in the country. In this regard unitary versus federal systems of government have to be distinguished. While countries with a unitary government structure, such as Colombia, centre their law and policy at the national level, countries with a federal structure, such as Brazil, create an interface between the subnational (provincial) and national levels of executive and law-making authority.

As a consequence, unitary states might have a certain tendency to introduce PES legislation or policies rather at the national than at the subnational level. This approach is reflected in the current discussion of a Draft National PES Strategy in Colombia. In contrast, federal states are more likely to

develop PES laws and policies at all levels. Brazil again is a showcase for that with its PES laws and policies at national, provincial and local levels.

Key Message: PES legislation at all levels – from local to national – can play an important role in the further promotion and implementation of watershed PES. Its development should gain from practical experience, with local projects informing regional and national legislation which, in turn, provides greater legal certainty and a framework that enables rather than restricts regional and local initiatives.

3.3.2 Content

The necessary content of PES provisions will depend on the type of legal instrument as well as the jurisdictional level where such provisions are introduced. In any case, a comprehensive legal regime will follow a logical structure comprising:

- General regulations

A legal framework for PES should include general regulations on:

- Purpose, scope and ‘cross-cutting’ principles

PES-related provisions often make most sense when linked to and embedded in the greater nature conservation, water and development policies. This can be done by clarifying the purpose, scope and certain cross-cutting principles of PES legislation.

For example, PES-related legislation can be introduced as an instrument to protect the right to a clean environment, to acknowledge the economic and social value of ecosystem services, to mobilize additional financial and human resources for sustainable development, to promote co-management of natural resources, etc. It should be clarified upfront that the watershed (or micro-watershed) is the most appropriate and effective scale for PES schemes.

- Terminology

Effective implementation of and compliance with legal provisions depends to a large extent on how well they can be understood. Especially when introducing a new legal instrument, such as PES, it is important to precisely define the terms which will be key for their development and implementation, and to avoid jargon.

For example, the very idea of payments for ecosystem services needs to be explained. This will require differentiating ecosystems services (the benefits to nature and human welfare provided by ecosystems) from environmental services (services related to sanitation and waste management which are provided by humans). The different types of ecosystem services recognized within the legal framework should also be clearly defined so that misinterpretations of what qualifies as service under a PES scheme can be avoided. Further definitions can help to distinguish the different types of PES schemes: private PES schemes, public PES schemes and trading schemes (see section 3.1. above).

Some countries still lack such definitions. For example, the Bolivian national policies and legislation do not expressly recognize ecosystem services. Other countries might include a definition or at least

references to ecosystem services in their policies and legislation, but only with a limited scope. The Substitutivo law in Brazil, for example, lists different ecosystem services in its definition, namely carbon sequestration, hydrological services, soil conservation, preservation of biodiversity, and reduction of forest fire risks. But it does not mention any cultural services provided by ecosystems. However, it is important for an efficient and effective PES legal framework to provide the full spectrum of recognized ecosystem services. This can allow flexibility in the development of PES projects and highlight the potential of bundling different services in one scheme. A fully comprehensive list of ecosystem services might include: supporting services, provisioning services, regulating services, as well as cultural services.

Definitions should follow the common terminology already used in a country rather than introduce new or unknown terminology. This will facilitate not only the general understanding but also the acceptance of PES-related provisions.

- **Financing regulations**

A long-term sustainable PES programme should avoid heavy dependence on donations coming from international development corporations or the private sector. Donations are usually one time payments or payments over a limited period of time. Such revenues may be helpful in the start-up phase of PES projects to cover initial investments, but they cannot be expected to provide long-term funding. Also, revenues from donations cannot be directly controlled by PES developers as they depend on donor priorities that may change over time. Therefore, unless donations are high enough to create an endowment fund which will ensure a sustainable flow of money, they cannot reliably provide the main financial resource for PES.

As a consequence, a 'fundraising strategy' may need to be developed that relies on legal provisions. These might include the following:

- Sustainable PES funding sources

Green taxes and water-related fees or charges can provide sustainable sources of funding. A new tax, charge or fee might be introduced, or an already existing one might be dedicated to PES funding. Levying such revenues requires concrete regulation if it is to be dedicated to PES funding rather than general revenue.

For example, revenues can be collected for both abstraction and pollution of water. Abstraction fees can be calculated by volume, or they can be associated with an abstraction permit or concession and based on the maximum quantity of water to be abstracted by the water user as laid down in the permit or concession. Rates charged to certain user groups – commercial and non-commercial – can differ. Rates can also differ between abstractive and consumptive use (putting a higher rate on the latter), or between areas with or without over-abstraction, specific industry sectors and even scarcity situations.

- Percentages to be dedicated to PES

The funds raised through such revenues can be considerable. Depending on the circumstances, it might not be necessary to dedicate the full amount to PES. Therefore, regulations may need to stipulate what percentage of each type of revenue will be dedicated to PES schemes and to other funding purposes.

- Establishment of specific PES funds/accounts

Traditionally, the main focus of the collection of water-related revenues has been on financial cost recovery and traditional water services, with little attention given to watershed PES. Therefore, it may be important to ensure that at least part of the collected financial resources is earmarked for PES purposes, perhaps to a specially created PES fund or account.

Apart from its specific PES focus, such a fund/account has another important advantage. It can become an instrument to collect and bundle different types of revenues – specific water-related revenues, but also other revenues (such as gas taxes, financial penalties, multilateral and bilateral financial support, etc.). Diversifying the financial resources will be helpful to ensure greater resilience of the overall funding system. For example, tax cuts that can be the result of political changes and lead to decreasing revenues might be anticipated and absorbed through other sources of revenue.

Finally, when establishing a PES fund, it is also important to clearly identify how the collected money will be spent. In this regard a distinction has to be made between financial resources spent to cover PES transaction costs (e.g. recurrent management costs) and those used to pay ecosystem services providers for management on the land. As financial sources are usually scarce, determining the proper ratio between transaction costs and payments will be decisive for the long-term success of PES schemes.

- Institutional regulations

Institutions may need to be created or influenced to support PES schemes. Creating an efficient and transparent institutional set-up will require determining individual institutions/agencies and their specific duties and authorities in PES schemes. Separation of their specific functions and powers can be a means to ensure that specialists with necessary ‘PES know-how’ are involved, and that a system of checks and balances is set up to prevent arbitrary decision-making. The following functions need to be distinguished:

- Supporting PES project development (e.g., scientific research and project planning);
- Fundraising (e.g., collecting and managing financial resources);
- Managing access to information, participation and conflict resolution (e.g., capacity building, stakeholder dialogues, facilitation of negotiations);
- Monitoring compliance (e.g., contractual obligations, management of public funds); and
- Enforcing laws, regulations and contracts.

The twin objectives of such regulations will be not only to establish new institutions or agencies specialized on water-related PES but, also, to harmonize the roles and responsibilities of already existing institutions at the horizontal (between different water-related sectors) and vertical (from national to local) level. Institutional harmonization is necessary in order to avoid (or at least limit) conflicts of interest and jurisdiction, and to achieve synergies. The creation of new institutions can also address institutional gaps which need to be closed to ensure efficiency and effectiveness in PES development and implementation.

The institutional framework will be further discussed in Chapter 5 below.

- Implementing regulations

Finally, an effective PES legal framework should also include regulations that focus on the implementation and sustainability of PES schemes. Such regulations can address:

- Contractual issues

Depending on the jurisdiction, it may be useful to address whether it is necessary to register PES contracts, the legitimate parties for each PES type, as well as specific criteria for participation in them, different groups of individuals and entities which are targeted as potential service providers and beneficiaries, accepted types of payments (recognizing in cash and in-kind compensation), etc.

One needs to be very careful, however, not to over-regulate and take away flexibility at the watershed level to craft PES arrangements suited to local needs. Hence, it is important that PES regulations find the right balance between creating a clear framework for the development of PES contracts on the one hand, and ensuring freedom of contract on the other hand. Contract issues will be further discussed in Chapter 6 below.

- Property and tenure issues

Water-related ecosystem services are closely tied to the management of ecosystems and their natural resources. As a result, successfully establishing and operating watershed PES schemes necessarily involve property and tenure rights over land, its natural resources, and the provided services.

PES-related provisions may regulate, for example, if it is necessary to hold certain property or tenure rights in order to participate in a PES scheme; if customary or only statutory rights will be recognized and who has the authority to recognize them; if such rights need to be registered; etc. As it is not necessarily clear who holds certain rights, it might be advisable to develop rights inventories or registers and regulate their permanent updating.

Furthermore, regulating land use change after termination of PES contracts might be a way to ensure a sustainable provision of ecosystem services beyond the lives of a PES scheme.

As noted above, however, one needs to be very careful not to over-regulate and take away flexibility at the watershed level to craft PES arrangements suited to local needs. Property rights issues will be further explored in Chapter 4 below.

- Land use planning issues

Land use and spatial planning regulations play an important role in conserving ecosystems and their services. These include proactive processes such as the preparation of spatial plans, which are based on ecosystem (services) inventories and implement planning policies by identifying favoured areas for developments (e.g. residential expansion), areas where developments should be avoided or limited, and areas where PES schemes should be developed. For example, the designation of green belts around towns and cities is a common practice for protecting green space for amenity, landscape, drinking water and environmental purposes. Planning regulations can also provide an effective mechanism for protecting specific landscape features that provide ecosystem services.

Ecosystem services inventories may support such planning processes by identifying the ‘best’ locations for PES development and management. Such inventories require mapping and analysing

ecosystems and their water-related services in order to gather necessary data. This exercise needs to be repeated periodically in order to keep the relevant data up to date.

- Compliance and enforcement issues

PES-related provisions should also establish a framework for compliance and enforcement issues. Regulations can introduce awareness-raising activities which are not only important for the development of new PES schemes, but provide complementary measures to encourage compliance with existing schemes. Thus, PES developers might have the obligation to take appropriate steps for making available relevant information about the existing PES legal framework, to organize stakeholder meetings and promote codes of conduct in consultation with stakeholders, etc.

While compliance monitoring obligations will most likely be regulated in the PES contracts themselves, for large-scale PES schemes it may be useful to assign specific institutions with the responsibility to monitor compliance with PES legislation (e.g., the cost-effective management of a PES funding system). This requires the determination and clear definition of the investigative powers given to these institutions. Regulating their accountability and transparency through access to information, public participation as well as periodical auditing processes will be significant.

In order to deter non-compliance and to support enforcement, regulations can also define PES violations, create dispute settlement mechanisms and introduce remedies and sanctions as response measures. Dispute settlement mechanisms can comprise administrative, judicial and/or alternative dispute-resolution systems, such as arbitration, mediation or special water-related tribunals. Sanctions again need to be flexible enough to respond to different situations and degrees of non-compliance. Further details on compliance and enforcement can be found in Chapter 6 below.

- Legislative conflicts

Finally, it has to be remembered that the introduction of PES-related provisions (like all new legal text) can lead to conflicts with existing legislation. Therefore, PES regulations should include a provision that determines which law prevails in cases of conflict or inconsistency between legal texts.

Many of the above described implementing regulations will be further specified in individual PES contracts which need to be adapted to the local context of a PES scheme. However, PES-related provisions can build a basic framework which supports the development and implementation of these contracts and creates legal certainty for PES schemes. The challenge is to provide guidance and a supportive framework through legislation and regulation while allowing flexibility at the local level for the PES parties to craft agreements that best suit local needs.

The chart on the next page sets out a potential structure of an effective and efficient PES legal framework.

Type of legislation	Objective
Constitution	<p>Recognizing the right to a healthy environment</p> <p>Acknowledging the value of ecosystem services for human well-being</p>
Specific PES law	<p>Introducing a national PES vision</p> <p>Recognizing PES as a legitimate policy instrument</p> <p>Defining the general concept of ecosystem services as well as recognized ecosystem services</p> <p>Defining the concept of PES as well as recognized types of PES</p> <p>Creating specialized institutions</p> <p>Promoting bundling of ecosystem services</p> <p>Establishing ecosystem services inventories</p>
Sectoral legislation	<p>Clarifying/adjusting existing economic instruments to include PES</p> <p>Adding specific provisions for PES fundraising</p> <p>Setting up an institutional framework</p> <p>Regulating monitoring, compliance and enforcement</p> <p>Encouraging decentralized PES management</p> <p>Introducing general requirements for good PES governance</p>
Implementing regulations	Regulating the implementation of specific elements in further detail
Indirectly relevant legislation	<p>Ensuring PES compatibility</p> <p>Avoiding perverse incentives</p> <p>Encouraging land-use planning based on an ecosystem services approach</p>

Key Message: The content of PES provisions depends on the type of legal instrument as well as the level where such provisions are introduced. A comprehensive legal regime should comprise provisions regulating general issues, such as scope, cross-cutting principles or terminology, as well as finance, institutional and implementing issues.

4 Property Rights

As mentioned above, successfully establishing and operating watershed PES schemes demands specific attention to property rights issues.

4.1 Understanding Property Rights

Property rights regulate the relationship among people as individuals or groups with respect to a determinate thing, which can be any physical or intangible entity (e.g. land and its natural resources which provide ecosystem services). As a general concept property rights comprise ownership and a sub-set of rights which follow from the ownership.

There are many different types of property ownership. Traditionally, ownership implies the right to possess, use and enjoy, for example, a piece of land and its natural resources, coupled with the right to exclude others. Rights following from ownership can be distinguished as follows (FAO 2002):

- Access and use rights which give the right to access the land in order to use its natural resources;
- Control rights which give the right to make decisions how the land and its natural resources should be used; and
- Transfer rights which give the right to sell, to convey or to mortgage the land to others through contracts, to transmit the land to heirs through inheritance, and to reallocate access, use and control rights.

These rights can be inseparably attached to the right of ownership or exist as separate, transferable rights. Certain rights, like the right to use a piece of land can be further split into more specific use rights, such as use rights for natural resources but also ecosystem services.

Different forms of transferring property rights exist. One possibility is to transfer the whole bundle of rights from one person to another. This happens, for example, by means of sale or inheritance, and requires the seller/decedent to have all property rights at his disposal. More complicated situations comprise the transfer of only parts of the bundle of rights (e.g. by means of easements/servitudes, licences, permits, or concessions).

Depending on a country's legislation, property rights can be:

- Public – i.e. held by the state;
- Private – i.e. held by a natural or legal person;
- Communal – i.e. held by each member of a community; or
- Openly accessible – i.e. not assigned to anyone.

Property rights as such are generally recognized by the constitution of a state. Their specific conditions and characteristics are further laid out in the state's legislation (e.g., the civil code).

Key Message: Property is not a single right which is by necessity clearly attributed to only one person. In fact, the right of ownership and different use rights regarding the same property can be held by different actors and be transferred individually.

4.2 Importance of Property Rights for PES

Property rights play a crucial role in the creation of PES schemes.

- **Object of a PES contract**

The object of a PES contract could be an ecosystem service, such as the purification of water. A downstream user enters into a contract, paying for this service. In this constellation, the question arises as to who can actually sell the specific ecosystem service. To give an answer, it is necessary to determine the property rights (ownership and/or use rights) over the ecosystem service.

It should be noted that many PES contracts will not need to discuss ecosystem services at all. The nature of watershed ecosystem services ties them frequently to land use/management. Therefore, the object of a PES contract can also be particular land management practices, for example. In this case, the buyer assumes the risk that services will result from particular land management regimes and is, in fact, paying directly for land management, not for service provision.

If the object of a PES contract is a land management practice and not an ecosystem service itself, property rights are equally important. The required management practice (action or omission) will take place on a piece of land to which the seller has to have appropriate property rights in order to legally fulfil the obligations of the contract.

- **Parties of a PES contract**

Property rights play also a crucial role in defining who holds the respective rights over ecosystem services, or the land and the natural resources which the services relate to. Only actors with the appropriate property rights will be able to fulfil the obligations of and become a party to a PES contract (the latter will be further discussed in Chapter 6 below).

Furthermore, conflicts over the distribution of benefits may arise between PES contract parties and non-parties. In case of unclear property rights, such conflicts cannot be solved and the functioning of the scheme is seriously threatened.

- **Sustainability of PES schemes**

An additional aspect is the sustainability of PES schemes. Areas where PES schemes are developed may also be the target of natural resource exploitation. Clear property rights, in particular the right to exclude others from one's property, can here serve as a defence against illegal exploitation.

As mentioned before in Chapter 3, prohibiting land use changes after termination of PES contracts might be a way to ensure a sustainable provision of ecosystem services in the long run, i.e. beyond the life of a PES scheme. A possible legal instrument to introduce such a prohibition is servitude.

Key Message: Clearly defined property rights enable parties to enter into PES contracts and ensure the sustainability of PES schemes.

4.3 Challenges of PES Schemes Related to Property Rights

As property rights play an essential role in the development of PES schemes, clarity in this regard is a prerequisite for PES development and implementation. There is a multitude of related stumbling blocks for those planning PES which will be identified in the following section:

- Conflicts between statutory and customary law

Property rights can be recognized by statutory as well as customary law, and these may differ. Statutory law can be defined as the written or codified law of a country. Depending on the governmental and institutional structure of a country, it may exist at all levels, from national to local. Statutory law has to be differentiated from so called customary law, which refers to traditional rules and norms (customs) that may also prevail in certain countries, but only at a very local level and for specific groups of people. In contrast to customary law, which is often developed over time by these groups of people and then transferred from generation to generation in an oral form, statutory law is set down by the state's governing authorities with law making power.

Statutory law can provide for a formalization of customary property rights into formal land titles or use rights. This is the case, for example, in Bolivia where the irrigation law recognizes certain customary use rights. In Brazil, such formalization depends on the status of indigenous and local communities and their location. Indigenous people do not own land, which is state property, but hold different use rights over land and natural resources. Where PES schemes do not require ownership titles but also allow the participation of holders of use rights, their participation in PES schemes is unproblematic.

Conflicts may, however, arise in countries where customary rules are not recognized by statutory law but are applied in practice. If customary and statutory property rights differ from each other, this can directly lead to disputes over rights.

- Unclear property rights legislation

As mentioned before, if ecosystem services are the object of PES contracts, the property rights related to these services need to be clarified. Because PES is a new instrument and ecosystem services a new concept, they are frequently not regulated by the countries' legal frameworks. This usually implies that there are no separate property rights (ownership and/or use rights) over ecosystem services formally recognized in the country's legislation. This is, for example, the case in Bolivia.

Instead, property rights over ecosystem services may fall within the rights over the natural resources which provide the services, or the land where the natural resources are located. This is in principle the case in Peru where the state as the owner of natural resources holds the property rights over ecosystem services. The state can transfer certain property rights over natural resources to individuals. However, it is not yet clearly regulated whether these rights also comprise the right to receive income from the ecosystem services which are provided by the transferred natural resources.

The interpretation of existing property rights may pose another challenge. In some countries, like Bolivia and Peru, the misconception prevails that property rights over land or natural resources will only be recognized if their economic utilization or ‘improvement’ is ensured. This runs against the concept of ecosystem services and can create a perverse incentive leading to land use changes.

- Ambiguous property rights arrangements on the ground

Statutory law usually provides for formal property rights titles which clearly state the rights and obligations regarding land and its natural resources. Depending on a country’s circumstances, such titles are often registered in order to provide proof for ownership (or use rights), to clearly allocate responsibilities, and to ensure security in transactions. A potential PES scheme could require such a title as a condition for participation.

In many countries, however, great uncertainty regarding property titles may occur, if their granting is subject to a complicated or highly bureaucratic regulation process. If such processes prove to be costly, slow and cumbersome, property rights titles might be envisaged by statutory law, but not exist in practice. This is the case, for example, in Bolivia which has a tradition and history of land occupation without titling or even registration, and where land reform processes have made little progress so far. Although the so-called Saneamiento process in Bolivia tried to clarify the property rights over 107 million hectares within 10 years, its implementation has been slow, and only 18 million hectares had been regularized by 2006.

Another common property rights problem in practice is unclear borders. Even if an actor holds a formal title to land, the precise size and borders of the land may not be determined. Ambiguity over exact borderlines can arise from lack of mapping, division or transfer of land, competition with communal property rights, or joint possession of land by more than one private person.

Key Message: Conflicts between statutory and customary law, unclear or not existing property rights legislation, and ambiguous property rights arrangements on the ground can pose challenges to the implementation of PES schemes.

4.4 Finding Property Rights Solutions for PES

The above described challenges in the development of PES schemes require innovative solutions. Generally, more flexibility in the treatment of property rights related issues may provide an answer to a number of problems.

- **Referring not only to ownership but also use rights**

Landless people will not be able to participate in PES schemes where ownership of land, natural resources, or ecosystem services is a formal requirement. A possibility might be to refer not exclusively to ownership as a PES requirement but also to allow for participation of holders of use rights.

- **Establishing registries**

Registries which record the creation, transfer and restriction of property rights can be an important

tool to determine and clarify existing property rights. PES schemes would therefore benefit from such national or local registries in the development and implementation phases.

In practice, the establishment and updating of property rights registries is often difficult. In Bolivia, for instance, the legal obligation to register such activities exists. However, implementation has proven slow. In addition, registration during the development of PES schemes will most likely raise transaction costs.

Therefore, PES schemes may benefit from existing property rights registries (or already ongoing registration processes). At the same time, registration should not be mandatory for the participation in PES schemes as this would limit flexibility.

- **Accepting alternative ways for establishing property rights**

Alternative ways for establishing ownership and use rights relevant for PES need to be found. Where property rights regarding a certain piece of land, its natural resources or ecosystem services are widely accepted but a formal legal title is missing, the concept of 'de facto' property rights may be applied.

Recognizing de facto property rights means that, for example, a settler can participate in a PES scheme if his possession of land is accepted and supported by the local inhabitants and neighbours. If the necessary recognition by a local community cannot be clearly determined, the settler can be offered the opportunity to prove that he has peacefully held the land for a considerable period of time (e.g., 5-10 years). Furthermore he can be given the chance to provide evidence that the previous landowner has neglected the land or that there is no legal owner of the land at all.

Besides allowing a wider scope of participants to take part in PES schemes, flexible approaches to property rights can also have other positive side effects. In Bolivia for instance, the recognition of de facto property helped inhabitants to strengthen their land tenure position.

- **Choosing activities as object of PES contracts**

In the case of completely unclear property rights situations, a solution might be to enter into PES contracts regulating activities rather than ecosystem services. However, as mentioned before, land-based activities also usually require the possession of certain property rights. To base PES contracts on activities only would mean ignoring the property rights situation and therefore provide only limited legal security.

- **Avoiding leakage**

Even if accepting alternative ways for establishing property rights provides more flexibility, some caution is appropriate. The prospect to achieve a quite firm recognition of property rights through participation in a PES scheme could produce incentives for third parties (originally residing in other areas) to access formerly uninhabited land and change land use practices.

- **Ensuring sustainability**

Another major concern is the long-term sustainability of PES schemes. While PES parties face obligations only during the contract period (which is usually limited), the overall goal of PES schemes is to achieve the sustainable provision and use of ecosystem services.

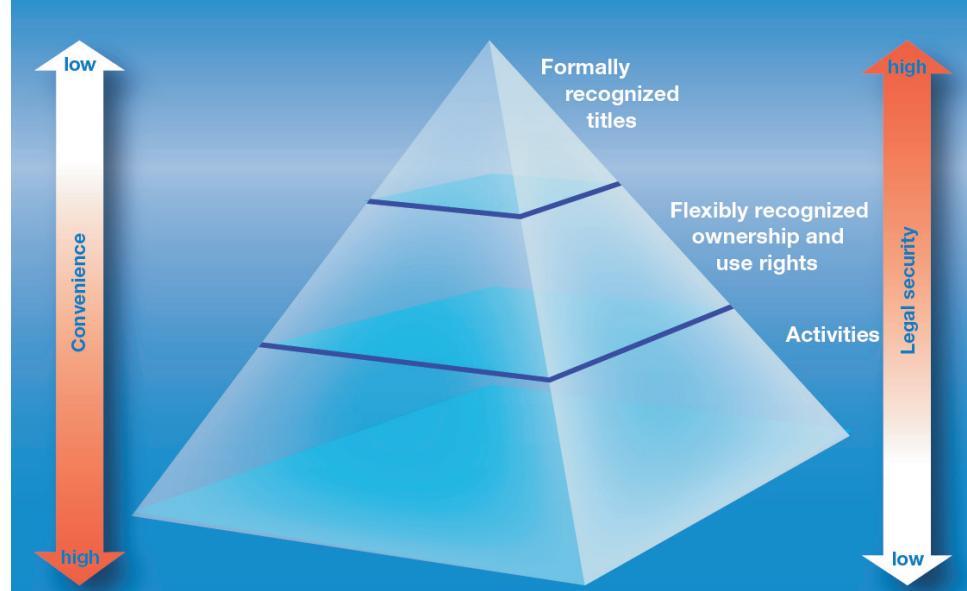
As mentioned before in Chapter 3, prohibiting land use changes after termination of PES contracts might be a way to ensure a sustainable provision of ecosystem services in the long run, i.e. beyond the life of a PES scheme. A possible legal instrument to introduce such a prohibition is servitude. This can be defined as a right to the limited use of a piece of land without the possession of it – positive servitude, or a charge or burden on an estate for another's benefit – negative servitude. In the context of PES, a negative servitude would be the appropriate means, as it would prevent land use changes by former sellers upstream in the interest of former beneficiaries downstream.

A negative servitude has the advantage that it operates like a covenant running with the land. This is an essential characteristic, as the landowner might change over time, which would normally terminate any contractual obligations not to change land uses.

Positive servitudes could be established either as a private servitude – vested in a particular person (downstream beneficiary), or as a public servitude – vested in the public at large. A public servitude might be advisable, since the general society benefits from watershed ecosystem services, in particular if they are bundled with other services, such as carbon sequestration.

In theory, ecosystem service servitude could be granted by the landowner. In practice, this will depend on how much the landowner is offered for giving up his use rights. However, a servitude may also be implied or acquired by the government, as is the case in Brazil where conservation easements/servitudes permanently restrict specific activities on a piece of land in order to protect its natural resources. As a consequence, servitude could be deliberated, if a certain land use, established by a PES contract, created some kind of practice.

The figure below visualizes the relation between convenience and legal security of different options for PES requirements



Key Message: Flexible approaches to property rights and open criteria for participation in PES contribute to the success of PES schemes and their sustainability.

5 Enabling Institutions

The main purpose of institutions is to ensure the successful implementation of policy and law. Therefore, the effective and efficient implementation of a PES scheme requires an enabling institutional framework. The objective of the following chapter is to clarify the importance of law and policy for the establishment of an appropriate institutional framework, to understand different types and roles of institutions in developing and implementing watershed PES schemes, and to investigate the challenges in building a sound institutional setting for PES.

5.1 Importance of Law and Policy

Law and policy generally create the basis for the establishment and functioning of institutions at different levels. They determine the legal personality, powers and responsibilities of institutions, as well as their integration and collaboration within a framework of transparency, public participation, equity and legal certainty.

PES related law and policy may therefore:

- Identify key state actors involved in PES transactions;
- Clarify their functions and powers related to the development and management of PES schemes;
- Set rules for the establishment and operation of specific PES institutions; and
- Establish general administrative guidelines.

Poorly drafted legislation causes overlaps or lacunae in the institutional framework, or results in denying access to certain stakeholders, while over-empowering others. Unclear laws can confer powers and duties on institutions that may struggle to undertake them, causing the intended watershed PES scheme to work inefficiently and differently from the way the system was designed. Therefore, administrative procedures and guidelines, particularly in the areas of rights and obligations, payment structures, representations and warranties, defaults and remedies, compliance, monitoring and dispute resolution need to be streamlined and co-ordinated, across all the institutions involved.

Key Message: Law and Policy create the general basis for the establishment and functioning of an institutional set up that supports PES; in particular the involvement and roles of public institutions are clarified.

5.2 Types of Institutions and their Roles

An appropriate institutional framework is built using an array of types of institutions. These types combine different functions at different administrative levels (international, national, local). Some of these functions are carried out even with the support of private parties.

As mentioned in Chapter 3, it is important that the institutional framework provides for the following functions:

- Supporting PES project development (e.g., scientific research and project planning);
- Fundraising (e.g., collecting and managing financial resources);
- Managing access to information, participation and conflict resolution (e.g., capacity building, stakeholder dialogues, facilitation of negotiations);
- Monitoring compliance (e.g., contractual obligations, management of public funds);
- Resolving conflicts; and
- Enforcing laws, regulations and contracts.

However, there is no blueprint for a perfect institutional set up, because effective frameworks must reflect the reality in which they operate. In other words, institutions need to be created and operative in view of national and local circumstance, including the country's governing structure (unitary/ centralized or federal/decentralized) as well as other factors (such as political, religious, geographical and climatic).

Key Message: There is no blueprint for an ideal institutional set up. Instead, institutions should be adjusted to national and local circumstances, in particular the prevailing governing structure.

As the different country reports show, a wide range of institutions with different legal nature take part in water, forest and natural resources management, and are involved in the development and implementation of watershed PES.

5.2.1 Public Institutions

Public institutions are typically controlled by the state, governed by administrative law and served by public officers appointed by the state. Public institutions at all levels play a role in PES schemes.

• Local authorities

It should be borne in mind that water-related PES schemes are initially established at the micro level in order to solve existing water problems. Local environmental authorities are naturally key players in the PES institutional set up due to the geographical proximity to the underlying water problem and their social interrelation with relevant stakeholders. They are best placed to:

- Identify and respond to local realities – for example clarifying and dealing with insecure property rights;

- Facilitate decentralized PES management and create trust – by ensuring proximity of sellers, buyers and intermediaries; and
- Simplify PES development and implementation even without a highly developed legal and policy framework.

Furthermore, local authorities may directly participate in PES schemes as service buyers (investing local funds), service providers (as they own or manage relevant land or natural resources), or intermediaries (being responsible for registering PES projects, monitoring their implementation and reporting on progress to relevant authorities at the provincial and national level).

- **Regional authorities**

Regional authorities, in particular watershed committees, play an equally important role in the development of PES schemes. When establishing water-related PES it is necessary to understand that, in most cases, basins do not respond to the political borders of national, provincial or local governments. Regional authorities therefore may help to overcome institutional fragmentation and lack of coordination. They promote integrated water resources management by:

- Bringing together the principal public institutions of the basin;
- Ensuring a broad representation and widespread support of water users and organized civil society; and
- Developing complementary policies for different municipalities and provinces of the same basin.

In addition, regional authorities are important potential drivers of PES initiatives, as they are best positioned to ensure strategic planning through

- Mapping and inventorying ecosystem services;
- Formulating watershed plans;
- Dictating appropriate water usage fees; and
- Deciding on investments to be made in the watershed.

Finally, they provide the opportunity to transfer positive PES experiences and potentially scale up local PES schemes to the watershed, provincial or even national level.

- **National authorities**

Decentralized environmental management and administrative and financial autonomy that allows the setting of PES priorities in accordance with local and regional environmental problems is crucial for the success of PES schemes. Nevertheless, national authorities may also play an important role in the PES institutional framework as they have the potential to provide:

- Political guidance – developing and implementing a national PES strategy;
- General PES support – for example approving methodologies for identifying and monitoring ecosystem services;
- Additional funding – collecting further financial resources by bundling ecosystem services; and

- Coordination – promoting synergies between existing PES schemes and harmonizing/integrating different governmental policies that have an impact on the provision of water-related ecosystem services.

For this a central unit could be established at the Ministry of Water Resources, the Ministry of Environment, Natural Resources or equivalent, or within the ministry with the largest responsibilities in the area of water-related ecosystem services. Another possibility is to locate it in a special agency (e.g. the National Water Agency, if it exists). Such an agency may be linked to a specific Ministry and interact with several line ministries and other sectoral agencies on an equal basis.

However, as the Proambiente case in Brazil indicates centralized authorities should not have direct decision making or administrative powers in PES schemes. Such top-down management might limit the flexibility of PES and lead to overambitious goals.

Key Message: Public institutions at all levels fulfil important PES related functions. Local institutions connect PES to realities on the ground; regional institutions help to overcome administrative boundaries; and national institutions can introduce PES visions and coordinate related policies.

While it is important to create an institutional framework with public institutions at all levels, it has to be noted that a highly complex system with too much institutional involvement, too many hierarchies or too complicated administrative processes can create unnecessary bureaucracy. Such bureaucracy rather creates obstacles for than supports PES development and implementation.

5.2.2 Private Institutions

Though they may sometimes receive public funding, private institutions are not governed by the state and administrative law, but by their individual mandates and private law. As the country reports show, there are several private institutions that participate actively in the development and implementation of PES schemes.

• Nongovernmental Organizations

In most of the analyzed cases, NGOs have played a crucial role in establishing and implementing PES initiatives. They have different capacities that support the creation of PES, including their potential to:

- Raise awareness about the actual value of ecosystem services;
- Analyze specific needs and ways to conserve or improve ecosystem services;
- Identify concrete opportunities to establish PES schemes;
- Provide independent (scientific, legal, social, etc.) technical expertise for their design; and
- Participate in schemes as PES buyers (paying upstream landowners), sellers (owning and conserving upstream ecosystems to provide their services to others) and intermediaries (creating trust).

Apart from bringing in these capacities, NGOs also offer a different institutional structure and mandate which is beneficial for the establishment of PES schemes. Being more independent and flexible due to having less political constraints than public institutions puts them in an ideal position to explore and immediately react to PES opportunities.

- **Other civil society associations**

Implementation of water-related PES schemes also involves the participation and acceptance of private entities, such as local water cooperatives, as well as indigenous groups, irrigators, and other 'rural' associations.

In Bolivia, the water cooperatives have played an important role in the establishment and management of public-private seed funds for watershed protection in Mairana, Comarapa and Pampagrande. In all three initiatives, the cooperatives contribute a monthly amount to the PES fund on behalf of their members, who again pay monthly fees for the protection of their watershed. They are also in charge of opening and managing ecosystem service bank accounts, which provide the financial resources for all the activities needed to protect the watersheds.

Key Message: Private institutions may complement public institutions in the development and implementation of PES schemes. They can bring in more flexibility and independence, and important external capacities, as well as additional financial resources.

5.3 Challenges of Building a Sound Institutional Framework

When building a sound institutional framework, policy makers face a number of challenges that need to be overcome.

5.3.1 Financial constraints

Financial resources are generally scarce in every state. At the same time, the success of PES schemes highly depends on the funds available to provide capacity building, make sufficiently high payments to ecosystem services providers, ensure PES monitoring and enforcement, and eventually renew PES contracts after their termination.

An appropriate institutional framework for PES needs to reflect these financial constraints by taking into consideration four different dimensions:

- Increasing the amount of funds – by creating an independent institution at national or provincial level which concentrates on fundraising and fund management; and
- Reducing transaction costs – by establishing a cap on the PES budget that can be used for administrative purposes; while at the same time
- Ensuring institutional performance – by offering appropriate working conditions, including competitive salaries; and
- Supporting pilot projects – by providing start-up funds for PES initiatives which do not have sufficient financial resources to be launched.

Key Message: An appropriate institutional framework for PES needs to consider three financial dimensions: increasing available funds through specialized fundraising and fund managing institutions; limiting institutional transaction costs; and providing sufficient financial means to ensure institutional performance.

5.3.2 Decentralization vs. centralization

Centralization vs. decentralization is one of the most sensitive issues in water management. Bearing in mind the need to have a national approach to equity, economic growth and environmental protection, there might be an argument in favour of having an institution to take care of the overall PES scheme development and administration within a country, and thus, for a centralised institutional system. However, basins, freshwater ecosystems and their services cut vertically and horizontally across all the state's administration levels: vertically, from the national government to the local end user; and horizontally, between different sectors, e.g. irrigation, health and sanitation, land use and land planning, mining, energy, forests, environment.

The practicability of achieving appropriate vertical and horizontal coordination in a strictly centralized PES system is questionable. Therefore, building a more decentralized institutional framework which follows the principle of subsidiarity might be advisable for watershed PES. Subsidiarity means that the state should take action in the area only to the extent to which given objectives can be attained more effectively at the state level than at the local level.

As the case of Colombia indicates, this applies, for example, to the development of a national PES vision or strategy. At the same time, the country reports show that the main responsibility for decision making in PES initiatives is better placed with the lowest possible level of authority within the country's political hierarchy.

The chart below provides arguments for a centralized and decentralized institutional framework

Centralization	Decentralization
– Support of PES programmes in line with national priorities	– Individual responses to regional and local problems
– Adoption of standards and procedures for effective implementation of PES activities	– Adjustment of standardized criteria and procedures according to local circumstances
– Coordination of initiatives at inter-regional and international scale	– Participation of stakeholders in PES project formulation and decision making
– Identification of synergies between different regional and sectoral initiatives	– Effectiveness of PES project execution due to information-based decision making
– Allocation of human and financial resources according to standardized criteria	– Flexibility and efficiency in program operation due to less bureaucracy

In practice, the level of centralization and decentralization depends on different factors, not only on the political structure of a country (centralized or federal state) but also on historical, cultural, reli-

gious, climatic factors, and the level of water resources development. Countries with federal structures, such as Brazil, will grant the institutions in the federated states different degrees of autonomy whereas in more centralized countries, such as Bolivia, the national government has a major role in the system with up to three ministries involved.

Key Message: As far as management and administration of PES schemes are concerned, national institutions should perform only those activities which cannot be performed effectively at a more immediate or local level.

5.3.3 Coordination

As indicated before, another major institutional challenge is the coordination of different institutions that have a stake in water-related PES issues. In Peru, some of the most prominent characteristics of environmental institutional frameworks are fragmentation, poor coordination among entities, and scattered water competences. In Bolivia this is also an issue. Although there are three ministries involved in the watershed PES management, the division of responsibilities among the ministries has been criticized, especially because of uncertainty over environmental responsibilities. This has led to the deforestation of important extensions of upstream forests in the Santa Cruz valleys, causing water problems for downstream communities.

Coordination needs to be achieved:

- Between public and private institutions;
- Of various sectors;
- At different levels, as well as
- Within such institutions.

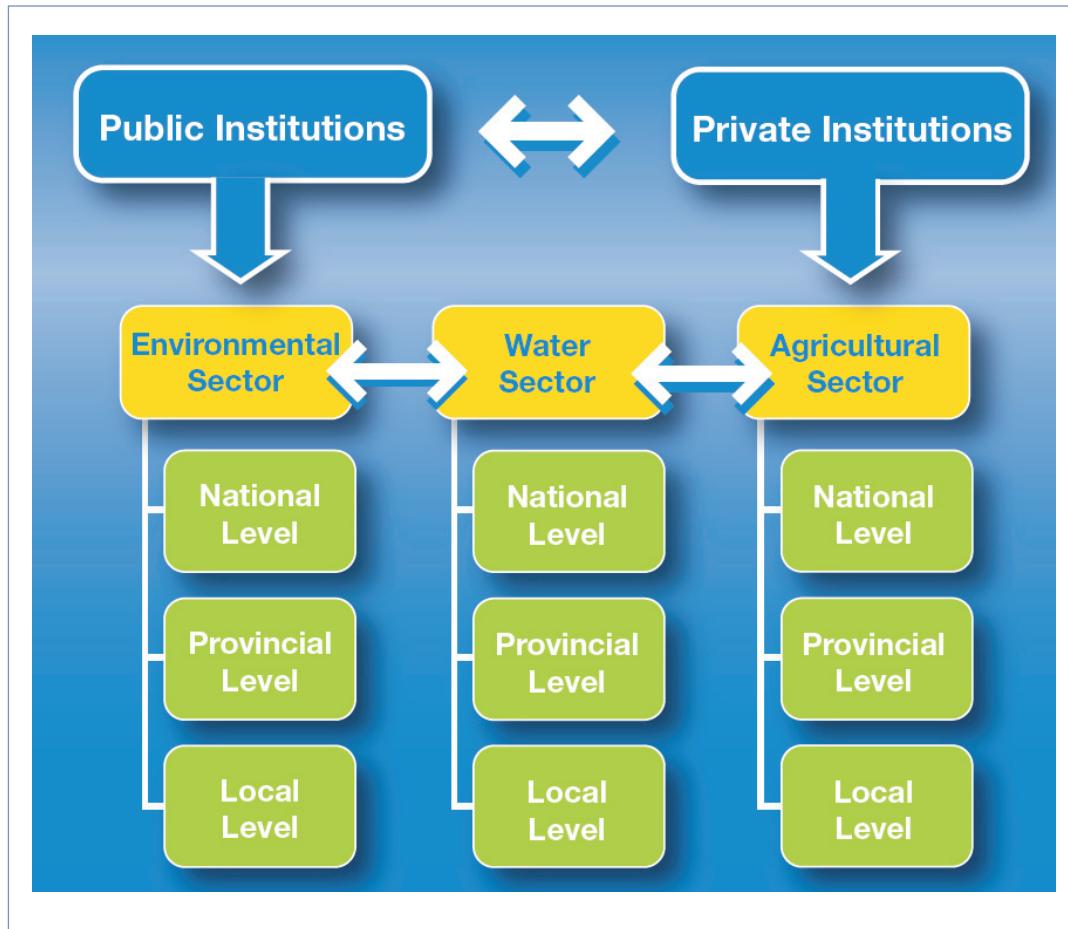
Even in the case of having a ministry in charge of watershed and PES related issues, this needs to coordinate with basin level institutions and with other ministries and offices, for example, regarding the protection of particular water bodies, or the provision of environmental flows requirements; with the ministry of health, in terms of levels of pollution and discharges; with universities in terms of water related scientific research; with the municipalities in terms of water recreation activities; and even with the police in relation to law infringements.

The figure on the next page visualizes the need for institutional coordination.

The critical feature is not to aim at changing or imposing over any specific group of stakeholders, but to identify their complementarities and try to synchronize interventions and actions as much as possible. The following actions may help to improve institutional coordination:

- Clearly delineate responsibilities and functions of public institutions – establish an administrative system which allocates tasks between different public agencies;
- Establish cross-sectoral linkages – ideally, public institutions with similar responsibilities should be consolidated;

- Hold subsidiary public and private institutions to common principles and visions – national and basin-wide institutions are better placed to undertake visioning exercises and develop joint policies; and
- Formalize communication channels between different authorities and agencies – ideally, communication should be institutionalized via a formal agreement or memorandum of understanding.



Key Message: PES schemes demand coordination between public and private institutions of various sectors at different levels. This requires developing a common PES vision, clarifying responsibilities, identifying institutional complementarities, and formalizing communication channels.

6 Contract Issues

Because payments for ecosystem services, whether for biodiversity, carbon sequestration, or water purification, involve the obligation to manage land in a particular manner for a particular period of time in exchange for compensation, the parties must necessarily enter into an agreement of some kind. An effective agreement will ensure that parties have the same understanding of both, their own and the other parties' respective rights, obligations and risk allocation. Clarity up front can help reduce the likelihood of dispute and failure later on.

The actual form of the agreement can range from a simple handshake to a complex contract document setting out detailed representations and warranties. The particular agreement best suited for watershed PES will depend on local circumstances. There is no doubt that complex contracts that serve as the norm in OECD (Organization for Economic Cooperation and Development) countries may prove less effective, or even counterproductive, in some developing and transition countries.

This section sets out the salient issues that should be considered by parties establishing a PES agreement. These include the project plan, identification of the parties, form and legal nature of the contract, objective and scope of the agreement, parties' rights and obligations, representations and warranties, payment structure, duration of the contract, risk allocation, remedies, and dispute settlement.

6.1 Project Plan

Prior to drafting specific agreements, it will be necessary to develop an overall strategy. For example, if the broader goal is to provide cleaner water for a particular city through protecting and re-foresting the headwaters of the watershed, a number of different contracts, or even different types of contracts, may be necessary, as a range of agreements with different types of landowners may be needed. The key point is that individual PES agreements must be framed within a larger project plan to ensure that the separate agreements are complementary and support the overall goal.

As described in the Bolivian report, the overall objective of the PES contracts in the Los Negros-Santa Rosa pilot project was to protect the upstream forests of the Los Negros watershed. To accomplish this, one type of PES contract prohibited not only tree cutting and forest clearing but also hunting. The other type focused on reforestation of specific areas of land in the watershed.

Key Message: Different types of contracts may be necessary to create an effective PES scheme. These different contracts must be framed within a larger project plan which should be based on an overall strategy. PES contracts should reinforce each other and work toward a common goal.

6.2 Identification of Parties

Once the overall strategy for PES has been established and the project plan developed, the first step in drafting individual agreements is to identify the parties to the transaction. There are a wide range of options available, and the details of the contract will depend in large part on the nature of the parties. Watershed PES transactions often involve a single purchaser (e.g. local government or water provider), and multiple sellers (e.g. local farmers). This is a common relationship as ecosystem services are often public goods, and government must act on behalf of the public to ensure provision of services. Other types of relationships may include a single buyer and single seller (as is common in carbon sequestration) or a single buyer and multiple sellers aggregated together through a cooperative or other institution that addresses collective action problems.

The nature of the parties may raise specific legal issues that warrant consideration. If the contract is intended to be legally binding, then the parties must be legal persons, who have legal authority to enter into a contract. This may preclude a local group of landowners from entering into an agreement, or require further work to provide for their legal incorporation. An alternative option is demonstrated through the Proambiente project in Brazil, where the community was made a collective party to the Community Accord. In such a setting, the accord may have less legal authority than a traditional contract, but still prove effective for the purposes of facilitating a transaction.

In countries such as Brazil, where water resources are explicitly held by the government in trust for the people, local or regional governmental authorities may need to serve as parties to the agreement. This may not be a necessity, particularly if the contract involves land use practices rather than conveyance of the water itself. In many countries, the government may have explicit domain over most forests and lands, which provides another reason the government may need to be a party to the PES agreement.

A final way that an NGO may become a party to a contract is not as a buyer or a seller, but instead as a 'neutral party' to build trust between the other parties. In Bolivia, to gain confidence among the landowners that compensation for their conservation or reforestation activities would be made once the PES contract went into effect, Fundación NATURA agreed to become a party to the contracts and act as the direct ecosystem buyer. As a consequence, during the first years of the scheme, the foundation made the financial contributions related to the contracts through funding that was initially provided by the US Fish and Wildlife Service and the Municipality of Pampagrande on behalf of Los Negros irrigators.

Key Message: A wide range of players can be involved in PES transactions as buyers, sellers or intermediaries. If PES transactions are to be legally binding, all parties must have legal authority to enter into a contract.

6.3 Form and Legal Nature of the Agreement

Effectiveness and the legally binding nature of an agreement are not the same issue. As noted earlier, an agreement need not be written, or even legally enforceable, to be effective. Effectiveness is

contingent upon the norms and customs of the jurisdiction. There are, however, potentially significant advantages to written, enforceable contracts that should be considered at the outset. Written agreements state the respective rights and obligations of the parties, reducing the potential for later misunderstanding over the original terms of the agreement. Written agreements also provide a record that can be referred to in case of disagreement. The process of drafting an agreement can serve as an educational opportunity to better understand not only the nature of PES but the nature of commercial agreements, as well. Finally, the act of signing a legally binding document can underscore the significance of the obligations in the document perhaps reducing later risks of non-compliance.

Relying on enforceable written contracts nonetheless introduces additional challenges. The most important is cost, both in terms of time and money. More comprehensive contracts will contain provisions addressing more eventualities; the longer and more detailed it is, the more negotiation time and potential legal fees may be required. This is of particular importance to PES programmes, where payments are often small. It helps neither buyer nor seller to have a large part of the PES budget consumed by the transaction cost of legal fees. This problem can be addressed most easily by relying on a simple form contract.

This was the approach taken by Fundación NATURA in Bolivia. As the Bolivian case study explains, Fundación NATURA first developed direct contracts between the ecosystem sellers (Santa Rosa's landowners) and a buyer. As a consequence, the contracts were structured simplistically. This simple design responded to the need to be easily understood and trusted by local communities who had limited experience with complicated legal transactions.

The nature of the agreement may turn in part on the status of the parties. One such example is Brazil, where individuals entering into legal agreements must provide valid personal documentation. At least three documents are often necessary: identification card (*registro geral*), tax identification card (*cadastro de pessoas físicas*), and proof of residence. While meeting this requirement does not pose a problem for urban dwellers, it can prove a significant challenge to small land holders in rural areas, for whom such documents may not be readily available.

A similar challenge arises when deciding whether to register PES contracts in a public registry. Registration formalizes the agreement, facilitates the use of the agreement in a potential dispute resolution, and decreases the probability of a particular ecosystem service being transacted twice (double-counting). It might also help clarify the PES rights and obligations of third parties in case of transfer or inheritance of the land providing the ecosystem services. If the parties are not recognized legal persons, however, a registry cannot be used. Because of this, the Santa Rosa project in Bolivia did not register its contracts either in the Property Registers or in the Municipal Rural Registries, even though registration was a formal legal requirement. The programme management felt that the security of registration could not be justified in light of the small amount of money paid for the ecosystem services and the high transaction costs associated with registration.

Key Message: Binding contracts, contracts in writing or registered contracts provide more legal certainty. However, depending on the local circumstances this may be too costly, time-consuming or not feasible in practice. A contract therefore may not need to be legally binding to prove effective.

6.4 Objective and Scope

While not critical to the functioning of a written contract, practitioners have recommended including a preamble section to identify the objective and scope of the agreement. Such objectives might reference specific land use activities (e.g. reforestation, avoided deforestation, or agro-forestry) in order to restore ecosystem hydrological functions or soil conservation. Such text can place the watershed PES in the context of a larger PES programme, thus linking it to the overall PES strategy and project plan. It also makes clear that this is a business relationship, wherein ecosystem services are provided in exchange for payment. In case of future disputes, a preamble can also help parties with the interpretation of the different contractual arrangements.

In some cases, provision may even be made for a PES scheme that bundles single payments for multiple ecosystem services, as in the Minas Gerais State's Water Steward Project in Brazil. Starting with the most degraded micro-watershed, this programme actively protects forests and restores degraded areas that border bodies of water by paying participating landowners. Specific objectives of the contract include a number of soil conservation, water treatment, and forest maintenance practices intended to improve the quality and quantity of the water.

Key Message: Including a preamble in the contract helps clarify the objective and scope of a PES contract, as well as its interpretation.

6.5 Rights and Obligations

The essence of the contract is contained in the terms that establish the respective rights and obligations of the seller and buyer. These specify the actions that each party must take to fulfil the agreement, as well as the concrete claims that each has against the other. The agreement must explicitly state the expectations of the buyer and the seller (or, more accurately, the provider of watershed services).

- **Buyer/beneficiary side**

Payment obligations of the buyer are discussed in more detail in the following section on Payment Structure.

- **Seller/provider side**

First, the seller is obliged to provide watershed services. This obligation can be stated in two basic forms as an input or as an output. Ideally, payment would be contingent on the value of service unit delivered (outputs) rather than on up-front costs such as fencing or weed control (inputs). In policy terms, payments are determined based on either the design or the performance of the plan, with providers receiving payment for either the activities undertaken or the results of these activities. Output payments might take the form of litres of water transpired per day, nutrient uptake per year, or percentage improvement in water quality. This arrangement is similar to how farmers are paid for other cash crops, from litres of milk to bushels of carrots. In practice, this type of approach is extremely rare, as it requires costly monitoring and may not even serve as a useful metric, given the environ-

mental variability that ultimately determines service provision (e.g., wet versus dry years).

In practice, PES tend to be based on inputs and, in particular, on specific land use activities. With carbon payments, contracts generally require a particular activity (such as reforestation) rather than a unit of carbon, *per se*. In water transactions, the payment is also for an activity rather than for the provision of specific water quality targets. Payments are made in exchange for installing riparian fencing, planting trees, preserving standing forests, or some other land use activity, the assumption being that this input will result in the desired service output.

Key Message: Contractual obligations of sellers tend to focus on the implementation of an activity (input) rather than on ensuring that specific water quality and quantity target outputs are met.

Since payment is generally premised on specific land use activities, the provider must also demonstrate ownership or control of the land to be managed. As explained in Chapter 4 above, this obligation can prove a major challenge in regions such as Latin America, where land title processes are often incomplete. In rural areas, many landowners have not registered their deeds or may not even have deeds. As a consequence, it may be difficult to find notarized deeds of sale, land titles, and properties in full compliance with the law in certain regions. It is possible that long-term inhabitants of public lands may not know that the lands they reside on are publicly owned.

Two Brazilian PES projects present contrasting land tenure scenarios. The O Boticário Foundation, managers of Project Oasis, disqualified many potential landowners from participating, as they either did not have or could not present clear property titles. By contrast, in the Extrema Project, land tenure was well defined and did not prove a barrier. The project managers stipulated that landowners must reside on their property, have an area larger than 2 hectares, be involved in agricultural economic activities, and present copies of the Deed and Matrícula (a document held at the Real Estate Registry containing the record of a specific property).

Other mechanisms beyond legal title can also demonstrate a party's ability to enter into an agreement for land management. In the case of the Bolivian Los Negros-Santa Rosa pilot PES project, PES project developers chose to rely on a registry of individuals at the community level rather than require personal documentation. The registry included an analysis, through in-person discussions and, in some cases visits to the property, to determine the interest and eligibility of individuals. While the final community agreement was not regarded as a legally binding contract, it was deemed effective due to the close ties within the community.

In the absence of clear title, programme managers may need to make a judgment based on *de facto* rather than *de jure* ownership. If neighbouring landowners and local authorities regard particular landowners' occupation as secure, this may be enough to justify entering into a contract. As a number of the reports noted, the very act of entering into a PES contract may serve to strengthen the sellers' defence against incursions in their lands. Thus a PES contract can confer a quasi-legal status to the land where none may have existed before.

Key Message: When demonstrating ownership or control over the land to be managed, recognizing de facto rather than de jure ownership/control can help overcome unclear or incomplete land title processes.

6.6 Payment Structure

As Robertson and Wunder state, a 'key feature of PES is their conditionality which implies that payments are made only if the provision of the service is secured or the agreed-upon land-use caps are complied with on a quid pro quo basis' (Robertson and Wunder 2005). Thus the nature of payments and how they are made should be explicit in the agreement. While flat payments, a reverse auction¹ or negotiation may have been used to set a payment price, the practical details of how and when the payment will be made must be clarified.

- **Setting the price**

The first issue to regulate in this context is the concrete price that will be paid for the provision of ecosystem services. Different possibilities exist for setting the exact payment price, from reverse auctions to simple negotiation processes. The result of these processes can be the decision to make flat payments to all participants or to differentiate the price to be paid according to the level or rate of ecosystem service actually provided, the risk of future service loss (e.g. in case of forest fires, floods, etc.) and varying participation costs (sum of opportunity, transaction and protection costs). Apart from that, further practical details of how and when the payment will be made still need to be clarified.

- **Cash or in-kind payment**

Will the payments be made in cash or deposited into a bank account? Will the payments instead be non-cash? The Bolivian project in Los Negros made in-kind payments of bee boxes, training and barbed wire. This was deemed more appropriate than cash as: the payment was to a community rather than to individuals; the bee boxes and barbed wire were valued by the community; and honey production was regarded as a long-term economic opportunity. In-kind payments also provide a clear visual symbol of the potential added value that PES can provide. Another possible payment arrangement could be in the form of cash-value vouchers or dedicated vouchers (e.g. only valid for use in purchasing agricultural goods).

- **Time of payment**

A related question concerns the timing of payments and whether they should be made at regular intervals throughout the contract period, upon delivery of service (back-loaded) or prior to delivery (front-loaded). In traditional crop contracts, payments are often back-loaded. Since services in PES schemes are ongoing, evenly-spaced payments may seem most appropriate. If there are consider-

1 A reverse auction is a type of auction in which the role of the buyer and seller are reversed, with the primary objective to drive purchase prices downward. In an ordinary auction (also known as a forward auction), buyers compete to obtain a good or service. In a reverse auction, sellers compete to obtain business.

able necessary upfront costs, such as the construction of dams, swales or fences, front-loaded payments may be needed. One key disadvantage to front-loaded payments is that they remove the financial incentive for the continuation of project activities. Payments could also be conditional to meeting certain milestones with initial payment disbursement made upon signing of the contract and additional payments made at each additional step, such as when non-native vegetation has been cleared or fences have been installed. While multiple payments incur greater administrative costs, this type of payment structure enables close progress monitoring and provides incentives for providers to meet the next milestone, particularly in poor areas where milestone payments may be significant parts of a family's income.

The BushTender scheme in Australia made initial payments to cover capital costs, with annual progress payments that followed (Stoneham, 2002). In the South American cases described in this study, payments tended to be made on a regular basis. In Brazil, the Minas Gerais Water Steward Programme pays landowners monthly while Project Oasis pays landowners every six months. In Bolivia, in the Los Negros-Santa Rosa Pilot Project, an initial payment was made to involve participants in the conservation and reforestation activities, while the rest of the payments were made based on progress.

- **Tax implications**

While they may not be specified in the contract, tax implications of payments should also be considered. For rural PES with low-income participants, it is likely that individuals will earn less than the floor for tax collection and that no taxes may be due on the PES income. In both Brazil and Peru, individuals earning the equivalent of less than U.S. \$9,000 are considered exempt by each country's national revenue service.

Key Message: The type, manner, and timing of payments must be explicit in the agreement. These terms must take into account factors such as prevailing economic interests, cultural values, requirements of initial investments, and the need to create strong incentives for compliance.

6.7 Duration

Another significant term in any payment contract is duration. While subsidized conservation projects may demonstrate temporary success, the termination of subsidies may result in landholders returning to their previous management practices, to the detriment of the habitat they had previously conserved. From the buyer's perspective, a longer contract may therefore seem preferable. However, practical concerns such as available funding, political changes in administration, and the danger of inflation may make long-term fixed payments a risky rather than secure investment.

Most of the contracts analyzed in the case studies have a duration of five to ten years. Brazil's Extrema and Oasis Projects are for four and five years, respectively, and the sanitary service of Moyobamba's project in Bolivia was approved for five years. In all of these cases, it is hoped that the contracts will be renewed for longer periods after having proven their effectiveness.

Preference for a long- or short-term contract is contingent upon a landholder's risk profile. Providers must weigh the benefits of a stable income stream against the potential loss of profits from land not used for agricultural production if the commodity prices rise quickly or inflation becomes a significant factor.

A related question concerns renewal and renegotiation options. Considerations must weigh the goals of stable revenue and service supply against the concerns over changing financial and political circumstances, as well as the possibility that land use changes may not result in effective service provision. The contract must also consider the ability to react to these concerns in a flexible manner.

Key Message: When determining the contract duration, both parties must balance their interests in establishing a long-term and stable PES scheme against maintaining the flexibility needed to react to changing circumstances.

6.8 Risk Allocation

Contracts are in essence mechanisms for risk allocation. A buyer may not be as satisfied with his new purchase as he had expected. A seller may later discover that he could have charged more for his product. Many different types of risk arise in exchanges, some of which can be explicitly addressed by the contract. In the context of watershed PES, the most significant risks are market risk, party risk, and innocent loss.

- **Market risk**

In market risk, the danger is that certain market goods (whether input costs such as fencing and fuel or output costs such as beehives) rise or fall unexpectedly, rendering the negotiation agreed to earlier seem less fair in the context of new market prices. In general, this is regarded as a cost of doing business and an inherent risk that both parties accept. After agreement, prices may rise or fall. One can include clauses to address such possibilities, creating the option to renegotiate terms in particular circumstances. The desirability of these terms depends in part on whether it is hoped that the contract will lead to a longstanding relationship between buyer and seller; if a long-term relationship is an objective, ensuring that the contract remains fair over time will be a priority.

- **Party risk**

With party risk, the concern is that one of the parties will fail to perform its appropriate obligations. This possibility can be addressed through specific remedies and dispute resolution terms in the contract.

- **Innocent loss**

Finally, there is the risk of innocent loss, also known as force majeure. This addresses the issue of failure to fulfil contract terms in the face of an uncontrollable event such as fire or flood. In the case of agricultural commodities, failure to deliver milk or potatoes means that there is no payment, regardless of the reason. Negotiations over innocent loss are a common aspect of many commercial negotiations, and parties must decide who is to bear the risk of unavoidable events. In PES practice,

buyers have tended to bear the risk of innocent loss, while sellers are paid for the execution of the mandated land use activities, whether or not these result in effective service provision.

Key Message: Market risk, party risk, and risk of innocent loss are the most significant risks that require regulation in PES contracts. Clauses that govern renegotiation of contract terms, remedies and dispute resolution, or risk-bearing are possible instruments.

6.9 Monitoring and Reporting

Monitoring is fundamental to the success of any agreement, as buyers need assurance that they will receive the service for which they have paid. It may be judicious for the contract to establish the necessity of monitoring compliance as well as the terms and consequences of non-compliance. If the goal is a simple contract, it may not be necessary to establish the monitoring process in detail. This can be addressed during implementation of the programme. There are numerous models from which to choose, and establishing the process at the outset in the contract can reduce the opportunity for future disagreement:

- Periodic reporting and evaluation by different public entities

The Brazilian PES programmes demonstrate a range of approaches to monitoring. In the Extrema Project, the Department of the Environment prepares a report at the end of each month to verify the execution of the established goals and proposes new goals for the subsequent month. Failure to meet established goals results in the interruption of payments. Every six months, the Municipal Council on Environmental Development (CODEMA) evaluates the development of the project and the achievement of the proposed goals. If the landowner does not comply with the maintenance methods outlined in the contract (as verified by the monthly report from the agronomist at the Department of the Environment) payments will no longer be made.

- Prior determination of baseline

In Project Oasis, prior to the signing of a contract, an environmental assessment is carried out on the property, with the environmental features registered in a baseline document that serves as a reference for future monitoring of the contractual obligations of the landowner. To guarantee that the contracts are upheld, periodic monitoring campaigns are conducted by O Boticário Foundation's Environmental Assessment Commission to verify the effectiveness of the preservation of the designated natural areas. Any observed environmental degradation may serve as reason to annul the contract or cancel future payments. The landowner must respond to any questions and carry out any requested actions within 3–15 days of the assessment report.

- Combination of satellite surveillance and field checks

In the case of the Proambiente programme, monitoring was less effective. The original intent was to utilize a combination of satellite imagery, mapping, and field checks on the ground. Given the difficulty of monitoring the eleven Pioneer Centres across six states of the Amazon region, the high turnover of extension agents working in the field, and lack of a monitoring procedure, the programme was not a success.

- Creation of a monitoring team with representatives of sellers and buyers

In Bolivia's Los Negros-Santa Rosa project, annual monitoring was conducted by a diverse team that included a member of the upstream community's environmental committee, a member of the downstream community's environmental committee, and a field technician from Fundación NATURA. In the event that the team found instances of non-compliance after the review, a written report would be sent to a Directorate (the presidents of Fundación NATURA and of the upstream and downstream environmental committees) who would determine how to address the violation.

- Periodic auditing

In the case of Bolivia's Mairana, Comarapa, and the Pampagrande seed funds, in order to ensure transparency of the actions undertaken in each municipality, the institutional agreements included mandatory annual audits to verify the activities carried out by the water cooperatives. The agreements note that rejection of the audits could lead to termination of the PES institutional agreements.

- Determination of non-compliance criteria

Determination of non-compliance is an important issue, particularly when non-compliance is determined by subjective criteria. In such instances, it may be useful to establish a default position noting that compliance will be assessed to the 'reasonable satisfaction' of the buyer.

Key Message: PES contracts should address compliance monitoring as well as the terms and consequences of non-compliance. Establishing at the outset a process for monitoring and defining non-compliance in the contract reduces the possibility of future disagreement.

6.10 Remedies and Dispute Settlement

In the event that monitoring reveals non-compliance, it will be important for the contract to establish:

- The potential consequences of non-compliance; or
- The procedure to determine appropriate consequences.

Without an adequate deterrent, the likelihood of non-compliance may be high. Determining the nature of the deterrent will require careful consideration.

Assume, for example, that a farmer signs a five-year contract to maintain riparian fencing and either does not build the fence, or removes it after four years. When compliance monitoring (which must occur at periodic intervals to ensure credibility) uncovers these breaches six months after their occurrence, determining an appropriate response may be difficult. First and foremost, future payments should be terminated. The issue becomes complicated in the case of in-kind payments such as education or health facilities, or in the event that payments have been made prior to the breach. In the latter example, if services were provided up to a certain date, then payments for those services were legitimate. If the payments have been made prior to delivery of the service, then some form of restitution seems appropriate.

Penalty clauses may be considered as a further disincentive to breach of contract. Often found in construction contracts, these clauses provide for penalty payments if certain requirements (such as completion date) are not met. It should be noted that in areas where penalty clauses are not common, their utilization may send an antagonistic signal to landowners.

PES agreements may include a wide range of remedies. Brazil's Project Oasis contract contains specific text addressing non-compliance. As described in the preceding section, if the monitoring report provides instances of non-compliance, landowners have 3–15 days to respond. The O Boticário Foundation specifies the length of time available in each case.

By contrast, the Bolivian programme in Santa Rosa did not contain any provisions on non-compliance or dispute resolution in the contract, focusing instead on keeping the agreement simple. In practice, the participating families took their concerns to the local association and programme representatives during periodic meetings. In the one instance of non-compliance reported (a services seller building a road through a part of the conservation territory), the sanction mandated exclusion from the PES programme for a year. The Directorate did not request that the seller return the beehive he had received as payment, as it felt that enforcement of such an expropriation would be counter-productive to the effort Fundación NATURA had invested in developing trust among the parties and in convincing local communities to participate. The social penalty of exclusion from the programme was regarded as a sufficient sanction.

This example demonstrates that seemingly weak penalties can prove effective within particular social contexts. The importance of community cohesion can make exclusion of the non-complying party from the PES scheme very effective in a project operating at a small scale within an integrated community. As the Bolivian case shows, trust between parties plays a critical role in compliance, and social pressure combined with the fear of social retribution can motivate parties to comply with obligations emerging from either a contract or community norms.

Key Message: Without an adequate deterrent, non-compliance may be more likely. However, determining the nature of the deterrent requires careful consideration, since extra-contractual penalties, while seemingly weak, may prove effective within particular social contexts.

As contracting parties become more sophisticated, remedy provisions require additional detail. In Bolivia, the second generation of contracts in the Los Negros-Santa Rosa project progressed from individual buyers and sellers to institutional agreements for funding with local governments, water cooperative, and NGOs. These agreements tended to include explicit conflict resolution clauses, at times calling for arbitration to settle disputes and develop more detailed schedules of penalties for non-compliance.

In this context, the role of transaction costs remains important. In programmes where the watershed PES take place at a small scale, the cost of developing elaborate dispute resolution procedures for non-compliance will outweigh the potential benefits. As the amounts involved will not be able to justify the transaction costs, informal processes may be more appropriate.

While considerations of costs are important, failure to sanction may lead to unintended effects. The failure of Brazil's Proambiente programme was due in part to a failure to penalize non-compliance. Centres continued to receive funding regardless of performance, with neither a reward for the more successful Centres nor a penalty for those behind schedule. A clearer consequence for non-compliance may have improved the results of the Pioneer Centres and the delivery of the payments by the federal government.

Key Message: Failure to sanction non-compliance can send a counterproductive message. PES contracts should set out the potential consequences of non-compliance as well as the procedure for its determination.

The chart below sets out the major issues described in Chapter 6 for easy reference.

Issue	Purpose	Options/examples	Comments, advantages, disadvantages
Project plan	Outlines how contracts between parties will achieve overall project/programme goals: As this may involve multiple contracts and multiple parties, it will be necessary to ensure that they are complementary		
Parties	Identifies those participating in the contract	<p>Can have 2 or more parties</p> <p>Includes at least one seller and one buyer</p> <p>Often government, NGO or other institution as buyer</p>	<p>Two-party contracts are simplest</p> <p>Important to identify correct contracting party</p> <p>Signatory to contract must have rights/ability to perform all contractual obligations</p>
Objective & scope	Sets out specific purpose of contract Explains context, and situates project within broader PES programme as applicable	<p>Implement sustainable land management practices to preserve watershed</p> <p>Maintain forest</p> <p>Improve water quality</p>	<p>Should not be too broad</p> <p>Should not create additional obligations not specified in body of contract</p>
Legal nature	Determines whether agreement is intended to be legally binding, written, or oral	<p>Written contract where both parties have legal authority to enter into binding agreement</p> <p>Agreement formally registered</p> <p>Less formal memorandum of understanding with a community</p>	<p>Legally binding contract may reduce likelihood of future disagreements</p> <p>However, legally binding contracts may cost more to create, and sellers may not be legally able to enter into contracts</p>

Issue	Purpose	Options/examples	Comments, advantages, disadvantages
Performance/success indicators – seller side	Serve as objective measures to demonstrate achievement of parties' responsibilities	Indicators of success:	Obligations tend to focus on inputs (activities) rather than outputs (achievements)
		<ul style="list-style-type: none"> – Compliance with management plan – Conservation of forest – Water quality (maintenance or improvement) – Reforestation of percentage of land – Installation of fencing in specific areas 	<p>Conflicts may arise if buyer has control over monitoring and payments are linked to monitoring outcomes</p> <p>Need to clarify which party will pay for forest management plan design, monitoring, registration of contracts, etc. (costs have historically been borne by buyer)</p>

Issue	Purpose	Options/examples	Comments, advantages, disadvantages
Duration	Stipulates length of contract, and actions to occur at close of contract	Short vs. long term Right of first refusal of buyer to continue making payments Option for renewal or renegotiation	Term may be limited by title of individuals on land Long-term contract may be conditional upon continued funding Renewal of short-term contracts may be due to funding limitations or based on ongoing demand/need from buyer Long-term contracts may restrict seller – opportunity costs associated with possibility of negotiating better arrangement making alternative land use choices
Payment structure	Determines what and how payments are to be made	Up-front payments Evenly spaced payments In-kind payments: Technical assistance (e.g. obtain land title documents, provide forest management engineer, land management advice, training) Useful goods (e.g., beehives, barbed wire)	As this is fundamental motive for buyer, terms must be clearly established Improved property value



Issue	Purpose	Options/examples	Comments, advantages, disadvantages
Risk allocation	Allocate risks among parties at outset	<p>Seller gets paid as long as land management activities are carried out, even if service provision is reduced by unforeseen events (e.g. fire or flood) beyond control of parties</p> <p>Seller bears risk of unforeseen events interrupting service provision</p>	<p>Acts of God, whether flood or fire, can happen through no fault of parties</p> <p>Contract should make clear whether or not payments are to continue under such scenarios</p>
Monitoring & reporting	Ensures that parties are in compliance with their obligations	<p>Every six months</p> <p>Environmental assessment team should have full access to land under management, to ensure that progress is satisfactory</p>	<p>Buyers need assurances that they are receiving what they paid for</p> <p>Monitoring and reporting are necessary to provide such assurance</p>

Issue	Purpose	Options/examples	Comments, advantages, disadvantages
Remedies & dispute settlement	<p>Governs what is to happen in event of non-compliance with agreement</p> <p>Specify what constitutes default</p>	<p>Notice period in event of default</p> <p>Technical review committee as part of overall project design (to address defaults/disputes within programme)</p> <p>Arbitration, courts</p> <p>Remedies:</p> <ul style="list-style-type: none"> Pay back (less common) Prevention of future payments Termination of contract Exclusion from programme (for individual projects) Loss of concession Warning Reduced benefits 	<p>Defaults of individual project should be considered within forestry strategy</p> <p>If remedies are strict (e.g. paying back benefits) seller may be less willing to enter into contract</p> <p>Damages are not common in practice</p> <p>Arbitration may reduce costs and time of going to court</p> <p>Consider cost of court vs. amount of money at issue</p> <p>Often PES payments will be too small to justify costs of going to court</p> <p>Other legal remedies - specific performance (e.g. replant trees, re-build fences)</p>

7 Governance

The term 'governance' refers to the particular aspects of how decisions are carried out and implemented. Even the best-designed agencies and programmes can fall short of meeting their objectives if they do not take into account the many aspects of good governance. In the broadest sense, it acts to constrain government to prevent the abuse of public power and to constrain private actors to prevent market abuse. The fundamental aspects of good governance include openness, transparency, public participation, accountability, the rule of law, predictability, and timeliness. Good governance refers not only to governmental activity but also to private sector and non-governmental actors.

The box below provides a general understanding of good governance.

Good governance is more than a legal ideal and more than a development strategy. It also has been identified as a set of social norms comprising, among others, the rule of law, anti-corruption, and accountability. These good governance norms constrain the exercise of power in the public sphere by limiting the power of government, and in the private sphere by limiting market power and corporate control. These norms are concentrated in political institutions but also involve nongovernmental groups, including civil society, corporations and other businesses, and even capital markets. They are most effective when they are consistent with a community's general cultural values, the implicitly or explicitly shared abstract ideas about what is good and what is bad about society (Zaelke, Stilwell and Young 2005).

7.1 Importance of Good Governance for Watershed PES

Good governance is of particular importance in the context of watershed PES, as trust is fundamental to the long-term success of PES programmes. The wide range of potential stakeholders includes buyers and sellers as well as local governments, communities, non-participating landholders, NGOs, and others who share a stake in the programme. As many of these actors may not be accustomed to working together, programme designers will have to pay particular attention to the governance aspects of public participation, transparency, access to information, accountability, and the rule of law.

As the different country reports make clear, one of the greatest difficulties in the development and implementation of water-related schemes is building trust between the different actors, ecosystem services sellers, buyers, and intermediaries. In Bolivia, ongoing conflicts among upstream and downstream communities due to water availability patterns led to distrust among potential participating parties. Communities were reluctant to trust the promoters of the water-related PES schemes, who tended to be NGOs or institutions from urban areas and therefore not well known to local entities.

Lack of trust was an additional cause of the failure of the Brazilian Proambiente Programme. Here, the lack of pre-established relationships between the implementing entities and the participating families resulted in a widespread distrust in the project promoters, who were unable to make the promised monthly payments to families.

The following paragraphs provide more concrete examples of good governance.

Key Message: Trust is fundamental to the long-term success and sustainability of PES programmes. Good governance – in particular public participation, transparency and access to information, as well as accountability and the rule of law – helps to build trust and is therefore key in the context of watershed PES.

7.2 Public Participation

Public participation ensures that relevant stakeholders are involved and offers them the opportunity to participate in decision making in a meaningful way. Broad participation provides decision makers with important information about the needs and concerns of relevant stakeholders and may also introduce new and creative ideas to programme design. Stakeholders are more likely to support decisions in which they feel vested.

The importance of public participation is most evident in watershed PES during initial scoping and negotiations. In addition to identifying potential buyers and sellers, watershed PES advocates must convince a broader range of stakeholders of the benefits that PES transactions can offer. Decisions must consider questions of:

- How to engage the public – via closed meetings or open public meetings?
- Which public to engage – individual stakeholders, broad groups, or special groups created specifically for the watershed PES scheme?
- How long to engage the public – a single meeting or a series of meetings held over a long period of time?

In the Bolivian Los Negros-Santa Rosa pilot project, Fundación NATURA conducted a series of negotiations and public campaigns to engage potential ecosystem services buyers and sellers. Similarly, in Brazil, the Proambiente programme took several years of public discussion to evolve, commencing with rural social movements in the Amazon and in time advancing to the level of a federal policy. The Extrema Water Steward Programme in Brazil's Minas Gerais State needed two years of negotiations between project developers from the city government and the local communities to convince stakeholders that the programme would deliver benefits to the entire population. Project developers treated the community engagement phase with great care to ensure approval and participation by local residents. In the end, the programme was only enacted after ten years of negotiation and restructuring.

Some of the most innovative approaches to ensure public participation have relied on community engagement strategies. In the Bolivian Los Negros pilot project, the creation of special environmental

committees provided a stable forum for the different community interests to express their views, as well as to learn from each other and engage directly in the process. Communities had the chance to present environmental goals, explain community needs, and raise awareness of local concerns. This helped to identify practical solutions to environmental problems by promoting collaboration between the communities instead of triggering conflict.

Peru is adopting an analogous approach with its Management Committees in San Martin. The committees are to be composed of public and private stakeholders interested in contributing to the conservation and recovery of ecosystems. The programme designers' goal in creating these committees is to ensure that the different interests feel involved in the decision making process. The initial list of members includes a wide group of stakeholders, including government (local, regional, and national), the private sector, academics, and the media.

As the project develops, the feasibility of engaging with such a broad range of actors will become evident. Ensuring public participation is costly in terms of resources and time. Economists refer to this as collective action problems. The more interests/interest groups involved in a decision, the more costly the decision making process will be. The relative costs and benefits of greater versus restricted public participation will depend on the situation. Explicit consideration of these issues, regardless of the ultimate choices made, will help ensure that key stakeholders are considered an important inclusion later as programmes are underway and potential criticism arises.

Key Message: Public participation is essential to watershed PES design, particularly during initial scoping and negotiations. The creation of PES management committees can provide a stable forum for stakeholder participation, build a platform for engaging different PES interests, allow stakeholders to learn from one another and engage directly in the process.

7.3 Transparency and Access to Information

Transparency and access to information are essential to good governance, as they build trust and ensure that decisions will be made in an open manner. Transparency makes explicit the decision making process, as well as related information.

Legislation in some countries may provide for transparent decision making and access to information. Article 93 of Bolivia's Environmental Statute stipulates that environmental information held or used by the government at the national and departmental level must be public and accessible to any interested person. This is often not borne out in practice, and as a result, environmental data, once collected by government, tends to be difficult to obtain. This discrepancy between legislative requirements and implementation in practice is something to remain aware of, as it is found in many countries.

Despite the challenges of implementing statutory law, there are many examples of transparency and access to information in Latin American watershed PES projects. In Bolivia's Los Negros project, periodic workshops at local and national levels have brought together project developers, local and national authorities, and other interested institutions on a regular basis since 2004. The workshops

are a forum for sharing experiences and lessons learned. Brazil's Project Oasis and Extrema Water Steward Programme utilize websites, post and share information, and provide contact details for those interested in obtaining more information. The representatives of both the Oasis and Extrema Projects are receptive and willing to share information and experiences from these initiatives.

The Brazilian projects provide insights into the role of scale in transparency and information exchange. The Extrema and Oasis projects were both conducted at a small scale, located within a region where contact and information exchange between buyers, sellers and other stakeholders were easy to achieve. By contrast, the Proambiente project spanned six states, and representatives of the implementing organizations cited difficulties in obtaining clear and timely information, which exacerbated relations with Proambiente management and the Ministry of Agrarian Development. While there was effective transparency and public engagement at the outset of the process and throughout the planning stage, information became much less accessible once the programme evolved from general targets and goals to results in the field. As a result, there was a significant drop in the level of public participation.

Practical factors accounted for the difference in transparency between Proambiente and the other two cases. High turnover of personnel managing the Proambiente project meant that management changed each year throughout the project's four-year duration. From a practical perspective, operating across large geographic scales (six states) makes it more difficult for participants to meet and exchange information, despite the availability of modern communication technologies. The Proambiente case reinforces the theory that PES schemes may be most effective if conducted at the scale of the watershed.

Key Message: Transparency and access to information are essential during the planning stage of a PES programme, as well as once the programme moves to implementation. In projects carried out at smaller and more manageable scales, it will be easier to achieve appropriate transparency and access to information.

7.4 Accountability and the Rule of Law

Parties entering into PES watershed agreements seek assurance that the terms of the agreement will be respected and that, in the event of non-compliance, their rights will be upheld. In government-funded programmes private parties seek protection from arbitrary decisions, and assurance that the terms of the agreement will be applied and implemented in a fair manner, avoiding the influences of corruption, nepotism, and capture by special interest groups. Without safeguards in place to assure predictability, parties will be less inclined to enter into agreements.

Legally-binding contracts may not necessarily provide greater assurances of accountability than spoken commitments or memoranda of understanding. This has been demonstrated in local watersheds where customary rules may have a significant (and at times greater) influence than legislation. In certain scenarios, agreements other than contracts may have the same effectiveness and force as law.

Key Message: Ensuring accountability and respect for the ‘rule of law’ will increase the reliability and predictability of the PES scheme, which will in turn facilitate its overall development.

References

Dillaha, T., et al., 2007, Payments for Watershed Services Regional Synthesis, United States Agency for International Development (USAID), Washington, D.C.

Food and Agricultural Organization of the United Nations, 2002. Land Tenure and Rural Development. FAO Land Tenure Studies 3. Rome.

International Union for Conservation of Nature 2000. Vision for Water and Nature – A World Strategy for Conservation and Sustainable Management of Water Resources in the 21st Century. IUCN, Gland, Switzerland.

Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-being: Synthesis. Island Press, Washington, D.C.

Porras et al., 2008. All that glitters: A review of payments for watershed services in developing countries. Natural Resources Issues No. 11. International Institute for Environment and Development. London, UK.

Robertson, N., and S. Wunder. 2005. Fresh Tracks in the Forest: Assessing Incipient Payments for Environmental Services Initiatives in Bolivia. Bogor, Indonesia: Center for International Forestry Research.

Secretariat of the Convention on Biological Diversity 2007. An exploration of tools and methodologies for valuation of biodiversity and biodiversity resources and functions. CBD Technical Series No. 28.

Smith, M., de Groot, D., Bergkamp, G. 2006. Pay – Establishing payments for watershed services. IUCN, Gland, Switzerland.

Stoneham, G. et al. 2002. Auctions for Conservation Contracts: An Empirical Examination of Victoria's BushTender Trial. Melbourne, Australia, Department of Natural Resources and Environment and Melbourne Business School in Australia.

United Nations 2008. The Millennium Development Goals Report 2008. New York. http://mdgs.un.org/unsd/mdg/Resources/Static/Products/Progress2008/MDG_Report_2008_En.pdf#page=42

Zaelke, D., M. Stilwell and O. Young, 2005. Compliance, Rule of Law, and Good Governance. in Zaelke, D., D. Kaniaru, and E. Kružíková. 2005. Making Law Work, Vol. 1. London, UK

Annex I: Brazil Report

(December 2008)

Legal disclaimer: The information contained in this report is for general informational purposes only. Laws, rules and regulations may have changed since the writing of this report, and the application of such laws, rules, or regulations will, in any case, vary widely depending upon the particular facts and circumstances involved. Accordingly this report should not be construed to contain legal, accounting, tax or other professional advice. The IUCN Environmental Law Centre and Forest Trends, Katoomba Group, are not responsible for any errors or omissions in the report, and make no representations as to the accuracy, completeness, or timeliness of the information contained herein.

Table of Contents

List of Acronyms.....	73
Executive Summary.....	75
1. Introduction	77
2. Legal and Institutional Frameworks Regarding PES Schemes	78
2.1 Legal Framework.....	78
2.1.1 Constitution.....	78
2.1.2 Specific PES Legislation	79
2.1.3 Ecosystem-related Legislation.....	83
2.2 Institutional Framework	88
2.2.1 Institutions Involved at All Levels.....	88
2.2.2 Scale for Establishing PES.....	90
3. Property Rights Issues.....	91
3.1 Land and Natural Resource Ownership	92
3.1.1 Private Landowners.....	92
3.1.2 Public Entities.....	92
3.1.3 Traditional Communities	93
3.1.4 Indigenous Communities.....	93
3.2 Transfer and Inheritance Issues.....	94
3.3 Customary Rights.....	95
3.4 Change in Land Use.....	95
3.5 Protection from Illegal Exploitation.....	96
4. Negotiation	96
5. Contractual Issues.....	97
5.1 Parties to the Contract	97
5.1.1 Seller/Supplier of ES as well as Buyer/Beneficiary	97
5.1.2 The Legal Capacity to Enter into Contracts	98
5.2 Legal Nature of the Contract.....	99
5.3 Objective Regulated by the Contract	99
5.4 Obligations of the Parties	100
5.5 Period of Time/Duration	101

5.6	Fiscal Implications of Deriving Income from Sale of Ecosystem Services.....	102
5.7	Securities and Risk Allocation	102
6.	Monitoring, Non-compliance, and Enforcement	103
6.1	Monitoring the Provision of Services.....	103
6.2	Non-compliance and Dispute Resolution	104
7.	Good Governance	105
7.1	Public Participation	105
7.2	Accountability.....	105
7.3	Transparency	106
8.	Conclusions	106
	Recommendations	107
	ANNEX 1	109
I.	Background	109
II.	Analysis.....	111
	ANNEX 2	115
I.	Background	115
II.	Analysis	117
	ANNEX 3	119
I.	Background	119
II.	Analysis.....	120
	References	123

List of Acronyms

ANA	National Water Agency
APP	<i>Área de Preservação Permanente</i> (Area of Permanent Preservation)
CDM	Clean Development Mechanism
CODEMA	Municipal Council on Environmental Development
ES	ecosystem services
FVPP	Foundation to Live, to Produce, and to Preserve
IBAMA	Brazilian Institute of Environment and Renewable Natural Resources
IPAM	Amazon Environmental Research Institute
IUCN	International Union for Conservation of Nature
IVM	Value Index for Water Sources
MDA	Ministry of Agrarian Development
NGO	nongovernmental organization
PRONAF	National Family Agricultural Programme
PES	payment for ecosystem services
RL	<i>Reserva Legal</i> (Legal Reserve)
RMSP	Metropolitan Region of São Paulo
Sabesp	São Paulo Basic Sanitation Company
SINGREH	National Water Resources Management System
SNUC	National System of Conservation Units
UFEX	Extrema Fiscal Units

Executive Summary

This document presents the findings of the study **Improved Understanding of Payments for Ecosystem Services – PES**, focusing on the legal and institutional framework of voluntary water payment for ecosystem services (PES) schemes in Brazil. The overall goal of the project, which includes similar studies in Peru, Colombia, and Bolivia, is to develop guidelines for the legal and institutional structures required to support PES schemes and their implementation. The scope of the work includes legislation, institutions, property rights, negotiations, contracts, monitoring and enforcement, and good governance related to water PES schemes in Brazil.

The research was desk-based and combined two approaches: an analysis of existing and proposed legislation and institutional conditions that affect PES development and a focus on specific projects, selected and presented as case studies, in order to understand the mechanisms being used in existing projects.

The three case studies presented and discussed are:

- **Proambiente**, a federal programme intended to stimulate changes in land use practices by family farmers in the Amazon through payment for the set of ecosystem services resulting from such changes. The programme, which ran from 2004 to 2007, encountered two main obstacles – lack of a legal framework for PES and limited funding.
- The **Water Steward Programme** (also referred to here as the **Extrema Project**), sponsored by the Municipality of Extrema, Minas Gerais State, with the objective of improving the quality and flow of its water supply, with local landowners engaging in reforestation, forest protection, and waste treatment activities in return for financial payments.
- **Project Oasis**, developed by the O Boticário Foundation, in which landowners within the Protected Area of the São Paulo Metropolitan Region (RMSP) are paid to protect their forest fragments, with the goal of showcasing a mechanism for protecting and improving the supply of water to urban centres that can be expanded and adopted elsewhere.

Analysis of these cases, coupled with research into general legal and institutional conditions and possibilities, reveals that the water PES field is still incipient in Brazil. There is no national legislation, and only a few cases of state and municipal legislation (Amazonas and Espírito Santo States, Extrema Municipality), pertaining to ecosystem services. In the field, a limited number of projects are operating or under design. Nevertheless, interest in this subject is growing, and PES is seen as a promising mechanism for protecting and improving water resources.

The findings of this study, especially regarding the existing barriers to water PES, lead to seven specific recommendations:

- Approve the bill proposed by the Ministry of the Environment that defines ecosystem services and institutes the *Bolsa Verde* (Green Fund);
- Develop in other states and municipalities legislation similar to that in Amazonas, Espírito Santo, and Extrema, which establishes PES initiatives and designates funding sources;
- Design and implement water PES schemes on the watershed scale;

- Strengthen and make use of the existing institutional framework of Watershed Committees;
- Pay special attention to land tenure, with the adoption of one of three approaches: work exclusively with landowners holding clear and full title to their properties; invest in helping potential beneficiaries obtain proper documentation as a first step in PES project development; use an existing, official database of agriculturalists, such as PRONAF (the National Family Agricultural Programme), to define eligibility;
- Develop and use contracts that contain clear obligations, rights, and consequences of non-compliance for all parties to the instrument; and
- Include a provision for the sustainability of ecosystem services (e.g., a Legal Reserve requirement) in PES contracts.

1. Introduction

In territory, population, and natural resources, Brazil is one of the world's largest nations. Officially named the Federative Republic of Brazil, this country is composed of 26 states and one federal district. Located in South America, it covers an area of 8,514,876 km², equivalent to 47 per cent of the continent's territory. Brazil has the fifth largest population in the world, with 184 million inhabitants, and the fifth largest geographic area (IBGE 2002).

The geography of Brazil is quite diverse, with semiarid and mountainous landscapes, tropical and subtropical plains, and climates varying from the arid interior to the rainy, tropical equatorial region and the milder southern climate with its subtropical climate. Due to its continental dimensions and its great geomorphological and climate variations, Brazil includes six biomes: Amazon, Cerrado, Atlantic Forest, Pantanal, Pampas, and Caatinga.

This range of biomes makes Brazil the principal country within the 'megadiversity countries',¹ with 15–20 per cent of the total number of species on the planet, many of which occur naturally in the country (Lewinsohn and Prado 2005:38). The native fauna and flora include the richest flora in the world, with between 43,000 and 49,520 identified plant species, more than 3,000 species of freshwater fish, 586 species of amphibians, 1,696 species of birds, 541 species of mammals, and up to 137,000 species of invertebrates (Lewinsohn and Prado 2005:39). The Amazon, Atlantic Forest, and Cerrado are among the richest biomes on the planet in terms of number of plant species.

Brazil is also endowed with the world's largest freshwater reserve – approximately 12 per cent of the global supply lies within its borders (World Resources Institute 2007). Included in Brazil's vast resource is the world's largest underground reserves (the Guarani Aquifer), the largest river basin (the Amazon), and the largest tropical floodplain (the Pantanal).

Despite this natural abundance, water management present serious challenges in Brazil and is leading to important changes. The exponential industrial, agricultural, and urban growth of the last century has severely affected the quality and quantity of this supply in many regions – and on a large scale. Conventional reasoning, which focused on collection, treatment, and distribution as the only three steps in water supply, is slowly changing. The new paradigm looks upstream and includes production of water as the first fundamental step in helping guarantee an adequate water supply for people and ecosystems.

The focus of this study is payment for ecosystem services (PES), a relatively new concept in Brazil but one that has important potential in promoting the conservation of water resources. By engaging water 'producers,' such as landowners of strategic watershed areas, PES supports the maintenance and improvement of water flow and quality. There is growing interest from stakeholders in this mechanism as a means of reducing the costs of water treatment and the risk of water scarcity.

Three case studies served as the basis for much of the analysis and recommendations contained in this document (see Table); they are described in detail in the Annexes.

¹ The term megadiversity was coined in 1998 by Russell Mittermeier, president of Conservation International, to indicate countries with the richest biodiversity on the planet.

Water cases	Seller type	Buyer type	Contract type	Date contracts or agreements were signed	Notes regarding inclusion
Proambiente	Traditional communities	Public	Seller with Buyer	2004–07	Large federal PES scheme
Extrema Water Steward Programme	Private	Public (Extrema Municipal Government)	Seller with buyer	2007	First municipal PES scheme
Project Oasis	Private	Private (O Boticário Foundation)	Seller with buyer	2006	Private PES operation

2. Legal and Institutional Frameworks Regarding PES Schemes

The widespread adoption of PES schemes as mechanisms for protecting and improving Brazil's water resources will depend on a clear legal framework and effective institutional arrangements. This section analyses the relevant legislation that is in place or has been proposed, as well as the institutions that have a stake in the issue.

2.1 Legal Framework

At the national level, there is not yet a legal framework for PES initiatives in place. However, rising interest and efforts among public, private, and civil society sectors have brought these topics to the attention of the National Congress, and the result is that a number of relevant bills have been proposed and are under analysis. Approval of legislation favourable to the development of PES is a fundamental building block for the construction of an active and robust market.

2.1.1 Constitution

Being a relatively new concept, it is not surprising that PES is not mentioned in the Federal Constitution of Brazil, which was instituted in 1988. The most relevant section for the purpose of this study is Article 225, which focuses on the environment. In its introduction, this article states that the environment belongs to the people and must be defended and preserved for future generations, allocating to the state and society this duty. It outlines the responsibility of the state in this area, including protecting flora and fauna, creating Conservation Units, promoting environmental education, requiring impact assessments, and controlling activities that could harm people and the environment. It goes on to state that mining operations must repair damages they cause to the environment and notes that those that carry out activities harmful to the environment will be penalized. Several biomes, including the Amazon and the Atlantic Forest, are declared national heritage. As such, the use of their natural resources is to be determined by law in order to ensure their preservation.

It is clear that when the Constitution was written there were two main approaches towards the environment: preservation and penalization. No mention is made either of reward or payment for sustainable use, and preservation is treated as a duty rather than a service that is provided.

Specifically regarding water resources, the Brazilian Constitution states that water is a public good,

coming under the domain of the Union and the states. The following belong to the Union: rivers, lakes, and other bodies of water that are within federal land or located in more than one state, that serve as borders with other countries, or that extend or originate from other countries, as well as the lands bordering these bodies. In addition, the Union has dominion over the country's hydropower potential (Federal Constitution, Chapter II). The other bodies of water come under the dominion of the states (Articles 20 and 26). There are no bodies of water under the domain of municipalities or individuals.

Furthermore, in Article 21 the Constitution states that the Union must institute a National System for Water Resources Management and define criteria for awarding the right of use of water resources. The classification of water resources as a public good by the Federal Constitution and the central role given to the government in water issues are fundamental elements in the institutional design of water PES, as discussed in Section 2.2.

2.1.2 Specific PES Legislation

An analysis of specific legislation for PES at the federal and state levels included verifying whether it has a clear definition of ecosystem services (ES), whether there is legislative authorization to allocate budgets provided in the legislation, whether administrative rules and responsibilities are clearly defined, whether there is a general capacity of the parties affected to enter into agreements, and whether any procedures or specifics are mentioned in the contract.

In Brazil, the authors found two categories of legislation related to water PES: proposed national legislation and existing state and municipal legislation.

National ES Legislation

At the time of the writing there is no national legislation in Brazil specifically on ecosystem services. This topic has received growing attention from the government and the public, however, and as a result, several bills are currently under analysis in Congress that specifically deal with the definition and funding of PES. Although climate change mitigation has been a central motivator of the movement to institute PES legislation, water services – defined as ‘hydrological ecosystem functions’ – are included as part of the bundle of ecosystem services defined in these proposed laws.

The following is a list of bills under review, based on information presented by Mattos et al. (2008:1–61) of the organization Instituto Socioambiental.²

PL (Projeto de Lei, or Bill) 792 / 2007, proposed by Representative Anselmo de Jesus (PT/RO),³ contains a comprehensive definition of ecosystem services,⁴ including not only conservation but also the services provided through sustainable production (food, fibres, water, genetic resources, natural medicines). Some of the services obtained from the regulation of ecosystem processes are

2 To follow the progress of specific legislation in Congress, see the website of the House at www2.camara.gov.br/proposicoes and enter the specific bill desired.

3 PT is the acronym for the political party Partido dos Trabalhadores, or Workers’ Party. RO is the abbreviation for Rondonia State.

4 For reasons of consistency, the term ‘ecosystem services’ is used in this document as a translation from the Portuguese ‘serviços ambientais’.

cited as air quality, climate regulation, water regulation and purification, erosion control, control of human illnesses, biological control, and risk mitigation. The proponent of this bill is the ex-president of the agrarian reform movement *Federação dos Trabalhadores na Agricultura de Rondônia* (Federation of Agricultural Workers of Rondonia State), who played a key role in the creation of the Proambiente programme (see Annex 1).

PL 1.190 / 2007, proposed by Representative Antônio Palocci (PT/SP),⁵ creates the National Programme for Compensation of Ecosystem Services, known as the Green Fund (*Bolsa Verde*) Programme. Although positive in the sense that it seeks to value sustainable family farming, this bill has several weak points. It erroneously cites the Clean Development Mechanism (CDM) as a potential means of developing PES projects for family agriculture, when in fact CDM is ill suited to small-scale projects of that nature.⁶ Second, the bill states that funding for the Green Fund Programme would be obtained from international cooperation agencies in the form of donations, not from the National Treasury. A solid federal programme cannot realistically be expected to operate using donations from international cooperation agencies as its main source of funding, as that is not directly controlled by the government and its availability is subject to factors that may not be related to the results of the programme. In addition, such donations are generally made for limited amounts of time and therefore could not be counted on to support a programme designed to operate over the long term.

- **PL 1.667 / 2007**, proposed by Representative Fernando de Fabinho (DEM/BA),⁷ creates the Nature Fund Programme. The beneficiaries of this programme are stated to be 'poor' rural families (without a definition of 'poor'). The bill provides few details, stating that 'the selection of the ecosystem services to be rendered, the beneficiaries of the payment or compensation and the values to be paid will be determined by the Executive Branch by way of supporting legislation.' The bill suggests a broad range of potential funders for the programme, including public, private, national, and international entities.
- **PL 1.920 / 2007**, proposed by Representative Federal Sebastião Bala Rocha (PDT/AP),⁸ institutes the Programme for Assistance to the People of the Forest – Green Income. The target population of this bill includes indigenous and traditional communities, family farmers, and other rural producers who reside within forested areas. The bill proposes financial compensation for 'the sustainable use of natural resources and the adoption of voluntary practices of conservation,

5 SP is the abbreviation for São Paulo State.

6 CDM requirements generally prove too costly and complex for small-scale projects. A study carried out for the Swiss Agency for Development and Cooperation, analyzing 16 small-scale projects in India, reports that 'the majority of these projects will not be able to attract investments from commercial international CDM investors. Even if they show good financial returns, most of the projects will not be able to bear the additional transaction costs which appear when a commercial international investment takes place. The costs for a conventional due diligence process and for additional CDM requirements such as validation, monitoring and certification would be unbearably high for their small project size' (Sutter 2001:4).

7 DEM is the acronym for the political party Democratas, or Democrats. BA is the abbreviation for Bahia State.

8 PDT is the acronym for the political party Partido Democrático Trabalhista, or Democratic Worker's Party. AP is the abbreviation for Amapá State.

environmental protection and the reduction of deforestation.' The bill proposes the creation of a National Fund for Sustainable Development, the funds of which are to originate from international, national, public, and private sources. It is the opinion of the consultants Luciano Mattos et al. (2008:11) that this bill clearly allows for federal government funding and underscores the role of the state in promoting sustainable development.

- **PL 1.999 / 2007**, proposed by Representative Ângelo Vanhoni (PT/PR),⁹ proposes the creation of a National Programme for Environmental Compensation. This programme would reward rural property owners who 'maintain forested areas above the 20% required by the Legal Reserve' (RL, for *Reserva Legal*). Although positive in that it is a bill specifically dealing with avoided deforestation, providing incentives for farmers to maintain a larger forest area than required by law, there are a number of weak points. The first major inaccuracy is that this law completely neglects the fact that different biomes have different Legal Reserve requirements: 35 per cent in regions of Cerrado and 80 per cent in the Amazon. Furthermore, the bill states that it will only involve property owners who have between 1 and 15 Tax Units.¹⁰ This restriction would exclude groups of lands owned collectively, such as by indigenous communities, which often cover much larger areas. Finally, the most controversial point is that the bill includes, as the source of funds, payments by property owners who do not meet the Legal Reserve requirement but who may choose to compensate for this by paying a fee (an amount per hectare). Mattos et al. (2008:13) point out that this is an extremely risky proposition as it creates a perverse situation, giving landowners a legal mechanism for deforesting.
- **PL 2.364 / 2007**, proposed by Representative José Fernando Aparecido de Oliveira (PV/MG),¹¹ is on the adoption of the Programme Environmental Credit for Incentive to Family Farmers and Rural Producers – Green Credit. This line of credit would be made available to individuals or groups that maintained and registered Legal Reserves above the minimum area required by law.

These six bills were merged under the following proposed law:

- **Substitutivo, or Substitute, of PL 792, 1.190, 1.667, 1.920, 1.999, and 2.364.** This proposed law, hereafter referred to as *Substitutivo*, integrates the above-mentioned bills and was authored by Representative Anselmo de Jesus (PT-RO). It institutes a National Policy on Ecosystem Services and creates the Green Fund Programme. The bill defines as potential participants the beneficiaries of PRONAF, which is a positive point as it creates synergy with an existing programme.¹²

9 PR is the abbreviation for Paraná State.

10 A Tax Unit, or Modulo Fiscal, is an area defined by the National Institute for Colonization and Agrarian Reform, which varies among regions according to the quality and characteristics of the land. In southern states, 1 Tax Unit is approximately 25 hectares, while in the north it is about 100 hectares.

11 PV is the acronym for the political party Partido Verde, or Green Party. MG is the abbreviation for Minas Gerais State.

12 PRONAF was created in 1996 by the federal government to facilitate access to financial credit by family farmers, fishers, extractivists, and other rural workers. Beneficiaries must meet the following criteria: operate a parcel of land as owner, leaseholder, settler, or partner; reside on or near the property; not own, by any

The definition of ecosystem services was taken from the Proambiente programme (2004–07) and includes reduction or avoidance of deforestation, carbon sequestration, recovery of hydrological ecosystem functions, soil conservation, preservation of biodiversity, and reduction of forest fire risks. As this proposed legislation incorporates the main points of the six bills just described, it is likely to have widespread support and has a good chance of success (Mattos et al. 2008:18). Negotiations are under way between the bill's proponents and the Ministry of the Environment to have the bill proposed by the Executive Branch. This would ensure that it would be given priority in Congress, in addition to allowing the bill to include the proposal to use funds from the National Treasury (which is not permitted in bills proposed by the Legislative Branch).

Update

The most recent development is that the effort to have the *Substitutivo* promoted by the Ministry of the Environment was successful. The new bill incorporates the *Substitutivo* and provides more detailed eligibility criteria and some additional PES schemes – for instance, one within the national Conservation Units. The proposed legislation, which demonstrates a strong movement by the Executive and Legislative Branches to institutionalize PES in Brazil, was submitted to the President in August 2008. As of November 2008 it was under review by the President's Cabinet (*Casa Civil*) and was expected to go to Congress in the next few months.

State and Municipal ES Legislation

Amazonas State

Amazonas is the first state in Brazil to have PES-related legislation. Although primarily focused on climate change mitigation, Complementary State Law no. 53 includes the terminology 'water, its filtration and cleaning' and 'restoring the equilibrium of the hydrological cycle' as ecosystem services to be remunerated. A summary of the two pertinent laws, passed on June 5, 2007, follows:

Complementary State Law no. 53: This law complements Articles 230 and 231 of the Amazonas State Constitution. It establishes criteria and standards for the creation, implementation, and management of State Conservation Units. It is modelled after the National System of Conservation Units (SNUC, from the Portuguese). This law recognizes and rewards ecosystem services by establishing a legal framework for PES within conservation areas. Payment for ecosystem services that takes place within State Conservation Units needs authority from the State Conservation Unit Management Centre. Details for the framework remain to be laid out in supplemental legislation.

Revenue generated by the Conservation Units (e.g., visitor fees, environmental fines, sales and services of natural resources from the Unit) is to be deposited into a specific account by the Conserva-

title, an area larger than four fiscal modules, measured according to the legislation in force; obtain family income from the establishment by raising or not raising livestock; have family labour as the basis of operations on the establishment; and earn an annual gross family income up to R\$1,500 (US\$750), excluding the proceeds tied to economic benefits due to rural activities.

tion Unit managing entity. Of this revenue, the law requires that at least 50 per cent be allocated to the State Climate Change Fund in order to pay for the *Bolsa Floresta* (Forest Grant) Programme and other conservation initiatives in the State Conservation Unit System.

State Law no. 3.135: This law establishes state policy on climate change, environmental conservation, and sustainable development in Amazonas. It is intended to stimulate carbon credit market systems; promote environmental education; develop research projects in conservation areas; create the Climate Change Fund to finance monitoring, inspection, inventory, conservation, and sustainable management; create the *Bolsa Floresta* for residents of state conservation areas and fund the payments for ecosystem services; and institute stamps of approval for public and private entities that develop climate change projects.

Espírito Santo State

The foundation for a promising legal and financial support system for state PES has recently been laid down in Espírito Santo, with the creation of a State Water Resources Fund (*Fundágua*) by Law no. 8960 on July 18, 2008. The fund is to serve as a mechanism for implementing the state water policy, which aims to promote the effective management, use, and conservation of state water resources. Sources of revenue include petroleum royalties and water fees and fines. Among the many applications of these funds is 'payment for ecosystem services rendered by rural property owners for the expansion, conservation and/or preservation of forest cover and adequate soil management in areas of relevance for water resources.'

In September 2008, Law no. 8995 was approved, specifically instituting the Payment for Ecosystem Services Programme. The objective of the programme is to remunerate landowners and land leasers for the preservation and conservation of forested areas on rural properties in order to protect and improve the state's water resources. It remains to be seen how this promising scenario unfolds and if the PES programme in Espírito Santo is implemented effectively.

An additional interesting point is that the law guarantees the landowner the ownership of and right of sale of any carbon credits that may be generated by such activities. This recognizes the overlap that exists between water and carbon PES projects (see Section 5.3), in which the same land use change activities that contribute to increased or improved water flow may result in carbon sequestration or emissions avoidance.

Extrema Municipality, Minas Gerais State

In December 2005, the Municipality of Extrema in Minas Gerais State enacted Municipal Law no. 2100 and the regulating Decrees no. 1.703/06 and 1.801/06 to create the Water Producer Programme. This is a municipal initiative that intends to protect and improve Extrema's water supply, yet it also directly affects the water supply of the São Paulo region. This programme actively protects forests and restores degraded areas that border bodies of water, starting with the most degraded micro-watershed, Córrego das Posses. The municipal government intends to expand the initiative into the six remaining micro-watersheds of Extrema.

2.1.3 Ecosystem-related Legislation

Although PES legislation is limited, several ecosystem-related laws affect the development of these water-related PES projects. It is important to note that, although water is the main target in the PES

projects, the services that are provided in projects are, for the most part, land use-related, specifically involving reforestation or forest maintenance. For this reason, both water- and forestry-related legislation are presented here.

Water Law

The most relevant piece of legislation dealing with water resources is Law no. 9433, enacted January 8, 1997, commonly known as the Water Law. This legal instrument was inspired by the French model that permits participative management and decentralization of water resources.¹³ The Water Law instituted the National Policy on Water Resources and created a new institutional framework, the National Water Resources Management System, SINGREH (presented in Section 2.2).

Article 1 of the Water Law states that National Policy on Water Resources is based on the following principles:

- I. Water is a good under public dominion.
- II. Water is a limited natural resource of economic value.
- III. In situations of scarcity, the priority for use is human and animal consumption.
- IV. The management of water resources must allow for multiple uses.
- V. The watershed is the territorial unit for implementation of the National Policy on Water Resources and the National Water Resources Management System.
- VI. Management of water resources must be decentralized and involve participation of government, consumers, and communities.

These points are extremely relevant to the discussion on payment for water services. Item I leads to the conclusion that water PES schemes must necessarily include some level of government as a key player. In fact, both in the three case studies presented in the Annexes and in other projects under way in Brazil, the government plays a key role. In Proambiente, the programme was funded and implemented by the federal government; in the case of Extrema, the project is carried out by the municipal government, which enters into contracts with private property owners. The third case study, Project Oasis, though sponsored by a nonprofit institution, was designed to jump-start the concept of water PES, with the intention that it would serve as a model to be perpetuated and expanded by the municipal government after five years.

Item II recognizes that water has an economic value. This recognition is fundamental to the discussion on water PES and greatly facilitates the conceptual groundwork necessary to implement such initiatives. In comparison, the promotion of carbon PES schemes is hindered by the lack of cultural and legal recognition of the economic value of avoided/removed atmospheric carbon.

Supplying humans and livestock is the main priority for water use according to Item III. Other uses (such as power generation, industrial uses, and recreation) must also be taken into consideration, as Item IV states that management of water resources must allow for multiple uses. PES can be an important mechanism for ensuring sufficient water flows for these priorities.

In Item V, stakeholders can find an important guiding rule: the watershed (or micro-watershed) as the most appropriate and effective scale for PES schemes. Again, a comparison to atmospheric carbon

¹³ See Agencia Nacional das Águas – National Water Agency, at www.ana.gov.br/Institucional/default.asp.

PES is helpful. Carbon emissions have a global effect and therefore a global market is appropriate, in which buyers and sellers may be on opposite sides of the world. Fresh water, however, flows by a traceable path from origin to consumer, with cause and effect occurring in relative proximity to each other. The Extrema case study exemplifies this situation: with the objective of improving the quality and flow of the water to its inhabitants, the Municipality of Extrema implemented a water PES. Extrema contains a micro-watershed that feeds the Cantareira System – a group of watersheds that supply water to 8.8 million people in São Paulo and its Metropolitan Region. In order to help guarantee the flow and quality of water to the city, the project is paying private landowners in Extrema to protect their forests. By making the watershed or micro-watershed the territorial unit for implementation, PES schemes are in accordance both with the National Policy on Water Resources and with the existing institutional framework of Watershed Committees, as discussed in the next section.

Another point relevant to PES is the existence of water usage fees, as these are a potential source of funding for ecosystem services mechanisms. Article 5 of the Water Law states that one of the ‘instruments of the National Policy on Water Resources’ is the ‘application of charges for the use of water resources’. Article 22 states that ‘the funds generated by such fees shall be applied, as first priority, in the watershed in which they were generated’. This reinforces the appropriateness of developing PES projects on the scale of specific watersheds, as cited from Article 1, above.

Water usage fees are applied and collected in residential, commercial, public, and industrial sectors. The allocation of these funds to PES, however, is yet to be put in practice. Currently, the main application of these funds is to water infrastructure, operations, and maintenance. As discussed in Section 2.2.1, the decision on how to spend the revenue generated by water usage fees is the prerogative of the Watershed Committee (which includes representatives from the National Water Agency (ANA) and other public entities as well as private and civil society sectors). In cases where a committee has not yet been instituted, the responsibility of determining water usage fees and the allocation of the revenue that they generate lies with the ANA.

Brazilian Forest Code

National forestry law is contained in the Brazilian Forest Code, instituted by Law no. 4.771 of 1965 – the first law concerning natural resources in Brazil. The code outlines the basic requirements for forest preservation and conservation of natural resources in the nation’s forested areas, including private and public lands.

The Brazilian Forest Code requires all rural properties to have two types of protected or conserved areas (free from intervention or with minimal intervention): *Área de Preservação Permanente* (APP, or Areas of Permanent Preservation) and *Reserva Legal* (RL, or Legal Reserves).

Areas of Permanent Preservation

These are areas within public and private properties that have important environmental functions specified by the Brazilian Forest Code, contributing to water preservation, geological stability, biodiversity, soil protection, and human well-being. The Brazilian Forest Code was updated in 2001 through the Provisory Measure (MP) 2166-67. According to this update, APPs include:

- 30 meters on each side of water courses;
- Slopes steeper than 45 degrees;

- Areas at altitudes greater than 1,800 meters;
- 50 meters radius around springs;
- Hilltops and mountaintops; and
- Areas around ponds, lakes, and water reservoirs, both natural and artificial:
 - 30 meters in urban areas and
 - 100 meters in rural areas, except bodies of water less than 20 ha in area, where the size of the strip is 50 meters.

It is important to note that although it is illegal to remove vegetation from APPs, the law does not require property owners to restore deforested APP areas.

Brazilian Forest Code: Water Protection in Theory, Not in Practice

Brazil's Forest Code is considered one of the most advanced environmental laws in the world. Its clear and ample requirements for forest cover on rural lands emphasize the protection of waterways and springs, recognizing the central role of forests in the preservation of water flow and quality.

However, it is well known that enforcement has been extremely limited since the law's institution. The current estimate of only 7.8 per cent of remaining forest cover in the Atlantic Forest reflects the lack of compliance and a need for incentives to increase the engagement of land-owners and rate of compliance.

Legal Reserves

An RL is an area within a property, not including the APP, necessary for the sustainable use of natural resources and biodiversity conservation. The minimum RL is established by biome:

- 80 per cent in the Amazon,
- 35 per cent in the Cerrado, and
- 20 per cent in all other biomes (includes Atlantic Forest).

The original purpose of the RL was to guarantee a sustainable supply of wood for property owners. However, in 2001 this concept was withdrawn from the National Agriculture Policy and inserted in the Forest Code (MP 2166-67). Its role therefore has expanded beyond wood production to include important ecosystem functions and now comes under the protection of the Law on Environmental Crimes (Manfrinato 2005:37).¹⁴

Unlike for the APP, which has its location defined by law, property owners are required to declare and register their Legal Reserves with the local Real Estate Registry Office. Restoration of degraded or deforested RL areas must be achieved within 30 years of registration.

¹⁴ The Law on Environmental Crimes (9.605/98) provides for the imposition of criminal liability on the person, individual, or legal entity that pollutes or degrades the environment, according to their culpability.

Should Landowners Be Paid to Comply? Legal Additionality of Water Projects

Although buyers do not require water PES projects to prove additionality in the same way that carbon PES projects do, the question of whether it is correct to pay sellers to maintain or reforest areas that they are legally required to protect (such as RLs and APPs) is a valid concern.

The consensus among stakeholders is that, yes, landowners should be remunerated to enter into compliance or continue to comply with environmental legislation. In practical terms, reality shows that the vast majority of private properties do not respect the legislation – 1998 data from the National Institute for Agrarian Reform revealed that less than 10 per cent of Brazil's rural property area is covered by Legal Reserves, a fact that is of extreme concern, given that the lowest legal requirement is 20 per cent, with the vast biomes of the Amazon and Cerrado being at 80 per cent and 35 per cent, respectively. Furthermore, reforestation of tropical biomes such as Mata Atlantica and Amazon forest are complex, expensive operations, unlikely to be carried out without technical and financial assistance.

The very concept of ecosystem services justifies payments even in the face of legal environmental requirements. PES buyers recognize and value, for the first time, the role of landowners in 'producing' water, which in turn generates economic and social benefits to society.

National Forestry Service

Law no. 11.284 of 2006 lays out the management of public forests for sustainable production and creates the Brazilian Forest Service within the Ministry of the Environment and the National Forest Development Fund. It allows for the concession of rights to a private entity to sustainably manage public forests for the exploration of products and services. In Article 16, this law establishes a restriction for the commercialization of credits from avoided deforestation in natural forests located within public forest concessions. The second paragraph of this article makes an exception for cases where carbon credits are generated from reforestation of degraded areas or areas converted into alternative use of soil.

Apparently, this law would not prohibit water PES on public lands. There is the potential, for example, for water PES schemes to fund reforestation or protection of public lands located in areas of a watershed that are of priority for the local water supply. The fact that there are no water PES projects established on public lands seems to be due to the extremely recent introduction of this type of initiative in the country rather than any inherent barriers to this category of seller.

Legislation Regarding Conservation Units

In 2000, Federal Law no. 9.985 instituted the *Sistema Nacional de Unidades de Conservação* or the National System of Conservation Units. SNUC defines the legal nature of the properties contained within the different types of Conservation Units, which are separated into two broad categories:

Strict Protection Units – composed of Ecological Stations, Biological Reserves, National Parks, Natural Monuments, and Wildlife Sanctuaries; and

Sustainable Use Units – composed of Environmental Protection Areas, Areas of Considerable Ecological Interest, National Forests, Extractive Reserves, Wildlife Reserves, Sustainable Development Reserves, and Private Natural Heritage Reserves.

The main objective of Strict Protection Units is the preservation of natural habitat; in these units only indirect use of natural resources is allowed (not involving consumption, collection, damage, or destruction). Because private property and human inhabitants are prohibited by law on Strict Protection Units, this would rule out the implementation of payment arrangements to private ecosystem service providers on these lands. In these areas, the seller would necessarily be the government through the managing entity of the Strict Protection Unit. The National Environmental Council, the Ministry of the Environment, and the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) manage the Conservation Units.

In Sustainable Use Units, on the other hand, environmental conservation and sustainable use of natural resources are intended to be made compatible. These areas include varied landownership and use situations (individual private property, commercial private property, traditional communities, and public), and therefore a variety of PES schemes are legally possible.

2.2 Institutional Framework

So far, PES initiatives are incipient and there is no broad framework of institutional support to their development. Brazil does have, however, a very well defined framework of dominion and management of water resources, which could potentially incorporate and promote the concept of PES. This section provides an overview of key institutions operating in Brazil and analyses the scale at which the projects presented as case studies are being implemented.

2.2.1 Institutions Involved at All Levels

As explained in Section 2.1, both the Federal Constitution and the national Water Law explicitly state that water is a public good and comes under the dominion of the Union and the states. This makes the government an essential stakeholder in water PES schemes. In practice, this is found to be true. In two of the three case studies in the Annexes, Proambiente and Extrema, the governments (federal and municipal, respectively) are the buyers; in the third case, Oasis, the project has the support of both the municipal and state governments, and the long-term aim of project developer O Boticário Foundation is to transfer the role of buyer to the government. The other water PES initiatives under way in Brazil, such as Espírito Santo's *Fundágua*,¹⁵ the Cachoeira Project of the São Paulo Basic Sanitation Company (Sabesp),¹⁶ and the Joinville Riparian Recovery programme, also involve the state.

A broad range of stakeholders can potentially be involved. In the Extrema Project, for example, the

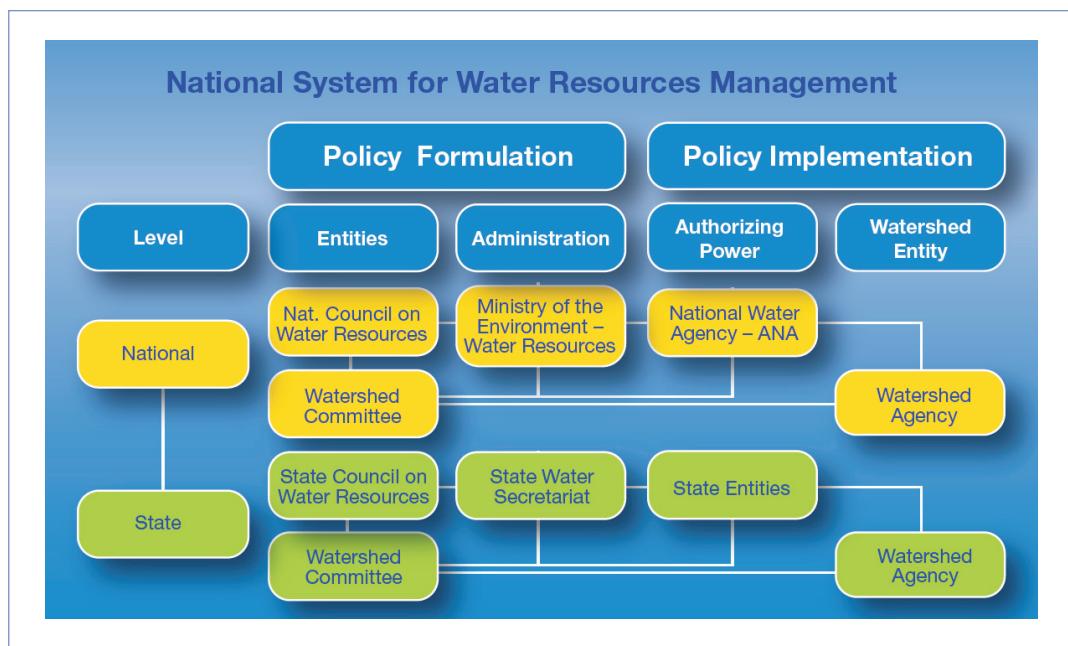
¹⁵ As noted earlier, in 2008 Espírito Santo created the State Water Resources Fund (*Fundágua*) and a Payment for Environmental Services Programme to remunerate landowners for the preservation and conservation of forested areas on rural properties in order to protect and improve the state's water resources.

¹⁶ São Paulo state's largest water utility, Sabesp, is currently working with The Nature Conservancy and other stakeholders on a reforestation project on land surrounding its Cachoeira Reservoir in order to ultimately improve water quality. Although the project is to involve carbon financing, this can be considered a water PES, as the ultimate goal of the land use change is to improve the quality and flow of water to the reservoir.

following partners have come together to support the implementation of this innovative PES case: the municipal government; the National Water Agency; the Watershed Committees of Piracicaba, Capivari, and Jundiaí Rivers; the State Environment Secretariat; CATI (a technical assistance entity); The Nature Conservancy; the Minas Gerais State Forestry Institute; and the water utility company Sabesp (Aquino 2008).

Government

As noted earlier, the National Water Resources Management System was created in 1997 by the Water Law. This institutional framework is designed to promote a participative and decentralized management approach (see Figure).



These organs have the following roles:

- Councils contribute to the formulation of water resources policies and conflict resolution.
- The Ministry of the Environment, through its Water Resources Secretariat, formulates the National Policy on Water Resources and partakes in the preparation of the federal budget.
- The National Water Agency implements the National Water Resources System and grants and monitors the use of water under dominion of the Union, while the state entities do the same for water under state dominion.
- Watershed Committees decide on the Water Resources Plan – basically when to charge for the use of water, how much, and for what.
- Watershed Agencies are the technical support offices of the Watershed Committees.

Watershed Committees

The Watershed Committee was an entirely new institution in Brazil when it was conceived (Araújo 2005:1). These civil entities, instituted by law, bring together representatives of all segments – the public, water users, and civil society – to define the future of a local watershed, seeking improvements to the quality and quantity of its waters. Although far from being consolidated, Watershed Committees and agencies have grown in number and strength since the creation of this entity by the Water Law in 1997. There are currently 147 such entities – 7 federal ones and 140 at the state level.

In rivers under dominion of the Union, Watershed Committees are composed of representatives of the federal government, the federal district, the municipalities included in the watershed, and society, such as water users and civil entities that have proven experience and activities in the watershed. The representation of these segments was defined by the National Council on Water Resources in 2000 by means of Resolution no. 5, which established guidelines for the formation and operation of the committees. Representatives of water users are to make up 40 per cent; the sum of municipal, state, and federal government representatives cannot exceed 40 per cent; and organized civil society must make up a minimum of 20 per cent (Araújo 2005:2).

Watershed Committees are very important potential drivers of PES initiatives, as they are responsible for formulating and approving Water Resource Plans, dictating water usage fees and their application, and deciding on investments to be made in the watershed. Furthermore, the broad representation found in the committees helps guarantee that the initiatives will have widespread support. It is a recommendation of this study, therefore, that water-related PES be promoted through the existing framework of Watershed Committees. In Project Oasis, for instance, the O Boticário Foundation and the Watershed Committee of the Alto Tietê have terms of cooperation and are working towards a public policy that assigns part of the resources collected from water usage fees to the payments for ecosystem services.

Nongovernmental Organizations (NGOs)

A number of NGOs, such as The Nature Conservancy, The O Boticário Foundation, the Amazon Work Group, and the Amazon Environmental Research Group, have supported water project initiatives at different stages of development. This type of organization has contributed significantly and has the potential to contribute to the progress of water PES understanding and projects, offering several strengths:

- Seed money to fund the preliminary studies, visits, and reports necessary to develop the projects;
- Credibility; and
- Support in the form of human resources to deal with technical, legal, and financial issues.

2.2.2 Scale for Establishing PES

The case studies in the Annexes show two completely different scales and approaches: Proambiente, a federal programme stretching across six states, which includes hydrological services as part of a bundle of ecosystem services, on the one hand, and on the other hand the Extrema and Oasis Projects, targeting water quality and flow in specific watersheds.

In the Proambiente programme, the operational structure was composed of a National Management Council formed by federal agencies and nationwide agrarian reform movements, as well as Managing Councils of Centres formed by public agencies and civil society organizations at the local level. Implementation in the field was carried out by NGOs contracted by the federal government.

Four years of experience proved that, in addition to the legal and financial barriers encountered, significant difficulties arose from the overly ambitious scale of the programme. One recurring observation made in a comprehensive evaluation of Proambiente (Ferreira Neto 2008) is that the programme's human resources were not adequate for the vast extent of each Pioneer Centre, many of which covered thousands of square kilometres. Relative proximity should have been a determining factor in choosing participating families – as it was not, great distances often isolated participants and discouraged the communication and exchange that is fundamental in motivating changes in behaviour and practices. Furthermore, the implementing entities did not necessarily have pre-established relationships with the programme families, and difficulties arose in establishing the necessary ties. This could have been overcome, of course, had the programme funds been available according to plan and had the monthly payments to families been made as promised. As this was not the case, the result was often widespread disappointment and distrust of the programme and its promoters.

The Extrema Project, in contrast, covers the Jaguari watershed (starting with one of its micro-watersheds, the Corrego das Posses), and Project Oasis covers the Guarapiranga Reservoir watershed and two municipal environmental protection areas. Unlike Proambiente, with its broad goals of improving natural resource use and protection, the Extrema and Oasis Projects have the very specific purpose of improving the quality and quantity of water supplied to nearby urban centres.

Project Oasis is a partnership between nonprofit, private, and public entities. Developed by the O Boticário Foundation, it is funded mainly by the Mitsubishi Corporation Foundation and supported by the state and municipal governments of São Paulo. In addition, a law firm and the relevant Watershed Agency are collaborators in the project.

Funds for payments to landowners in the Extrema Project come directly from the municipal budget. The local government, however, is seeking new sources of funding in order to expand and guarantee the long-term sustainability of the initiative. The possible sources include water use fees paid to the Minas Gerais State water utility company, state environmental funds, the water utility company of the neighbouring São Paulo State (to which the Jaguari River flows), and carbon financing (Pereira 2008).

3. Property Rights Issues

Even though the ultimate objectives in water PES schemes involve the quality and quantity of water produced in a watershed, the immediate steps to achieve those objectives involve changes in land use. Water services are necessarily tied to land and the watershed in which the land is located. Therefore, property-related issues are critical in the design and implementation of water PES schemes. Attention must be paid to titles and rights on land for natural resources, different categories of ownership, and the limitations of working with different groups of potential sellers. This section addresses these issues for public and privately owned land in Brazil.

3.1 Land and Natural Resource Ownership

From the buyers' side, the relevant issues surrounding water rights are those presented in Section 2: that water is a public good under public dominion. In practice, water supply to the population comes under the responsibility of a variety of public/private agencies by authorization of the National Water Agency. This means that, ultimately, the buyer of the water services would be the 'owner' of the water – that is, society. Individuals, companies, and so on would pay for the ecosystem services via water usage fees and/or taxes. In the Extrema Project, for example, the payments to participating landowners come from the municipal budget, which comes from taxes collected from society.

- Although Project Oasis seems to be an exception, as the buyer is an NGO, the intention of the O Boticário Foundation is that the mechanism be adopted by the local government and/or water utility company. It is understood by the foundation that the responsibility for guaranteeing the supply of water to the city of São Paulo lies with the respective public authorities.
- It is important to note that other arrangements are possible, such as private-private PES schemes. For example, a company that depends on water resources can decide to pay a seller directly for services that improve or maintain its water supply.
- On the sellers' side, property issues in water PES schemes actually have very little to do with water rights and are instead a matter of landownership. This is because watershed protection is achieved through land-based services, such as forestry activities; sellers of the services do not have to have access to the waterway in question. Instead, they must have land considered to be of environmental importance within the watershed.
- Potential sellers in PES schemes are private landowners (as in the Oasis and Extrema Projects), public (government-managed land – no examples to date in Brazil), traditional communities (Proambiente programme), and indigenous communities (no examples to date).

3.1.1 Private Landowners

In the case of private land, the landowner holds the rights to the natural resources located within the boundaries and is the provider of ecosystem services originating on the property.

Both the Extrema Water Steward and Oasis Projects take place on private property. The first is a municipal initiative in the State of Minas Gerais to improve quality and quantity of water by paying rural landowners for their services as water producers; the second is an avoided deforestation project in the Metropolitan Region of São Paulo that also pays landowners. In both cases, the land is owned by individuals who hold the title to the property. Project Oasis was forced to exclude many potential properties from participating due to the lack of proper ownership documentation (Cegana 2008). This affected the number of participants and the ease of finding eligible participants, but it was necessary to move the project forward. By working exclusively with clear land tenure, the project is in fact mitigating risks and helping to guarantee the effectiveness of the initiative. In the case of Extrema, on the other hand, unclear land titles were not a barrier, as private property in the municipality is well defined, and landowners in general have the necessary documentation.

3.1.2 Public Entities

Public lands can be administered by the Union, states, or municipalities in the interest of the common good. Article 20 of the Federal Constitution of Brazil describes the areas under public domain and

the purposes for which this land can be used. The authors did not identify any water PES initiatives in which the seller is a public entity. This does not seem to be the result of any inherent barrier but rather a reflection of the early stage of PES in Brazil.

3.1.3 Traditional Communities

Traditional communities are rural subsistence communities such as riverside populations, fishing communities, and extractive communities who live interdependently with their local ecosystems. The public programme Proambiente involved traditional communities living on State Conservation Units and agrarian reform settlements.

Unlike indigenous groups, traditional populations do not have rights to benefit from lands explicitly stated in law – this use must be recognized case-by-case in the Management Plans of the Conservation Units they inhabit. Generally speaking, the property rights of traditional communities are affected by their location – whether, for example, they are living in permitted areas, such as Extractive or Sustainable Development Reserves. The land contained within these units is public property; as such, the state owns the lands and the natural resources they contain. When a Management Plan is in effect, certain rights may be granted to the traditional populations living within the Conservation Units that would allow them to enter into PES schemes. In order to be enabled to enter into contracts, these communities must be organized and represented by a legal entity, generally an association.

In practice, traditional communities often occupy areas that are not legally permitted, such as Strict Protection Units (Rosa and Kandel 2002:15). In these cases, the presence and activities of the families are not permitted by law, and therefore it would be an extremely risky undertaking to invest in PES schemes with these people, as there would be neither legitimacy nor guarantee of project continuity. Other Conservation Units, such as Extractive Reserves and Sustainable Development Reserves, allow income-generating activities. But in order for these activities to be legal, there must be an approved Management Plan in place that determines the zoning. In practice, many Conservation Units still have no such plan despite the fact that Decree no. 4.340/2002 requires that a Management Plan be prepared within five years of the creation of the Conservation Unit. Until then, all activities are prohibited with the exception of those related to protection and inspection.

In the case of Proambiente, the majority of communities chosen to participate were land reform settlements, which are officially recognized areas with legal documentation, or other communities located in the Sustainable Use category of Conservation Units, on which human and economic activities are permitted.

3.1.4 Indigenous Communities

According to the Federal Constitution (Article 20), the lands occupied by Indians and the natural resources on these lands are the inalienable property of the Union. However, as stated in Chapter 3 of the Statute of the Indian, indigenous peoples are granted the permanent tenure of lands that they traditionally occupy and the exclusive usufruct, or use, of the natural resources contained in them (Article 22). Lands considered under indigenous tenure are those that, according to tribal use, customs, and traditions, indigenous peoples effectively occupy and inhabit or that are indispensable to their subsistence or economically useful (Article 23) (FUNAI 1973).

In Brazil, the law allows for the right to use ecosystem services without being the owner of the land.

As indicated, Chapter 3 of the Statute of the Indian guarantees indigenous populations the usufruct of the land. This includes the right to possess and use the natural resources and all existing utilities in the occupied land, in addition to the products of economic exploitation of those natural resources (FUNAI 1973). This seemingly enables indigenous communities to enter into PES contracts, although the authors found no such initiatives related to water services to date. As with the situation regarding public entities, this does not seem to be the result of any inherent barrier but rather a reflection of the early stage of PES in Brazil.

3.2 Transfer and Inheritance Issues

In the case of private property, inheritance of land includes all the rights, benefits, and responsibilities pertaining to the land – therefore it follows that the right to derive income from ES would also be transferred to the heir(s) upon decease of the landowner. However, when there is already a PES contract in place and the seller of the ES dies, the future of the ES contract is uncertain. A contract made between an intermediary or buyer and the seller, after decease of the latter, would certainly have to be drawn up again in the name of the new landowner(s). The contract in Project Oasis specifically addresses this issue in Clause 6, where it excludes the heir of the property from rights and obligations of the contract.

In the case of a legal entity, such as a company, NGO, or association as a signer of the contract, however, the contract may continue to be valid, as these entities can exist independently of the individuals who compose them. Should the areas under protection be registered at the Real Estate Registry Office as areas of Legal Reserve, their protection would be perpetual. For instance, in the case of the Extrema Water Steward Project, registering a Legal Reserve is one of the requirements of the contract and therefore guarantees lasting protection of these areas. In practice, landowners may need assistance, both technical and financial, in completing the bureaucratic steps necessary to register Legal Reserves, which include mapping the property and inspection and which involves both the state environmental authority and the local Real Estate Registry Office. The Extrema Programme provides the necessary assistance.

Conservation easements are legally binding agreements between landowners and private or public organizations that permanently restrict specific activities on a piece of land in order to protect its natural resources. This mechanism has been an effective conservation tool in the United States, with over 1 million hectares of land under permanent protection in this manner (TNC n.d.-a).

The potential of conservation easements in Brazil, specifically to be used as a PES mechanism, has not yet received due attention. Until recently, there was no legal basis for such agreements, as the concept was not included in Brazil's Civil Code (Souza n.d.:4). In 2001, however, the concept of a forestry easement was instituted legally by Provisory Measure no. 2166-67/2001, which alters the Brazilian Forest Code. This legislation allows for an exchange related to areas of Legal Reserve between landowners. Those whose property does not meet Legal Reserve requirements may compensate for this lack by paying landowners who have more protected area than legally required to maintain those areas preserved. Restrictions apply, such as the fact that both properties must be located in the same watershed.

There is an opportunity for forest easements in Brazil to become a long-term mechanism for conservation of land for the purpose of delivering water-related services, although to date there are no

such initiatives. One barrier to be overcome will be the cultural wariness of such long-term contracts and an unwillingness to renounce certain property rights permanently. In addition, the market price of land that has part of its area under conservation easements is generally lower, which may discourage potential property owners. Dr. Paulo Souza, vice-president of the Brazilian Association of Environmental Lawyers, notes that 'the introduction of environmental easements in the countries of South America can represent a powerful instrument to implement environmental law. However, its viability will depend on the level of fiscal and economic incentives that are offered to landowners and interested parties' (Souza n.d.:14).

3.3 Customary Rights

In some cases, indigenous and traditional groups (such as communities of fishers, riverside dwellers, and groups of families who live off the extraction of non-timber products from the forest) have customary rights that can be formalized. It depends on the status of the community and where they live. In order to participate in PES schemes, members of traditional communities do not necessarily have to have land titles; rather, tenure and use rights can be sufficient. In the Proambiente Project, in order to be eligible to participate, farmers were required to have residency on the property or immediate vicinity for at least one year.

In certain cases, however, regardless of how long an area has been occupied, the local population will not gain any legal rights and will be legally unable to enter into a PES scheme. This is the case of inhabitants of Strict Protection Units, for example. In order to reduce risks and guarantee longevity of PES schemes, project developers seeking to work with traditional communities should avoid such areas, as this would involve illegal activity.

In their study *Payment for Environmental Services: Brazil*, Rosa and Kandel analysed the potential for developing PES projects in four specific locations. They observed:

For communities that live traditionally in these areas, ...Conservation Units could be a serious obstacle to their participation in CES [compensation for environmental services] instruments that could one day be implemented. The reason is that, even in cases in which the private ownership of territories or resources is clearly defined, it is difficult to establish in practice the relation between the 'producers' of the environmental services and their 'beneficiaries', in cases where the right to remain on the land where they live is not even guaranteed. This makes the possibility of these communities receiving benefits for environmental services very remote, and at a minimum it seriously undermines their chances of 'demanding' such compensations as their legitimate right (Rosa and Kandel 2002:68).

3.4 Change in Land Use

The land use proposed in watershed protection projects in Brazil generally includes some or all of the following: maintaining standing forests (avoided deforestation), reforesting degraded lands, and adopting 'sustainable' or 'best' land use management practices (sustainable farming, agroforestry, water treatment). In the case of maintaining forest cover, the project is preventing a land use change in the reverse direction. In the case of reforesting, a land use change is required, generally from pasture or agriculture to forest. In all cases, projects lead towards better compliance with environmental legislation, and it follows that they would not need approval.

The adoption of sustainable management practices also calls for a change in land use, as in the Proambiente programme, in which small landholders committed to maintain the defined land uses in signed agreements. The existing livelihood was generally slash-and-burn agriculture and livestock raising, which was to be changed to a mosaic of sustainable activities, such as agroforestry and areas of extraction of non-timber forest products.

In order to help mitigate the risk of discontinuity of a project's activities, PES schemes for watershed protection may include in the agreement that the area to be reforested be registered at the Real Estate Registry Office as a Legal Reserve area. The location of RL areas cannot be changed and are to exist permanently. This is the case of the Extrema Water Steward Project, in which the landowner is required in the contract to register the project reforestation area as a Legal Reserve.

3.5 Protection from Illegal Exploitation

Illegal exploitation of natural resources is rampant in Brazil, especially on lands under public administration. The federal government estimates that 80 per cent of illegal timber extraction in the country takes place on public lands (SAE 1997). Patrolling and enforcing the laws against illegal exploitation of natural resources falls under the jurisdiction of the Brazilian Institute of Environment and Renewable Natural Resources. Unfortunately, the vast extents of Brazil's biomes, such as the Amazon forest region, are an enormous challenge to IBAMA's relatively limited resources.

In practical terms, the protection of land included in ES schemes will fall upon the stakeholders of the project. Individual landholders or communities acting as service sellers and/or the project developers must have the resources to fence, patrol, and otherwise protect the project areas, where deemed necessary.

4. Negotiation

Each PES scheme requires several different negotiations regarding, for instance, price, eligibility, and conflict resolution. Negotiations generally take place between landowners (sellers) and intermediaries and between buyers and intermediaries. Contracts and agreements are also sometimes negotiated between technical support institutions and landowners for either prices or participation in future earnings.

The negotiation process and the participants involved vary widely according to the specific project. Negotiations that occurred to establish the relationship between seller and intermediary involved the role, rights, and responsibility of each party, the duration of the contract, and so on. Complexity and one-sidedness, favouring the developer, for example, are not positive attributes in a PES contract and can delay signing of the agreement.

In the case of Proambiente, a series of public discussions and hearings were held, involving government, NGOs, and academic entities, in order to gather information to design and plan the programmes. Once the monthly payment was defined by the government, however, there seems to have been no place for negotiations with the participating families on the matter of the amount of the payment or terms of the agreement. Considering that each programme was intended to reach thousands of families, individual negotiations were clearly completely impractical.

The Extrema Water Steward Programme went through 10 years of negotiation and restructuring before it was launched. The project was greatly debated in the city council, and, even as law, it has to be regulated by the Environmental Council of Extrema (Globo Rural TV 2008). The areas to be protected under this programme were decided by ranking the sub-basins in terms of degradation and then beginning with the most degraded one. The Extrema Department of the Environment defines the criteria for each sub-basin that is to be a part of the project. Specific areas are defined jointly by landowners and the Municipality of Extrema. Then the Municipal Council on Environmental Development (CODEMA) analyses the technical aspects of the project on the rural properties before it is implemented. The amount paid is 100 Extrema Fiscal Units¹⁷ (UFEX) per hectare per year, divided and then paid monthly. This PES scheme places the responsibility for investing in the project objectives, such as reforestation and wastewater treatment, on the Municipality of Extrema.

In the O Boticário Foundation's Project Oasis, the areas to be protected are assessed by a Boticário team, the Environmental Assessment Commission. This team assesses the existing conditions of the Protected Areas in terms of data such as the percentage of existing vegetal cover in the region, the predominant successional stage of the cover, the mean water quality index of the region, and the presence of exotic species. These data are compiled into what the foundation calls the Value Index for Water Sources (IVM, from the Portuguese), which is used to determine the financial reward for a property. This index mathematically integrates the characteristics assessed and confers a score on the environmental quality of the natural area and its contribution to the surrounding hydrologic region. The amount specified in the contract can be altered upon future assessments by the O Boticário Foundation. Areas to be included in the project are defined jointly by the landowners and the foundation. Any organization wishing to use Boticário's IVM to measure environmental quality is welcome to do so by directly contacting the O Boticário Foundation.

5. Contractual Issues

Contracts are used to define the rights and responsibilities of participants in water PES schemes. Developing a contract involves many levels of agreement, including on the parties to the contract, the legal nature of the contract, the objective regulated by the contract, the obligations of the parties, the duration of the contract, the fiscal implications involved, and the allocation of risk. The most useful contracts are the ones that contain clear obligations for all parties involved and the consequences for noncompliance. Furthermore, the complex models that are often used in industrial countries will not necessarily work well in Latin American countries like Brazil. Simpler contracts that are equitable for all parties have proved more effective in Brazil.

5.1 Parties to the Contract

5.1.1 Seller/Supplier of ES as well as Buyer/Beneficiary

As explained in Section 2 on legal and institutional frameworks, water services by definition of the Federal Constitution and the national Water Law are under public domain. Therefore, by necessity, the government will be a party to these initiatives. Even in cases such as Project Oasis in which the

¹⁷ 100 UFEX = BRL148 = US\$64 (conversions approximate as of November 2008).

buyer is an NGO, one of the ultimate goals is for the role of the NGO to be transferred to the government. This transfer, if instituted by local legislation and backed by a designated source of funds, could help ensure the perpetuity of the project.

A variety of written agreements are being used to define the rights and responsibilities of participants in water PES projects. In the case of the public programme Proambiente, the provider of the ecosystem services (which include biodiversity, water, and carbon sequestration) was a member of a traditional community, and the buyer of the service was the federal government. The individual farmer was a party to an individual agreement, the Utilization Plan (PU), and the community collectively was party to the Community Accord. Proambiente used this approach to promote a participative local sustainable development plan. In the evaluation of the various project centres, the Community Accords were shown to be a valuable instrument because they were used by families and they worked in the groups. This is because the commitments were made in public. The Community Accords allowed families and project agents to discuss and set priorities for issues jointly, and families began to shed their initial view of the agents as inspectors (Ferreira Neto 2008:16). The Community Accords proved to be a valuable tool for collective public commitments; however, it must be noted that they only worked in the few project centres where strong relations existed between NGOs and the community.

The Extrema Water Steward and Oasis Projects use traditional specific binding contracts between a buyer – the municipal government and an NGO, respectively – and a seller (the local landowner).

5.1.2 The Legal Capacity to Enter into Contracts

Valid personal documentation in Brazil, as elsewhere, is a minimum requisite for individuals to enter into legal agreements. At least three documents are generally necessary: identification card (*registro geral*), tax identification card (*cadastro de pessoas físicas*), and proof of residence.

This seemingly simple requirement can present difficulties in engaging smallholders in private water schemes, as a significant portion of the rural population does not have these documents readily available or valid. For example, citizens who earn less than a minimum amount do not have to submit a tax return (this includes the vast majority of small-scale rural producers and members of traditional communities) – however, they do have to submit a Declaration of Exemption. Two consecutive years without this declaration may cause the Revenue Service to suspend the person's tax identification card.

Regarding documentation related to landownership, the situation becomes even more complex. Notarized deeds of sale, land titles, and properties in full compliance with the environmental law can be hard to find in certain regions of the country.

This issue varies with the location. The O Boticário Foundation, responsible for Project Oasis, for example, had to rule out many potential landowners for not having or presenting clear titles to their properties (Cegana 2008). In the Extrema Project, on the other hand, this was not a barrier. According to biologist Paulo Henrique Pereira, lead developer of the Water Steward Programme, 'land tenure is very well defined' in Extrema (Pereira 2008). He explains that boundary and ownership disputes are not a problem, nor is there local agrarian reform conflict. The general requirements to participate in the programme are that landowners must reside on their property, have an area larger than 2 hect-

ares, be involved in agricultural economic activities, and present copies of the Deed and *Matrícula* (a document held at the Real Estate Registry containing the record of a specific property).

In Proambiente, programme sponsors dispensed with personal documentation in favour of a registry of individuals at the community level that included an analysis, through both oral discussions and, in some cases, visits to the property, to determine the interest and eligibility of individuals. However, it is important to point out that this programme did not use a legally binding PES contract (see next section).

In order to enter into legal agreements, communities must be represented by a legal entity, generally an association. In many cases, associations have already been formed in order to receive funds distributed by the government through public assistance programmes – such as for housing, sewage, or agricultural improvement. The association is a legally recognized entity, identified by its official name and its tax identification number. In practice, many associations do not have their papers in order and may require assistance in meeting the bureaucratic requirements to enable the entity to enter into a legal agreement. Chapter II of Brazil's Civil Code, instituted by Law no. 10.406 in 2002, deals with associations, including their formation and dissolution, description of bylaws, rights and obligations of members, and so on.

5.2 Legal Nature of the Contract

The public programme Proambiente involved instruments signed by the participating ecosystem service providers, known as Community Accords, as well as individual Production Unit plans (samples are included in Annex 1). However, both of these are best characterized as memoranda of understanding rather than legally binding contracts. As noted, Proambiente programme sponsors used just a registry of individuals at the community level. Since it did not require personal documentation, clearly the programme could not use a legally binding PES contract.

One lesson learned from these Community Accords is that they require a high degree of group solidarity (in terms of organization and social capital) to be successful. Without this, the ultimate objectives of the PES initiative may be undermined (Hall 2008:1929). The Utilization Plans for the Production Units were considered by some families to be one of the most important results of Proambiente, by allowing the individual producing families to have a more integrated vision for their property and introducing them to a number of productive alternatives (Negret 2007:3).

Contracts for the Extrema Water Steward Project are between the municipal government (public) and rural landowners (private). In Project Oasis, the contract is a private one between the O Boticário Foundation and the landowner.

5.3 Objective Regulated by the Contract

Water PES initiatives may specify different intermediary objectives for meeting the overarching goal of improving water resources. In general, the objectives regulated by the contracts involve land use activities, such as reforestation, avoided deforestation, agroforestry, and in some cases, such as in Extrema, improved solid waste and effluent treatment.

The Proambiente programme agreement targeted changes in livelihood activities in the Amazon region that result in a bundle of ecosystem services, ranging from avoided deforestation to recu-

eration of ecosystem hydrological functions and soil conservation. Official subsidies for settling the Amazon historically promoted deforestation rather than conservation. PES is one possible solution to altering this pattern (Hall 2008:1926), and this was the original intent of Proambiente.

Extrema's Water Steward Project currently aims only to improve the quality and quantity of the municipal water sources. However, because Extrema is located within the watershed supplying the Metropolitan Region of São Paulo, its water supply is of greater strategic significance. In this watershed, near the Atlantic Coast region of Brazil, the low natural supply of water, pollution of surface and groundwater sources, deficient access to potable water and to basic sanitation, and quarrels for power over and use of water sources all contribute to a significant water management problem. Aware of these issues and of its strategic location within this watershed, the Municipality of Extrema in Minas Gerais State created its Water Steward Project. Starting with the most degraded micro-watershed, this programme actively protects forests and restores degraded areas that border bodies of water by paying participating landowners. Specific objectives of the contract include a number of soil conservation, water treatment, and forest maintenance practices that are intended to improve the quality and quantity of the water.

The O Boticário Foundation discovered the same water supply problems: extremely high demand for water and a low natural supply. Project Oasis aims to increase protection of remaining forest fragments in order to contribute to long-term maintenance of the Guarapiranga Reservoir, crucial to the Metropolitan Region of São Paulo.

Water and Carbon – Complementary PES Opportunities

Although the services of providing water and reducing carbon emissions are entirely different, they may be delivered by the same means: land use change. Reforestation and reduced/avoided deforestation are examples of land uses that can result in both water and carbon services. In fact, because watershed protection is so intimately related to land use and vegetation, reforestation initiatives play a significant role in water projects.

This opens up interesting opportunities for diversifying buyers and funding mechanisms for water PES initiatives. The Extrema Project is a case in point. Looking to expand its Water Steward Programme, the municipal government is partnering with The Nature Conservancy to format a carbon project that will generate credits to be sold on the international voluntary carbon market. This additional source of revenue will be allocated to pay for the expensive operation of reforestation and the expansion of the project into other micro-watersheds. The end goal of the government remains improving water quality and quantity.

5.4. Obligations of the Parties

In general, landowners or occupants agree to make land use changes that will result in specific water-related services (quality and quantity) or a bundle of ES, or they agree to preserve standing forests (avoid deforestation), again either for water-specific or a range of ecosystem services.

However, all agreements analysed in this study are input-oriented. That is to say, they only require the ES provider to carry out specific land use changes, but they do not require the achievement of

a specific water quality or quantity result. In Proambiente, the ES provider was required to switch to sustainable agriculture. In the Extrema Water Steward Project, the landowners are required to implement soil conservation practices and wastewater treatment, maintain forest cover, and register their Legal Reserve. In Project Oasis, the landowners are required to implement an integrated preservation strategy in the contracted areas. The agreement restricts agriculture and ranching, construction, excavations, mining or trash disposal, the cutting or burning of existing standing forests, the introduction of exotic species of plants or animals, and the use of any agricultural chemicals on the protected lands.

Monitoring is generally the obligation of a specific party on the buyer's side. As mentioned in Section 6, in public programmes the government or an entity designated by it is responsible for monitoring. In the Extrema Project, the Department of the Environment and CODEMA carry out monitoring and prepare reports. In Project Oasis, the O Boticário Foundation does the monitoring.

The buyer, naturally, has the obligation to pay the sellers for the services provided. In Proambiente, the government committed to pay half of the minimum monthly salary to individual participants, although in practice this commitment was not met. Extrema's Water Steward Programme pays landowners monthly, and Project Oasis pays landowners every six months, with amounts varying according to each property. Payment schedules are a trade-off between convenience for the seller and implementation costs for the buyer. In general, property owners prefer to receive monthly payments, as they do not have to wait so long to receive their money. On the other hand, semiannual payments are simpler and less costly for the buyer, as in the case of Project Oasis.

It is important to point out that the implementation costs (fencing, planting, septic systems, etc.) are not paid by the landowner; rather, the buyer funds these activities. Landowners receive payments for participating in the programme and keeping up their end of the agreement – maintaining standing forests, as in Oasis and Extrema, or applying soil conservation practices and adhering to new waste treatment procedures, etc., as in Extrema.

5.5 Period of Time/Duration

Two opposing drivers affect the duration of PES schemes. Users are interested in the long-term supply of the service, which requires making payments to providers on a continued basis (Jindal and Kerr 2007:5). On the one hand, therefore, contracts should be as long as possible. On the other hand, practical concerns such as available funding, popular wariness of long-term contracts, and political changes in administration make shorter contracts more realistic. Although long contracts (mortgages and other large purchases, for instance) are common to most people in the United States, in Brazil the history of high inflation and high interest rates have been unfavourable for such contracts. The current perspective popularly held by Brazilians reflects this history, and thus long contract durations are not widely accepted.

The long-term intent of project developers is for existing forests and regenerated forests to be perpetually maintained, along with the new land use practices instituted by these programmes. This is the concept behind both the Extrema and Oasis Projects, although the contract durations are four and five years, respectively. The project developers created these contracts as part of pilot initiatives, in order to test the PES mechanism. Once shown to operate effectively, it is intended that the programmes continue with further funding and support. To ensure the success of these projects, se-

lecting appropriate contract duration was very important, given that, as indicated, shorter contracts are more customary in Brazil and thus accepted by landowners. The long-term objective, however, is for the PES to continue indefinitely.

The Extrema Water Steward Programme has a solid legal basis in place that favours its long-term continuation. The municipal government intends to expand the programme into all its micro-watersheds and to increase the funding available to make payments to the landowners on a permanent basis.

The ultimate concept behind Project Oasis is for it to become a permanent conservation mechanism as well. The 10-year time frame of the initiative was determined as the period needed to showcase the water PES mechanism, engage a large number of landowners, and allow for the necessary legal, institutional, and financial support to be developed in order for the government to take on the role of service buyer.

5.6 Fiscal Implications of Deriving Income from Sale of Ecosystem Services

In the case of public programmes, which involve low-income rural participants, generally no taxes are due on the income derived from the payments for ES. Individuals who earn less than the specified floor for a given year (R\$14,992.32 for 2006, or approximately US\$9,000 in 2008 dollars) are considered exempt by the National Revenue Service (*Receita Federal*) and have only to file a Declaration of Exemption. Considering that most family farmers and members of traditional communities earn at most the minimum monthly salary (less than R\$5,000 per year for 2006, or approximately US\$3,000 in 2008 dollars) and that the payments from existing public programmes have ranged from R\$50 to R\$180 per month, it is safe to affirm that there are no fiscal consequences to PES on the part of low-income service providers.

In Project Oasis, payment income is not tax-exempt and must be declared along with any other farm revenue. The amount of taxes due will depend on each landowner's overall annual income.

5.7 Securities and Risk Allocation

The registration of PES contracts in a public registry is highly recommended, as it is required for the contract to be recognized by a third party or to serve as an instrument in dispute resolution. The relevant section of Article 221 of the Civil Code, loosely translated, reads: 'The private instrument, drawn up and signed, or simply signed...proves the conventional obligations in itself; but its effects, including those of cessation, do not hold, with respect to third parties, until it is registered in the public registry.'

Project Oasis contracts, as well as the project charter, are registered at the local notary office. As of yet, there are no independent registries for water PES projects as there are for carbon projects. Because of the nature of water flow, sellers and buyers are generally located relatively close to each other, and the market is physically self-contained. Therefore, the probability of double-counting (when the same service is sold to more than one buyer without the buyer's knowledge or consent) is very low and may eliminate the need for this type of registry for water PES.

Designation of the preserved areas as Legal Reserves can help ensure their long-term preservation. This lowers the permanence risk associated with shorter duration contracts' changes in land use. For

example, in the Extrema contract, property owners are required to register Legal Reserves. Project Oasis, on the other hand, does not have this requirement; when this issue was raised, the developers responded that that was not the objective of their initiative but that it could certainly be a useful tool in mitigating the risk of discontinuity (Cegana 2008).

6. Monitoring, Non-compliance, and Enforcement

The monitoring process, the consequences of non-compliance, and the enforcement of contractual agreements must be established clearly and affordably to ensure that the objectives of the PES scheme are met. The case studies analysed here present many different procedures for achieving these goals; however, because most are still in their early stages, the explicit results of these procedures remain unclear. These issues are critical for the development of effective PES schemes in Brazil, as the country has a long history of good environmental laws and weak enforcement.

6.1 Monitoring the Provision of Services

In projects involving a private buyer, monitoring of the ES to be provided is carried out by the project developer and can have third-party auditing or verification. This is the case of the two projects involving private lands, the Extrema and Oasis Projects.

In the Extrema Project, the Department of the Environment prepares a report at the end of each month verifying the execution of the established goals and proposing new goals for the subsequent month. Failure to meet established goals will result in the interruption of the payments. Every six months, CODEMA evaluates the development of the project and the achievement of the proposed goals (Decree no. 1.703/06). If the landowner does not comply with the maintenance methods set out in the contract, as verified by the monthly report from the agronomist at the Department of the Environment by the last day of each month, payments are no longer made.

In Project Oasis, before the contract is signed an environmental assessment is carried out on the property, and the environmental features are registered in a baseline document, which serves as a reference for future monitoring of the contractual obligations of the landowner in preserving natural areas (Aquino 2008). To guarantee that the contracts are upheld, periodic monitoring campaigns are carried out on the properties to verify the effectiveness of the preservation of the designated natural areas. O Boticário Foundation's Environmental Assessment Commission conducts these visits. Any observed environmental degradation is grounds for annulment of the contract or cancellation of future payments (Aquino 2008). The landowner must respond to any questions and carry out any requested actions within 3–15 days of the assessment report.

The Proambiente programme encountered great difficulty in monitoring the vast areas of the 11 Pioneer Centres spread across six states of the Amazon region (Ferreira Neto 2008:89). Independent monitoring was to be undertaken using a combination of satellite imagery, mapping, and field checks on the ground. Shortfalls in the provision of ecosystem services by participants would result in reduced monthly payments on a sliding scale (Hall 2008). In practice, Proambiente did not have a monitoring system that allowed for verifying results. The large turnover of the extension agents working in the field and the lack of a monitoring procedure made it very difficult for programme management to follow the progress and difficulties occurring in the field (Ferreira Neto 2008:86).

6.2 Non-compliance and Dispute Resolution

Water PES projects under way in Brazil are fairly recent and have not been operating long enough to have accumulated experience in non-compliance on the part of sellers.

The Project Oasis contract has a specific clause regarding non-compliance. As noted, once the monitoring report is received, landowners have 3–15 days to respond to any questions or issues brought up in the report. The O Boticário Foundation specifies the length of time available in each case.

Since the Extrema and Oasis Projects have been operating for less than two years, results have not yet been divulged. Thus it remains to be seen how effective the monitoring is, the extent of compliance, and the application and impact of the non-compliance measures laid out in the programme design.

Effective contracts must outline procedures in dealing with disputes. In the case of private contracts, a specific court is designated for dispute resolution. However, both the Oasis and Extrema Project developers made it clear that, in practice, issues are first resolved between landowners and monitoring staff during periodic visits (Cegana 2008, Pereira 2008). Should there be a situation in which this informal mechanism does not reach a solution, payments would be suspended; in the case of further complications, the case would presumably taken to court – although apparently this has not occurred in either project.

On the other end of the spectrum is the Proambiente programme, which specified no consequence for non-compliance and no formal procedure for dispute resolution. In practice, the participating families took their concerns to their local association and to the programme representatives during meetings held periodically. Technicians working in the Pioneer Centres and representatives of participating institutions suggested that new funds should not have been invested in Centres that were not achieving satisfactory results (Ferreira Neto 2008:91). As it was, there was apparently neither a reward for the more successful Centres nor a penalty for those behind schedule. A clearer consequence for non-compliance might have improved the results of the Pioneer Centres and the delivery of the payments by the federal government.

In the future, should PES gain momentum and become a significant source of revenue to landowners and of service provision to water consumers, non-compliance insurance may be appropriate. This could be advantageous to the seller, in protecting against loss of revenue due to forest fires and disease or other occurrences that would lead to failure to provide the contracted services and therefore non-compliance with the contract. The buyer, on the other hand, may be interested in having insurance to protect against a situation of scarcity of water. This may take the form of a buffer, similar to that used in carbon projects, in which more sellers or more land (generally a 5–20 per cent ‘surplus,’ depending on the level of risk of non-compliance) are engaged than are actually necessary to deliver the services. At the moment, however, it is too early to determine the practical applications of these measures.

7. Good Governance

7.1 Public Participation

The design of the Proambiente programme was the result of years of public discussion involving society and government. It began as a proposal prepared by rural social movements from the Amazon region, sparked by their own demand, and became a project driven by these forces between 2000 and 2003 before becoming a federal public policy included in the government's Multi-Year Plan for the period 2004–07.

Once the programme began implementation and moved to the field, however, the level of public participation fell and access to information became difficult. At the Proambiente Evaluation in April 2008, representatives of the implementing organizations complained of difficulties in the relations with Proambiente management and the Ministry of Agrarian Development (MDA), stressing the difficulty of obtaining clear and timely information. One reason given for the communication problems between the Pioneer Centres and the ministries was the high turnover of the technicians in Proambiente management, as well as in the Ministry of the Environment and the MDA. As an example, between 2004 and 2007 Proambiente had four managers – a new one each year. Difficulties were also encountered in the participation and communication within families of the Pioneer Centres. Large distances separated families from each other and impeded the organization and information exchange necessary for the success of the programme. It should be noted that an evaluation workshop at the close of the programme did take place – this at least was an opportunity for stakeholders to provide feedback.

For the Water Steward Programme of Extrema in Minas Gerais State, it took two years of negotiations between project developers from the city government and the local communities to convince them that the programme would bring benefits to the entire population. Project developers treated the community engagement phase with great care to ensure the approval and participation of local residents (Aquino 2008). The programme took 10 years of negotiation and restructuring to be enacted. It was greatly debated in the city council and, as noted earlier, had to be regulated by the Environmental Council of Extrema once it became law (Globo Rural TV 2008).

Information on Project Oasis is available through the O Boticário Foundation website (at www.fundacaoboticario.org.br), which has periodic updates on the status, including the number of properties involved and area protected. A brochure is available for download. For landowners or companies interested in participating, there is a form to be filled out online. Clearly, this internet interface assumes a relatively high level of education on the part of sellers, which is reasonable considering that the project works with private property owners in one of the most economically developed regions in the country (near the São Paulo Metropolitan Region). This type of communication would not be adequate for projects involving subsistence farmers or isolated communities.

7.2 Accountability

True accountability, in which each party is held responsible and must answer to the other party(ies) for their actions, can only be guaranteed through legally binding contractual instruments. In this sense, the Extrema Water Steward and Oasis Project contracts are useful examples of how to firmly tie parties to their obligations and define the penalties of non-compliance.

7.3 Transparency

As noted, information on Project Oasis is available at the O Boticário Foundation website; for further details, direct contact by phone or e-mail must be made. The Extrema Water Steward Programme has some information available on the municipality's website, along with contact data for obtaining more information. The representatives of both the Oasis and Extrema Projects are very receptive and willing to share information and experiences from these initiatives.

Proambiente, on the other hand, suffered from a definite lack of transparency, and information on the programme was difficult to obtain. Generally speaking, when this type of public initiative is launched, there is significant media coverage. Programme websites often contain only a general description of the design of the initiative and the targets. However, once under way, actual results are not systematically divulged.

Stakeholders specifically expressed in the Proambiente evaluation that there was a lack of communication between implementers and management and among the 11 Pioneer Centres, which adversely affected the programme (Ferreira Neto 2008). This difference in transparency between Proambiente and the other two cases reinforces the idea that PES schemes are most effective on a realistic watershed scale. Extrema and Oasis each take place in a localized region, facilitating contacts between buyer and seller and among sellers. Proambiente, on the other hand, spread across six states and experienced great difficulty in communication between stakeholders and the dissemination of results.

8. Conclusions

Although water PES arrangements are just getting started in Brazil, the field is receiving growing attention. The concept of 'water production' made its introduction into mainstream media with the airing of a series of news reports specifically on payment for water services by Brazil's largest television network, Rede Globo, in October 2008. Meanwhile, two important case studies, the Extrema and Oasis Projects, are demonstrating in practice the importance of PES initiatives in maintaining nature's water supply and reducing water treatment costs.

The findings of this study show that Brazil lacks a legal framework for ecosystem services in general. The enactment of national legislation that defines ecosystem services and the involvement of funding sources are fundamental steps in moving forward. As such, a bill is currently under analysis by the federal government; it is possible that 2009 will bring important advances, with the official institution of payment for ecosystem services as a mechanism for conservation and sustainable development.

In the case of institutional support, fortunately Brazil already has a promising framework. The starting point of water-related issues is contained in the Federal Constitution of 1988: water is a public good that comes under public dominion. From this concept stems the well-defined and broad-reaching framework of water management that can potentially be the platform for water PES across the country.

Based on the analyses presented in this chapter and in the Annexes, the following actions are deemed necessary to support the growth of water PES in Brazil.

Recommendations

1. **National Legislation.** Approval by Congress of the proposed legislation that has been submitted by the Ministry of the Environment to the President (similar to the *Substitutivo*), in order to establish a legal definition of ES and legally institute the public PES programme *Bolsa Verde*. Note: the most favourable action would be that the bill is adopted as a proposal by the Executive Branch so that it may include resources from the National Treasury in the funding sources for PES. This would help resolve the problem encountered by Proambiente of not laying out a specific and legally permissible funding mechanism.
2. **State and Municipal Legislation.** Development of legislation similar to that in Espírito Santo State and Extrema Municipality, implementing PES initiatives and designating funding sources.
3. **Scale.** Design and implementation of water PES schemes on the scale of watersheds and micro-watersheds. This provides a well-defined geographic unit in which sellers and buyers – i.e., water producers and water consumers (or public organs representing the consumers) – are connected. Furthermore, the Water Law specifically states that revenue from water usage fees (which is a potential source of funding for PES) should be applied primarily in the watershed from which they originated.
4. **Institutional Framework.** Strengthen and make use of the existing institutional framework of Watershed Committees. Brazil's framework of Watershed Committees and agencies has been expanding and consolidating since it was instituted in 1997 by the Water Law, and PES schemes can tap into institutional support and funding available through this system. When a watershed or micro-watershed is contained within a single municipality, developing the PES initiative on a municipal (or county) scale is the best option, as this means that the physical boundary coincides with the legal boundary, facilitating the approval of legislation specifically instituting the programme and payments.
5. **Property Issues.** In view of the unclear landownership situation predominant among small-scale landholders in Brazil, it is recommended that project developers and investors pay careful attention to land tenure issues in the focus areas. Three options are presented:
 - a. Developers and investors can identify areas in which the land tenure situation is relatively orderly and where a large enough pool of landowners with legal title to their land may be found to render the PES scheme feasible. This ensures that the seller is legally enabled to be party to the agreement and decreases the risk of future disputes over land and resource rights. It is recommended that a title search be made at the Real Estate Registry Office (*Cartório do Registro de Imóveis*). This office maintains a document called a *Matrícula* that is unique to each property and contains a detailed description and historical records of all legal, judicial, and financial transactions pertaining to the property. It provides comprehensive information such as a full description of the property, its precise address and location, past and present ownership information, and all third-party rights such as mortgages or easements as well as any other real estate lien in connection with the property.

- b. Project developers can set aside time and funds to help potential participants obtain the proper documentation. This would strengthen the PES schemes and provide an important benefit to small-scale property owners and communities. Although this may be a costly and lengthy process, it is preferable to embarking on a PES scheme involving rural communities that have an illegal or undefined relation to their land. This approach can be very fitting, considering that sponsors of this type of project generally seek community, income, and quality-of-life benefits as additional outcomes, rather than strictly water-related targets. However, it is important to point out that the investment and time necessary to do so will depend on the complexity of the land tenure situation. Project developers may choose to partner with existing NGOs and programmes that already work towards helping the population with issues of citizenship and personal documentation. These partnerships can create synergy between PES initiatives and social programmes already under way.
- c. In order to include small-scale farmers, members of traditional communities, and others, alternative criteria can be used to define the lands that will be engaged in conservation activities. PES schemes do not necessarily have to include full land titles as part of the eligibility requirements. One alternative approach to defining potential sellers and their lands would be to work with the existing PRONAF database, which has hundreds of thousands of farmers registered across the country. This would serve as a starting point, within a region, of potential sellers.

It is important to point out that the poorest level of rural people – those who live in conditions of illiteracy, lack personal documentation, and are not part of an organized community group, such as an agrarian reform or farming association – would be difficult to bring into a PES scheme. Literacy, basic documentation, and a relative proximity to other potential sellers are essential conditions for entering into a formal agreement and participating effectively in the proposed initiatives. In the case of water PES, specifically, a proximity to areas of significant water demand (i.e., in the same watershed as the buyers) and a relative density of small-scale sellers is necessary in order to have an impact on the flow and quality of the water supply in question.

- 6. **Contracts.** Develop and use contracts that contain clear obligations and consequences of non-compliance and are relatively simple documents, such as the Oasis and Extrema contracts.
- 7. **Sustainability of Ecosystem Services Provision.** Require registration of the land protected under the PES scheme as a Legal Reserve, in order to guarantee the permanent legal status of Protected Areas. The registration of Legal Reserves helps mitigates the non-permanence risk (risk of reversal) associated with shorter-duration contracts and land use changes.

ANNEX 1

Proambiente

I. Background

Objective of the PES Project

Proambiente was Brazil's most ambitious public programme involving payment for ecosystem services. Conceived by organizations of civil society active in the Amazon, Proambiente was adopted by the federal government in 2003 and incorporated in the 2004–07 Plan of Action. It was sponsored by the federal government and involved 11 Pioneer Centres in six states across the Brazilian Amazon.

Proambiente was created to promote integrated rural development, and its targeted beneficiaries were small-scale farmers, fishers and extractivists, indigenous groups, coconut breakers, *quilombolas*, and traditional and riverside peoples. The goal of the programme was to encourage the replacement of slash-and-burn agriculture and extensive pasture by rural communities with more environmentally sustainable livelihood practices. In doing so, the programme proponents maintained that smallholders were providing a bundle of ecosystem services to society.

These services were defined as:

- reduction or avoidance of deforestation,
- carbon sequestration,
- recuperation of ecosystem hydrological functions,
- soil conservation,
- preservation of biodiversity, and
- reduction of forest fire risks.

According to the official Proambiente proposal, rural smallholders who participated in the programme and effectively made the proposed changes in land use were to receive half of the official minimum monthly salary – approximately US\$95 (at US\$1 = R\$2) (*Proposta Proambiente* 2003). The amount to be paid was later decreased to one-third of the minimum salary.

In practice, Proambiente proved to be an overly ambitious programme, falling short of the expectations that were created among participating families, implementing partners, and society. In an evaluation by the Ministry of the Environment presented in Brasilia in 2008, two crucial problems of Proambiente were pointed out: the lack of a stable and lasting financing mechanism and the lack of a legal framework recognizing the economic value of ecosystem services (Negret 2007).

Federal Brazilian legislation does not place an economic value on the water conservation role of landowners, even though provisions exist for water use charges. The first barrier pointed out, the lack of a permanent source of funding (drawn from taxation and compensatory economic instruments, for instance), is closely related to this lack of economic value of ecosystem services (Hall 2008). Once an economic value of ecosystem services is recognized by law, a permanent source of funding should be realistic. These two barriers were pointed out as the greatest institutional challenges to be overcome in order to make compensation for ecosystem services in Brazil feasible (Negret 2007).

In addition, the nongovernmental organizations (NGOs) responsible for execution of the programme expressed the great difficulties they faced in dealing with the sheer size of the Pioneer Centres. Each one covered an enormous area, and in many regions communities were lumped together for the purpose of the programme but there was no pre-existing understanding or relation between them.

Nevertheless, Proambiente's creation and the problems that it encountered led to a nation-wide discussion of PES that has resulted in important steps towards instituting and funding PES as an instrument for conservation. Section 2 of the main report lists seven proposed laws that are currently under analysis in Congress specifically dealing with PES and with funding for public PES programmes.

Location

Amazon Region, Brazil

Parties Involved

Community groups, Ministry of the Environment (MMA), Ministry of Agrarian Development (MDA), National Programme for the Strengthening of Family Farmers (*Programa Nacional de Fortalecimento da Agricultura Familiar*, PRONAF), official agricultural research organization (EMBRAPA), Ministry of Science and Technology (MCT), the Cabinet (*casa civil*) of the President, and other agencies.

Duration of the Project

2004–2007

Project Status

Proambiente has been discontinued.

During six months, participating families from five Proambiente Centres received payments. As there was no legal mechanism for the government to pay the programme beneficiaries, a temporary, alternate means was found to transfer funds directly to individual participants. Emergency support was obtained through the G7 Pilot Programme, which supports activities of this type in agroforestry, extractivism, and related fields, but payments fell far short of the original promises. Through this stop-gap means used for transferring funds, implementing partners were responsible for the distribution of the money. Critics pointed out that this could be perceived as public assistance rather than payment for services rendered, that it could lead to misuse of funds, and that it was a distortion of the original role of the implementing partners (Ferreira Neto 2008). This artificial and unsustainable situation was considered by some stakeholders as irresponsible for two reasons: first, the community accords, through which the funds were supposed to be transferred, were not honoured; second, there was no proper procedure for making payments.

The programme's results were summarized by Hall (2008) as follows:

After 4 years under implementation, Proambiente has had mixed results. Of the 12 original 'poles', 10 have become operational with some 4200 participating families, of whom a total of 1768 (42%) have received total payments averaging R\$650 (US\$325) per household (Viana et

al. 2006) [...] This is, not unsurprisingly, regarded by Proambiente farmers very much as a token payment that fell far short of what had been promised.

A few Pioneer Centres, thanks to the dedication and commitment of the local implementers and their willingness to continue the technical assistance work in the field even in the absence of programme funding, were able to implement many of the activities projected (IPAM 2008).

Transamazônica was one of the most advanced centres of Proambiente due to the support given by NGOs such as the Foundation to Live, to Produce, and to Preserve (FVPP) and the Amazon Environmental Research Institute (IPAM) over the last years. The Transamazônica Centre was composed of 15 communities and about 350 families. All the programme requirements were met by the communities, and they improved their land use dynamics and their future perspectives, which allowed IPAM and FVPP to recently evaluate their potential to reduce deforestation in the future and provide ecosystem services.

II. Analysis

1. Property Rights

Land tenure situations in rural Amazonia are often precarious, especially in the case of the low-income population targeted by the Proambiente programme. Registered deeds of sale and land titles are rare and could not realistically be a requirement for participation in a programme such as this. Instead, one of the criteria for registering for Proambiente was to have resided in the focus area for at least one year. Potential beneficiaries also must have used predominantly family labour in their activities, earned less than R\$30,000 per year, and obtained at least 80 per cent of their income from activities related to family farming or fishing. The programme did not define how someone was to demonstrate that he or she met the requirements; however, the involvement of NGOs that had a history of working with communities and the process of developing the Sustainable Development Plans, individual Utilization Plans (PUs), and the Community Agreements would presumably have allowed the programme representatives to gather the necessary evidence.

In the case of the Transamazônica Centre, it was found that the majority of the participants had settled on their properties since 1996 (IPAM 2008) and lived in an official settlement area. This showed a certain stability regarding the permanence of the rural producers in this area and helped to reduce the risk that programme participants would sell their property or move away.

2. Institutional Framework

Proambiente was to be a cross-sector initiative involving various ministries. In practice, however, collaboration proved problematic. Led by the Ministry of the Environment under the Secretariat for Extractivism and Sustainable Development, agricultural extension support was provided through the Ministry of Agrarian Development and its Secretariat for Family Agriculture. In the original plan, subsidized credit for small producers was to be made available via the MDA and the Bank of Brazil, although this did not materialize due to the problems mentioned earlier (no permanent source of funds and no legal recognition of the economic value of ecosystem services in Brazil). In addition to these barriers, the Proambiente programme itself proved to be incompatible with other government policies, and thus cooperation among the relevant ministries and implementing organizations was impeded. Namely, providing subsidized credit for small producers is already handled by PRONAF,

and it has been difficult to obtain support from banks. The Proambiente field agents were forced to realign the MDA and PRONAF policies to the needs of their programme, which met with significant resistance (Hall 2008).

Certification was supposed to be the responsibility of the official agricultural research organization EMBRAPA and other agencies, while monitoring of carbon stocks would be undertaken by the Ministry of Science and Technology, EMBRAPA, and the Cabinet (*casa civil*) of the President. A Socio-Environmental Fund (*Fundo Socioambiental*) to be administered by the MMA was conceived to finance payments to farmers, bringing together fixed sources from government and variable contributions from international donors and private companies, including carbon offset purchases (*Proposta Proambiente* 2003). However, this fund was never realized because of the legal barriers mentioned earlier.

3. Contract Design

Although strictly speaking there were no PES contracts used in the programme, several instruments were designed to help ensure implementation. At the ground level, three types of documents were prepared: the Sustainable Development Plans for the community; the Utilization Plan for Family Production Unit, which defined the action to be taken by the participant under the programme; and the Community Accords. A copy of these last two instruments is included at the end of this Annex.

The process of implementation of Proambiente was designed to follow these steps:

- Preparation of Sustainable Development Plans for communities (*Planos de Desenvolvimento Sustentável*);
- Drawing up of Resource Utilization Plans (*Planos de Utilização*);
- Negotiation of Community Agreements (*Acordos Comunitários*);
- Auditing of activities for their rendering of environmental services (*Auditórias de Campo*);
- Certification of activities (*Cédula de Certificação de Serviços Ambientais*); and
- Disbursement of payments (Hall 2008).

It is important to note that none of the 11 Pioneer Centres progressed beyond the third step in this process, although some families did receive payments, as explained earlier.

Community Accords were to be signed by the community groups, composed of the participating families. These accords formalized the commitment of the smallholders to carry out their Utilization Plans and defined the methodologies for verifying the delivery of ecosystem services and evaluating the performance of participants. In the PUs, individuals planned their production areas assuming the adoption of more-sustainable production practices, including the controlled use of fire, decreasing deforestation within their production areas, more-sustainable extractivist practices, improved agroforestry practices, and improved soil conservation and fertility. Indeed, it can be argued that the PUs for the individual Production Units were one of the most important results of Proambiente, by allowing the individual producing families to have a more integrated vision for their property and introducing them to a number of productive alternatives to improve the security of their food supply and sometimes even helping them to obtain surpluses for additional income (Negret 2007).

It is also important to note that the responsibility of the government to make the payments was not recorded in any legally binding document. The monthly amount of the payment, duration of the payment period, and source of funds for the payments were not included in any binding document and have still not been defined, as a result of the legal and financial impediments described earlier.

4. Securities and Risk Allocation

As of yet, there are no independent registries for water PES projects as there are for carbon projects. Because of the nature of water flow, sellers and buyers are generally located in relative proximity to each other, and the market is physically self-contained. Therefore, the probability of double-counting is very low, which may eliminate the need for this type of registry for water PES. (Double counting is when the same service is sold to more than one buyer without the buyer's knowledge or consent.)

5. Negotiation Process

The design of the Proambiente programme was the result of years of public discussion involving society and government. It began as a proposal prepared by rural social movements from the Amazon region, sparked by their own demand, and became a project driven by these forces between 2000 and 2003 before becoming a federal public policy included in the government's Multi-Year Plan for the period 2004–07.

Negotiations in the field on implementation were carried out between the implementing entities (general NGOs contracted to execute the field activities) and the participating families. Community meetings were also a forum for discussion. The result of these exchanges was the drawing up of the individual PUs and the Community Accords.

In terms of payments, there does not seem to have been room for negotiations on an individual basis. Rather, the government stipulated a monthly amount per family. In practice, however, as explained, this commitment to make the payments was not realized by the government.

6. Monitoring, Non-compliance, Enforcement

Avoided deforestation and carbon sequestration were the only ecosystem services that were to be monitored through direct indicators (methodologies already existed). The remaining impacts (water, soil, biodiversity, and reduced risk of fire) were to be monitored through indirect measures inherent in the programme's certification process. The concept was that compliance with the certification standards of Proambiente would inherently improve the quality of these ecosystem services, since measurements and scientific methodologies have not proved effective means of establishing a positive relationship between land use changes and quality of ecosystem services. In this way, it was expected that reductions in forest loss, changes in land use, and compliance with the certification standards could be monitored for each development centre (Hall 2008).

Independent monitoring was to be undertaken using a combination of satellite imagery, mapping, and field checks on the ground. Assuming a favourable outcome, participating households would be paid the equivalent of half the minimum salary per month (US\$95) to reward the provision of ecosystem services. This verification process would be repeated on an annual basis to justify the continuation of such payments. Shortfalls in the provision of ecosystem services by participants would result in reduced monthly payments on a sliding scale (Hall 2008).

In practice, Proambiente did not have a monitoring system that allowed for accompanying and verifying results. The rapid turnover of the extension agents working in the field and the lack of a monitoring procedure made it very difficult for programme management to follow the progress and difficulties occurring in the field (Ferreira Neto 2008).

7. Dispute Resolution

None of the instruments cited contained provisions for resolving disputes related to the programme. In practice, participating families discussed issues with the NGOs contracted to implement the programme during community meetings and individual visits. The NGOs, in turn, were in contact with the Proambiente management. There were no provisions for dispute resolution in the community agreements.

8. Public Participation, Access to Information, Transparency, Accountability

It is very difficult to obtain from official sources concrete information about payments made during operation of the programme, the exact number of families involved, and monitoring of the ecosystem services provided. An evaluation was done in 2008 and is available on request from the Ministry of the Environment. This process of evaluation included the beneficiary families, the executing institutions, the partner institutions in the Pioneer Centres, the advisors from local and national levels, and representatives from the Ministry of the Environment and the Ministry of Agrarian Development.

ANNEX 2

Water Steward Programme – Extrema, Minas Gerais

I. Background

Located along Brazil's Atlantic Coast, the Atlantic Forest encompasses Latin America's largest population centers, including São Paulo and Rio de Janeiro, and generates 80 per cent of Brazil's gross domestic product. Coastal development, rapid urbanization, and large-scale agriculture and industry, especially over the last century, have reduced the forest to about 7 per cent of its original extent (Fundação SOS Mata Atlântica 1998). What remains, however, constitutes one of the greatest repositories of biodiversity on the planet, with more than 20,000 known species of plants alone (TNC n.d.-b).

The low natural supply of water, pollution of surface and groundwater sources, deficient access to potable water and to basic sanitation, and quarrels for power over and the use of water sources are all current issues in this important economic region of Brazil, a region that makes up part of the watershed of the Piracicaba, Capivari, and Jundiaí Rivers. Seven per cent of this watershed is located in the State of Minas Gerais, site of the principal springs and water-producing regions (TNC n.d.-b).

Five major reservoirs distributed along the border between the States of São Paulo and Minas Gerais store water in a system known as Cantareira that supplies São Paulo and its metropolitan area. The Cantareira Water System supplies potable water to 9 million people in São Paulo and to the largest industrial park in South America. The target areas in this PES scheme are located in the Municipality of Extrema in the State of Minas Gerais.

Aware of the current issues and of its strategic location within the Cantareira System, in December 2005 the Municipality of Extrema in Minas Gerais established Municipal Law no. 2100 and the regulating Decrees no. 1.703/06 and no. 1.801/06 to create the Water Steward Programme. This is a municipal initiative that intends to protect and improve Extrema's water supply, yet it also directly affects the water supply of the São Paulo region. This programme actively protects forests and restores degraded areas that border bodies of water, starting with the most degraded micro-watershed, Córrego das Posses. The programme intends to expand into the six remaining micro-watersheds of Extrema.

Payments are made to rural landowners who meet the following main goals of the programme:

- Adoption of soil conservation practices in order to decrease soil erosion and sedimentation;
- Implementation of wastewater and solid waste treatment, with the goal of adequately treating the water supply and effluent and properly disposing of solid residues of the rural properties (septic tanks and collection of recyclables); and
- Implementation and maintenance of vegetal cover in Areas of Permanent Preservation (APP) and Legal Reserves (RL, from the Portuguese) through proper registration according to the Brazilian Forest Code and Minas Gerais State laws.

The municipal government compensates rural landowners who voluntarily commit to the project for their ecosystem services with R\$148 per year per hectare (almost US\$64 at the time when this report was prepared) for four years. Financial and technical resources are available for increasing native

vegetation cover, fence-building, soil conservation, maintenance, and registration and preservation of Legal Reserves. One long-term goal of this project is the establishment of mini-ecological corridors.

Financial resources for the first implementation of the Water Conservation Programme were obtained from the State Forest Institute of Minas Gerais (IEF), the Municipality of Extrema, and The Nature Conservancy (TNC). IEF provides financial support for the acquisition of agricultural inputs and fence-building. Extrema provides executive coordination and management of the project, the contracts, and the resources for the PES payments. In 2007, it provided R\$72,283 and in 2008 R\$239,200. TNC provided financial support for fence-building and planting labour. This included R\$100,000 in 2007 and \$100,000 in 2008 (TNC n.d.-b).

Objective of the PES Project

With the support of partnerships with various governing bodies, the Water Producer Programme compensates farmers for restoring degraded forests in key areas of the Cantareira System and for protecting existing forest remnants. In this PES plan, the producer protects water supplies, provides carbon storage through tree planting, and receives payment for the benefits these services provide to society.

The overarching goal of the programme is to promote sustainable development of the municipality's rural areas by improving the economic and environmental situation of its small and medium-size landowners. In the process, the government is helping the landowners become fully compliant with environmental legislation, such as registering their Legal Reserves and the existence of forested Areas of Permanent Preservation.

Location

City of Extrema, Minas Gerais. First micro-watershed: *Córrego das Posses*. 1200 ha total (Aquino 2008).

Parties Involved

Prefeitura (Municipal Government) of Extrema, The Nature Conservancy (TNC), The Environmental Agency of the State of São Paulo (SEMA-SP), the State Forest Institute of Minas Gerais (IEF), and the National Water Agency (ANA).

Contracts signed

Forty contracts signed as of November 2008.

Duration of the Project

Contracts last four years.

Project Status

The Water Steward Programme has already resulted in the restoration of about 40 hectares of water source areas and riparian forests. One thousand hectares have been protected with soil conservation techniques, or half of the Posses watershed. The project intends to eventually cover the entire 20,000 hectares of the municipality. Forty contracts have been signed between the Municipality of Extrema and the landowners, and the Municipality of Extrema pays a total of about R\$10,000 per

month (Pereira 2008).

As of December 2007, the results have been promising: 50 protected springs, 150 hectares of protected riparian forests, 280 hectares of protected hilltop forests, 300 hectares of Legal Reserve registered, 1,200 hectares of soil conserved, and 120 properties with proper environmental sanitation (TNC 2006).

II. Analysis

1. Property Rights

In order to participate, landowners must demonstrate ownership of their land by presenting copies of the Deed and *Matrícula* (a document held at the Real Estate Registry containing the record of a specific property). Landowners must reside on their rural property or property within the micro-watershed of the project, have at least 2 hectares, and carry out agricultural activity for economic purposes. The land in question must not be currently subject to any judicial action regarding ownership.

Private property in the municipality is well defined, and landowners in general have the necessary documentation.

2. Contract Design

A contract is signed between a private landowner and the Municipality of Extrema, represented by the mayor, for four years.

Specific objectives of the contract include a number of soil conservation, water treatment, and forest maintenance practices that are intended to improve the quality and quantity of the water. Landowners are also required to register their Legal Reserve. The Municipality of Extrema pays landowners monthly for complying with these objectives. Annual payments total R\$148 (almost US\$64) per hectare.

3. Securities and Risk Allocation

The Municipality of Extrema is responsible for any investments required to complete the objectives of the project. One of the specific objectives, requiring the landowner to register the Legal Reserve, guarantees permanent protection after the contract has expired. This requirement serves to mitigate the non-permanence risk (risk of reversal) of the land use changes made in the area as well as to guarantee perpetuity of the project objectives in the face of the short contract duration.

4. Negotiation Process

It took two years of negotiating with local communities to convince them that the Water Steward Programme would bring benefits to the entire population. Project developers treated the community engagement phase with great care to ensure the approval and participation of local residents in the programme (Aquino 2008). The developers frequently discussed the project in the city council meetings. When the project became law, it came to be regulated by the Environmental Council of Extrema.

5. Monitoring, Non-compliance, Enforcement

The Department of Urban Services and the Environment prepares a report at the end of each month verifying the execution of the established goals and proposing new goals for the subsequent month.

The failure to meet established goals will result in the interruption of financial support. Every six months, the organization CODEMA (the Municipal Council for Environmental Development) evaluates the development of the project and success at meeting the proposed goals. If the landowner does not comply with the maintenance methods elaborated in the contract, as verified by the agronomist at the Department of the Environment monthly report by the last day of each month, the landowner will stop receiving payments.

6. Dispute Resolution

In the Extrema Project, any disputes or doubts between the parties are to be heard in the city forum.

7. Public Participation, Access to Information, Transparency, Accountability

The Extrema Programme took 10 years of public negotiation and restructuring to be enacted. The project was greatly debated in the city council and, even as law, it had to be regulated by the Environmental Council of Extrema (Globo Rural TV 2008). During the field visits by the project technicians, landowners have an opportunity to express their opinions and experiences, which can then be made part of the monthly Field Visit Reports.

The law and subsequent regulating decrees that created this PES scheme are accessible to the public.

ANNEX 3

Project Oasis – O Boticário Foundation

I. Background

The O Boticário Foundation began Project Oasis in 2006 as an initiative designed to contribute to meeting its goals, which include promoting and implementing nature conservation in Brazil. In this case, the focus is protecting the water sources of Greater São Paulo and their resulting contribution to maintaining the quality of the water supplying about 4 million people.

The main focus of this project is the technical and financial support provided to property owners who commit to the preservation of natural areas on their properties. Contracts reward ecosystem services performed by these landowners. In this way, the O Boticário Foundation implements an innovative mechanism for payment for ecosystem services and values those who protect nature.

The Metropolitan Region of São Paulo has a low supply of natural water and an extremely high demand for water. The region depends heavily on water from the Guarapiranga Reservoir, which receives a significant contribution from the Billings Reservoir. In 1976, a law was passed creating the Protected Area of RMSP Water Sources, which supplies, among others, the watersheds of Guarapiranga and Billings, with the intention of regulating the use of soil in this region to maintain natural processes that guarantee the production of potable water at a reasonable cost.

Since the 1970s, however, there has been a disorganized change in soil occupation that did not respect the directives of the protective laws of the RMSP water sources, mainly because of lack of public policy for inspection and of incentives for the conservation of the water sources. In addition, the protective law had the unexpected result of devaluing the land and caused property owners to abandon the lots in which they were not allowed to do anything. This led to abandonment and subsequent land invasions (Duran 2006).

In sum, the current public mechanisms for protection of the water sources are not effective, despite the fact that important measures have been recently implemented (law specific to Guarapiranga, integrated inspection programme of the water sources, creation of Environmental Protection Areas, etc.).

If the river basins that supply water to the Guarapiranga and Billings Reservoirs continue losing their original vegetal cover, these water sources run the risk of becoming operationally unviable due to the severe degree of pollution and high cost of treatment, compromising the supply of clean water to millions of residents of São Paulo and neighbouring municipalities.

Project Oasis contributes with public support and incentives to other organizations and companies to adopt similar practices of forest and floodplain conservation in water source areas to protect water resources.

Project Oasis occurs in phases. The main activities are the selection of areas to be protected, the diagnostic and environmental assessment of the natural fragments of the properties, the establishment of contracts to 'reward ecosystem services' between the O Boticário Foundation and the property owners, and the environmental monitoring of the contracted areas.

Objective of the PES Project

Project Oasis aims to increase protection of remaining fragments of the Atlantic Forest and ecosystems associated with the Protected Areas of the Metropolitan Region of São Paulo water sources. The activities of this project contribute to the long-term maintenance of a reservoir crucial to the RMSP. The O Boticário Foundation will distribute R\$12 million (US\$6 million) over 10 years to land-owners in the water source area for them to leave their designated natural areas untouched.

Location

This PES scheme is carried out in remaining fragments of the Atlantic Forest and ecosystems associated with the Protected Areas of RMSP water sources, specifically in the Guarapiranga Reservoir watershed and in the municipal environmental protection areas of Capivari-Monos and Bororé-Colônia, including a region of about 82,000 hectares.

Parties Involved

O Boticário Foundation for the Protection of Nature (Fundação O Boticário de Proteção à Natureza); Mitsubishi Corporation Foundation; Municipal Government of São Paulo; Secretariat for the Environment – State of São Paulo; Losso, Tomasetti & Leonardo Attorneys at Law; and the Foundation Agency of the Alto Tietê Watershed.

Contracts Signed

13 properties, totalling 628.6 hectares of Protected Area.

Duration of the Project

This project is intended to continue for 10 years.

Project Status

As of November 2008, the project had engaged 13 property owners. Additional properties are in prospection phase, evaluation phase, and contract preparation. The majority of the participating properties have more than 70 per cent of their areas covered by natural vegetation.

II. Analysis

1. Property Rights

An analysis of all documentation relating to the land is required as one of the first steps of entering into this PES scheme. Landowners must have full ownership of their land. In fact, many potential properties had to be excluded because of lack of proper ownership documentation.

Any change of ownership or title of the land is considered a breach of contract.

2. Contract Design

A contract is signed between the landowner and the O Boticário Foundation that rewards ecosystem services within the chosen Protected Area. Ecosystem services are defined as benefits resulting from a functioning natural ecosystem. Services include the production of fresh water, production of oxygen, protection of the soil, climate regulation, sequestration of atmospheric carbon, and pollination.

The contract duration is five years. An area of 10 hectares receives R\$4,000 annually. During the first phase (implementation, estimated to be five years), the project foresees an investment of R\$6 mil-

lion, 50 per cent of which will be assumed by the O Boticário Foundation. The rest will be covered by other companies. For this purpose, an unpublished fund was created for the programme, which has its own registered statute that establishes the rules for analysing the conservation of the participating properties.

The maximum payment is R\$370 per hectare preserved per year. However, an environmental assessment, resulting in the Value Index for Water Sources (IVM, from the Portuguese), will determine the actual value of the payments. For example, if a property reaches 0.7 for its IVM, which ranges from 0 to 1, the payment for this property will be R\$259 per ha per year (R\$370 x 0.7) (Aquino 2008).

3. Securities and Risk Allocation

The O Boticário Foundation created a charter for the project and registered the instrument at the local Notary Office. The individual contracts signed between landowner and the O Boticário Foundation are also publicly available at the Notary Office. A copy of the contract is included with this annex. According to the foundation representative interviewed for this study, these steps were taken in order to make the project official and the process transparent.

4. Negotiation Process

During the first phases of a typical contract for financial reward, an environmental assessment is carried out for the land in question. This assessment considers specific aspects in order to measure how much the area contributes to the production of ecosystem services. For example, the water balance of the region, water quality maintenance, erosion control, and recharging the water supply as well as other ecosystem services are considered.

The IVM is used to determine the financial reward for a property. This index mathematically integrates the characteristics assessed and confers a score on the environmental quality of the natural area.

5. Monitoring, Non-compliance, Enforcement

Before the contract is signed, an environmental assessment is carried out on the property, and the environmental features are registered in a baseline document, which serves as a reference for future monitoring of the contractual obligations of the landowner in preserving the natural areas (Aquino 2008).

To guarantee that the contracts are upheld, periodic monitoring campaigns are to be carried out on the properties to verify the effectiveness of the preservation of the designated natural areas. The O Boticário Foundation's Environmental Assessment Commission will conduct these visits (Aquino 2008). Any observed environmental degradation is grounds for annulment of the contract or cancellation of future payments (Aquino 2008). The landowner must respond to any questions and carry out any requested actions within 3–15 days of the assessment report.

6. Dispute Resolution

Any disputes are to be handled during the site visits by the O Boticário Foundation field technician conducting the monitoring and the landowner.

Landowners have 30 days to inform the O Boticário Foundation if they no longer wish to participate in this project.

7. Public Participation, Access to Information, Transparency, Accountability

Information on the project is available through the O Boticário Foundation website (www.fundacaoboticario.org.br), which has periodic updates on the status, including number of properties involved and area protected. A brochure is available for download. For landowners or companies interested in participating, there is a form to be filled out and sent online.

Contracts and charter information are publicly accessible at notary offices.

References

Aquino, V. 2008. 'Serviço Ambiental: Cuidar do Presente para Preservar o Futuro da Humanidade.' *Revista Saneas* (Jan/Feb/Mar), pp. 5–17.

Araújo, N. C. 2005. *Resposta Técnica*. Fundação Centro Tecnológico de Minas Gerais (CETEC).

Cegana, M. C. 2008. Environmental Project Manager, Protected Natural Areas Programme, O Boticário Foundation. Interview by R. Valladares. October.

Duran, S. 2006. 'Fundação Pagará Proprietário que Proteger Mananciais em SP' *O Estado de São Paulo*. March 3.

Ferreira Neto, P. S. 2008. *Avaliação do Proambiente Programa de Desenvolvimento Socioambiental da Produção Familiar Rural*. Brasília.

FUNAI (National Foundation for Indian Affairs). 1973. *Estatuto do Índio*. Retrieved from Fundação Nacional do Índio, at http://www.funai.gov.br/quem/legislacao/estatuto_indio.html.

Fundação SOS Mata Atlântica. 1998.

Globo Rural TV. 2008. *Edições Diárias*. October 12.

Hall, A. 2008. 'Better RED than Dead: Paying the People for Environmental Services in Amazonia.' *Philosophical Transactions of the Royal Society of London, Series B, Biological Sciences* 363 (1498): 1925–32.

IBGE (Brazilian Institute of Geography and Statistics). 2002. *Área Territorial Oficial*. Rio de Janeiro: Resolução da Presidência do IBGE de No. 5 (R.PR-5/02).

IPAM (Amazon Environmental Research Institute). 2008. 'Potential of 15 Communities of Proambiente's Transamazônica Centre for Accessing Opportunities that Compensate their Efforts in Reducing Deforestation and Maintaining Standing Forest.' IPAM and FVPP. April.

Jindal, R., and J. Kerr. 2007. *Basic Principles of PES*. Washington, DC: U.S. Agency for International Development.

Lewinsohn, T., and P. Prado. 2005. 'Quantas Espécies há no Brasil?' *Megadiversidade* 1 (1).

Manfrinato, W. 2005. *Áreas de Preservação Permanente e Reserva Legal no Contexto da Mitigação de Mudanças Climáticas*. Curitiba: The Nature Conservancy.

Markunas, J. D. 2007. 'Do Foreigners Need Title Insurance in Brazil?' New York: LandAmerica Financial Group. May 17.

Mattos, L., et al. 2008. 'Estudo sobre Pagamentos por Serviços Ambientais,' mimeo. Brasilia: Instituto Socioambiental.

Negret, F. 2007. 'Compensação dos Serviços Ambietais aos Agricultores Familiares e Inclusão Social.' *Carbono Brasil*. June 15.

Pereira, M. P. 2008. Environmental Manager, City of Extrema. Interview by R. Valladares. November 13.

Proposta Proambiente Entregue ao Governo Federal (Proambiente Proposal Submitted to the Federal Government). 2003.

Rosa, H., and S. Kandel. 2002. *Payment for Environmental Services: Brazil*. El Salvador: Fundación PRISMA Project.

SAE (Secretaria de Assuntos Estratégicos). 1997. *Política Florestal: Exploração Madeireira na Amazônia*. Brasília: SAE.

Souza, P. R. n.d. 'A Servidão Ambiental Florestal como Instrumento de Proteção Continental do Meio Ambiente.' Retrieved December 2008 from www.oab.org.br/comissoes/coda/files/artigos/%7B05449877-7D8B-4134-A3D5-DBE9A3BB8C99%7D_servidaoambiental.pdf

Sutter, C. 2001. *Small-Scale CDM Projects: Opportunities and Obstacles – Can Small-Scale Projects Attract Funding from Private CDM Investors? Volume 1: Summary*. Zurich: Factor Consulting + Management Ltd.

TNC (The Nature Conservancy). n.d.-a. *Conservation Easements*. Retrieved December 2008 from www.nature.org/aboutus/howwework.

—. n.d.-b. *Where we work*. Retrieved December 2008 from www.nature.org/wherewe-work/southamerica/brazil/work/art5080.html

—. 2006. Press Release. 8 December. Retrieved December 2008 from www.nature.org/wherewe-work/southamerica/brasil/press/press2776.html

World Resources Institute. 2007. *EarthTrends: Environmental Information*. Retrieved 2008 from earthtrends.wri.org.

Annex II: Bolivia Country Report

(February 2009)

Legal disclaimer: The information contained in this report is for general informational purposes only. Laws, rules and regulations may have changed since the writing of this report, and the application of such laws, rules, or regulations will, in any case, vary widely depending upon the particular facts and circumstances involved. Accordingly this report should not be construed to contain legal, accounting, tax or other professional advice. The IUCN Environmental Law Centre and Forest Trends, Katoomba Group, are not responsible for any errors or omissions in the report, and make no representations as to the accuracy, completeness, or timeliness of the information contained herein.

Table of Contents

List of Acronyms.....	129
Executive Summary.....	131
1. Introduction.....	133
2. Legal and Institutional Frameworks Regarding PES Schemes	137
2.1 Legal Framework.....	137
2.1.1 Constitution.....	137
2.1.2 Specific PES Legislation	141
2.1.3 Ecosystem-related Legislation	146
2.2 Institutional Framework	151
2.2.1 Ongoing Decentralization.....	151
2.2.2 Institutions Involved at All Levels.....	152
2.2.3 Scale for Establishing PES.....	156
2.2.4 Conclusion on Institutional Framework.....	157
3 Property Rights Issues.....	157
3.1 Land and Natural Resources Ownership	158
3.2 Property Rights and Land Tenure Situation in Practice.....	158
3.3 Dealing with Unclear Property Rights and Land Tenure.....	159
3.4 Registration	160
3.5 Conclusion on Property Rights Issues	161
4 Negotiation	162
5 Contractual Issues	164
5.1 Direct Contracts	164
5.2 Institutional Agreements	166
5.3 Conclusion on Contractual Issues	166
6 Monitoring, Non-compliance, and Enforcement	167
7 Good Governance	169
8 Conclusions	170
ANNEX 1.....	173
Background	173
Objective of the PES Project	173

Negotiation Process	174
Contracts.....	174
Objective	174
Parties to the Contract	174
Obligations of the Parties	175
Payments.....	175
Period of Time/Duration	175
Securities and Risk Allocation.....	175
Monitoring, Non-compliance, and Enforcement	175
ANNEX 2.....	177
Background.....	177
Negotiation Process	177
PES Agreement	178
ANNEX 3.....	181
References	183

List of Acronyms

CIAT	Centro de Investigacion Agricola Tropical
FONABOSQUE	National Fund for Forest Development
ICO	Instituto de Capacitacion del Oriente (Eastern Training Institute)
INRA	National Service of Agricultural Reform
MDRAyMA	Ministerio de Desarrollo Rural, Agropecuario y Medio Ambiente (Ministry of Rural Development, Agriculture, and Environment)
NDP	National Development Plan
NGO	nongovernmental organization
PES	payment for ecosystem services
PNGIB	National Policy for the Integral Management of the Forests
PROMETA	Proteccion del Medio Ambiente Tarija (Environmental Protection of Tarija)
RPPN	Reservas Privadas del Patrimonio Natural (Private Reserves of National Patrimony)

Executive Summary

Bolivia is undergoing major constitutional and legal reforms capable of changing the institutional and legal frameworks regarding people's access to and management of natural resources. Despite this evolving and in certain cases unclear political context, different water-related payments for ecosystem services (PES) initiatives have been and continue to be implemented in different parts of the country as participatory mechanisms designed to deal with water problems. Although these experiences are recent, they have already yielded valuable lessons in terms of legal, social, and economic results. One unanswered question, however, is whether the current legal and institutional Bolivian framework is able to support the design and implementation of successful water-related PES schemes and, if not, what would be required to reach this goal.

This document, which is part of the *Improved Understanding of Payments for Ecosystem Services – PES* study, provides an overview of Bolivian legal and institutional frameworks, focusing in particular on property rights, negotiation, contractual issues, monitoring and enforcement, and good governance for the implementation of water-related PES schemes in the country.

To provide an overview of the legal and institutional frameworks surrounding these types of initiatives, the report identifies and explores specific water-related PES schemes implemented by Fundación NATURA (the Los Negros-Santa Rosa pilot project and the private-public seed funds implemented in Comarapa, Mairana, and Pampagrande), by the Eastern Training Institute (the La Aguada and Mairana Private Reserves creation project), and by Environmental Protection of Tarija (the Sama protection project).

After analysing the legal and institutional frameworks, the property rights regime, and contractual and good governance aspects, the study notes the following conclusions:

- Although water-related PES can be implemented at small or large scales, experience shows that in absence of a specific national legal and institutional framework to support them, small initiatives, implemented at local and decentralized scales, are more likely to succeed.
- Decentralization is important for involving local communities and municipal authorities in the administration and control of local water-related PES.
- Successful water-related PES initiatives have led to their extrapolation and/or expansion in terms of geography and participation. Small scale projects have been also implemented in other similar geographical areas or expanded to larger scales, and they have not only promoted the participation of individuals but also of institutional private and public actors in the implementation of such projects.
- The success of small-scale projects has led to issuance of a departmental policy in Santa Cruz, which constitutes a first step to formalizing existing PES initiatives and to providing a more secure legal framework for future PES schemes to be implemented within the department.
- The Bolivian government has recently issued a National Forest Policy, which includes the possibility of creating PES programmes.

- The current legal and institutional reform process provides a good opportunity to create new legislation and institutional frameworks which are clearer and capable to support water-related PES on larger scales and not located solely in one department.
- Although ideally, countries would have national regulations and programmes to guarantee and promote the design and implementation of water-related PES, due to the pilot stage of most of the water-related PES implemented in Bolivia, an implementation approach that regulates PES from the local level to the national level has been more appropriate. Based on this approach, water-related PES have been initially regulated at local, municipal, departmental, and later the national level.

Nevertheless, there are still several limitations to overcome, such as the unclear land tenure situation in the country, different approaches towards forestry conservation, and the misconception of the ‘socioeconomic function requirement’ that leads to the clearing or deforestation of important areas of forested lands. The history of water-related PES schemes in Bolivia is still being written as part of a very dynamic and flexible process that goes beyond theoretical requirements and responds to local realities.

1. Introduction

Bolivia has a territory of 1,098,581 km² that is geographically divided into three areas: the Altiplano, the inter-Andean valleys or sub-Andean, and the tropical and subtropical lowlands (INE 2008). In terms of surface hydrological resources, the Bolivian territory is composed of 10 catchment areas, 270 principal rivers, 184 lakes – lagoons, approximately 260 wetlands and 6 salt lakes within three main basins: the Amazonas, de la Plata, and Endorreic basins (INE 2008).

Although most of the territory is covered by forests that provide different types of ecosystem services, the forest areas are commonly undervalued and are therefore threatened by human activities that diminish their capacity to provide goods and services.

Culturally speaking, in Bolivia two different visions on water co-exist: the Andean vision and the eastern departments' vision (Miranda 2004). The eastern Bolivian departments' vision is more pragmatic and might be more flexible when it comes to adopting payment for ecosystem services (PES) schemes (Robertson and Wunder 2005:14), while the Andean vision is based on a community and spiritual approach that considers water a free resource. This might present a problem in the design of water-related PES, considering that if water-related PES are not well designed and are not properly communicated to the potential actors and beneficiaries, communities may think that PES will lead to a 'privatization of water'. This fear of privatization was the principal cause of the 'Water War of Cochabamba' in 2000.¹ Despite these different visions of water, one point in favour of the implementation of PES schemes is the traditional use of charges to have access to and use water for irrigation in different areas of Bolivia (Asquith and Vargas 2007:11).

Bolivia is divided into nine departments, which are subdivided into 112 provinces and 327 municipalities. This administrative division implies that the central government is not the only power structure of the country dealing with ecosystem management, but that there are other administrative institutions, such as prefectures at the departmental level and municipalities at the municipal level, that undertake some of the Executive Branch's tasks, some of which are related to ecosystem management.

Bolivia is currently involved in a deep political reform process that includes the development of major political and legal reforms. Due to its potential impacts on the country, the design of a new Constitution is undoubtedly the most important current issue. As a result of a national referendum in 2004, four of the nine departments of Bolivia decided to be autonomous – Beni, Pando, Santa Cruz, and Tarija.² La Paz, Cochabamba, Sucre, Potosí, and Oruro decided to remain with the current central

1 The so-called Cochabamba Water War was a series of protests, demonstrations, and violent clashes that led to the death of one person and injuries of several others. This 'war' took place in Cochabamba in 2000 as a reaction to a national privatization process, which included the privatization of the water provision and which had economic and cultural impacts on Cochabamba's population. Some reasons for these protests were a radical increase in water services prices and the prohibition of access to different water sources within the geographic area of the concession. See Shultz 2000, PBS 2002.

2 One of the referendum questions of 2006 was whether the Constituent Assembly should be given the binding mandate to establish a regime of departmental autonomy for those departments which wanted to be autonomous. According to the Referendum Law, this mandate had a binding effect. The new Constitution, proposed instead not only a departmental autonomy system but also a regional and an indigenous autonomy system. It is not clear how these systems will work together.

government system. Although there is still uncertainty in relation to the extent of the autonomy of the departments, the original concept of this type of local government implies a right to self-government for the departments and therefore the provision of more power to the prefectures to manage the department's resources. Based on this concept, the departments of Bolivia that decided to be autonomous have elaborated proposals for their own autonomy statutes to establish local institutional and legal frameworks.³

The Santa Cruz autonomy statute, for instance, states the duty of the prefecture to take actions to assure environmental conservation and sustainable development in the department. It grants the prefecture the power to legislate and manage, among other aspects, land, water, forests, and agriculture and forestry activities. Furthermore, this statute mentions that the creation of protected areas might be a mechanism to ensure the provision of ecosystem services,⁴ establishing an option to create schemes where the ecosystem services beneficiaries might economically contribute to the sustainability of these services.

Likewise, the autonomy statutes proposed by Beni and Tarija give the departments the ability to legislate and administer renewable and nonrenewable natural resources, including land, environment and biodiversity, water, and protected areas. The statutes recognize shared power or jurisdiction over some natural resources, such as interprovincial watersheds, biological corridors, forests, and land.

Although the extent to which the departments will exercise power over their natural resources and the potential interactions with the indigenous and regional autonomies included in the new Constitution need to be defined and negotiated by the national, departmental, municipal, and local governments, if autonomy status is well designed it could provide some options for the implementation of PES schemes.

On January 25, 2009, a constitutional referendum was held in Bolivia. Based on this, the new Bolivian Constitution was approved and enacted on February 7, 2009. There are still some unresolved issues, however, such as the concrete scope of the autonomic regime. In an attempt to solve conceptual and practical issues derived from the autonomic and decentralization regime, both a Ministry of Autonomies and Decentralization and a National Autonomic Council have been created.

3 These statutes have been approved by the Autonomic Assemblies constituted in the mentioned departments and by a majority of the inhabitants of each department through referendums. See <http://www.santacruz.gov.bo/autonomia/>. Although these referendums have been recognized by the departmental electoral courts of the informally called 'Half Moon departments' (Beni, Pando, Tarija and Santa Cruz), they have been rejected by the National Electoral Court and the national central government, alleging that the consultation process was unconstitutional. This argument has been rejected by the departmental courts, which argue that the Constitutional Tribunal is the only institution with power to decide over constitutional issues. The Constitutional Tribunal has, however, not functioned in Bolivia since the resignation of almost all its members during the period 2006–07. http://www.lostiemplos.com/noticias/08-03-08/08_03_08_ultimas_nac4.php, see also http://www.lostiemplos.com/noticias/09-03-08/09_03_08_nac8.php. See <http://www.lostiemplos.com/noticias/14-12-07/nacional.php>

4 Although the Santa Cruz autonomic statute, the Santa Cruz Policy for the Recognition of Environmental Services, and in general Bolivian legislation have adopted the term 'environmental services,' for purposes of consistency in the text and between the case studies, this report instead uses the term 'ecosystem services'.

Despite political uncertainties, Robertson and Wunder (2005) identified 17 PES initiatives that were either ongoing or under preparation in different parts of Bolivia. Water-related PES systems were the second most common initiative. The authors identified three PES-type systems for watershed protection developed by three different nongovernmental organizations (NGOs): Fundación NATURA, Environmental Protection of Tarija (PROMETA), and the Eastern Training Institute (ICO, from its name in Spanish).⁵ A separate study of the watersheds that are likely to be suitable for the implementation of water-related PES schemes selected five in the Andean Mountain chain: Cerro Uchumachi-Coroico, Comarapa, Los Negros, Quirusillas-Mairana, and Parapetí Alto (Muller 2005:2).

Name of the project	Seller	Buyer	Contracts	Duration	Payments
Los Negros 'Bees for water' (Fundación NATURA)	Santa Rosa's upstream landowners	Los Negros irrigators and water users through Pampagrande Municipality	Direct contracts Forest conservation Reforestation	Vary from 1 to 5 years	In-kind
Mairana, Comarapa, Los Negros seed funds (Fundación NATURA)	Upstream landowners	Local water users through water cooperative Municipalities Fundación NATURA	Institutional agreements and direct contracts	10 years	Seed fund (cash and in-kind contributions)
'Water Planting' (ICO)	Upstream landowners and cattle ranchers	Water users	Not available	Not available	One-time payment in kind

Fundación NATURA's first water-related PES initiative was carried out in Los Negros River watershed in the Department of Santa Cruz as a means to solve a conflict between two communities: Los Negros and Santa Rosa (M. T. Vargas, personal communication). (For a detailed description of this scheme, see Annex 1.) In this scenario, Fundación NATURA established a water-related PES in which the irrigators of Los Negros (downstream community) would compensate farmers of Santa Rosa (upstream community) either to protect certain forests or to reforest some deforested areas (Robertson and Wunder 2005:34).⁶

5 Most of the research work for this report was done between January and August 2008. However, considering the importance of some constitutional reforms and national events that took place later, this report has briefly incorporated the most important modifications without identifying PES initiatives developed after August 2008.

6 This initiative is also known as Bees for Water initiative, or Los Negros-Santa Rosa pilot project.

Based on the Los Negros–Santa Rosa pilot project, some other Santa Cruz municipalities, such as Mairana, Comarapa, and Pampagrande,⁷ took actions to develop and implement their own PES schemes through the creation of seed funds for the protection of their watersheds. (For a detailed description of these schemes, see Annex 2.) These initiatives were designed and implemented with the active involvement of the local municipalities, Fundación NATURA, and the water cooperatives on behalf of the water users. They have been cited as pioneer examples for the design of PES initiatives on a larger geographical scale. Fundación NATURA recently announced that it is also promoting the creation of the first PES at the provincial level in the Santa Cruz provinces of Florida and Caballero (Pinto and Torrico 2008:2).⁸

In the case of Tarija, PROMETA was initially founded to protect the Bermejo River watershed (R. Aguilar, personal communication). Since then the NGO has been working in the Department of Tarija to finance the protection of the Cordillera de Sama Biological Reserve and its watersheds, which provide water to the city of Tarija. This objective would be achieved through the establishment of a trust fund to protect the watersheds from fires, deforestation, and soil erosion (Robertson and Wunder 2005:42–44). Although PROMETA never entered into a proper payment for ecosystem services system because that was not its objective, this NGO developed hydrological and environmental studies to identify the value of the hydrological services provided by the Sama Reserve (R. Aguilar, personal communication). PROMETA also carried out environmental education campaigns to make urban water consumers aware of the threats to the watersheds and the need for public and private involvement to assure their conservation (Robertson and Wunder 2005:42–44). As Robertson and Wunder note, PROMETA's initiative set the groundwork to implement future PES initiatives in Tarija because of the supporting environmental campaign and studies developed.

Likewise, the Eastern Training Institute, a rural NGO, designed a strategy to influence local people to create private protected areas around their water sources as a means to guarantee their water provision. Their first initiative, called the Water Planting Project,⁹ was implemented in La Aguada, a small community located in the semiarid valleys of Santa Cruz that has been negatively affected by cattle ranching expansion, deforestation, and climate change (Robertson and Wunder 2005:48). (For a detailed description of this scheme, see Annex 3.) This scheme involved ‘the protection of the headwaters of the watershed by fencing areas bordering the river or creek,’ impeding cattle grazing (Robertson and Wunder 2005:49). It did not imply regular payments for ecosystem services but ‘a direct, one time purchase of land that would be enclosed for ecosystem service protection,’ as well as the construction of a drinking pool outside of the enclosed area to compensate cattle ranchers (Robertson and Wunder 2005:49).

Although almost all these initiatives have been pilot projects, they have received substantial attention in Bolivia, both because of a growing scarcity of water in specific geographical areas and because of the ideological and political changes taking place in the country.

7 For the purposes of this report, each of these initiatives will be called seed fund initiatives.

8 These new initiatives are not included in this report.

9 La Aguada and Mairana Private Reserves creation projects [hereinafter La Aguada Planting Water project or initiative and Mairana Planting Water project or initiative].

2. Legal and Institutional Frameworks Regarding PES Schemes

There is a debate about the necessity of legal and institutional frameworks to promote the design and implementation of water-related PES initiatives. Within this context, it could be argued that a specific legal and institutional framework addressing PES is needed, because generally speaking these frameworks are a means to implement government visions, programmes, and policies. In addition, it could be argued that a specific legal and institutional framework will clarify responsibilities and rights, providing security and support for the development of PES projects in a country.

The question that arises is whether these schemes need a specific legal and institutional framework promoting their implementation or whether they can be implemented without one. Although this section is not intended to resolve this debate, it provides an overview of the Bolivian legal and institutional frameworks on natural resources and ecosystem services to determine whether they have promoted water-related PES schemes or deterred them.

2.1 Legal Framework

Bolivia has developed a comprehensive legal framework both to manage its natural resources and to address environmental issues.

2.1.1 Constitution

As noted earlier, on January 25, 2009, a constitutional referendum was held in Bolivia and the new Bolivian Constitution was enacted on February 7th. The new Constitution will be the driver of a deep legal reform, which will involve modification of the legislation in force and the creation of new legislation if necessary. This section compares the previous and the new Constitution and the way natural resources are owned and managed, as well as how the Bolivian constitutional provisions have either encouraged or precluded the establishment of water-related PES in the country.

Previous Constitution

The previous Constitution recognized the role of the state in the ownership and management of natural resources through the state's 'original or initial' ownership of all natural resources, whether renewable or nonrenewable (previous Constitution, Articles 136, 165). This situation did not imply the non-recognition of private property but instead the establishment of a legal framework to identify and regulate the requirements, processes, and conditions to own, hold, manage, transfer, use, or exploit natural resources and land. The constitutional recognition of private property has allowed the implementation of water-related PES in Bolivia, enabling private individuals to become parties to different schemes. The Los Negros–Santa Rosa pilot project, for instance, started out with 5 private landowners who committed to conserving part of their forests, becoming ecosystem services providers; today 46 landowners participate in the scheme.

The Constitution did not expressly recognize or identify the ecosystem services¹⁰ provided by the forests, however. In fact, it considered natural resources as purely economic resources, to be 'owned' or 'exploited' to achieve industrial or economic goals, without linking them to national or local envi-

¹⁰ For reasons of consistency, the term 'ecosystem services' is used in this document as a translation from the Spanish 'servicios ambientales'.

ronmental benefits. Environmental aspects were not considered benefits per se at the time of drafting the previous Bolivian Constitution. This has led to priority being given to extractive and industrial activities over conservation or environmental protection ones.

This situation, aided by the constitutional condition of compliance with a ‘socioeconomic function of the land’ as a requirement to maintain and even to acquire private property over rural lands (previous Constitution, Article 169), represented a practical barrier for forest conservation .According to the ‘socioeconomic function of the land’, agricultural lands need to be ‘actively worked’ because work constitutes the tool to acquire or maintain property rights over this type of land (previous Constitution, Article 166). According to the National Service of Agricultural Reform Law (INRA Law),¹¹ this concept is intended to develop sustainable management of rural lands through the implementation of agricultural, forestry, and even conservation activities. However, the concept has been generally misunderstood, which has led to the ‘active working’ requirement becoming synonymous with deforestation or tree clearing. This is why the existence of forests is erroneously linked to a lack of ‘work’ and therefore to a lack of compliance with the ‘socioeconomic function of the land’.

As an example of this misconception, deforestation in the Santa Cruz valleys, where most of the water-related PES schemes have been implemented, is driven by landowners trying to maintain their property rights over their lands and new colonists who expect to acquire property rights over the cleared land. Even though both groups of individuals deforest equal percentages of land each year (about 1–1.5 ha. per family), the environmental impacts they cause are different (Asquith et al. 2008:676). Landowners tend to deforest young forests close to existing communities, while new colonists create new settlements by cutting down old-growth forests, farther from existing communities but closer to the Amboro National Park, representing a greater threat to the park (Asquith et al. 2008:676–77).

As an indirect consequence of misconceptions about the socioeconomic function of land, the Los Negros–Santa Rosa pilot project had to deal with contrary local reactions to the implementation of the water-related PES scheme. On the one hand, Santa Rosa’s landowners – both those with formal titles and those without them but with secure tenure over their lands – considered their participation as a way to strengthen their rights over their lands, which needed to be deforested because of fear of losing them. In fact, they were encouraged to join the programme by the possibility of closing their lands using barbed wire to delineate their boundaries, as part of the compensation methods of the water-related PES scheme, and by the community’s acceptance of those limits and ownership (Wunder and Roberson 2005:40). On the other hand, the opposite result was demonstrated by the landless people from Santa Rosa, who did not accept the project because according to them it gave opportunities only to people with land. They argued, in addition, that forested lands were not complying with the ‘socioeconomic function requirement’ and therefore that they were not owned by anyone and thus subject to occupation (Robertson and Wunder 2005:40).

Despite these deficiencies and gaps, the economic approach to natural resources management within the previous Constitution,¹² which gave priority to agriculture and extractive economic ac-

11 *Ley del Servicio Nacional de Reforma Agraria*, No. 1715 of 1996 (Gaceta Oficial de Bolivia No. 1954).

12 *Political Constitution of the State of 1994*, reformulated through Law No. 2654 of 2004 (Gaceta Oficial de Bolivia No. 2589).

tivities over conservation, did not constitute a major barrier for the implementation of small-scale water-related PES initiatives. As indicated earlier, different water-related PES projects – such as the Los Negros–Santa Rosa pilot project, La Aguada and Mairana Planting Water projects, and Mairana, Comarapa and Pampagrande seed funds projects – were implemented under the previous Constitution without being subject to any kind of constitutional validity claim. Their development was possible because of the size of the projects and the type of natural resources used. To date, all the implemented projects in Bolivia have been small-scale initiatives involving only renewable resources. This might be the reason why the central government was not interested in either controlling or supporting these schemes.

In addition, Article 32 of the previous Constitution stated that nobody would be forced to comply with what the Constitution itself or legislation did not impose. In other words, nobody would be prohibited from doing what was not expressly prohibited by the Constitution or the law.

Although the previous Constitution did not create a barrier to the development of small-scale water-related PES projects in the past, it can also be said that it did not actively promote the development of such projects, considering that it neither expressly recognized the ecosystem services provided by forests nor established further incentives for forest conservation.

New Bolivian Constitution

The new Bolivian Constitution recognizes 'a strategic value of natural resources for the development of the country' (Articles 346, 348 II), and it grants the ownership of natural resources to the 'Bolivian people' (Article 311). At the same time, the state has 'an exclusive role' and responsibility in the conservation, management, and exploitation of natural resources, including forested areas (Article 346). Furthermore, the state has the control and the leading function in the exploration, exploitation, industrialization, transport, and commercialization of natural resources (Article 351). This aspect has been criticized by some scholars, who argue that despite the inclusion of the 'sustainable development concept' in the new Constitution, the use or exploitation of natural resources for industrial and commercial activities leads to a similar 'natural resources–purely economic tool approach' adopted by the constitution of 1994 (Gudynas 2007).

Also, while private ownership over land is foreseen by the new Constitution, it still does not clarify whether that ownership also extends to all the natural resources above the land. Articles 349 and 393 accept individual or communitarian property rights to land, as long as the land complies with a socio-economic function. However, the Constitution does not expressly recognize a private property right to 'other' natural resources, but only a right to 'use' them by granting permits and rights to use these resources (Article 349). It is not clear, therefore, whether these 'other natural resources' only refer to nonrenewable natural resources, such as oil and gas, or if the property right limitation will apply also to renewable natural resources such as forests. Furthermore, and due to the novelty of the theme, the new Constitution does not address whether private property also includes private ownership of the ecosystem services provided by the land and its natural resources.

Despite confirming the leading role of the state in the management of natural resources, the new Constitution also foresees an exceptional position for indigenous and peasant communities in this area. It recognizes the current territory occupied by these communities through the creation of in-

digenous municipalities, indigenous regions, and Territorios Indigena Originario Campesino (Articles 290, 291 I, 294III, 295, 296, 403 II). These new indigenous territories, whose geographical extension could expand to their 'ancestral' lands, will be self-governed, which means exclusively governed by indigenous communities based on their own legislation and institutions (Article 289, 290 II, 292). Thus, according to the new Constitution the customary law and statutes of each of these indigenous areas will be exclusively applied in the area as final decisions not subject to judicial review (Articles 190, 191, 192, 296, 403). The new Constitution also recognizes that indigenous communities have an exclusive right to exploit natural resources in the forested areas where they live (Articles 388, 403).

In relation to water, the new Constitution creates a new and specific regime for the resource. Within this regime, water has been categorized as a finite resource not subject to private property and subject to governmental protection (Article 373). The Constitution prohibits the granting of concessions for the provision of 'water services' (Article 373). If this term 'water services' were understood in a broader sense, including water-related ecosystem services, the provision could preclude the establishment of PES schemes that involve private people. But the purpose of this provision is to preclude a privatization of the water supply. Therefore, it is likely that the term 'water services' will be interpreted as focusing on the 'basic' services, meaning the provision of drinking water, rather than on land management practices that will benefit the water supply.

Within this legal framework, the possibility of implementing PES schemes in Bolivia will depend on the extent to which the state is willing to exercise its 'exclusive right' to manage natural resources. Two possible approaches by the state can be foreseen:

- **Collaborative approach:** The implementation of water-related PES schemes will be possible if the exclusive right and duty of the state to protect the environment, more specifically the hydrological basins and forests, is properly combined with the right of the population to participate in the management of these natural resources. Based on this idea, the government could take an active role and lead the implementation of a national programme (following, for instance, the example of Costa Rica, where the government designed and implemented a national PES programme involving private participation). Likewise, the government could support private individual or collective nonindigenous PES schemes or indigenous and communitarian PES schemes, if considered necessary.
- **Protectionist approach:** If the government excludes the population in the environmental management of the natural resources and becomes protective of its oversight in this area, it might preclude the establishment of PES schemes. However, the extent of private and civil society participation in natural resources management is still unclear.

Conclusion on Constitutional Framework

Although neither the ecosystem services provided by the Bolivian forests nor the instrument of PES were recognized by the previous Constitution, the text did not preclude the implementation of PES schemes within the country. In fact, whatever was not prohibited by the Constitution or by law was allowed. Based on this principle, different water-related PES projects have been implemented in Bolivia. Also, the previous Constitution recognized private property of land and other natural resources, granting landowners the option of free disposition of their lands and resources and therefore the opportunity to participate in conservation activities through PES schemes. However, one problem

in terms of water-related PES initiatives was that the Constitution considered natural resources as purely economic goods, giving priority to extractive and industrial uses of natural resources over conservation activities. This economic industrial approach to natural resources led to the misconception of the ‘socioeconomic function requirement of the land’, which linked the maintenance and acquisition of rural lands to active work, meaning deforestation. People wrongly believed – and still do – that forested areas are subject to appropriation if they are not complying with this socioeconomic function of land. Water-related PES project implementers had therefore to undertake several environmental and educational campaigns to demonstrate the value of the forest and its importance for water protection.

The new Bolivian Constitution introduces some changes in natural resources management, granting the state (mainly the ‘central government’) a more active role based on an ‘exclusive right’ over the natural resources. There are, however, several uncertainties related to the application of some of the constitutional provisions and the implications for Bolivia. These uncertainties can be briefly summarized as follows:

- It is uncertain whether ecosystem services will be subject to private property or if they will be considered a ‘strategic resource’, exclusively managed by the state.
- It is not clear yet whether the exclusive management right of the state over ‘strategic’ renewable natural resources will allow individual or collective nonindigenous private participation in their management and therefore in the design and establishment of water-related PES; and if it does allow it, the extent of this participation is not yet clear.
- If private participation in renewable natural resources is allowed, it is not clear how the indigenous communities’ rights to their ‘ancestral lands’ and their exclusive rights to forest management will be harmonized with other civil or private actors’ participation.
- It is unclear if water-related PES will be considered a ‘water service’ and therefore not able to be implemented, based on the constitutional prohibition of concessions over ‘water services’.

Although current PES initiatives were implemented under the scope of the previous Constitution, even if it did not expressly promote them, it is not yet known whether the new Constitution, which has adopted a more centralized approach, will hinder or encourage the establishment of new local water-related PES projects. Some authors have concluded that there is ‘little space for local watershed management’ (Asquith and Vargas 2007:1) and therefore for implementation of water-related PES. However, this situation can change if the government adopts a more collaborative approach, supporting new PES initiatives. The following section considers the potential for this to happen.

2.1.2 Specific PES Legislation

National Level

Although some Latin American countries have already passed (e.g., Costa Rica and Argentina) or are in the process of adopting (e.g., Brazil) specific legislation supporting national PES programmes, Bolivia does not have specific comprehensive PES legislation at the national level. In fact, there has so far only been an attempt to legislate the distribution of the benefits from carbon dioxide (CO₂) emission reductions, but that law has not passed.

While ecosystem services are broadly mentioned in the Bolivian National Development Plan 2006–2010 (NDP),¹³ the limitation of the NDP is its almost restrictive focus on carbon sequestration without recognizing it as an ecosystem service. In addition, the NDP suffers from a misunderstanding of the ecosystem services concept. On the one hand, it wrongly links ecosystem services to private property over water; paradoxically, on the other hand the same plan considers carbon sequestration as an economic and environmental opportunity for the country.

This misunderstanding at the central governmental level was also expressed at the local level in the Los Negros–Santa Rosa pilot project, where potential parties to the water-related PES pilot projects initially were afraid to participate in the scheme because they thought it would be the first step to a privatization of water and to future payments for having access to the resource (Asquith and Vargas 2007). This situation forced Fundación NATURA and PROMETA to undertake environmental studies and environmental campaigns to demonstrate the link between upstream deforestation and water quality and quantity downstream as a way to create environmental consciousness, forging the basis for the establishment of the pilot PES programmes, in the case of Fundación NATURA, and for future PES projects in the case of PROMETA.

Despite these contradictions related to the ‘ecosystem services concept’, the Bolivian government announced in April 2008 its willingness to promote a national PES initiative based on the Costa Rican experience. This led to the development of a new National Policy for the Integral Management of the Forests (PNGIB, from its name in Spanish). This policy provides some support for the future development and implementation of PES schemes, as it aims to:

- Promote the welfare of forest users, and mainly of the poorest;
- Enhance the contribution of forests to economic development; and
- Conserve forests to assure their provision of ecosystem services.

PNGIB thus expressly recognizes the ecosystem services provided by forests and their importance for the economic and social development of the country. In this context, it identifies the ecosystem services provided as climate regulation, water sources protection, biodiversity conservation, scenic beauty, and others.

The PNGIB also creates some lines of action to achieve sustainable forest management, including:

- Improving the shared management of forests among the central, departmental, and municipal governments and society;
- Reducing pressures that threaten forests;
- Consolidating a productive, fair, and equitable economy;
- Enhancing the benefits provided by Bolivian forests; and
- Promoting conservation and forest restoration.

The PNGIB thus promotes conservation and forest restoration, including conservation activities, plantation of forests, and restoration or rehabilitation activities in forested areas, through initiatives

¹³ *Plan Nacional de Desarrollo 2006-2010: Bolivia digna, soberana, productiva y democrática para Vivir Bien.*

performed by the governments and local actors. These initiatives shall include the development of economic instruments, such as PES schemes whose funding would be managed by the National Fund for Forest Development (FONABOSQUE, from its name in Spanish). As described in a later section, FONABOSQUE aims to promote the sustainable use and conservation activities of forests. Although it was created by the Forestry Law, it has never been implemented in practice.

In short, the PNGIB shows a new attitude of the central government regarding its approach to ecosystem services. Although it still focuses mostly on climate change and the opportunity to implement PES for climate regulation and climate change mitigation, it also recognizes other ecosystem services, such as water conservation, biodiversity, and landscape beauty. Also, the policy identifies a shared (public-private) responsibility in forest management at different levels – national, departmental, and municipal. The PNGIB thus has the potential to promote the future development of national PES programmes, mostly to benefit poor and local people.

Departmental Level

At the departmental level, based on Fundación NATURA's PES experiences in the Los Negros–Santa Rosa pilot project and later on in the Mairana, Comarapa, and Pampagrande seed fund projects, in 2007 the prefecture of Santa Cruz elaborated a specific policy related to ecosystem services called the Policy for the Recognition of Ecosystem Services.¹⁴ In practice, through this policy the prefecture aims to protect specific geographical areas that provide important hydrological and other ecological services to the Department of Santa Cruz. Among these areas, the Amboro and the Choré Reserves constitute the first targeted areas to be protected. Although both are subject to legal protection,¹⁵ these forests and their water-related services are at risk due to deforestation caused by illegal occupation and agriculture carried out in the area. If this problem increases, it could lead to scarcity of water for irrigation and consequently high economic losses in the agricultural production of the department.¹⁶ This economic threat might play a major role in the promotion of a PES system, as such a scheme could guarantee the protection of the forests and at the same time agricultural production and economic investments (S. Von Borries, personal communication, 2008).

Against this background the policy in Santa Cruz aims to obtain public recognition and appreciation of the services provided by departmental forests. It foresees PES schemes as a means to achieve environmental conservation and to guarantee the provision of forest ecosystem services, and thus establishes the following principles:

- PES is an instrument to achieve forest conservation / or sustainable forest management.

14 *Política Pública Departamental para el Reconocimiento de los Servicios Ambientales del Bosque* of 2007.

15 The Amboro has been a National Park since 1984, based on the Bolivian Protected Areas Regulation Framework and the National Decree No. 11254. It is a part of the National System of Protected Areas administered by the National Service of Protected Areas. See <http://www.sernap.gov.bo/>. See also <http://www.fan-bo.org/ingles/amboro.html>. The Choré Reserve is an ecological reserve constituted under Article 13 of the Bolivian Forestry Law. See <http://www.ops.org.bo/cgi/sys/s2a.xic?DB=B&S2=2&S11=12924&S22=b>.

16 According to Stephan Von Borries, a consultant of Fundacion NATURA hired by the Prefecture of Santa Cruz to implement the policy, 70 per cent of the sugar, rice, and soybean production of the department would be negatively affected if these reserves disappeared.

- In order to promote PES, forest conservation has to become a profitable activity.
- Landowners or those who have a legitimate right to the land may participate in PES transactions as sellers.
- PES payments have to be higher or equal to the opportunity cost of the economic activities traditionally developed on the land.
- The amount of payment must be set in accordance with the type and level of services provided.
- The PES scheme has to bring welfare to rural inhabitants.

Furthermore, the policy clarifies that the prefecture has a collaborative and supervisory role to encourage PES initiatives.

While these principles have to be recognized as important first steps towards formalizing existing water-related PES initiatives, as well as promoting the development of future schemes, it is also important to note that the policy still suffers from several limitations due to its rather general nature. It does not define, for instance, the specific ecosystem services that can be provided and traded in a PES scheme. Furthermore, it does not specify the possible participation of the prefecture as a buyer of the services. Since the concrete mechanisms for implementing the policy are also still under discussion, the impacts of the policy on the existing or recent water-related PES initiatives cannot be identified or measured so far.

Nevertheless, the development and adoption of this policy is the result of an interesting self-reinforcing phenomenon that has occurred in terms of geographic scopes and regulation surrounding the implementation of water-related PES initiatives in Bolivia. Based on NATURA's experience, the following stages have been observed: 1) PES schemes develop between neighbouring communities. 2) Due to a relative success and acceptance of the first PES activities, more institutions become interested in participating in these schemes, even without the existence of concrete national legislation or national programmes. As a consequence, PES schemes grow within a municipality through the additional involvement of different local actors. 3) PES schemes further develop in a way that neighbouring municipalities and other institutions form alliances to protect a common watershed. 4) PES schemes advance at provincial levels. 5) In a final step, the prefecture gets involved at the departmental level, leading to the development of a PES policy.

For instance, the initiatives in La Aguada Planting Water and in Los Negros–Santa Rosa pilot project started at very small and local scales, without either national or departmental PES legislation, considering that both of them were initiated years before the elaboration of the Santa Cruz PES policy. However, with time and experience these initiatives have become more complex, reaching larger geographic areas, because they have been replicated in other places – acting therefore as promoters of the development of a departmental legal framework capable of providing them with greater stability. Another example of this phenomenon is a recent project to implement a water-related PES scheme as a means to protect the water sources of Santa Cruz de la Sierra, the second largest city of Bolivia. This project could involve different local actors such as: cooperatives on behalf of the users, the Municipality of Santa Cruz, and local NGOs. The project is still under design as of this writing, and no more information has been released (Fundación Amigos de la Naturaleza, personal communications).

The question therefore arises whether more complex water-related PES schemes can be developed successfully without a specific national PES legal framework (M. T. Vargas, personal communication, 2007). Interviews done with participants in the design and implementation of water-related PES schemes in Bolivia indicate that although a PES policy at a departmental level is an important tool for supporting existing and future PES schemes, it has clear limitations. One of these is, of course, its reduced geographical scope, which in this case is the Department of Santa Cruz. Also, a departmental policy still needs to be in line with the existing national legislation and national policies. In the case of Bolivia, the National Development Plan includes different policies for natural resources management, some of which recognize ecosystem services but at the same time almost entirely limit these to CO₂ sequestration and expressly criticize the recognition of 'water' as an ecosystem service (NDP 2006:114).

As a consequence, considering that Bolivian national policies and legislation do not expressly recognize ecosystem services and neither allow nor prohibit the implementation of PES, project implementers agree that a national framework recognizing ecosystem services and promoting the establishment as well as implementation of PES schemes might be necessary. According to them, this framework should define the general aspects that guarantee the implementation of secure and flexible PES schemes through the regulation of aspects such as:

- The definition or recognition of ecosystem services and PES initiatives;
- Governmental participation and responsibilities (at national, departmental, and municipal levels);
- The capacity of the parties to get involved in these types of transactions;
- Budgets (in the case of programmes run by the government);
- General procedures; and
- Typology and minimum content of contracts.

PES implementers also stated that the main benefit of a comprehensive PES legislation would be that it could bring more legal certainty and could formalize the implementation of water-related PES schemes in Bolivia, being a motivation for potential parties to enter into the schemes with the support of a law (Bustamante and Duran n.d.:54). However, a too stringent or static national PES legislation could also have the disadvantage of precluding the establishment of successful PES schemes in the country by distorting the voluntary and flexible character of these initiatives (Bustamante and Duran n.d.:54).

Conclusion on Specific PES Legislation

Despite the lack of a specific national PES legislation or a national PES policy, different local projects are implemented in Bolivia as a result of NGOs' efforts to make local people understand the relation between forests and water availability and quality. Interestingly, these initiatives were initiated locally with the involvement of local communities and municipal authorities, expanding later to larger geographical extensions that involved more actors. This situation has had a reinforcing effect, promoting first the issuance of a departmental PES policy in Santa Cruz and, later, the development of a National Forest Policy, which helps to formalize the already existing PES initiatives and might support the development and implementation of future PES in the country.

The prefectoral policy already constitutes a first important step to formalizing existing PES initiatives and to developing a more secure legal framework for future PES projects to be implemented within a department (B. Soliz, personal communication). The development of such local PES schemes would be supported further if departmental, regional, and indigenous autonomies were more clearly defined. However, the full implementation of departmental PES policies will require that the departmental autonomy gives departments the power to legislate the use and management of natural resources within their jurisdictions.

The issuance of the departmental policy (and the Costa Rican PES experience) motivated the central government to adopt a national policy that recognizes the ecosystem services provided by Bolivian forests. The government realized the need of a comprehensive forest policy to achieve the sustainable and integral use and conservation of the nation's forests. The PNGIB expressly recognizes the value and the importance of the ecosystem services provided by forests, providing therefore an opportunity for the design and implementation of national, departmental, or municipal PES programmes based on a shared responsibility for forest conservation.

Although this policy is not perfect, and it raises further questions, it is the first national attempt to formalize water-related PES in Bolivia. The legal framework is still being reformed, however, and new legislation or modifications to existing legislation are expected to be enacted to respond to the provisions of the new Constitution. It is hoped that these legal reforms could also support the design and implementation of PES, resolving some uncertainties within the Constitution. How this process will evolve is still not clear, however.

2.1.3 Ecosystem-related Legislation

In addition to specific PES legislation, ecosystem-related legislation can also have a positive (or negative) impact on the development of PES schemes. This section describes and analyses ecosystem-related legislation in Bolivia. Although Bolivia has developed very comprehensive environmental and natural resources legislation, formed among others by the Environmental Statute, the National Service of Agricultural Reform Law, the Forestry Law, and the Protected Areas Regulation, none of the laws foresees the express possibility of using payments for ecosystem services for watershed conservation or any other purposes. However, some of these statutes include references to 'ecosystem services' as well as economic instruments. These legal provisions might provide some PES options.

The Environmental Statute

The Environmental Statute,¹⁷ which regulates the relationship between humans and nature with a view to achieving national sustainable development, establishes through its General Environmental Management Regulation (RGGA)¹⁸ the option of using some economic instruments and incentives such as charges, tradable permits, environmental insurance, refunds and guarantees, subsidies, and tax credits to promote pollution prevention. In this context, it is interesting to note that a specific charge for the use of public services related to the environment can be introduced. However,

¹⁷ Ley de Medio Ambiente No.1333 of 1992 (Gaceta Oficial de Bolivia No. 1740).

¹⁸ Reglamento General de Gestión Ambiental DS. No. 24176 of 1995 (Gaceta Oficial de Bolivia No. 1914).

these public services do not equate with ‘ecosystem services’ as such. Instead, they are defined as services like the provision of infrastructure, equipment, or environmental information. Therefore, a charge for the implementation of PES schemes can only be introduced under the Environmental Statute and the General Environmental Management Regulation if PES schemes are recognized as related to infrastructure or environmental information.

Also, the regulation does not expressly mention the option of using these instruments and incentives for environmental conservation purposes, but only for pollution prevention. Nevertheless, some studies argue in favour of the possibility of designing and implementing PES under the term ‘other incentives that might be created’ (Bustamante and Duran n.d.: 28).

The Forestry Law

The Forestry Law,¹⁹ the principal purpose of which is the establishment of legal provisions to achieve the sustainable use and protection of forests, has as one of its tasks the protection and rehabilitation of watersheds through the promotion of forestation and afforestation. This law classifies lands according to their capacity to be used. Within this classification there are some lands subject to certain types of protection based on their sensibility or environmental characteristics, including protection lands, rehabilitation lands, and static lands (Article 12). Protection lands, for instance, are public or private forested areas that are protected based on their vulnerability or the ‘ecosystem services’ they provide to the basin (Article 13). However, the Forestry Law does not define specific categories or types of ecosystem services.

The protection lands covered in the Forestry Law and in its regulations include forests for protection in public lands, Ecological Servitudes²⁰ in private lands, Ecological Reserves under forestry concessions, and Private Reserves of Natural Patrimony (RPPN). While the first three categories impose an obligation to conserve, including in some cases a reforestation duty²¹ through the natural revegetation method, RPPN is the only forest conservation category that is constituted on private lands on a voluntary basis and not based on a legal mandate.

The Forestry Law also establishes the possibility of implementing economic instruments. But in contrast to the Environmental Statute, the Forestry Law uses economic instruments as a way to promote environmental conservation, not to reduce pollution. Conservation of environmentally valuable or vulnerable lands is encouraged through reductions of land property taxes or through exemptions from payments of forest use fees for conservation purposes. The application of these instruments depends on whether the forest conservation is undertaken on private or public lands. In other words, Private Reserves of Natural Patrimony are exempt from land property taxes, and Ecological Reserves established under forestry concessions are exempt from forest use fees for the conservation area (Forestry Law General Regulation,²² Articles 41, 39).

19 Ley Forestal No. 1700 of 1996 (Gaceta Oficial de Bolivia No. 1944).

20 Servitude has to be understood here as a sort of easement.

21 The reforestation duty is imposed on private lands that have the category of administrative ecological servitude.

22 Reglamento General de Ley Forestal, D.S. No. 24453 of 1996 (Gaceta Oficial de Bolivia No. 1971).

In addition, rehabilitation of degraded forests is considered a national priority in Bolivia. This is why this activity is also encouraged through economic incentives, such as exemptions from payments of forest use fees and taxes, technical support for the development of these activities, or even the allocation of formal property rights to land to people involved in the rehabilitation of public lands (Forestry Law, Article 17).

Agricultural Reform Law

The National Service of Agricultural Reform Law aims to establish an institutional framework to redistribute lands and to carry out the land's regularization process, also called *saneamiento* (INRA Law, No. 1715, Article 1). Even though both the Forestry Law and the National Service of Agricultural Reform Law promote sustainable activities, they have different approaches to conservation. While the Forestry Law tries to encourage forest conservation activities through the use of economic instruments and incentives, the INRA Law conditions the maintenance of the property right over rural lands to the 'socioeconomic function,' indirectly creating the problems described earlier.

Protected Areas Regulation

The Protected Areas Regulation,²³ which creates a national and departmental system to protect and conserve geographic areas with high ecosystem values (Article 2), also establishes the option of implementing charges and other economic instruments in order to finance the administration and management of the protected areas. Further economic resources for conservation purposes can be derived from trust funds and donations provided by national or international cooperation as well as from other income produced in the protected areas, such as tourism or access fees (Articles 5, 100).

Limitations of Economic Instruments

The different economic instruments included in the Environmental Statute, the Forestry Law, and the Protected Areas Regulation indicate certain possibilities to support the development or at least the implementation of PES schemes. All these instruments face certain limitations, however. The instruments established by the Environmental Statute, for instance, need to be created through a public procedure formalized by the issuance of a specific law. However, this procedure has not been adopted yet. Most of the other instruments have also not been implemented in reality due to procedural complications, such as the requirement of ensuring the participation and approval of public institutions that were never created (Bustamante and Duran n.d.:50), or other reasons, as shown by the PES projects of La Aguada and Mairana Planting Water projects and Los Negros–Santa Rosa pilot project.

In the PES project of La Aguada Planting Water project, for example, the water resources were protected by enclosing forests and water sources and by impeding the access of cattle to the river, which had been causing the destruction of the vegetation and water pollution. This enclosing was financed through a one-time payment by the water cooperative to the landowners. It was further facilitated through the 'donation' of land by some landowners, who did not lose their property rights but who agreed to the establishment of a type of easement on their land. Another interesting element

23 Reglamento General de Áreas Protegidas D.S. No. 24781 of 1997 (Gaceta Oficial de Bolivia No. 2019).

of this project was the creation of Private Reserves of Natural Patrimony in the lands subject to conservation. The project aimed to achieve this legal status by obtaining the RPPN declaration from the Superintendencia Forestal (the Superintendence of Forestry), which is the National Forestry Authority (Wunder 2005:48–52). ICO intended to use this conservation figure to encourage private conservation through fiscal incentives, because as noted earlier these Private Reserves are protected by law and exempted from taxes (Forestry Law General Regulation, Article 41). This example shows that, in principle, forest conservation can be encouraged through financial incentives or a compensation for forest maintenance (and thus the provision of ecosystem services). In the La Aguada Planting Water project, however, it was not possible to obtain such a declaration due to the unclear land tenure situation in the area.²⁴

In the case of the PES project established by ICO in 2003 and 2004, ICO aimed to protect the water sources of the city of Mairana (in the province of Florida) through the declaration of RPPN by municipal resolution (ICO 2004). Again, the declaration as an RPPN would lead to tax exemptions as well as additional incentives if these lands were rehabilitation lands. However, most of the land under this PES scheme is owned by small-scale farmers who are already exempted from property taxes according to the National Service of Agricultural Reform Law.²⁵ As a consequence, the tax exemptions and incentives will only provide additional compensation for ecosystem services if the size of the property assigned as a Private Reserve is large enough.

Likewise, none of the current water-related PES projects in the country has been implemented in an area covered by the Protected Areas Regulation. One of the reasons for this situation is that the economic instruments foreseen by the regulation (such as the generation of income derived from tourism) do not seem to apply to water-related PES. In order to avoid the introduction of perverse incentives, the economic instruments regulated by the Protected Areas Law are only designed to support the administration and maintenance of a park, not to directly pay individuals to conserve or to avoid, for example, deforestation in its interior. As a consequence, in the Los Negros–Santa Rosa pilot project, contracts were not subscribed to pay people for conserving the interior of the Amboro National Park because there was already national and local legislation protecting the area (Asquith et al. 2008:676).

Water Law

In contrast to the Environmental Statute, the Forestry Law, and the Protected Areas Regulation, Bolivian water legislation does not include any economic instruments for the conservation of forest or water resources. So far, the government has made 32 attempts to achieve consensus on a comprehensive new water law that regulates water uses, water access, and watershed protection (Alurralde 2005).²⁶ But the only water law in force remains the Water Law of 1906,²⁷ which was never accepted

24 This issue is discussed further in the property rights section.

25 *Ley de Reconducción Comunitaria de la Reforma Agraria* No. 3545 of 2006 (Gaceta Oficial de Bolivia, Edición Especial No.93).

26 See www.idrc.ca/en/ev-85928-201-1-DO_TOPIC.html.

27 *Ley de Aguas* No. 2811 of 1906.

and therefore has never been used to its full extent. While this reveals a clear legislative gap, it is important to note that this situation has promoted a tradition of local participation in water management without initial governmental involvement. Such local participation again does not create an obstacle to the development of water-related PES schemes but rather supports their implementation, as can be seen in the PES projects described here.

For example, the lack of a comprehensive water law induced local inhabitants to create their own irrigation associations as well as customary rules to manage access to water for irrigation purposes. These rules on occasion involve the payment of small fees for the maintenance of irrigation systems and therefore the creation of a market for water rights. Payments can be made in cash, such as in the Comarapa seed fund project, or in labour, as in the Los Negros–Santa Rosa pilot project (Asquith and Vargas 2007:3). In 2004, an Irrigation Law²⁸ was finally issued in order to officially regulate the sustainable use of water for agriculture and forestry activities. This Irrigation Law now recognizes the customary rules used by these local organizations.

In the particular case of the Los Negros–Santa Rosa pilot project, the use of water for irrigation purposes according to such local customary rules caused an initial rejection by downstream irrigators. The irrigators believed that they were already paying for the maintenance of the irrigation system and therefore refused any additional ‘payment’ for water-related services. In order to solve this conflict, the Pampagrande Municipality agreed to contribute to the conservation of upstream forests on behalf of them. This municipal support then convinced a small group of irrigators to make their own contributions to the scheme (Asquith et al. 2008:678).

After a period of further negotiations and after the positive results of the pilot projects were better understood, the Los Negros irrigators agreed in 2007 to create a seed fund for the further protection of the upstream forests in Pampagrande. This initiative followed the PES scheme developed in Mairana and Comarapa seed funds projects (Fundación NATURA 2008).

Conclusion on Ecosystem-related Legislation

Although some of the ecosystem-related legislation in Bolivia includes economic instruments and incentives for forest conservation and pollution prevention that could provide a basis for the development of water-related PES schemes, the implementation of these instruments and incentives is still hampered by long and costly bureaucratic approval processes. The use and implementation of these instruments as currently designed gets even more complicated due to the existence of different and contradictory approaches to forest conservation. Antagonistic agricultural policies clash with forest conservation policies, which simultaneously encourages and discourages forest ecosystem conservation.

In addition, Bolivian legislation is missing a comprehensive water law and therefore the regulation of specific economic instruments that could further promote the development of water-related PES schemes. However, this legislative gap has also positive side effects. First of all, it has forced local rural inhabitants to manage water access through local associations. The existence of such irrigation associations can be considered an important first step to develop and implement water-related PES

28 Ley de Promoción y apoyo al Sector Riego No. 2878 of 2004 (Gaceta Oficial de Bolivia No. 2669).

schemes, since it helps individuals to get organized. Furthermore, the existing legal gap has forced people to develop customary rules that foresee payments of small charges on a monthly or annual basis to assure access to irrigation water. The introduction of such charges is another important step towards the implementation of PES.

Nevertheless, it has to be noted that in the case of Bolivia, irrigators are generally reluctant to pay extra charges for conservation, and the market just mentioned does not imply the protection of upstream forests as a way to assure quality and quantity of water. Rather, irrigators think that no further payments should be made in addition to the charges for irrigation.

Still, the mere existence of customary water rights systems for irrigation purposes provides an opportunity for the promotion of future PES initiatives. Since these systems need to solve existing problems of water availability and quality if they want to continue existing, a clear demand for further improvement of the markets is given, which in turn could provide a basis for including PES.

As a result, it can be said that, so far, the different economic instruments proposed within the Bolivian legal framework have neither precluded nor encouraged the establishment of water-related PES in the country. However, if the limitations described were overcome, the legal framework could build the foundation for public or public-private PES. In the latter case, public entities could act either as intermediaries – collecting and redistributing taxes and charges for ecosystem services – or as direct contributors to the scheme.

2.2 Institutional Framework

A wide variety of institutions are involved in forests and natural resources management in Bolivia. However, they have not all taken an active role in the implementation of water-related PES initiatives. This section examines the reason for this limited participation. It also identifies the institutions directly or indirectly involved in the design and the implementation of the water-related PES in place in the country and analyses the potential of these institutions to be involved in future water-related PES schemes.

2.2.1 Ongoing Decentralization

Bolivia is a ‘centralized’ republic, which keeps most of the executive power in the national government. At the same time, the national government has not been very present at the local level, which has led to situations where the national and local governments are not fully connected. These aspects indirectly motivated the departments and local communities located far away from the capital to create local institutions such as cooperatives, unions, and associations to supply basic services to local inhabitants. For instance, water cooperatives have been created that are run by local individuals who are at the same time members and users of the entity. These local institutions have played a major role in the development of some Bolivian cities and rural communities.

Based on this reality, in the 1990s Bolivia began a decentralization process to modernize the state by ‘improving the efficiency of public services, promoting local development, reducing the widening gap between the state and society, linking and connecting central, departmental and local governments, ensuring government accountability, and reducing corruption,...with the participation of local actors, especially the indigenous groups and rural subsistence farmers who had traditionally been marginalised from public life’ (Vargas 2005:2).

This process strengthened and democratized municipalities (local governments), whose members (Municipal Advisory Council and Mayor) have been democratically elected since the 1994 constitutional reform. As part of this process, Bolivian municipalities were given specific 'normative, executive, administrative and technical power [over certain subject matters] within their territorial area of jurisdiction' (previous Bolivian Constitution, Article 200 II).

Likewise, the decentralization process through the Administrative Decentralization Law ²⁹ was intended to grant prefectures more responsibilities and power that was previously held by the central government. The result of this law was, however, a deconcentration rather than decentralization, as the Prefect was still directly designated by the President, being his or her principal representative in the department. In 2005, the decentralization process finally advanced another step with the democratic election of the Prefects in each department and with the claims for regional autonomy, which is supposed to grant more power to the departments.

As a result of the decentralization process, environmental matters are currently executed at the national, departmental, and municipal level through public institutions, but also with the participation of local private and communitarian institutions, whose participation within environmental matters is recognized by the Popular Participation Law.³⁰ But most of the decision making is still centralized at the national level. Also, the capacity and budgets of departments and municipalities to perform environmental projects at the local level is on occasions limited. These limitations are subject to increase if the new Constitution centralizes again some of the functions previously granted to the prefectures and municipalities. This will remain an unresolved question, as long as the regional, departmental, municipal, and indigenous autonomies are not clearly defined and as long as the 'exclusive' participation of the state in renewable natural resources management is not clearly specified through legislation.

2.2.2 Institutions Involved at All Levels

As noted, different institutions are involved in the management of renewable natural resources in Bolivia at the national, departmental, and local level. This section provides a short overview of these institutions and their actual or potential role in implementation of water-related PES initiatives.

National Ministries

At the national level, environmental aspects in Bolivia are handled by three ministries ³¹:

- Ministry of Rural Development, Agriculture and Environment (MDRAyMA, from its name in Spanish);
- Ministry of Planning; and
- Ministry of Water.

29 Ley de Descentralización Administrativa No.1654 of 1995 (Gaceta Oficial de Bolivia No. 1894).

30 Popular Participation Law No. 1551, 20/04/1993.

31 Since February of 2009 the environmental authority has been centralized in a single ministry: The Ministry of Environment and Water (MMAyA).

Both the MDRAyMA and the Ministry of Planning have important environmental responsibilities in natural resources management. While the Ministry of Planning has the authority to develop land use planning and environmental policies in such a way that they are harmonized with municipal, departmental, and national development plans,³² the MDRAyMA is in charge of designing the national policies, plans, and programmes to promote the sustainable use of natural resources and conservation of the environment (LOPE Law, Article 4; Environmental Statute, Article 7; RGGA, Article 7). However, both Ministries are in charge of elaborating in a coordinated way the National Strategy and Plan of Rural and Agrarian Development (LOPE Law, Article 4).

According to the Forestry Law, the MDRAyMA has the authority to plan and to supervise watershed management and rehabilitation (Forestry Law, Article 20).

In terms of PES programmes, the Vice-ministry of Biodiversity, Forestry and Environment in the MDRAyMA is in charge of developing and implementing environmental policies, plans, and programmes for biodiversity, forests, and environmental promotion and conservation. This grants the Vice-ministry the authority to create a national PES policy, plan, or programme and therefore to create the current National Policy for the Integral Management of the Forests.

The Ministry of Water, which was only created in 2006, has not achieved a real practical relevance yet, due to historical limitations in water regulation as well as limited governmental involvement in water issues.

This division of responsibilities among the ministries has been criticized, especially because transferring most of the environmental responsibilities to the MDRAyMA might be misunderstood. First of all, it could be misinterpreted as a national prioritization of agricultural over other interests. Furthermore, it could lead to the assumption that environmental concerns are limited to the agricultural sector. Finally, it could support the misconception of the socioeconomic function of rural lands. As explained earlier, this misconception creates an obstacle to forest conservation since it puts landowners who conserve their forests at the constant risk of losing their lands due to non-compliance with the socioeconomic function of their land. This has led to the deforestation of important extensions of upstream forests in the Santa Cruz valleys, causing water problems for downstream communities.

On the other hand, as mentioned earlier, FONABOSQUE is a public entity dependent on the MDRAyMA. This entity will be in charge of promoting sustainable use and conservation activities in Bolivian forests and will be in charge of the PES programmes or mechanisms in the country. It will manage the future PES programmes or mechanisms through different funding, such as those derived from forestry permits, forest use fees, fines, donations, and the National Treasury, as well as from international cooperation and economic resources obtained from the Reducing Emissions from Deforestation and Forest Degradation programme. According to the Forestry Law, its funding activities are limited to those managed by institutions approved by the Superintendencia Forestal (Forestry Law, Article 23).

³² Ley de Organización del Poder Ejecutivo No. 3351 of 2006 (Gaceta Oficial de Bolivia No. 2863) [hereinafter LOPE Law].

Although the scope and method of work of FONABOSQUE are not completely known yet, the creation of this entity is a good start for implementing a national PES programme and for supporting departmental or municipal PES programmes, if there is the option to implement a more decentralized PES structure. However, as noted, everything depends on how the national government decides to apply its policy and how it coordinates and harmonizes with departmental and municipal institutions and policies.

National Regulatory Bodies

Three national regulatory bodies play an important role in the sustainable management of the country's natural resources:

- Agrarian Superintendence (Superintendencia Agraria);
- Forest Superintendence (Superintendencia Forestal); and
- Sanitation Superintendence (Superintendencia de Saneamiento Basico)³³.

While the Superintendencia Agraria is responsible for regulating and controlling the sustainable use of rural lands, the classification of lands according to their capacity, and the granting of concessions for conservation purposes, the main objective of the Superintendencia Forestal is to control and ensure the sustainable use of forests. In this context, the Superintendencia Forestal is responsible for granting concessions, licenses, and authorizations for forest exploitation. The main mandate of the Superintendencia de Saneamiento Basico is to control and ensure proper access to drinking water and a functioning sanitation system.

Although the Superintendencia Forestal and the Superintendencia de Saneamiento Basico are supposed to play an important role in watershed protection, they were not directly involved in any of the water-related PES schemes analysed in this report. This lack of involvement has several different explanations, including the scale of the PES projects, the nature of the institutions, and the specific characteristics of the institutions.

The scale of implementation of the water-related PES projects to date can be a principal reason that the Superintendencias have not taken a more active role. As noted, these projects were initially implemented as pilot projects with purely local participation and approach. Although they have expanded in terms of geographical scales and private-public participation, they were started as private initiatives, not emerging from a national programme either designed or operated by national institutions. The Superintendencias are national institutions; although they work in coordination with local municipalities, they are essentially regulatory bodies.

The Superintendencias have different responsibilities and goals, which also determine whether they are able to participate in implementation of PES schemes. While the Superintendencia Agraria and the Superintendencia Forestal are in charge, for instance, of granting permits and concessions for access to land and forests and to use forest resources, the Superintendencia de Saneamiento Basico is more focused on urban water supply than on watershed protection. So despite the Superin-

³³ These Superintendencias were closed in 2009. They have become institutions which depend on different Ministries, in our case, on the MMAyA. Their structures and functions are however not analyzed in this document.

tendencia Agraria and Superintendencia Forestal not being involved in the implementation of current water-related PES schemes, based on the new PNGIB there is a potential for these institutions to participate in the development of future schemes.

Departmental and Local Institutions

As already described, through the decentralization process prefectures and municipalities acquired more power and responsibilities for environmental protection. In relation to watershed protection, prefectures – which are considered the ‘departmental environmental authorities by the Environmental Statute and its regulation’ (Environmental Statute, Article 7; RGGA, Article 7) – are responsible for elaborating programmes and projects to rehabilitate watersheds and promote reforestation, afforestation, and conservation activities within their jurisdictions, with local municipal support (Forestry Law, Article 24). Although municipalities are not direct ‘environmental authorities’, they have acquired specific responsibilities for local environmental conservation and forest management (Pacheco 2003), creating, for instance, ‘forestry units’ that should work in a coordinated way with the forestry units of the prefectures and with the Superintendencia Forestal.

In addition, the municipalities have responsibilities for potable water infrastructure and micro-irrigation and for conserving the natural environment and natural resources in the municipality’s geographic area, taking at the same time the necessary measures to comply with the national and departmental environmental policies (Municipal Law,³⁴ Articles 5.4, 8; RGGA, Article 9). These goals are pursued through the issuance of Municipal Resolutions, which are the means to create and implement the municipal policies, including environmental and infrastructure policies (Municipal Law, Article 4.3).

Within this framework, the prefectures and municipalities play an important role as actors or supporters of water-related PES schemes. In the Los Negros–Santa Rosa pilot project, the Municipality of Pampa Grande made payments to purchase bee boxes on behalf of the downstream irrigators. Furthermore, in Mairana, Comarapa, and Pampagrande, the municipalities contributed to the creation of private-public funds, providing a specific 10-year budget to develop activities towards the conservation of their watersheds. Finally, all these PES projects are currently under the scope of the Santa Cruz departmental PES policy, issued by the Prefecture of Santa Cruz, as an attempt to establish a concrete departmental framework for the development of these types of schemes.

Nongovernmental Organizations

The implementation of water-related PES in Bolivia has also been substantially promoted by non-governmental organizations such as Fundación NATURA, PROMETA, and the Eastern Training Institute. All of them have played leading roles in the design and implementation of water-related PES schemes in the country. Key contributions include the implementation of campaigns to make civil society and authorities aware of the importance of forest ecosystem services and the development of round tables that bring together different stakeholders and gain trust among local inhabitants.

For instance, the Eastern Training Institute played a key role in obtaining municipal declarations of Private Reserves for the conservation of water sources in the Santa Cruz valleys. PROMETA developed a two-year campaign to inform local communities about the importance of watershed

34 Ley de Municipalidades No. 2028 de 28 de Octubre de 1999 (Gaceta Oficial de Bolivia No. 2177).

conservation, based on different studies and data that demonstrated a clear linkage between forest conservation and the provision of water in that area. Convinced by this campaign, local people indicated their willingness to pay for watershed protection.

Fundación NATURA has had a significant influence on the development of water-related PES schemes. It started by undertaking environmental and legal studies that identified the feasibility of PES projects in specific watersheds (Fundación NATURA website). Based on these findings, a pilot project in Los Negros–Santa Rosa was designed, followed by the establishment of different private-public seed funds in Mairana, Comarapa, and Pampagrande in collaboration with the water cooperatives and the respective municipalities. Fundación NATURA not only designed and implemented the PES schemes, it also provided and will continue to provide substantive funds in cash and in kind through technical assistance for the implementation of the schemes during the initial periods (Fundación NATURA 2008:4). Furthermore, through the field work and the experiences gained from implementing PES schemes, Fundación NATURA became a promoter of the new Santa Cruz policy for ecosystem services –the first of its type in the country.

Private Entities and Civil Society

Implementation of the water-related PES schemes could not have been achieved without the participation and acceptance of private entities, such as local water cooperatives, as well as indigenous groups, irrigators, and peasants' associations.

Regulated by the General Law of Cooperative Associations,³⁵ the water cooperatives have played an important role in the establishment and management of public-private seed funds for watershed protection in Mairana, Comarapa, and Pampagrande. In all three initiatives, the cooperatives play a crucial role as contributors and executive members of the PES scheme. They contribute a monthly amount to the fund on behalf of their members, who pay monthly fees for the protection of their watershed. And they are in charge of opening and managing ecosystem service bank accounts, which provide the financial resources for all the activities needed to protect the watersheds.

Indigenous groups and communitarian peasants are legally recognized by the Bolivian Constitution and the Popular Participation Law. The latter tries to integrate indigenous communities, peasants, and local communities within the economic, legal, and political development of their regions. Their associations, which represent water users and suppliers at the same time, have adopted a central role in the development and implementation of water-related PES schemes. They act as cooperation and facilitation bodies in charge of supporting and controlling PES-related activities. In this respect, the tradition of local water management and the development of private organizations that have the support of local communities have been very helpful.

In Los Negros pilot project, for instance, some of the downstream irrigators have contributed to the PES scheme through direct payments, while the remaining irrigators participate in a more indirect way through their representation by the Municipality of Pampagrande.

2.2.3 Scale for Establishing PES

In the Bolivian case, water-related PES schemes have been initially designed and implemented at a

³⁵ Ley General de Sociedades Cooperativas No. 535 of 1958 (not published in the Gaceta Oficial de Bolivia).

very local scale in order to solve conflicts between neighbouring communities. Such conflicts led to the development of the Los Negros–Santa Rosa pilot project and later on to the Mairana, Comarapa, and Pampagrande seed funds projects, which helped to bring together upstream and downstream communities as well as municipalities within a single province.

In contrast, an attempt by PROMETA and The Nature Conservancy to create a PES scheme at a larger, bi-national scale in order to protect the Bermejo River watershed (spanning over 123,000 km² in Bolivia and Argentina) failed due to political and logistical difficulties (Robertson and Wunder 2005:43). In the end, this proposal was never fully implemented; instead, it was restructured into a local PES scheme.

As a consequence, it is fair to say that the local and small-scale approach to PES schemes in Bolivia is based on the experience that ‘successful market-based schemes are most likely to succeed at a local scale’, as other efforts have clearly shown the difficulties of taking a top-down approach that does not take into account local social processes and realities (Asquith and Vargas 2007:5).

2.2.4 Conclusion on Institutional Framework

The decentralization process in Bolivia has led to the transfer of different responsibilities to prefectures and municipalities. However, the central government is still in charge of regulating, for example, access to and use of forest resources and therefore retains important responsibilities related to ecosystem management (Vargas 2005).

The PES experiences in Bolivia show that a key issue in the design and implementation of water-related PES schemes is the involvement of local governments (municipalities). Some municipal governments have been able to take important actions towards the implementation of PES schemes without the involvement of national authorities. This has been possible due to their proximity to water users and ecosystem services providers and because of close collaboration among local municipalities, water cooperatives, and civil society, which has been backed up by the support of the departmental prefectures. Furthermore, for example the implementation of water-related PES schemes in Santa Cruz has shown that the institutional gap between the central government and local communities can be bridged by prefectures and municipalities through the development of PES schemes.

As a consequence, it can be concluded that local-scale PES projects seemed to be the best way to implement the first water-related PES schemes in Bolivia. This is not a surprise considering the legal and institutional framework in the country when these projects were implemented. However, the sustainability of these projects as well as the possible scaling up from the local to a larger scale still faces several weaknesses and uncertainties, which might be addressed by new departmental and national PES policies and by modifications of Bolivian legislation.

3. Property Rights Issues

Property rights are widely identified as one of the key requirements for the development and implementation of successful PES schemes. This section examines how PES project developers in Bolivia have coped with a situation of insecure property rights and unclear land tenure in order to successfully implement PES initiatives and include poor rural people and farmers as parties to the schemes.

3.1 Land and Natural Resources Ownership

Bolivian legislation, the previous Constitution, and the new Constitution all recognize private property over individual and community land according to the requirements and processes established by law. In order to be guaranteed, however, agricultural land must comply with the 'socioeconomic function', as described earlier. The new Constitution goes a step further by expanding the 'socioeconomic function' to cover not only agricultural land but any type of land subject to property rights (Constitution, Article 56). As explained before, the requirement of compliance with the 'socioeconomic function' of the land has been misinterpreted in the past, creating a perverse incentive and leading to increased land conversion and deforestation.

Regardless of that, the National Service of Agricultural Reform Law recognizes private property rights over the following types of rural lands that can be owned by individuals or by communities of peasants:

- Solar campesino (peasant home);
- Small property;
- Medium-size property;
- Agricultural company; and
- Communitarian lands.

The solar campesino and the small property are indivisible, meaning that they may not be divided into parcels that fall under the 'minimum extension of land prescribed by law' (which is paradoxically not specified). However, practice shows that solar campesino and small property lands are subject to private transactions anyway and therefore are often subdivided without taking into account the prohibitions established by law. The medium size and the agricultural company lands vary in their extensions and methods of cultivation. Communitarian lands are those used by indigenous peoples and communities of peasants according to their traditional uses and customary rules; these lands are exempted from tax payments.

3.2 Property Rights and Land Tenure Situation in Practice

There is no complete security of property rights and land tenure today. This is due to several reasons. First, in Bolivia most of the current land tenure is linked to a tradition and history of occupation that has made formal property rights titles rather an exception (Asquith and Vargas 2007:5,17).

In addition, even in cases where formal property rights titles exist, the borders are sometimes unclear due to divisions and transfers of private lands, competition with communal property rights, and the phenomenon of so-called *pro-indiviso* land tenure (Pacheco 2006:23). The latter phenomenon mostly derived from inheritances and undivided property. It implies a joint possession of land initially owned by a single owner, but which were transferred to his successors. Under these circumstances, different co-proprietors have a formal title to the whole extension of a tract of land, but they don't have individual property rights titles that clearly identify their tract. Each co-proprietor therefore uses the land at the same time. This situation had to be faced, for example, in the cases of Los Negros–Santa Rosa pilot project and in the Mairana, Comarapa, and Pampagrande seed funds. Some of the individuals who were meant to become PES parties had formal titles over their lands, while others had

subdivided parts of their lands or had transferred them to other people in the past without identifying the precise borders (Pacheco 2006:23).

The planned property rights regularization process called *saneamiento* (INRA Law, Articles 64–73) has not yet been able to solve this problem. The process was designed to overcome the overlap between agriculture and forestry activities and to avoid the concentration of huge extensions of land in a few people's hands (Pacheco 2006:13). Although the process tried to clarify the property rights over 107 million hectares within 10 years, its implementation has been slow, and only 18 million hectares had been regularized through 2006 (Pacheco 2006:13). For instance, the Santa Cruz valleys where the water-related PES schemes have been implemented are not within the priority areas for *saneamiento*. As a consequence, they have not yet been subject to the land regularization process (Pacheco 2006:6), which again implies that few formal property rights titles exist; some of the properties are even divided among heirs or sold through private contracts, creating a scenario of unclear borders in some areas.

3.3 Dealing with Unclear Property Rights and Land Tenure

As property and tenure rights continue to be a difficult issue in Bolivia, this problem has to be addressed in the process of developing PES schemes. Two strategies were developed when implementing water-related PES schemes in Bolivia:

- Recognizing peaceful possession by the local authority - *Usucapion* (or adverse possession): This requires the peaceful possession of a land over a period of 5–10 years. It is recognized through a judicial decision. To demonstrate such peaceful possession of the land, the potential property rights holder has to show that there is no legal owner of the land or, in case there is one, that the legal owner has neglected the land by not exercising his or her rights.
- De facto property and tenure rights: These are rights that despite of the lack of legal titles are accepted by the local inhabitants and neighbours (Asquith and Vargas 2007:5, 17). This means that de facto rights do not address a lack of clear property and tenure over the land but instead address the lack of a formal title granted by the official authorities.

More than *usucapion* rights, an administrative recognition of the peaceful possession of the land was applied in the ICO PES scheme. ICO had to deal with a lack of formal titles, which limited the creation of Private Reserves of Natural Patrimony. Due to unclear property rights in the area, registration of the reserves could not precede (ICO 2004). However, ICO requested the municipal authority to certify that the participants to the PES scheme had peaceful and long-term possession over the lands they were offering as part of the scheme (ICO 2004). In this way ICO ensured the fulfilment of all requirements for declaration of the reserves.

De facto rights were used by Fundación NATURA, which implemented its first pilot projects in Los Negros–Santa Rosa through the acceptance of either formal or de facto property and tenure rights (Asquith and Vargas 2007:5,17). Upstream landowners from Santa Rosa were accepted in the Los Negros scheme if they were able to present signed purchase contracts as proof of possession or if their land tenure was clearly accepted and supported by neighbours and the local community.

These examples clearly show that a lack of formal property rights titles and unclear land tenure poses difficulties in the development and implementation of water-related PES schemes that can be solved

through a more flexible approach. At the same time, it is interesting to note that overcoming such difficulties can have positive side effects. For example, in the Los Negros–Santa Rosa pilot PES project, implementation of these schemes was considered by participants as a way to strengthen their land tenure position, as they were able to enclose their lands with wire given to them as a compensation for their conservation activities (Robertson and Wunder 2005:37) and, even more important, to acquire public recognition of their de facto property and tenure rights over the land, which helped them to combat illegal settlements.

But it must also be recognized that while PES participants have perceived these schemes as a valid method for solving the problem of unclear property and tenure rights, the public recognition of de facto rights has been criticized by landless people as a way to keep them away from forested lands that, according to them, are not being used in line with their socioeconomic function. Another complaint by landless people has been their inability to participate in the schemes due to their lack of property or tenure rights (Asquith et al. 2008:682).

One way to overcome the exclusion of landless people from PES schemes could be the granting of specific tenure rights in the form of usufruct rights. The Bolivian Civil Code (No.12760, 06/08/75) recognizes the instrument of usufruct rights and defines them as rights granted by landowners to third persons who are allowed to use and enjoy the benefits provided by the land, its infrastructure, and/or its natural resources, depending on the extent of rights subject to be granted (Bolivian Civil Code, Articles 216–49).

As contracts on usufruct rights provide the possibility to specify different provisions (such as its period of time, the obligations of the rights holder, the possibility of transferring the granted rights, and dispute resolution mechanisms), this has the potential to include landless people by giving them the right to ‘use’ and ‘exploit’ the ecosystem services ‘found’ on lands without granting or regulating ownership of the land. This could create a separate interest in the ecosystem services of the land and the support of PES schemes

However, granting new tenure rights to landless people has not yet been done in current water-related PES schemes.

3.4 Registration

Registration of property and tenure rights is a potential means to clarify unclear rights situations and improve security of rights. Registration could therefore help the development of PES schemes.

Property rights as well as tenure rights over land in Bolivia are subject to registration in the agricultural land registry, the forestry registry, the mining registry, or the hydrocarbons registry. However, the relation between these registries is not yet fully understood. While they were all elaborated to maintain updated registers of property and tenure rights over land, forests, mines, or hydrocarbons, they emerged from different laws and are therefore managed by different national or departmental authorities. As a consequence, the different registries are not fully coordinated and do not constitute one single system.

The General Property Rights Registration System is constituted by national, departmental, and local registration offices. The Bolivian Property Rights Registration Law (DDRR Law)³⁶ and the Bolivian Civil Code³⁷ establish the obligation to register all contracts that may create, transfer, restrict, or en-

hance the different rights related to land and any other contract that would need publicity for security purposes (DDRR Law, Article 7; Civil Code, Articles 1538,1540). Contracts establishing property and tenure rights over the land are therefore subject to registration.

Since PES contracts usually include obligations that restrict existing property or tenure rights (e.g., the obligation to protect a forest that provides ecosystem services), such contracts need to be registered to assure the parties that the restrictions will apply. In this context, it has to be noted that it is not the actual payment for an ecosystem service that would be subject to registration but rather the specific restriction of the property or tenure rights that will ensure the provision of the ecosystem service.

In practice, most of the direct PES contracts have not been registered. A first reason for this is the transaction costs for registration, which can become a barrier, in particular considering the little amount of financial resources available for making payments. Another reason is the large number of participants without formal property rights over their land. In other words, if the property right is not registered, it is impossible to register a contract modifying or limiting this right.

An attempt to register water-related PES contracts was made in the Mairana Water Planting project. Here the declaration of Private Protected Areas was planned as part of the PES scheme. In this case, the final registration failed due to the unclear tenure situation of the area. In the end, the Municipality of Mairana had to go one step further and, based on its duty to protect the watersheds, issue a municipal resolution declaring the zone as a Municipal Protected Area, which helped assure compliance with the protection commitments adopted within the scheme (ICO 2004).

The situation is different regarding the institutional agreements leading to the creation of the seed funds for watershed protection in Mairana, Comarapa, and Pampagrande, considering that they are based on public agreements and subject to public registration because of the participation of the municipalities.

3.5 Conclusion on Property Rights Issues

It is widely recognized that clear and secure property and tenure rights are a prerequisite for PES schemes. Bolivian legislation of course addresses the issue of property and tenure rights over land and natural resources. But considering the novel character of PES, the current legislation does not address the specific issue of rights over water-related ecosystem services (Ruhl et al. 2007). Nevertheless, according to existing law, as long as an individual person or a community has property rights over the land, this person or community also has rights over the renewable natural resources on or in the land. This regulation has allowed the involvement of private people and communities in PES schemes.

Furthermore, the analysed PES schemes show that their design has to respond to local realities, which are often marked by unclear and insecure rights and tenure situations. Under such circum-

36 Ley de Inscripcion de Derechos Reales No. of 1887 (not published in the Gaceta Oficial de Bolivia).

37 Codigo Civil of 1975 (Gaceta Oficial de Bolivia No. 800).

stances, a more flexible approach to dealing with property and tenure rights is necessary and, as the current PES projects show, is also possible.

First of all, the analysed projects prove that PES schemes do not necessarily have to be limited to people who have absolute ownership (property) rights over their land; other people with more limited rights to the land and its resources (such as access and use rights) can also participate (Pacheco 2006:3).

Also, the PES projects show that where people lack formal titles to the land and its resources, this will not necessarily preclude their involvement in PES schemes. Instead, the designers of pilot water-related PES projects in Bolivia successfully used *de facto* rights to implement the schemes. This means that participation in PES projects was not conditioned on formal titles but required 'only' the acceptance of the landowner's neighbours and community (Asquith and Vargas 2007:5). The use of this instrument of *de facto* rights is facilitated by the fact that water utilization and management have been traditionally exercised through local participation, without external or governmental participation.

However, it is important to note that when accepting *de facto* rights, it must be ensured that these rights are based on cultural and social principles, such as the *usos y costumbres* (Alurralde 2005). These give access to water only through a set of rules, techniques, and requirements accepted by the local society. If these requirements are not fulfilled, allowing people to enter into PES schemes without formal titles can constitute a perverse incentive to illegality.³⁸

4. Negotiation

The final design of a water-related PES initiative is often the result of multiple negotiations between the potential parties to the scheme and intermediaries, if any. Negotiations constitute an important step in the development and implementation of PES initiatives, especially as they will lead to the elaboration of 'acceptable agreements or contracts between the PES scheme parties' (Asquith and Wunder 2008:14). Negotiation processes of PES projects do not follow a single formula but differ according to the specific circumstances of each project, such as parties' expectations and concerns, the value of the ecosystem services, willingness to pay for the ecosystem services, availability of information, and institutional or individual capacity to negotiate. Nevertheless, the negotiation processes of the analysed PES projects showed some commonality as they were all structured in two phases.

In the Los Negros pilot project, the first phase of negotiation basically consisted of development of a series of environmental campaigns and studies as well as related capacity-building initiatives implemented by Fundación NATURA. The latter were carried out in the Los Negros watershed in order, first, to identify if downstream inhabitants were willing to pay for the upstream forests' conservation after they learned about the relation between upstream forest conservation and water provision and, second, to invite upstream landowners to participate in the scheme (Asquith et al. 2008:677).

In the second phase, in late 2002, a series of negotiations took place between the Environmental

38 For example, paying new migrants who lack any kind of 'property rights' could encourage more migration to the area in order to receive the economic benefits of the PES.

Committees of Los Negros and Santa Rosa, with participation of the Pampagrande Municipality and Fundación NATURA. In the end, these led to the elaboration of voluntary contracts that guided the relationship between upstream and downstream participants (Robertson and Wunder 2005:34).

In the La Aguada Planting Water project, the first phase of the negotiation process also included an environmental awareness raising campaign. Through radio programmes, the scope of the project and the importance of upstream forest conservation were explained to people (ICO 2004). The second phase included a series of negotiations between the parties, namely the water cooperative, the landowners, and the ranchers, with ICO as the negotiation facilitator.

The negotiation approach used in the Los Negros–Santa Rosa pilot project was also applied to the creation of the seed funds in Mairana, Comarapa, and later Pampagrande. Like the other project, the first phase of the negotiations in the Comarapa seed fund project consisted of campaigns and workshops developed by Fundación NATURA. These events included the sharing of international experiences, such as those of the Mayor of Celica in Ecuador, who was invited to explain the lessons learned from water-related PES projects in that area (Fundación NAURA workshops, 2006 and 2007, Municipio Comarapa 2007).

Furthermore, studies on the local ecosystems and their services as well as on people's willingness to pay were carried out in Comarapa by Centro de Investigacion Agricola Tropical (CIAT). CIAT concluded that 68 per cent of Comarapa's river water users were willing to pay for better water services. Afterwards, public meetings were held with potential parties to the PES scheme, namely the Municipality of Comarapa, the water cooperative, and the water users, in order to explain the potential benefits of participating in the scheme and the role the different institutions should play within the project and to decide on a monthly charge for the conservation of the watershed (Fundación NATURA 2008:4).

The second phase of the negotiation process of the Comarapa project (and, similarly, the rest of the seed fund PES projects) led to the development of the institutional agreements between Fundación NATURA, the municipality, and the water cooperative, which as a consequence led to the subscription of individual conservation contracts with landowners (Fundación NATURA 2008:4, M. T. Vargas personal communication).

It is important to note that there are certain problems that often need to be overcome by PES project developers. The Los Negros–Santa Rosa pilot project provides a good example of such negotiation challenges and how they can be dealt with:

- The existing lack of trust between the Los Negros and Santa Rosa inhabitants proved to be a barrier to the development of the PES project and led to a long negotiation process. Fundación NATURA had to increase its efforts and take additional measures, such as becoming a party to the contracts. This further engagement enabled the foundation to have direct, one-on-one interactions with farmers and to financially contribute to the scheme by providing the first round of payments. Both these steps helped develop confidence in the project, create trust among the people of Santa Rosa and Los Negros, and convince both sides to enter into formal contracts. But it also led to high transaction costs for setting up the system (Robertson and Wunder 2005:36, Asquith and Vargas 2007:22), which mainly had to be paid by external donors (Asquith and Vargas 2007:22).

- Another critical point in the second phase of the negotiation process was agreeing on the method of paying for the ecosystem services provided by upstream forests. In the end, the Environmental Committees decided to pay in kind rather than cash, through artificial beehives and training for forest conservation in Santa Rosa (Robertson and Wunder 2005:34). Also, while the payments were initially determined as fixed and flat payments, they were later modified to differentiated payments based on forest types and expected ecosystem service (Asquith and Wunder 2008:24).
- Other relevant aspects for the negotiations were, for instance, the monitoring process and the penalties for non-compliance, which were introduced gradually as a result of experience (Robertson and Wunder 2005:34, Asquith et al. 2008:679).

In conclusion, the negotiation processes of the water-related PES projects implemented in Bolivia are characterized by two phases. The first stage basically implies a design or preparation process in which potential buyers and sellers are identified and informed of the water problems they are facing based on environmental campaigns that show the outcomes of environmental studies. Once buyers and sellers are identified and agree to take actions to solve their water-related problems through the use of water-related PES schemes, the second negotiation phase aims to get the targeted individuals and institutions to agree on the clauses and terms of the concrete PES contracts.

The Bolivian experiences show that such a twofold negotiation process is an important tool that has helped to create trust in the relationships among ecosystem services sellers and buyers and has facilitated agreements on the basics for the implementation of the PES schemes. It must not be forgotten that negotiation processes need to be in constant evolution, based on the lessons learned from previous experiences.

5. Contractual Issues

Water-related PES schemes in Bolivia have been implemented through different contracts, which, like the schemes, have evolved with experience over time. Based on the limited public availability of contracts subscribed by ecosystem services buyers and sellers, this section looks at only two types of water-related PES contracts:

- Direct voluntary contracts between ecosystem services sellers (landowners) and ecosystem services buyers (used in the Los Negros–Santa Rosa pilot project, and in Marana, Comarapa, and Pampagrande), and
- Voluntary institutional agreements for the creation of seed funds for watershed protection.

5.1 Direct Contracts

The first PES contracts were those used in the Los Negros–Santa Rosa pilot project. As described earlier, from the beginning of this project Fundación NATURA had identified the lack of trust between parties as one of the main obstacles and potential reasons for non-compliance with the contracts. As a consequence, the foundation invested a lot of effort in building trust relationships among participants (Asquith and Vargas 2007:5).

As a first step, Fundación NATURA decided to develop direct contracts between the ecosystem sellers (Santa Rosa's landowners) and a buyer. As a consequence, the contracts were structured

rather simplistically. This simple design responded to the need to be easily understood and in the end trusted by peasants who were not used to being part of complicated legal constructions and processes.

Furthermore, to create confidence among the landowners that once a PES contract was signed their conservation or reforestation activities would really be compensated, Fundación NATURA agreed to become a party to the contracts and act as the direct ecosystem buyer. As a consequence, during the first years of the scheme, the foundation made the financial contributions related to the contracts through funding that was initially provided by the US Fish and Wildlife Service and the Municipality of Pampagrande on behalf of Los Negros irrigators (Asquith et al. 2008:678). After the first few years, the creation of a watershed conservation seed fund in Pampagrande was seen as a way to provide some of the funds needed to assure the continuity of the water-related PES scheme in the area of Los Negros–Santa Rosa.

The overall objective of the PES contracts in the pilot project was to protect the upstream forests of the Los Negros watershed. To accomplish this, one type of PES contract prohibited not only tree cutting and forest clearing but also hunting. The other type foresaw reforestation of specific areas of land in the watershed. It is interesting to note that these forest management activities referred to in the contracts protected at once the watershed (by maintaining or re-establishing forest cover upstream) and biodiversity (by maintaining or re-establishing wildlife habitats as well as prohibiting hunting within specific tracks of land). Thus, the contracts used by Fundación NATURA developed a PES scheme that bundled payments for different ecosystem services. Such bundling is an important means to improve the efficiency of these types of water-related PES schemes, because of a greater potential to find more buyers interested in acquiring one or more ecosystem service.

Furthermore, not only were the different obligations on the sellers' side adjusted to the local needs and circumstances in the watershed, but the obligation on the buyer's side was also connected to the realities of the area. While the contracts established specific amounts of payments for the services provided, it was agreed to make the payments in kind, as noted earlier, in the form of bee boxes, training, and barbed wire. This was considered more appropriate by the local people and therefore part of a decision taken by the communities involved in the negotiation process.

However, it is also important to recognize certain deficiencies of the PES contracts used. First, the contracts did not include any explanation of the underlying water management problem or any reference to ecosystem or hydrological studies that clearly linked deforestation to local water problems. This did not prevent people from getting involved in the scheme, since Fundación NATURA had run awareness-raising campaigns that publicized the findings of ecosystem studies and demonstrated the link between deforestation and impacts on water quality and availability. But the lack of a clear link between the payments called for in the contracts and the water problem as well as its relation to ecosystem management has a clear potential to create confusion, especially on the sellers' side. It creates the risk that some individuals perceive the in kind payment as a 'gift' rather than a compensation for compliance with the conservation obligations.

Furthermore, the direct PES contracts did not include specific provisions on non-compliance or dispute resolution. The lack of such clauses, for instance, makes it even more difficult to ensure implementation of the contracts and to solve potential misunderstandings about different contract

interpretations. Last but not least, none of the direct contracts was registered either in the Property Registers or in the Municipal Rural Registries, although this is legally required, as mentioned earlier. The lack of registration could be explained, however, by the relatively small amount of money to be paid for the ecosystem services and the potential substantial increase in transaction costs with registration.

5.2 Institutional Agreements

After the first experience in Los Negros–Santa Rosa, the idea of adding sustainability to the scheme emerged. One solution was the creation of seed funds to finance the protection of the watersheds. This is why, as suggested by Fundación NATURA, Mairana, Comarapa, and Pampagrande decided to adopt these initiatives. As the PES contracts in these seed funds evolved and expanded, the need to design institutional agreements to support the development of public-private partnerships for watershed protection evolved as well. These agreements constitute a type of overall strategy that will lead to the elaboration of different direct PES contracts with landowners.

The institutional agreements are more ambitious documents than the direct contracts, since they target complex institutions instead of individuals and include some clauses that are missing or only vaguely regulated within the direct contracts. The latter agreements have included, for instance, conflict resolution clauses that incorporate arbitration as a method to resolve controversies among the parties. This made sense because, in contrast to small-scale landowners, institutions usually have both the legal and financial capacity to participate in expensive conflict resolution processes.

The institutional agreements in Mairana, Comarapa, and Pampagrande seed funds regulate the right of different institutions, such as municipalities and water cooperatives, to become a party to the PES schemes and participate in the creation of seed funds for the protection of the local watersheds. To do this, the municipalities have used their current legal powers to enact municipal resolutions for environmental conservation purposes, providing as much legality as possible to these types of schemes, as described in section 2. The agreements have established the obligation of the parties to provide financial resources for the creation of special watershed conservation seed funds. As a consequence, the municipalities, Fundación NATURA, and the local water cooperatives have assigned parts of their budgets to the watershed conservation funds.

Within this framework, the water cooperatives have become important actors. On behalf of the water users, they are now in charge of carrying out all the activities and projects required to guarantee the conservation of the watershed for 10 years, which is the duration term of the institutional agreements.

The establishment of these agreements also gave water users, who have direct influence on the management of the water cooperatives, the opportunity to decide if they wanted to pay a monthly charge for watershed protection. They decided in favour of levying a charge for ‘ecosystem services’, which has become a part of the water bill and is calculated based on the monthly consumption of each user (Fundación NATURA 2008:4).

5.3 Conclusion on Contractual Issues

Although the direct contracts between ecosystem services sellers (landowners) and the buyer (Fundación NATURA) had several legal limitations, they constituted an important step in the ‘trust rela-

tion building process' started by Fundación NATURA. Furthermore, over time the contractual relationships and the contract design have matured. The first generation of direct contracts has been improved based on experience and lessons learned. While they have maintained their rather simple character, the contracts have clearly evolved, introducing certain aspects, such as differentiated payments instead of flat ones or the inclusion of specific sanctions for non-compliance.

Likewise, there has been a general evolution of the PES schemes that has required not only the use of direct contracts but also the development of a second generation of contracts in the form of institutional agreements. These agreements support the development of public-private funds for watershed protection and therefore promote the involvement of not only private individuals but also private and public institutions (such as water cooperatives on behalf of users and municipalities on behalf of local irrigators and neighbours). While it is clear that these institutional agreements still need to be improved, they have opened opportunities for other institutions interested in participating in PES schemes designed to protect local watersheds. As a consequence, the PES schemes were able to further evolve and include more than one municipality for the simultaneous protection of concurrent watersheds. This is an important step towards the creation of a real institutional framework for water-related PES schemes.

6. Monitoring, Non-compliance, and Enforcement

According to Robertson and Wunder, one 'key feature of PES is their conditionality which implies that payments are made only if the provision of the service is secured or the agreed-upon land-use caps are complied with on a quid pro quo basis' (Robertson and Wunder 2005:10). In order to verify the compliance with the 'conditionality' aspect, it is necessary to review if the contractual obligations are met, usually through the establishment and use of monitoring systems (Robertson and Wunder 2005:10). Although the water-related PES schemes implemented in Bolivia were not all originally designed with efficient monitoring systems, such systems have been evolving little by little based on experience.

The obligations of the parties to the pilot project initiated in Los Negros-Santa Rosa, for instance, were subject to annual monitoring, developed by a project control team. This team included one member of the upstream community's environmental committee, one member of the downstream community's environmental committee, and one field technician from Fundación NATURA, with the participation of the landowner. Its role was to visit the lands enrolled in the programme in order to assess whether they were conserved or reforested according to the commitments stipulated in the contracts. If after the assessment the team considers there is non-compliance or an infraction, it sends a written report to a Directorate formed by the presidents of Fundación NATURA and of the upstream and downstream environmental committees. The Directorate decides how to address the infraction (Asquith et al. 2008:679).

In case of non-compliance, the penalties imposed on the sellers by the direct contracts are as follows:

- Automatic termination of the contract, which might vary from one to five years;
- Total or partial stopping of all remaining payments;

- Reimbursement of payments already done; and
- A claim for civil damages due to a breach of contract.

To date, just one case of non-compliance with the conservation agreements has been recorded, when an ecosystem seller ‘constructed a road through a part of the conservation territory’. (The penalty imposed was exclusion from the PES programme for one year (Asquith et al. 2008:679).) In contrast to the list of expected penalties, the Directorate did not request the non-complying landowner to return the beehive received previously as payment. According to PES implementers, this was done to avoid ‘political side effects of enforcing such an expropriation’. Since Fundación NATURA had invested a lot of time in developing trust among the parties to the scheme and convincing local peasants to be part of it, the penalty of exclusion from the programme was chosen to ensure more social acceptance within the communities. This decision was made even though there was a risk that some individuals perceived the in kind payment as a ‘gift’ and would reject compliance with the conservation obligations (Robertson and Wunder 2005).

In the case of the Mairana, Comarapa, and later the Pampagrande seed funds, in order to ensure transparency of the actions undertaken in each municipality, the institutional agreements include mandatory annual audits to verify the activities carried out by their water cooperatives. The agreements note that rejection of the audits could lead to termination of the PES institutional agreements. While the agreements do not specify who will be in charge of accepting or rejecting these annual audits, it can be assumed that this task will be part of the municipalities’ responsibilities, considering that the audit reports need to be presented to them for revision.

In addition, the institutional agreements governing the seed funds in Mairana, Comarapa, and Pampagrande created a Meeting of the Parties as a decision-making and supervisory body. This group is in charge of designing policies and programmes for the protection of the watershed. Despite its representative nature, which places the body in an ideal position to carry out monitoring and enforcement activities, the Meeting of the Parties was not asked to reject or approve the annual audit report. Nevertheless, considering the recent elaboration of these agreements, there are no data available yet indicating problems due to potential limited monitoring and enforcement functions of the involved institutions.

In summary, then, although monitoring and enforcement activities are important to verify compliance with the commitments adopted under the individual PES contracts and institutional agreements, in Bolivia these systems have been introduced and improved only gradually based on experiences with the different projects.

While the direct PES contracts already have a well-established monitoring body with representatives from the different sectors involved in the schemes, monitoring within the institutional agreements relies mostly on the municipality. Although the municipality represents all the sectors and neighbours in a local community, having something like a Meeting of the Parties, which represents all those in the scheme, involved in monitoring and enforcement activities could ensure wider public participation in the process.

It is also important to note that even though at first sight the adopted penalties included within the direct contracts seem to be weak, because they are mostly focused on the exclusion of the non-

complying party from the PES scheme, these projects have been implemented only at small scales. Under these circumstances, trust between the parties plays a major role, and social pressure and the fear of suffering from social rejection can motivate parties to comply with any obligation emerging either from a contract or from social rules. This is why the simple exclusion from the project has been considered a sufficient penalty until now. As water-related PES schemes evolve, however, the monitoring and sanctioning system is likely to be improved.

7. Good Governance

Good governance is a prerequisite to achieving transparency in any kind of project. Thus it is another crucial element for ensuring the success and sustainability of water-related PES schemes. Good governance involves adequate public participation, access to information, and accountability related to project activities.

According to Article 93 of the Environmental Statute, environmental information held and administered by the governments of Bolivia, either at the national or the departmental level, should be public and easily accessible by any interested person. The reality, however, is that this is generally not the case. Instead, once collected by government, environmental information is often difficult to obtain.

Regarding the PES projects, it is important to recall that the national government has not been involved in the development or implementation of these schemes. Thus the water-related PES schemes in Bolivia have ‘flown under the radar’ of the government and have not been part of the scope of nationally administered issues (Asquith and Vargas 2007:13,21). This means that the national government was not accountable for making information related to these small-scale PES initiatives available to the public.

Nevertheless, information about the PES projects has been disclosed not only at the local level but also at the national level through different workshops since 2004. These aimed at sharing the experiences and lessons learned from the projects. They brought together project developers, local and national authorities, and other institutions potentially interested in participating or receiving more information related to these types of schemes (Fundación NATURA website, 2008).

The PES project developers have tried to comply with and have benefited from fulfilling good governance requirements when developing the projects. As noted earlier, in most cases the schemes have been established with the active participation of local communities and municipalities. For instance, the Aguada Water Planting project implemented by ICO was the result of public campaigns in the project area (ICO 2004). Likewise, in the Los Negros–Santa Rosa pilot project, Fundación NATURA carried out a series of negotiations and campaigns promoting public audiences and the participation of potential ecosystem services buyers and sellers (Asquith et al. 2008).

This good governance approach proved to be very helpful in overcoming some of the challenges faced by PES projects. For example, as noted, one of the most difficult parts in the development and implementation of the water-related schemes in Bolivia was the existing lack of trust. There was distrust between the potential parties to the schemes, given the ongoing conflicts among upstream and downstream communities due to water availability patterns. The promoters of the water-related PES schemes were also not trusted, as in most cases they were NGOs or institutions from the ‘city’

and therefore not well known to local entities (Asquith and Vargas 2007).

In Los Negros, the problem of lack of trust between the communities was addressed through the establishment of environmental committees. These provided a platform for each community to be represented and get engaged. The communities had the chance to present to each other their environmental goals, explain their needs, and raise awareness for their concerns. This helped find practical solutions to environmental problems by promoting collaboration between the communities instead of conflicts.

In addition, the distrust of external NGOs was overcome through active work in the field. This was not only focused on developing local capacity and demonstrating the necessity of solving the local water problems. It also helped clarify the serious interest of project developers in becoming 'honest PES brokers, in which the locals could trust' (Asquith and Vargas 2007:19).

In summary, according to Bolivian law environmental information should be publicly available and easily accessible. But here, as in many other countries, the requirements set out by the legislation and their implementation are two different issues. Despite these problems, the water-related PES projects have proved the importance and benefits of public participation, access to information, and transparency. Information on the schemes has been actively disclosed by private project developers and implementers. This has helped to share lessons learned, to involve new potential ecosystem sellers, buyers, and external donors, and to expand the scope of the PES schemes.

Furthermore, transparency in the design and implementation of the projects, allowing local communities and individuals to become parties to the schemes and to participate actively in the negotiation process, has helped the local authorities and residents accept these small-scale projects.

8. Conclusions

Despite the currently evolving and unclear political context of Bolivia, water-related PES initiatives have been and continue to be implemented in different parts of the country as part of an attempt to solve local water problems. Although most of these experiences are recent initiatives, they have already yielded valuable lessons in terms of legal, social, and economic results.

In fact, even though water-related PES might be implemented at small or large scales, the experience in Bolivia shows that initiatives at local and decentralized scales have succeeded without a national legal and institutional framework to support them. They depend almost exclusively on trust relationships and the participation of local communities and authorities.

One of the project developers' questions was whether the current legal and institutional Bolivian framework is able to support the design and implementation of successful water-related PES schemes. And if not, what would be required to achieve this goal? Even though this question is not fully answered, experience from the case studies described here demonstrates that decentralization and public participation play an important role in the establishment of water-related PES because they allow local communities and municipal authorities to be involved in the administration and control of the schemes.

Indeed, decentralization provides local and departmental authorities a proper environment to develop these kinds of schemes, not only because of their proximity to local inhabitants but also be-

cause of the recognition of legal rights and responsibilities of local inhabitants, such as indigenous groups and communitarian peasants, who become co-operators and supervisors of activities. In this sense, a decentralization that includes public participation can become a framework for implementing water-related PES as mechanisms of local development.

One interesting phenomenon of the PES regulatory process is that in the absence of a specific legal framework for design and implementation, successful water-related PES examples have fostered the expansion of the first small-scale projects into other similar or larger geographical areas, involving not only individuals but also institutional private and public actors. Furthermore, this situation has led to a legal regularization that has involved the issuance of municipal resolutions, departmental policies, and a new national policy, as well as potential national regulations to provide a more secure legal framework for future PES initiatives in Bolivia.

One important point to bear in mind, however, is that this national framework should not be too stringent and really needs to include the lessons learned in the current water-related PES experiences to become a response to local realities. Legislation should not only exist on paper, as most of the economic instruments already do within the current environmental legislation, but it should actually be applied in practice.

Nevertheless, several limitations must be overcome in order to allow more legitimate actors to participate in the schemes without causing unfair distributional impacts on local societies. To do this, it is necessary to take into account the unclear land tenure situation in Bolivia and try to adopt criteria that allow fair landowners to enter into the schemes with *de facto* rights, that is to say if these rights are accepted by the local community.

Another aspect that still needs to be addressed is the different approaches towards forestry conservation and the misconception of the ‘socioeconomic function requirement’ that leads to the clearing or deforestation of important areas of forested lands.

Although the legal and constitutional reform process that Bolivia is currently undergoing can be seen as a great chance to address any misunderstandings and conservation approach contradictions, this study shows that the legal and institutional framework has neither precluded nor promoted the use and implementation of water-related PES schemes. In fact, water-related PES history is right now being written as part of a very dynamic and flexible process that goes beyond theoretical requirements and responds to local realities.

ANNEX 1

Los Negros

Background

Fundación NATURA's first water-related payment for ecosystem services (PES) initiative was carried out in Los Negros River watershed in a zone of the Department of Santa Cruz called 'los Valles', or 'the valleys', which borders the Amboró National Park. Although this park is considered one of the most biologically diverse areas in the world, it is constantly threatened 'by illegal land incursions to extract timber and to clear forest for agriculture' (Asquith 2006, Asquith et al. 2008:678).

Los Negros Valley is a downstream agricultural community with a population of 2,970 inhabitants; its year-round irrigated vegetable production is sold in the markets of the cities of Santa Cruz and Cochabamba (Robertson and Wunder 2005:33). This economic activity provides the Los Negros farmers with one of the most prosperous rural incomes of Bolivia (Asquith et al. 2008:676).

The area has a 'cloud forest that appears to be the most important native vegetation type for both water provision and biodiversity protection, covering approximately 4000 ha'. A well-regulated water management system derived from regulations and enforcement measures applies charges and fees to Los Negros irrigators for the management and maintenance of 'irrigation canals that provide water to about 1000 ha of intensively used agricultural [area] in the zone' (Asquith et al. 2008:676).

Santa Rosa, a smaller agricultural community, is 35 kilometres from Los Negros Valley, in the uppermost region of the watershed. Its 1,328 inhabitants are dedicated to cultivating maize and bean production and to extensive cattle grazing (Asquith et al. 2008:676).

During the past decade Los Negros inhabitants have witnessed a decrease in the watershed's water level, which has had negative impacts on agricultural activities as well as on their local economy (Robertson and Wunder 2005:34). Although this decrease is a consequence of different factors such as 'land-use changes [done either by local upstream inhabitants, or by new migrants], higher water off-take (from irrigators upstream due to increased population and more intense cropping), and losses during water distribution' (Asquith et al. 2008:676), Los Negros inhabitants attributed the problem to water diversion and to upland deforestation done in Santa Rosa.

These facts led to a conflict between Los Negros and Santa Rosa, demonstrated by different claims and clashes, such as blocking the access road to Santa Rosa, demanding an end to cutting the forest at the headwaters, and requiring Santa Rosa to establish a well-managed irrigation system (Robertson and Wunder 2005:34, Asquith et al. 2008:676).

Objective of the PES Project

In this context, in 2002 Fundación NATURA began taking steps to establish a pilot bundled scheme in the Los Negros river watershed (Robertson and Wunder 2005:34). This scheme had two goals: to conserve biodiversity and protect the river watershed. The irrigators of Los Negros (the ecosystem services buyers) entered into contracts to compensate farmers of Santa Rosa (the ecosystem services providers) for the protection of the Los Negros River's watershed through 'the prohibition of tree cutting, hunting and forest clearing on enrolled lands' or the reforestation of deforested areas (Robertson and Wunder 2005:34). The compensation agreed by the parties was in kind, consisting in

one bee box for every 10 hectares of cloud forest protected per year.

The project was initiated with only 5 farmers in 2003, protecting 592 hectares. Five years later, 46 families had joined the scheme, protecting 2,774 hectares of pristine cloud forest in exchange for 240 bee boxes, which have produced around 1,000 kilograms of honey that the farmers could sell (Fundación NATURA 2008). This encouraged the communities to construct two centres to facilitate larger-scale commercialization of the honey (Fundación NATURA 2008:3).

Negotiation Process

The negotiation process between upstream and downstream communities was initiated in 2002, after an initial phase of capacity development in Los Negros carried out by Fundación NATURA and after inviting upper watershed landowners to voluntarily enter the PES initiative.

Contracts

The PES scheme in Los Negros was implemented through two types of direct water-related PES contracts, each with a duration of between 1 and 10 years.

Objective

Both contracts have as their main goal the compensation for ecosystem services based on the development of certain land uses, such as forestry protection or restoration activities, in exchange for a payment.

In this context, one of the contracts has as its objective the protection of forests located upstream of the watershed, protecting at the same time the watershed and the existing biodiversity (for bundled PES). The objective of the second type of contract is the forestation of specific deforested lands, which are important for the restoration of the watershed.

Although the title of the contracts suggests that they are PES contracts for 'compensation for the service of sources of water and biodiversity', the contracts did not clearly state whether the objective was to compensate upstream parties only for protecting their forests or if compensation derived from the services provided by their forests (expressly linking the forest protection or reforestation with ecosystem services provided by upstream forests).

Parties to the Contract

In both PES contracts Fundación NATURA acts as a buyer (although according to our understanding, it is an intermediary). The reason for this can be the 'wait and see' approach adopted by the 'potential buyers', due to the initial lack of trust among the participants, who believed that Fundación NATURA would have enough funding to make the future payments (Robertson and Wunder 2005:35).

As a contribution to the scheme, the Municipality of Pampagrande made two payments to purchase bee boxes on behalf of the downstream irrigators, while a small group of irrigators also contributed to the scheme with per diems and food (Asquith et al. 2008:678). These actors were not included in the contracts because a direct-type contract was used, in which only Fundación NATURA appeared as buyer, while the upstream landowner appeared as a seller.

The upper watershed landowners participating in the PES scheme became the sellers of the ecosystem services provided by the forests they protect or the areas they reforested.

Obligations of the Parties

In the case of forest protection, the sellers are required to have a specific behaviour (not to cut trees); the forestation contract, in contrast, requires not only a behaviour towards forest protection but also certain activities – in this case, planning and maintaining a certain amount of new trees.

Ecosystem services buyers have an obligation to pay for the development of the activities or behaviours towards forest protection or rehabilitation, which would be the sources of ecosystem services.

Payments

Both PES sample contracts establish specific amounts as payment for the services. The payment in both cases is made in kind, not in cash – part of a decision taken by the communities involved in the negotiation process. This was done because honey production was seen as a new economic opportunity, while a payment in cash would not be as long lasting (M. T. Vargas, personal communication).

This method of payment could be appropriate for contracts where the landowner or ‘seller’ has to develop activities of forest protection. We do not know, however, if this type of payment method will be appropriate for forestation contracts, in which the ‘seller’ needs to invest in forestation activities and has the obligation to replace dead trees.

The contracts include an initial payment to get involved in the conservation or reforestation activities and provide the rest of the payments based on progress.

Period of Time/Duration

The contracts have a duration that ranges from 1 to 10 years (Asquith et al. 2008:678). The water-related PES contracts elaborated by Fundación NATURA have a duration of 5 years. No automatic renewal has been included. Another renewal contract would be required if the parties want to continue the arrangement.

Securities and Risk Allocation

A specific provision stating that in case of transfer of the land the new owner must continue providing the service was included as part of the contract.

In case of non-compliance, litigation is an option claiming breach of contract; however the penalty is so low and the legal process is so bureaucratic that it might be difficult to initiate a legal claim.

As of now the PES contracts have not been registered. However, as they are intended to guarantee a behaviour in relation to land, one possibility is to register them as easements.

Monitoring, Non-compliance, and Enforcement

Compliance monitoring focuses on the land uses stipulated in the contracts (Asquith et al. 2008:679). The monitoring process is done yearly by a specific project control team, formed by one member of the upstream community’s environmental committee, one member of the downstream community’s environmental committee, one field technician from Fundación NATURA, and the landowner. This team visits the land enrolled in the programme, assessing whether it has been conserved or reforested according to the commitments stipulated in the contracts (Asquith et al. 2008:679).

ANNEX 2

Mairana and Comarapa

Background

Based on the Los Negros experience, in 2007 the municipalities of Mairana and Comarapa in the Department of Santa Cruz took actions to create and implement their own water-related PES schemes for the protection of their watersheds.

Both municipalities are agricultural communities located near Amboro National Park. Their economies are based on irrigated agriculture. This is one reason both communities' economies and the local settlements depend on the services provided by their watersheds – the Chape watershed in Mairana and the Churo Negro watershed in Comarapa.

In both cases Fundación NATURA, the municipality, and the water cooperative of each community agreed to create a private-public fund to develop activities towards the conservation of their watersheds (Fundación NATURA 2008). This private-public water-related PES scheme allows the involvement of future donors or participants. It provided an initial model that was later been adopted by the Comarapa Municipality with the involvement of the local water cooperative, the irrigators association, and Fundación NATURA.

The cooperative's contributions to the seed fund derived from a monthly amount provided by the water users and members, who after a democratic and participatory process decided to 'contribute a minimal additional amount to their monthly water bill in order to protect their water supplies' (Fundación NATURA 2008:5).

This private-public PES scheme was also adopted by the Los Negros Community in December 2007, as a second step after the initial PES scheme in that community. It is expected to be expanded to other municipalities such as Samaipata, Saipina, and San Isidro (Fundación NATURA 2008:6).

Negotiation Process

The establishment of PES schemes for Mairana and Comarapa was the result of a participatory process that benefited from the active involvement of local water users, their water supply cooperatives, and municipal authorities.

In Mairana, the water cooperative (COOSMAI) members decided to establish a fund in an extraordinary meeting. On this occasion the cooperative members authorized a 7 per cent increase in the water bill, with an additional charge based on each family's monthly consumption (Fundación NATURA 2008:6).

Similarly, members of the Caballero Public Services Cooperative of Comarapa decided in November 2007 to create a seed fund for the protection of the Churo Negro River watershed. The cooperative members authorized a 15 per cent increase in the water tariff based on monthly water consumption. Since January 2008, the cooperative has begun to include the additional charge in the water bill. It is hoped that this will raise around \$4,702 per year (Fundación NATURA 2008:6).

After the cooperative members' decisions to increase their water bills for the conservation of their watersheds, the two water cooperatives, Fundación Natura, and the Municipalities of Mairana and

Comarapa entered into specific 10-year agreements ‘to contribute and to strengthen the local compensation for ecosystem services fund to protect their watersheds’.

PES Agreement

As the agreements in Mairana and Comarapa are similar, only the Comarapa agreement is described here.

Objective

The objective of the agreement is to conserve the Churo Negro River watershed in order to ensure the necessary conditions to provide long-term water quantity and quality to Comarapa. The conservation goal will be achieved through the development of different activities, undertakings, and projects.

Parties to the Contract

All the parties to this agreement were institutional: the Municipality of Comarapa, the Caballero water supply cooperative, and Fundación NATURA.

The agreement is open to new parties. It implies that new institutions might become parties to the agreement after being accepted in the Meeting of the Parties. Non-acceptance requirements have been established within the agreement.

Obligations of the Parties

The agreement established the obligation of the parties to provide funding for the creation of a conservation fund. The Municipality of Comarapa, based on the authority derived from the Bolivian Municipal Law, created through Municipal Resolution No. 07/2008 a specific budget for the conservation of the Churo Negro River watershed for 10 years.

Fundación NATURA committed to providing some funds in cash and in kind through technical assistance for three years. Fundación NATURA also committed to carry on fundraising activities to achieve the project’s goals. At the same time, the water cooperative, on behalf of the Comarapa’s water users, committed to assign some funding to the ‘ecosystem services fund’ from charges monthly applied to its associates/users. These charges have been for the specific purpose of ‘ecosystem services’.

The agreement conferred on the cooperative the duty to carry out all the activities and projects required to guarantee the conservation of the watershed. For this purpose, the cooperative had the obligation to open and manage an ‘ecosystem services’ bank account with the funds deposited by itself, by the municipality, and by Fundación NATURA, as well as any fund provided by a future donor.

Based on this responsibility, the agreement imposed on the cooperative the obligation of using the resources only for watershed protection purposes, elaborating and presenting expenditure and use activity reports to the Comarapa Municipality every six months, presenting an annual audit in accordance to the basic regulation for goods and service administration, and complying with all municipal regulations related to municipal financial resources expenditure.

Payments

Considering that the purpose of the agreement is the establishment of a fund to develop actions for the protection of the watershed, the agreement does not establish payment methods for PES trans-

actions but for the creation of an environmental protection fund.

Period of Time/Duration

The conservation agreement has a duration of 10 years. There is an automatic renewal provision if the parties of the agreement continue complying with their own obligations after the conclusion of the agreement.

Monitoring, Non-compliance, and Enforcement

The conservation agreement includes the option of auditing the activities carried out by the cooperative to ensure the transparency of its actions. This annual audit has to be presented to the municipality, and its rejection could lead to termination of the contract.

Either the municipality or Fundación NATURA might leave the agreement if the annual audit or periodic reports demonstrate that the cooperative did not use the seed fund resources for watershed protection. This means implementing protection activities or undertakings according to what was decided in the Meeting of the Parties, the decision-making body set up in the agreement.

No sections in the agreement explain what would happen in case of non-compliance by Fundación NATURA or the municipality.

Dispute Resolution

The agreement included arbitration as a way to resolve controversies. In case of arbitration, the cost of the process will be charged to all the involved parties.

ANNEX 3

ICO – The Water Planting Project

Between 1992 and 1997 the Eastern Training Institute, a rural NGO, designed a strategy to influence local people from the valleys to create private protected areas around their water sources as a means to guarantee their water provision. This initiative resulted in the protection of 11 micro watersheds in the provinces of Vallegrande and M.M. Caballero within the Department of Santa Cruz, with a total surface of 534 protected hectares.

The first ICO initiative, called ‘the Water Planting Project’, was implemented in La Aguada, a small community in the semiarid valleys of Santa Cruz that has suffered due to cattle ranching expansion, deforestation, and climate change (Robertson and Wunder 2005:48). The cattle used to use the land for grazing and for access to river water, affecting water quality and the existing cultivation parcels in the area. This situation created a conflict between farmers, water users, and cattle ranchers.

Based on the ‘assumption that less grazing and more natural vegetation cover around the headwaters of the river would lead to more stable and better quality water’, this strategy involved a three-step process: ‘the protection of the headwaters of the watershed by fencing areas bordering the river or creek’, which stopped cattle from grazing in the protected area and drinking from the stream; reforestation activities; and the creation of private legally protected areas not connected to any national or departmental protected area. The reforestation plan was replaced, however, by natural revegetation of the recently protected areas.

After an environmental campaign focused on the importance of water, ICO involved landowners, cattle ranchers, the local water cooperative, and the municipality of the affected area as active parties in the project.

This initiative did not involve regular payments for ecosystem services but instead a direct, one-time purchase of land that would be enclosed for ecosystem service protection, as well as construction of both a drinking pool outside the enclosed area and connecting bridges to compensate cattle ranchers, ensuring that the cattle would have an alternative source of water (Robertson and Wunder 2005:49). The purchase of the land to create the protected area did not, however, involve the transfer of land. It was a type of easement over the land, with the landowner maintaining ownership (Robertson and Wunder 2005:49).

Although community landowners did not have formal titles over their lands, the continued and peaceful use of the land was accepted as valid proof of possession prior to certification by the local authority.

According to the project developers, the water flow of La Aguada stream increased by 38 per cent over 31 months after the water sources were fenced (ICO 2004).

References

Alurralde, Juan Carlos. 2005. *After the Water Wars: The Search for Common Ground*. Ottawa: International Development Research Centre.

Asquith, Nigel. 2006. 'Bees and Barbed Wire for Water on the Bolivian Frontier.' *PERC Reports* (Property and Environment Research Center). 24 (4).

Asquith, Nigel, and Maria Teresa Vargas. 2007. 'Fair Deals for Watershed Services in Bolivia.' *Natural Resource Issues* No. 7. London: International Institute for Environment and Development.

Asquith, N., and S. Wunder. 2008. *Payments for Watershed Services- The Bellagio Conversations*. Santa Cruz, Bolivia: Fundación NATURA.

Asquith, N. M., M. T. Vargas, and S. Wunder. 2008. 'Selling Two Environmental Services: In-kind Payments for Bird Habitat and Watershed Protection in Los Negros, Bolivia.' *Ecological Economics* 65 (4): 675–84.

Bustamante, Rocio, and Alfredo Duran. n.d. *Servicios Ambientales Hídricos: Análisis del Marco Legal y de Políticas en Bolivia*. Centro Andino para la Gestión y Uso de Agua (Centro-AGUA). Cochabamba, Bolivia: Universidad Mayor de San Simón.

Fundación NATURA. 2008. 'Small Addition to the Water Bill, Big Step for Conservation: Fund Creation to Protect Watersheds.' *NATURALIA* summer newsletter. Santa Cruz, Bolivia.

Gudynas, Eduardo. 2007. *Desarrollo Sostenible y Gestión Ambiental en la Nueva Propuesta Constitucional de Bolivia*. Semanario Peripecias, Centro Latino Americano de Ecología Social, (online publication), available at www.peripecias.com/ambiente/491GudynasBoliviaDesaSust.html.

Miranda, C. 2004. 'Cultural Aspects and Vision of Water Use and Management.' Presentation at Fundación Natura/IIED workshop, Santa Cruz, Bolivia.

Muller, Robert. 2005. *Priorización de Cuencas Bolivianas para la Implementación de Sistemas de Compensación por Servicios Ambientales (CSA)*. Santa Cruz, Bolivia: Fundación NATURA.

NDP (National Development Plan). 2006. *Plan Nacional de Desarrollo 2006-2010: Bolivia Digna, Soberana, Productiva y Democrática para Vivir Bien*. Available at www.planificacion.gov.bo/BANNER/PARA%20PAG%20WEB/pnd1.html.

Pacheco, Pablo. 2003. *Municipalities and Local Participation in Forest Management in Bolivia*. Ottawa: International Development Research Centre.

Pacheco, Diego. 2006. *El Rol de los Derechos de Propiedad en Bolivia: Su Impacto en la Promoción o Restricción de las Iniciativas de Compensación Por Servicios Ambientales Hídricos*. Santa Cruz, Bolivia: Fundación Natura.

PBS (Public Broadcasting System). 2002. 'Timeline: Cochabamba Water Revolt.' June.

Pinto, Paulina, and Julian Torrico. 2008. 'Local Funds for Environmental Services on Track.' *NATURALIA* winter newsletter. Santa Cruz, Bolivia: Fundación Natura.

Robertson, N., and S. Wunder. 2005. *Fresh Tracks in the Forest: Assessing Incipient Payments for Environmental Services Initiatives in Bolivia*. Bogor, Indonesia: Center for International Forestry Research.

Ruhl, J. B., Steven E. Kraft, and Christopher L. Lant. 2007. *The Law and Policy of Ecosystem Services*. Washington, DC: Island Press.

Shultz, Jim. 2000. 'Bolivia's Water War Victory.' *Earth Island Journal*. September 22.

Vargas, Ma. Teresa. 2005. *Decentralisation and Local Governance in Bolivia: A Literature Review*. Santa Cruz, Bolivia: Fundación NATURA.

Wunder, S. 2005. *Payments for Environmental Services: Some Nuts and Bolts*. Occasional Paper No. 42. Bogor, Indonesia: Center for International Forestry Research.

Bolivian Legislation

Código Civil No. of 1975 (Gaceta Oficial de Bolivia No. 800)

Constitución Política del Estado of 1994, reformulated through Ley No. 2654 de 13 de abril de 2004 (Gaceta Oficial de Bolivia No. 2589)

Constitución Política del Estado, October 2008 (National Congress)

Ley de Aguas No. 2811 of 1906 (not published in the Gaceta Oficial de Bolivia)

Ley de Descentralización Administrativa No. 1654 of 1995 (Gaceta Oficial de Bolivia No. 1894)

Ley Forestal No. 1700 of 1996 (Gaceta Oficial de Bolivia No. 1944)

Ley General de Sociedades Cooperativas No. 535 of 1958 (not published in the Gaceta Oficial de Bolivia)

Ley de Inscripción de Derechos Reales of 1887 (not published in the Gaceta Oficial de Bolivia)

Ley de Medio Ambiente No. 1333 of 1992 (Gaceta Oficial de Bolivia No. 1740)

Ley de Municipalidades No. 2028 de 28 de Octubre de 1999 (Gaceta Oficial de Bolivia No. 2177)

Ley de Organización del Poder Ejecutivo No. 3351 of 2006 (Gaceta Oficial de Bolivia No. 2863)

Ley de Participación Popular No. 1551 of 1994 (Gaceta Oficial de Bolivia No. 1828)

Ley de Promoción y apoyo al Sector Riego No. 2878 of 2004 (Gaceta Oficial de Bolivia No. 2669)

Ley del Servicio Nacional de Reforma Agraria No. 1715 of 1996 (Gaceta Oficial de Bolivia No. 1954)

Ley de Reconducción Comunitaria de la Reforma Agraria No. 3545 of 2006 (Gaceta Oficial de Bolivia Edición Especial No. 93)

Plan Nacional de Desarrollo 2006-2010: *Bolivia digna, soberana, productiva y democrática para Vivir Bien*

Política Nacional para la Gestión Integral de los Bosques, 2008

Políticas Públicas de Desarrollo Sostenible para el Departamento de Santa Cruz of 2007

Política Pública Departamental para el Reconocimiento de los Servicios Ambientales del Bosque of 2007

Reglamento General de Areas Protegidas D.S. No. 24781 of 1997 (Gaceta Oficial de Bolivia No. 2019)

Reglamento General de Gestión Ambiental DS. No. 24176 of 1995 (Gaceta Oficial de Bolivia No. 1914)

Reglamento General de Ley Forestal D.S. No. 24453 of 1996 (Gaceta Oficial de Bolivia No. 1971)

Interviews

Ricardo Aguilar, Environmental Protection of Tarija

Karen Garcia, Ministerio de Desarrollo Rural, Agropecuario y Medio Ambiente

Robert Muller, Asociación Boliviana para a Conservación

Joerg Seifert-Granzin, Fundación Amigos de la Naturaleza

Bruno Soliz, Centro de Investigación Agrícola Tropical

Maria Teresa Vargas, Fundación NATURA

Stephan Von Borries, Prefectura del Departamento de Santa Cruz

Annex III: Colombia Report

(September 2008)

Legal disclaimer: The information contained in this report is for general informational purposes only. Laws, rules and regulations may have changed since the writing of this report, and the application of such laws, rules, or regulations will, in any case, vary widely depending upon the particular facts and circumstances involved. Accordingly this report should not be construed to contain legal, accounting, tax or other professional advice. The IUCN Environmental Law Centre and Forest Trends, Katoomba Group, are not responsible for any errors or omissions in the report, and make no representations as to the accuracy, completeness, or timeliness of the information contained herein.

Table of Contents

List of Acronyms	191
Executive Summary.....	193
1. Introduction	195
2. Legal and Institutional Frameworks Regarding Water PES Schemes	196
2.1 Legal Framework.....	196
2.1.1 Constitution.....	197
2.1.2 Specific PES Legislation	198
2.1.3 Ecosystem-related Legislation.....	200
2.1.4 Indirectly Relevant Legislation	203
2.1.5 Pros and Cons of Having or Not Having Specific PES Legislation.....	205
2.2 Institutional Framework	206
2.2.1 National Environmental System.....	207
2.2.2 Institutions Involved at All Levels.....	207
2.2.3 Institutional Strengths and Weaknesses	210
2.2.4 Appropriate Scope of PES.....	210
3. Property Rights Issues.....	211
3.1 Ownership of Land, Natural Resources, and Ecosystem Services	211
3.2 Transfer and Inheritance Issues.....	212
3.3 Collective Property Rights	212
4. Negotiation	214
5. Contractual Issues.....	215
5.1 Contractual Provisions	215
5.1.1 Description of the Nature and Objective of the PES.....	215
5.1.2 Contracting Parties	215
5.1.3 Rights and Obligations of the Parties	216
5.1.4 Payment Structure	217
5.1.5 Contract Period.....	218
5.1.6 Property Rights Issues	218
5.1.7 Securities and Risk Allocation.....	219
5.1.8 Conflict Resolution.....	219

5.2	Fiscal Implications of Deriving Income from the Sale of Ecosystem Services.....	219
5.2.1	Income Tax.....	220
5.2.2	VAT	220
6.	Monitoring, Non-compliance, and Enforcement	220
7.	Good Governance	222
8.	Conclusions	222
ANNEX 1	.....	225
Background Description.....	225	
Analysis of the Case.....	227	
ANNEX 2	.....	229
Background Description.....	229	
Analysis of the Case.....	229	
ANNEX 3	.....	231
Background Description.....	231	
Analysis of the Case	231	
ANNEX 4	.....	233
Background Description.....	233	
Analysis of the Case	234	
References and Bibliography	.....	237

List of Acronyms

CAR	Autonomous Regional Corporation
CCIF	Forest Conservation Incentive Certificate
CIPAV	Centro para la investigación en sistemas sostenibles de producción agropecuaria
CONPES	National Council for Economic and Social Policy
CVC	Cauca Valley regional environmental authority
IDEAM	Instituto de Hidrología, Meteorología y Estudios Ambientales
NGO	nongovernmental organization
PES	payment for ecosystem services
RCIF	Reforestation Incentive Certificate
SINA	National Environmental System
VAT	value-added tax

Executive Summary

In Colombia, there is a national legal framework for the conservation of the environment and water resources. This framework includes provisions contained in the Political Constitution, the National Renewable Natural Resources and Environmental Code, the Environmental Law (Law 99 of 1993), and their implementing regulations. Also, this legal context established the institutional framework (the National Environmental System) needed to implement these obligations at all levels of management.

Through this environmental legal framework, Colombia has since the 1990s adopted different policies, plans, and programmes that propose actions for adequate water resources management. This includes measures for conservation, restoration, and sustainable use of critical ecosystems and ecosystem services that support the hydrological cycle. Despite this framework, the outlook for hydrological issues in Colombia is not encouraging. For example, deterioration of *páramos* (high mountain) ecosystems, the loss of forest cover, the impact on hydrological systems, the climatic conditions in some regions, and decreasing state investment create a situation that requires urgent measures to prevent water crisis in the short term in the region.

Since 2007, public and private (national and international) environmental institutions have been working to formulate a payment for ecosystem services (PES) national strategy. This aims to introduce PES as a tool to achieve the objectives of environmental policies and promote their articulation with existing technical, economic, and legal instruments. Due in part to a lack of understanding of how PES can be compatible with the existing legal and institutional framework, Colombia has not broadly used the PES approach, and thus the formulation of a regulatory framework to facilitate the implementation of PES was considered relevant.

This document analyzes and evaluates how Colombia's current regulatory framework contributes or restricts PES initiatives on hydrological services throughout the National Environmental System. It also includes an institutional frame analysis with emphasis on the roles of different stakeholders and the required adjustments necessary to facilitate the execution of this type of scheme. The document evaluates the constitution as well as different laws that have a direct or indirect impact on water-related PES schemes. Furthermore, it looks into property rights and contractual issues, as well as ecosystem services monitoring and good governance during the implementation of water-related PES schemes. Finally, this report uses the lessons learned in the reviewed water PES case studies (see Annexes) to illustrate specific topics of the analysis and how these aspects are treated in each case.

1. Introduction

The Republic of Colombia is located in South America. Its area is 1,141,748 km², and it has 41.1 million inhabitants (77 per cent urban, 23 per cent rural). Colombia is ethnically diverse, and prominent populations include indigenous people (785,000), black or Afro-Colombian people (4.2 million), and San Andean Raizals (300,000). Colombia has 35.6 million hectares of collective territories, 31.3 million hectares of 638 indigenous territories (*resguardos*), and 4.3 million hectares in 113 land titles of Afro-Colombian-owned lands.

The Republic of Colombia is administratively divided into 32 departments, which are subdivided into 1,119 municipalities and 10 districts assigned to major cities. It has a Presidential government system and a balance of powers between executive, legislative, and judicial branches. The President, Senators, Governors (executive heads of departments), and Mayors (executive heads of municipalities and districts) are elected every four years. In 2006, Colombia had a gross domestic product of US\$113.3 billion (\$3,229 per capita) and an annual inflation rate of 4.48 per cent.

Colombia is recognized as one of the world's most highly biodiverse countries. Two regions of the country are among the 25 terrestrial hotspots of high conservation priority: Chocó–Darién–Western Ecuador and the Tropical Andes (Myers et al. 2000). Colombia is globally recognized for its richness in taxonomic groups of certain species, including birds, primates, and plants. However, the country suffers from significant decline and deterioration of its natural ecosystems and biodiversity. The annual deforestation rate is nearly 118,000 hectares (IDEAM 2008). Meanwhile, the agricultural and pasture frontier continue to advance, affecting the soils suitable for forestland. In the last 15 years, pastures have expanded by 5–10 per cent.

These activities have resulted in the rapid conversion and degradation of the original ecosystems, with subsequent biodiversity loss, reduction in quality and amount of water resources, and soil degradation, accompanied by extractive and productive practices that have harmed the natural environment. It is thus imperative to implement new approaches to halt natural degradation and simultaneously address the dynamics of economic development. Payment for ecosystem services (PES) is an economic instrument that recognizes and rewards landholders who value the benefits that ecosystems provide to society. PES is an instrument that could contribute to reducing the country's degradation of its natural resources.

Colombia has significant experience in the use of economic instruments for environmental protection. Examples include implementing instruments such as water pollution and water use charges, environmental taxes and contributions, and, recently, tradable air pollution quotas. Although PES pilot projects have been implemented in Colombia (Blanco et al. 2008), the country has not broadly used the PES approach, in part due to the lack of understanding of how PES can be compatible with the existing legal and institutional framework.

The first step to propose a systematic effort to implement PES at a national level was taken by the Ministry of Environment, Housing, and Territorial Development in 2007 through the development of a Draft National Strategy for the Payment for Ecosystem Services.¹ This proposal has been under

¹ For reasons of consistency, the term 'ecosystem services' is used in this document as a translation from the Spanish 'servicios ambientales'.

discussion in the environmental sector since September 2007 and is a result of the legal mandate of Law 1151 (July 2007), which adopted the National Development Plan 2006–2010. This plan establishes the commitment of the Ministry of Environment, Housing, and Territorial Development to design and develop economic and financial instruments to encourage the knowledge, conservation, and sustainable use of biodiversity, including the mechanisms needed to create a payment system for ecosystem services in Colombia.

This document analyzes the legal and institutional structure in Colombia for water-related PES schemes. It draws on the analysis of experiences of several pilot projects (see Table 1), as well as on proposals in the Draft National PES Strategy.

Table 1: Cases of PES Related to Water Ecosystem Services Reviewed in Colombia

Project	Ecosystem Service	Location	Status
Chaina Watershed	Water quantity	Villa de Leyva Municipality	Payments started
Water Users Associations	Water quantity and quality	Cauca Valley Department	Payments started
Munichique – Pinche Conservation Corridor	Water quantity	Cauca Department	Initiative in design – no payments started
Andean Watershed Project – Fúquene Lagoon	Water quality	Cundinamarca Department	Payments started

Detailed analyses of each of the cases studied are presented in the Annexes. To complement the experiences of the cases evaluated, this report also presents other information on new initiatives in the early phase of design, such as the Conservation Corridor of Bogotá (a project combining the Clean Development Mechanism of the Kyoto Protocol, water PES, and Reducing Emissions from Deforestation and Degradation programmes).

2. Legal and Institutional Frameworks Regarding Water PES Schemes

This section presents an overview of the legal and institutional framework related to PES schemes. The legal framework includes analysis of relevant sections of the Political Constitution as well as of specific laws and regulations. The institutional framework identifies at different management scales the public institutions with functions related to PES and the role of private parties and nongovernmental organizations (NGOs) in PES transactions.

2.1 Legal Framework

An analysis of the legal basis for water-related PES must commence by identifying the nature and treatment of natural resources in the Constitution. Also, Colombia's legal framework for the conservation of the environment and natural resources at the national and provincial level has to be analyzed, since it includes relevant provisions—for example, in the National Renewable Natural Resources and

Environmental Code, the Environmental Law (Law 99 of 1993), and their implementing regulations.

In general, it can be said that while the instruments and obligations of the public institutions responsible for natural resources management have been firmly established in many cases, these are insufficient for achieving environmental goals. As a consequence, third parties often need to participate in natural resources management in order to reach goals and objectives. In this context, the design and implementation of innovative policy instruments, such as PES schemes, promise to facilitate joint conservation efforts by the state, civil society, and the private sector.

Thus PES has a great potential to contribute to the fulfillment of the goals of conservation, restoration, or rehabilitation of the ecosystem services that support the different national environmental policies and their normative and planning instruments. By increasing the appeal of conservation practices with land managers such as farmers, PES may succeed where other conservation approaches have failed.

2.1.1 Constitution

Since the United Nations Conference on the Human Environment in Stockholm in 1972, the political, legal, and economic valuation of natural resources has grown, as evidenced by the development of the first environmental statutes for the conservation and sustainable use of these resources in Colombia (in particular, the National Renewable Natural Resources and Environmental Code). But the real political recognition of environmental issues in Colombia took place through the adoption of the Political Constitution of 1991, which established the objective of achieving sustainable development. As the Colombian Constitution contains 34 provisions regarding environmental issues, it is recognized as an 'ecological Constitution'. As such, it includes different provisions and principles that have a direct or indirect impact on the development of PES schemes.

First of all, it is necessary to understand that according to Article 8 of the Constitution, the country's natural resources are the property of the state and that the ecosystem services provided are subsequently considered national property as well. This does not prevent the development of PES schemes, however, as the analyzed PES cases show, since the payments are not necessarily made for the natural resource or the corresponding ecosystem service *per se*. Instead, payments are made for activities or land uses that have a direct impact on the increase, maintenance, or provision of an ecosystem service. As a consequence, the state as the owner of the ecosystem services plays a key role in the development of PES schemes, but it is not necessarily the only seller of the services.

Furthermore, it is important to understand three main principles in the Constitution:

- Environmental protection as a constitutional goal and joint obligation of the state and citizens;
- A healthy environment as a basic right of citizens; and
- Public participation as a procedural requirement.

These three principles, especially the joint obligation of the state and individuals to protect the cultural and natural richness of the nation, support collaboration in the protection of the environment and the conservation of its natural resources. Such collaboration is beneficial for the development and implementation of PES schemes.

Finally, while the Colombian Political Constitution establishes the responsibility of citizens and the

state to participate jointly in activities required to conserve and restore the natural resources and their ecosystem services, it is the legal responsibility of the state to define the mechanisms, such as PES schemes, to facilitate and carry out this constitutional obligation.

2.1.2 Specific PES Legislation

Although the Colombian legislation does not contain a specific PES law, it does include two laws that use PES-like instruments.

Decree 900 of 1997

Decree 900 was adopted in April 1997. It foresees the instruments of Forest Conservation Incentive Certificates (CCIF), which were designed to promote natural forest conservation, as well as Reforestation Incentive Certificates (RCIF), which were designed for productive forest activities, such as plantations.

CCIF is based on the idea of paying for positive externalities that natural forests provide in terms of carbon storage or water, soil, and biodiversity-related services. It is an attempt to address the considerations of forest owners as they assess the costs and benefits of forest protection compared with alternative uses of their forestland that would lead to forest degradation. CCIF therefore recognizes the landowners' direct or indirect costs to conserve natural forest ecosystems (with little or no human intervention).

In this sense, CCIF is designed to stimulate forest conservation on private properties (it does not apply to public lands) by financially rewarding landowners who choose to conserve natural forest and by recognizing the costs and efforts associated with their decision. Payments are to be based on an estimate of costs and available resources.

However, implementation of CCIF has not been successful due to different issues, such as poor technical design and the lack of available funding streams to support the incentive system for the proposed period of execution (10 years). Evaluated by numerous entities and experts, the following key weakness and conclusions have been identified:

- Financial uncertainty regarding the availability of funds for financing the instrument during the period of execution;
- A failure to differentiate between the different requirements of regional and local actors to achieve the conservation goals (the proposed opportunity costs are uniform in practice for all economic actors, regardless of scale, rather than having the regional environmental authorities determine the adequate value of CCIF based on the regional and local socioeconomic studies and the status of ecosystems in their jurisdiction);
- Lack of technical resources (capacity and adequate professional profiles) and financial resources in certain environmental authorities that would allow appropriate implementation and monitoring of forest ecosystems conservation programmes;
- Lack of updated information on forest cover in many environmental authorities to establish priorities for intervention areas; and
- Lack of capacity among national entities to understand the potential of CCIF as a mechanism for co-financing conservation activities involving the productive sectors interested in ecosystem ser-

vices (e.g., water supply, control of the erosion and sedimentation process, landscape-seascape beauty, etc.).

CCIF's budgetary constraints are due to the limited political will and influence of the Minister of Environment in the National Council for Economic and Social Policy (CONPES) (the Ministers Council). This is proved by the fact that CONPES has allocated sufficient annual funds for implementation for RCIF (the incentive for commercial reforestation, which is under the domain of the Ministry of Agriculture) since its establishment.

Regarding the weak technical design of CCIF, this could be improved in the future by limiting the scope at which it is applied. So far, the incentive has been paid for many properties that are widely dispersed. As a consequence, it has often been difficult to assess the incentive's true impact on a particular watershed or region. In the future, the incentive should be paid for a variety of sites throughout the country, but priority should be given to regional intervention areas that are critical for an ecosystem service that has been identified as an environmental objective.

For example, CCIF could focus on watersheds or natural areas under threat of deforestation or suffering from hydrological problems, such as projected deterioration of water quality (for example, from sediment buildup). Another factor to consider in setting priorities for investment incentives could be areas that allow the consolidation of regional or local conservation systems through demarcating boundaries and effectively establishing and linking protected areas and biological corridors. Within such protected areas, the conservation of soils identified in the municipal land use planning could also be given priority.

In order to introduce this changed focus of the CCIF, Decree 900 does not necessarily have to be changed, as shown in the case of RCIF. Over the past three years, the Ministry of Agriculture also changed its focus and limited RCIF to regions with already established forest production chains, thus those areas suitable for commercial reforestation. For this, no legislative changes were needed.

Law 1151 of 2007

The second law explicitly related to PES in Colombia is Law 1151 of 2007 (National Development Plan), which authorizes the Ministry of Environment, Housing, and Territorial Development to design and develop economic and financial instruments to encourage the knowledge, conservation, and sustainable use of biodiversity, including the mechanisms needed to create PES in Colombia. This legal framework is the basis for the formulation, adoption, and implementation of a PES National Strategy by the Ministry, which is still under discussion.

So far, only a Draft National PES Strategy exists. It calls for the establishment of an operative framework for PES with a National Environmental System (SINA) on the one hand and decentralized environmental management on the other hand. Accordingly, PES development and implementation would be financed through national resources using an adequate centralized financial mechanism, but the payments would be made for regional or local PES schemes or projects. Nevertheless, national participation would be important not only for the provision of financial support but also to demonstrate the necessary political support and establish national priorities.

The Draft National Strategy acknowledges that PES schemes and projects may involve private as well as public entities and resources, an arrangement that implies distinctions in the objectives of the

operational framework.

- In PES schemes or projects promoted by the private sector, the operative framework needs to be designed to guarantee compliance with existing legal obligations towards nature conservation and management as well as sustainable water use; thus the project must contribute to the fulfillment of the objectives and goals of national and regional environmental policies.
- In PES schemes or projects with the participation of public entities, the operational framework needs to seek the same goals but also an efficient investment of public resources in order to guarantee transparency in payments and prevent corruption. In addition, the public entities need juridical security to support their activities and, as such, they require clear procedures and methodologies for making payments for ecosystem services.

Despite these distinctions, the Draft Strategy allows for participation of both public and private organizations and stakeholders in the implementation of PES initiatives. Execution and procedures will differ somewhat depending on the particular participants (involvement of public or private entities, local community organizations, or indigenous groups) and the nature of the financial resources (public, private, or a mix).

2.1.3 Ecosystem-related Legislation

While a national PES strategy or related legislation does not currently exist, and while Decree 900 of 1997, which introduces CCIF as a PES-like instrument, suffers from several weaknesses, other legislation does exist that is directly related to certain ecosystems and therefore has the potential to facilitate the development and implementation of PES initiatives, as proved by the PES cases evaluated in this report.

The so-called ecosystem-related legislation is developed by the Ministry of Environment, and it introduces directives to the regional environmental authorities in order to facilitate implementation of national environmental laws and policies at the regional and local territorial levels. While there is no explicit mention of PES, in many cases the ecosystem-related legislation introduces different tools and economic instruments that support both conservation and rehabilitation (or restoration) of ecosystem services.

Law 99 of 1993

First of all, Law 99 of 1993 has to be mentioned in this context. It calls on the Ministry of Environment to formulate and approve national environmental policies and their subsequent regulations. Furthermore, it establishes the responsibility of the National Research Institute of SINA to identify, locate, characterize, and assess different types of ecosystems and their natural resources. As a consequence, an *Annual Report on the Status of Natural Resources and the Environment* is developed at the national level that provides a tool to define priorities to assess and identify the ecosystem services that require different interventions. This report, along with other available information, is used by regional environmental authorities to establish regional priorities.

Also, Law 99 of 1993 promotes the use of a variety of compliance tools and instruments, such as economic incentives, tax reductions, and compensation mechanisms. These initiatives are further supported by existing environmental policies (pertaining to forests, coastal zones, biodiversity, wetlands, protected areas, etc.) and through regulations that propose the use of economic and financial

instruments with the participation of all stakeholders of SINA. While PES schemes (as a new market-based approach) are not specifically mentioned in Law 99 of 1993, they can nevertheless fall under and be supported by this law.

Forest Legislation

Decree 1791 of 1996 establishes the obligation of the regional environmental authorities to formulate forestry ordering plans for natural forests and to grant permits for the use of forest resources in their jurisdiction (jurisdiction over commercial plantations lies with the Agriculture Ministry and its authorities). Also, it proposes the payment of taxes as a compensation mechanism for the use of forests and their resources. However, this mechanism is not yet clearly regulated by the Ministry of Environment.

Following Decree 1791 of 1996 and based on the legal mandate of Law 99 of 1993, in 2000 Colombia adopted the National Forest Development Plan. This incorporates in its conceptual framework and programmes (regarding zoning, conservation, and restoration of forest ecosystems) the importance of the services provided by forest ecosystems. In its Financial Sustainability Strategy, it therefore includes the following considerations that do not specifically mention PES schemes but that nevertheless build a potential basis for their development:

- Identification of financial sources and resources related to forestry and the forest sector;
- Incorporation of other actors, mechanisms, and productive and financial schemes to improve available resources and generate environmental and financial benefits through forestry activities; and
- Negotiation of access to multilateral funds and/or international technical cooperation through the Forest Investment Portfolio and a related instrument.

Protected Areas Legislation

Another thematic aspect to consider is protected areas legislation. As protected areas were legally defined more than 30 years ago, Colombian law does not specifically mention the ecosystem services they provide. The concept of protected areas management and conservation categories was introduced in legislation in 1974, included in the National Renewable Natural Resources and Environmental Code, and regulated by a National Park System in Decree 622 of 1977.

In recent efforts to adjust this legal framework, SINA has introduced a new proposal to define and make the necessary arrangements to establish the National Protected Areas System (in view of the mandate of Law 99 of 1993 and with the underlying principle that the system results in more than national parks). A Memorandum of Understanding between Conservation International, The Nature Conservancy, the World Wilde Fund for Nature, and the Ministry of Environment has proposed a Draft Action Plan for the National Protected Areas System; the Ministry of Environment is leading this effort.

The draft document proposes a specific objective regarding water PES schemes: namely, to 'maintain the natural and semi natural vegetative cover and environmental conditions necessary to regulate the water supply, prevent and control erosion and sedimentation, as well as to ensure air quality'.

A study entitled *Value of the Provided Services of the National System of Natural Parks to National*

Economy provides the technical basis and foundation for this objective. It indicates that national parks supply water resources directly to 31 per cent of the Colombian population and indirectly to another 50 per cent. Also, protected areas encompass four of the six source areas of the country's major watersheds and more than 62 per cent of groundwater recharge areas. Furthermore, national parks protect 7 per cent of wetlands and provide 20 per cent of water resources that supply electricity to the country. Finally, 176,745 hectares of the total irrigation districts of the country rely on water sources from national parks (Carriazo et al. 2003). The study also suggests that conservation of natural vegetation in national parks can result in adequate water regulation and a decrease in sedimentation, which reduces the costs of water treatment for municipal water supply systems (estimated at US\$1.4 million per year) (Carriazo et al. 2003).

Despite the economic value of water-related ecosystem services provided by the National System of Natural Parks, there is no specific PES regulation that recognizes how payments of benefits could strengthen conservation activities in protected areas.

Law 1151 of 2007

Law 1151 of 2007 can also influence the development and implementation of PES schemes. It regulates the legislative authorization to allocate budgets for water PES initiatives. Under Article 106 of its law, municipalities and departments are obligated to invest no less than 1 per cent of their ordinary income in the acquisition and maintenance of zones important to water supply for municipal or district aqueducts or to finance PES schemes.

Planning Instruments

Several planning instruments have further potential to influence the development of PES schemes and projects.

First, Law 152 of 1994 introduces strategic national and regional planning tools. At the national level, the National Development Plan is the administrative vehicle through which PES projects may be incorporated in national budgets. Furthermore, the decrees 1865 of 1994 and 708 of 2001 foresee the development of Regional Environmental Plans (over 10 years) and tri-annual Action Plans for which the regional environmental authorities are responsible. These plans may include PES initiatives, but only if it is feasible to invest resources in their execution.

The second planning instrument is the development of environmental technical plans, including watershed management plans (Decree 1729 of 2002), forestry plans (Decree 1791 of 1996), the development of environmental management plans for *páramos* or high mountain ecosystems (Resolutions No. 769 of 2002 and 839 of 2003), and plans for mangroves (Resolution No. 721 of 2002), wetlands (Resolutions No. 157 of 2004 and 196 of 2006), and protected areas (with different rules depending on the type of protected area). Such environmental technical planning supports the more strategic planning just mentioned.

For example, Law 99 of 1993 highlights the ecological importance of *páramo* ecosystems, which are critical to water supply, and guides SINA's activities towards their conservation and sustainable use. This has supported the formulation and approval of the National High Mountain Ecosystem (*Páramos*) Programme of 2002 and the development of a specific regulatory framework for these ecosystems (Resolutions No. 0769 of 2002 and No. 0839 of 2003). This framework defines the activities

necessary to elaborate and update the inventory and assessment of *páramos* in Colombia and introduces environmental planning instruments (an Environmental Management Plan) to be developed by regional environmental authorities. These instruments again can support the identification of regional priorities to implement water-related PES initiatives and support technical measures proposed in the management plans to guarantee their conservation and provision of water of high quality.

As with *páramo* ecosystems, inland wetlands have their own specific legal framework (Resolutions No. 157 of 2004 and No. 196 of 2006) proposed by the Ministry of Environment in order to provide legal and technical support to regional environmental authorities to identify and engage in environmental management planning for wetlands in their jurisdictions. As part of this regulatory framework, the Wetlands National Policy was adopted in 2001. In the same manner as water PES schemes, these regional processes facilitate the conservation, rehabilitation, and/or restoration of wetlands and their ecosystem services.

Mangrove ecosystems have been included in similar environmental planning processes since 1995 (Resolutions No.1602 of 1995, No. 020 of 1996, and No. 0721 of 2002). The outputs of these processes can be used to design and implement water PES schemes involving these coastal ecosystems. Examples include rehabilitation of hydrological ecosystem services (connecting the functions between watershed and marine zones) or conserving representative samples of these natural systems that are vital for productive sectors such as fisheries.

Finally, territorial plans at the departmental and municipal level provide another opportunity to incorporate the development of water PES schemes into planning processes and procedures. The objective of territorial planning is to consolidate economic and social development. In this context, these plans may recognize the role of ecosystem services in sustainable development.

All planning tools together are essential, since they demonstrate and articulate a legal framework that provides environmental rules and procedures important for sustainable planning. Also, they determine major efforts of management and investments (administrative tools) that have to be undertaken in priority areas identified through the technical and scientific plans (technical tools).

2.1.4 Indirectly Relevant Legislation

This section presents compensation mechanisms included in the environmental framework that could serve as sources of co-financing for water PES schemes. Such mechanisms are regulated under Decrees 1220 of 2005 and 500 of 2006, which establish the responsibility (obligation) of any user of the environment to implement measures to compensate the departments, municipalities, and local communities for any negative impacts that could not be avoided, corrected, mitigated, or substituted. These measures must be included in the user's Environmental Management Plan for the proposed activity, and the results must be considered in the Impact Assessment Study.

Regarding water PES schemes, it is feasible to use these compensatory mechanisms to finance conservation activities in the area of influence of the project and include this in licensing an activity. This requires that the regional environmental authorities accept that for project impacts that cannot be mitigated (e.g., deforestation), the effects should be addressed in the licensing process and compensated by providing conservation funds for PES projects in the region.

Compensatory Water Taxes

The Code of Renewable Natural Resources and Environmental Protection, Decree Law 2811 of 1974, included four types of taxes on water. Of these, the two that actually developed are related to water pollution and water use.

The tax related to pollution has legal support in Decree 1594 of 1984 (National Sanitary Law regulation) and in Law 99 of 1993, as well as in Decrees 901 of 1997, 3100 of 2003, and 3440 of 2004. The pollution tax is designed to remunerate the costs of removal or control of harmful environmental impacts. Accordingly, all users of point source dumps must pay the charge related to the BOD (biological oxygen demand) and total suspended solids of their activity.

The tax related to water use is designed and supported by Article 43 of Law 99 of 1993. This establishes that fees charged for water use should not be lucrative, regardless of the activity or the user (natural or legal person, public or private). Furthermore, Decree 0155 of 2004, as established by Law of the National Development Plan (Act 812 of 2003), defines the allocation of resources under the concept of water use charges as for 'the protection and recovery of water resources in accordance with the respective watershed ordering and management plans'. Use of these charges to finance activities included in PES schemes could therefore be feasible, if the actions are in accordance with the proposals of watershed management plans and in compliance with the criteria of the specific destination of the funds established in the regulations.

Obligatory Investments of Water Use Projects

Article 43 of Law 99 of 1993 establishes that 'any project that involves the use of water taken directly from natural sources, either for human consumption, recreation, irrigation or other industrial or agricultural activity, shall allocate no less than 1% of the total investment for the improvement and monitoring of the watershed that feeds the respective water source'. This 1 per cent investment, which is a prerequisite for being granted the project permit, was recently regulated by Decree 1900 of 2006. It establishes that a project falls under the investment requirement if it meets all of the following conditions:

- The water is taken directly from a natural source, either surface or underground;
- The project requires an environmental license to operate;
- The project, work, or activity uses the water in its execution phase, as the activities required for the construction and operation processes; and
- The water is used for any of the following purposes: human consumption, recreation, irrigation, or other industrial or agricultural activity.

This source of income has great potential to finance activities related to PES schemes. As described earlier, the investment is not a payment made by the project owner to the water corporation but an investment by the project in activities included in watershed management plans. In this sense, in order to use this source of funding to finance PES it is necessary to include such schemes and projects in the watershed management plans. However, a drawback to this potential funding source is that it is limited to compensation that must be paid for the granting of environmental permits. In other words, potential funding comes only from those projects that are subject to the permit requirement, and the amount of funding depends on the number of these projects. Alone, it would therefore represent

neither a stable nor a significant source of funding.

Transfers from the Energy Sector

Article 45 of Law 99 of 1993 establishes the obligation of the hydro-energy sector to transfer 6 per cent of gross sales of power generation to the Autonomous Regional Corporations (CARs) and municipalities. The Energy Regulatory Commission dedicates:

- 3 per cent to the CAR that has jurisdiction over the watershed where the dam is located (the money is earmarked to protect the environment and defend the watershed and the area of influence of the project) and
- 3 per cent to municipalities and districts located in the watershed, distributed as follows:
- 1.5 per cent for municipalities and districts where the dam is located and
- 1.5 per cent for municipalities and districts in the watershed that supply the dam's water reservoir.

Article 8 of Decree 1933 of 1994 further stipulates that these financial resources are to go towards environmental protection and defense of the river basin and the project's area of influence, in accordance with the watershed management plan. The management plan is to contain an investment plan, which the CAR must formulate. Only a maximum of 10 per cent of the transfer can be used to fund the operating costs of the CAR.

The potential of using these funds to finance PES initiatives depends on a case-by-case analysis. In many CARs, this is the main source of income, and these funds finance their operation and much of its investment. It is unlikely that those CARs will agree to spend a fixed percentage of this income on conservation activities, which would diminish the flexibility of investing their main income source.

Obligatory Investments of Irrigation Districts

Article 111 of Law 99 of 1993 determines the obligation of irrigation districts to invest 3 per cent of the value of construction labor in the acquisition of strategic water conservation areas that ensure the water supply. In some regions, this obligatory investment could provide an important source of funding for regional environmental authorities to invest in PES initiatives.

2.1.5 Pros and Cons of Having or Not Having Specific PES Legislation

As described, Colombian legislation includes links to water-related ecosystem services in different legal texts, including the Constitution, statutory laws, decrees, and resolutions at different levels—national, regional, and local. While these provisions promote conservation and sustainable use, they hardly use payments to compensate the owners or possessors of lands that deliver these ecosystem services.

Therefore, in order to facilitate the development and implementation of PES initiatives at all levels, it is recommended that PES is incorporated as an instrument to promote collaboration in achieving the environmental objectives of different existing policies, plans, or programmes. It is further recommended that this happens prior to the development of new or additional legislation on PES.

In Colombia, in order to make PES attractive to private agents and operative for public entities, the national PES strategy under discussion must present clear concepts and procedures, be supported

by law, and promote operational transparency. Mechanisms for its implementation should be simple and easy to apply. Agreements between parties must be clear and legally adequate. At a minimum, a solid and pragmatic PES strategy must:

- Provide clear concepts;
- Develop a strategy that is linked to environmental policy objectives;
- Define action and a procedural framework for PES;
- Define the role of different entities and stakeholders in PES schemes;
- Identify potential financial sources for PES; and
- Identify and develop required instruments for the implementation of the strategy.

In practice, it is clear that Colombia's overall legal framework allows for the participation of all types of organizations and stakeholders in PES initiatives. Depending on the nature of the programme or project funds, however, the execution and procedures will differ in terms of the legal context of the parties involved (public, private, communitarian organizations, indigenous groups, financial sources).

The strategy and its legal instruments need to differentiate PES programmes involving participating public entities from programmes involving exclusively private actors. This differentiation is based on the fact that public entities need to have greater legal certainty for their actions and, when using public funds to pay for ecosystem services, must ensure that these resources are implemented with transparency, efficiency, and effectiveness. On the other hand, when a PES initiative is between private parties, excessive regulation could form an obstacle to their participation. However, private initiatives also require guidance and compatibility with public policies and their environmental objectives.

Nevertheless, one of the main factors that may affect the appropriate implementation of PES schemes is the lack of clarity that exists in the regulatory framework that designates functions and responsibilities to public entities. In some cases, the regulatory framework may be sufficient, but the lack of unified criteria for interpretation discourages the application of new and innovative instruments for environmental management. This is why, despite the existence of a general regulatory framework, it is important to clarify the legal institutional framework, considering that natural or legal entities under public or private law can participate in PES initiatives.

It is important to have a clear and practical regulatory framework for PES to implement legal mandates and water environmental policies. In addition to clarifying the functions and responsibilities of public entities, political support can outline the role of all actors, basic processes and procedures to implement projects, and the methodologies required to advance with adequate scientific and technical support.

2.2 Institutional Framework

The following analysis of the institutional framework considers the role of public and private entities in PES transactions at both national and regional levels. We include recommendations to improve their efficiency and suggest the actions required to promote PES initiatives in Colombia.

2.2.1 National Environmental System

First, it will be necessary to provide some background on the National Environmental System, given that this is the national environmental structure. Created by Law 99 of 1993, it establishes the principle of decentralized environmental policy management and transfers much authority to the CARs. SINA oversees and incorporates the array of guidelines, norms, actions, resources, programmes, and institutions that allow the implementation of environmental principles as laid out in Law 99 and the 1991 Political Constitution. The SINA consists of:

- Governmental institutions responsible for environmental policy and its implementation (not solely the environmental entities);
- Community-based and nongovernmental organizations concerned with environmental issues;
- Public and private entities responsible for the generation of information, scientific research, and technological development in the environmental sector; and
- Financial sources for the management and improvement of the environment.

In addition, Colombia benefits from institutional conditions that facilitate the introduction of PES, among which are:

- Decentralized environmental management with administrative and financial autonomy that allows the setting of priorities for regional and local PES initiatives in accordance with environmental problems at local and regional scales, using appropriate regulations (see section 2.1.3 on ecosystem legislation);
- Inclusion of legal fees for the use or degradation of natural resources such as co-financing resources in PES initiatives; and
- Existence of payments by certain sectors (particularly the energy sector) that should be used as co-funding in PES initiatives aimed at protecting watersheds.

2.2.2 Institutions Involved at All Levels

In order to further understand how or if the existing institutional framework supports the design and implementation of water-related PES, it is necessary to identify different public entities as well as other organizations and their (potential) key roles in developing and implementing such schemes.

Ministry of Environment, Housing, and Territorial Development

(Laws 99 of 1993)

The Ministry of Environment plays a crucial role in the development and implementation of PES, since it:

- Promotes the development, implementation, monitoring, and evaluation of the National Strategy on PES at a national level and manages its implementation at regional and local levels;
- Participates in PES project implementation:
 - As a buyer of ecosystem services, with resources from the national budget, credits, and grants;
 - As co-financier of regional PES projects;

- As operator of PES projects exclusively through the Special Administrative Unit of the System of National Parks; and
- As ecosystem services provider through the Special Administrative Unit;
- Approves methodologies for identifying and monitoring ecosystem services submitted for evaluation and mechanisms that should be used to make the payments in PES initiatives after their adoption; and
- Forms an expert panel to evaluate the proposed methodologies for identifying and monitoring ecosystem services.

Special Administrative Unit of the System of National Natural Parks

(Law 99 of 1993 and Decree 216 of 2003)

This is a national unit of the central administrative sector, housed within the Ministry of Environment, Housing, and Territorial Development. It has administrative and financial autonomy and is responsible for managing and administering the System of National Natural Parks and coordinating the Protected Areas National System. The most relevant roles of the Parks Unit as related to PES initiatives are the following:

- Propose and implement policies, plans, programmes, projects, regulations, and procedures related to the National Natural Parks System and Protected Areas National System;
- Contribute to the construction and establishment of the Protected Areas National System;
- Grant permits, concessions, and other authorization for the use of natural resources in areas of the National Parks System;
- Collect taxes, contributions, charges, and financial penalties for the use and provision of natural resources and ecosystem services in areas of the National Natural Parks System;
- Acquire for the National Natural Parks System, through direct negotiation or expropriation, private properties, goods, and legacy of public entities and declare rights to them if the requirements are met;
- Coordinate the adoption of land use regulatory frameworks in the buffer zones of national parks, applying sustainability and mitigation criteria in each case;
- Coordinate between environmental authorities, territorial entities, social and ethnic groups, and other regional and local entities;
- Provide conservation incentives in areas of the National Natural Parks System in accordance with the existing regulatory framework;
- Guide the elaboration of studies and regulations for eco-tourism programmes in national parks; and
- Design and implement a sustainable financial strategy that supports management of the National Parks System.

Regional Environmental Authorities

(Article 31 and 66 of Law 99 of 1993 and Article 13 of Law 768 of 2002)

Regional environmental authorities are responsible for:

- Promoting the implementation of PES schemes at regional and local levels;
- Registering PES projects and reporting on progress to the Ministry of Environment;
- Monitoring the PES projects implemented in their jurisdiction and verifying their impact; and
- Participating in PES projects through:
 - Financing projects with their revenues, donations, or loans;
 - Developing and managing projects within their jurisdiction; and
 - Acting as service providers in properties they own or in which they have jurisdiction and administrative management.

Other Entities of the Public Sector

Other decentralized entities of the public sector can participate in PES schemes as:

- Buyers of ecosystem services;
- Developers and/or managers of PES projects; and
- Providers of ecosystem services.

Research Institutes

There are significant technical gaps to the adequate implementation of PES projects, particularly in methodological procedures associated with the identification, valuation, and quantification of water-related ecosystem services. Therefore, research institutes (institutes of SINA, universities, and hydrological research centres) play an essential role in bringing the overall methodological tools to be used at different levels of development and the necessary information on hydrological aspects and economic and social factors. The functions of research institutes are thus to:

- Support assessment and monitoring of the implementation of PES schemes and, when adopted, the National PES Strategy;
- Propose methodologies for the determination and monitoring of ecosystem services;
- Collect, systematize, and communicate information on Colombia's strategic ecosystem services;
- Promote and communicate scientific knowledge related to ecosystem services;
- Identify and coordinate research activities for capacity building regarding the types of ecosystem services; and
- Develop monitoring systems on ecosystem services.

NGOs and natural or juridical persons of private law

NGOs and private entities can play the roles of:

- Buyers of ecosystem services;
- Operators of PES projects;

- Providers of ecosystem services; and
- Auditors of the impacts of PES projects (public, private, or mixed).

2.2.3 Institutional Strengths and Weaknesses

The entities listed show that in principle an institutional framework currently exists in Colombia that has the potential to implement PES initiatives. One key advantage is the existence of the National Environmental System, as it provides a structure for all the institutions, regulations, and economic resources focused on specific environmental goals at different territorial scales. This decentralized system with diverse institutional functions and jurisdictions serves to distinguish the roles of each entity in PES projects.

However, a great institutional barrier to operationalizing PES initiatives has to be recognized, too—namely, legal uncertainty. In the case of environmental authorities and other public entities participating in PES schemes or projects, it is necessary to regulate their participation through clear rules and procedures (contractual, financial, technical, monitoring, etc.) if at least one of the following conditions is fulfilled:

- The PES is funded with public funds by a public entity;
- A public entity is a provider of ecosystem service and receives payments;
- A public entity acts as operator of a PES initiative; or
- The PES is used as an instrument to fulfil environmental obligations.

In the latter case, PES may be used as an optional measure to compensate for environmental impacts generated by projects that are subject to licensing or environmental management planning. Making use of this option, however, requires a modification of the regulatory framework applicable to environmental licenses. The licensing scheme has to define the implementation procedures, such as the baseline from which to calculate environmental impacts, the ecosystem services that could be recognized as providing offsets, the appropriate regions and areas where offsetting through PES would be allowed, and whether the use of PES for offsetting would be mandatory or voluntary for the project operator.

2.2.4 Appropriate Scope of PES

Colombia does not yet have any successful PES water schemes at the national level. Despite having some of the necessary conditions adopted by law, the case of the Forest Conservation Incentive Certificate clearly illustrates the difficulty of implementing a scheme that depends on resource allocation from Colombia's central government due to the weakness or lack of political will on the part of the Ministry of Environment and its limited influence in the National Economic and Social Council, which provides budgets at the national level.

In fact, although the CCIF incentive was created in 1997, it was not until 1998 that the central government allocated approximately US\$600,000 to commence its implementation. These funds, however, were never dispersed, as the contract period of 10 years was considered too long by the National Planning Department, which calculated that the available financial resources could not guarantee payments for the entire period. This difficulty could have been overcome if the central government (through CONPES) had assigned not only a one-time payment but steady financial flows or if the

scheme had been co-financed with resources from international cooperation or international credit, as occurred with national reforestation programmes in recent years.

In view of the obvious lack of political will to change this situation at the national level, the implementation of regional or local PES schemes appears to be more promising. This, of course, means that regional environmental authorities have to invest their own resources in PES schemes in compliance with national, regional, and local water priorities. Examples of such investments can be found in different PES initiatives that enjoy strong regional and local institutional support and that also recognize and understand the environmental situation on the ground. (See the Annexes for information on the PES initiatives in the Chingaza watershed, Cauca Valley Water User Associations, Fúquene Lagoon, and Munchique–Pinche Conservation Corridor.)

In addition, other opportunities for similar PES pilot projects exist in Colombia. For example, Conservation International and The Nature Conservancy together with public entities are supporting an initiative to establish a biological corridor connecting Chingaza National Park with Sumapaz National Park, the eastern Andean mountain slopes, and the San Rafael water basin, an area crucial for water generation for Bogotá. The NGOs plan to evaluate various financing mechanisms, including income from carbon sequestration through reforestation and payment for water services to determine an appropriate PES mechanism for this project.

3. Property Rights Issues

This section discusses property rights issues regarding the land that provides ecosystem services, the water resources that benefit from the provision of ecosystem services, and the ecosystem services themselves that have an influence on the design and implementation of PES initiatives.

3.1 Ownership of Land, Natural Resources, and Ecosystem Services

In Colombia, property rights are regulated by the 1991 Constitution, the Civil Code, and numerous rulings of the High Courts. Private landownership is foreseen. However, landowners have to use, enjoy, and dispose of their land within the limitations and restrictions imposed by law. In this context, it is important to note that the Constitution stipulates protection of the social and ecological function of the estate as one such limitation.

At the same time, it has to be recognized that the individual landowner does not own the renewable natural resources found on the land or the ecosystem services produced by these resources. According to the Constitution, the state is the single owner of renewable natural resources, which are administrated and protected by the regional environmental authorities, according to Law 99 of 1993. However, the National Renewable Natural Resources and Environmental Code has a specific chapter on how to acquire the right to use renewable natural resources, given that these are public goods belonging to the nation. The modalities for the acquisition of a right to use natural resources are 'by means of law', concession, or permit.

Thus, any person or entity who wants to use, develop, or gain access to renewable natural resources, regardless of whether or not they own the land, must have an authorization from the environmental authority.

As a consequence, the Draft PES National Strategy stipulates that the payments within a PES scheme

are purely focused on actions (or inactions) of people that enhance or maintain an ecosystem service. In other words, the strategy does not recommend direct payments for the ecosystem service provided, given that the renewable resources and their services are owned by the nation.

In line with the draft strategy, the contracts of the water PES cases reviewed make no reference to ownership of ecosystem services or natural resources. Instead, the contracts refer to actions by landholders. in the case of the Cauca Valley Water Users Associations, for example, the contracts refer to specific actions to conserve or restore strategic areas for water supply or regulation of water-sheds, and in the case of the Fúquene Lagoon PES the contracts establish criteria to report on the sustainable agricultural activities developed.

Furthermore, it is important to note that if property rights are unclear in a specific area, a PES initiative can help solve this problem. In fact, in the Procuencia case the project intermediary signed a contract with landowners who held a title, while simultaneously initiating a process to help other landholders to properly register their titles. This process is considered an important achievement of the project.

3.2 Transfer and Inheritance Issues

Since these PES contracts are 'only' related to particular actions of individuals independently of the ownership of the ecosystem services provided, the question arises as to what will happen to the PES obligations in the case of death of a PES party. According to Colombian legislation, all obligations and rights (including payments) acquired by a landowner before his death are transferred to his heirs. That is to say, if a landowner has signed a PES contract, the land and the associated obligations and rights are subject to the process of succession, thus they go to the heirs.

Colombian legislation also allows for the transfer of rights in a contract and establishes that the one who accepts the transfer acquires the same obligations as the original signatory to the contract. Thus, a landowner who has signed a PES contract can lease land to a third party and thereby transfer the obligations contained in the PES contract. The lease contract and transfer contract do not have to be registered in the cadastre where property rights are registered.

3.3 Collective Property Rights

Whether ancestral property or use rights over land and natural resources exist has to be assessed, along with how this will affect PES transactions. Colombia recognizes traditional rights, including land property rights, of both indigenous and Afro-Colombian people.

Article 55 of the Constitution established a period of two years for Congress to enact a law that recognizes the collective property rights of Afro-Colombian communities over lands in the Pacific Region, which is the territory they have traditionally occupied. According to this mandate, Congress enacted Law 70 in 1993, which establishes that the areas subject to collective titles are the unassigned national lands—that is, lands owned by the state that have no other owner and that furthermore have been traditionally occupied by Afro-Colombian communities.

In order to receive a collective title, each community must create a Communal Council for its internal administration. This Council must consist of a General Assembly and a Board of Directors. The Board will elaborate three documents for the approval of the General Assembly:

- Demarcation of the lands proposed for collective title;
- A social, cultural, and economic development plan; and
- Rules for the use and transfer of the assigned lands to families and individuals.

In addition, each Communal Council must have a legal representative who, according to Decree 1745 of 1995 under Law 70 of 1993, can sign contracts and agreements as well as administer the benefits derived from them, with the prior authorization of the Board of Directors. The distribution of benefits of the contract must be directed by the Communal Council and not by the legal representative.

As such, a PES contract in a collective territory with Afro-Colombian communities must be signed by the community's legal representative prior to authorization by the Board of Directors. The Communal Council does not have the authority to enforce commitments by the community, however. This serves as a barrier for undertaking a PES scheme, as although the legal representative can sign the PES contract, that individual cannot enforce conservation activities within the communities. For example, U.S. Agency for International Development forestry projects in Afro-Colombian community areas have experienced problems in the endorsement of conservation contracts due to the lack of authority of the legal representative to implement and enforce the commitments on behalf of the community.

Furthermore, it is important to note that when a territory is collectively owned by an Afro-Colombian community, the commercial use of land and natural resources always requires the permit, authorization, or concession granted by the corresponding regional environmental authority. Only the use of natural resources for subsistence purposes is considered a use 'by means of law' that does not require a permit or authorization. The traditional practices of Afro-Colombian communities concerning the use of water, the harvest of timber and non-timber forest products for housing or cooking, and so on are considered uses 'by means of law'. However, in practice Afro-Colombian communities feel that they own not only the land but also the natural resources on their territory. This has led to conflicts and misunderstandings with environmental authorities.

Article 329 of the Constitution establishes that indigenous reserves (*resguardos*) are also collective property. As under Law 21 of 1991, which approved the International Labour Organization's Convention No. 169 Concerning Indigenous and Tribal Peoples in Independent Countries, Article 329 foresees that the state must recognize the property and use rights over the lands that indigenous peoples have traditionally occupied. It also establishes that governments should adopt necessary measures to guarantee the effective protection of these property and use rights.

Decree 2164 of 1995 regulates all the issues concerning the adjudication and entitlement of land to indigenous communities for the creation, modification, addition, and eviction of indigenous reserves. These are autonomous units based on indigenous jurisdiction with their own legal systems. The reserves are inhabited by one or more indigenous communities with collective property rights that do not expire, cannot be seized, and are inalienable. Each indigenous reserve must formulate a development plan (*a plan de vida*) in which the conditions, restrictions, and forms of use of the collective territory are included. Activities of a PES scheme in an indigenous reserve must comply with the land use conditions and restrictions of the reserve's development plan.

The Munchique–Pinche Corridor case (a PES project to support reforestation of riparian zones) clearly shows that the legal framework for indigenous communities is very different from the one

involving private landowners. One of the difficulties reported was identifying in the project design how the PES scheme would manage contractual responsibilities upon implementation. Some of the areas supposed to be included in the PES project were held by indigenous communities, where communal property rights do not permit the designation of individual responsibilities upon signing of the contracts.

4. Negotiation

This section assesses whether and how fair and mutually beneficial agreements between parties are achieved in the negotiating phase of PES schemes. As there is no specific regulation governing the negotiation process of PES contracts in Colombia, it is necessary to review the general contractual provisions that exist.

Negotiation is defined as the private autonomous act that governs the origin, modification, or extinction of legally binding relationships between persons. Formal elements to be negotiated in a contract include its purpose and period of time, the value of ecosystem services, the method of payment, and the obligations of all parties. If the contract is endorsed by a public or semi-public entity, the law requires additional non-negotiable clauses for elements such as termination, interpretation, unilateral modification, or expiration. These additional clauses are mandatory for specific types of public contracts but not necessarily for private ones.

In general, only the PES parties would need to participate in the negotiation stage—that is, the ecosystem service buyer and supplier. But it is common in PES schemes to include other entities, such as operators, intermediaries, verifiers, or research institutions that may be incorporated in the contract with a specific obligation.

In Colombia, there is no fixed methodology for calculating the value of ecosystem services. Also, none of the cases reviewed followed either a tender or bidding process that could help identify the least-cost service providers. Nevertheless, the Ministry of Environment, Housing, and Territorial Development has adopted standardized methodologies for the economic valuation of environmental damages and the conservation of natural resources (Resolution 1478 of 2003). Although the methodologies have been used primarily to establish environmental fines for damage caused by development projects, they could also be applicable to the valuation of benefits from the conservation of natural resources, thus they could be used to establish a price for ecosystem services.

As evidenced by the different ways in which the contractual clauses have been established among the water cases reviewed, we can determine that there is no specific process for negotiating PES contracts. While they have not yet been subject to juridical disputes, it would be desirable to have guidelines that establish the most relevant aspects to be considered in a negotiation phase, so that the contract is satisfactory to all parties.

Due to this lack of a clear negotiation framework, Colombia's Draft PES National Strategy proposes four different methods to calculate the price of ecosystem services:

- The opportunity costs for the supplier of the ecosystem service based on the average utility of the current land use;
- The opportunity costs for the supplier of the ecosystem service based on the average utility of the

baseline land use;

- The value of the benefits to the buyer of the ecosystem service; and
- The result of a bidding process between the potential suppliers of the ecosystem services.

The strategy recommends the use of a bidding process to take into account socioeconomic conditions that will help improve welfare conditions of potential environmental suppliers.

5. Contractual Issues

Decisions and agreements of the PES negotiating phase need to be formalized in a contract. First of all, it is important to understand the types of contracts considered under Colombian law as well as their possible content in order to ensure their validity and determine whether there is a need to include specific clauses that grant security to investments and guarantee compliance with obligations. Also, the existing tax regulations governing PES as well as possible conflict resolution mechanisms need to be looked at.

5.1 Contractual Provisions

In Colombia, contractual relations and all related issues are regulated under different laws according to the subject and legal nature of the parties, namely the Civil Code, the Commercial Code, and the Code of Administrative Matters. The Civil and the Commercial Codes regulate the contracts between persons when they have a civil or commercial purpose. The Code of Administrative Matters regulates contracts in which at least one party is a public or semi-public entity. In this case, it is important to highlight that public contracting procedures must be followed as established in Law 80 of 1993. This law contains all the provisions and contractual modalities for public entities, including tender and bidding processes.

Based on the cases reviewed and the proposed Draft PES National Strategy, PES is effectively implemented by a contract that contains at least several of the elements described in this section.

5.1.1 Description of the Nature and Objective of the PES

In line with the general definition of PES, the Draft PES National Strategy clarifies that participation of parties in a PES scheme must be voluntary. An action in which a party is obliged by the existing legislation to perform an activity is thus not considered true PES. Based on this, the contract shall describe the objective of the PES, which must be in compliance with the existing law.

According to the Draft Strategy, in the case of PES schemes the objective of the contract is the promotion of an activity (obligation to do or not to do), in particular a certain land use, that is planned to increase or conserve an ecosystem service. It is important to highlight that the objective cannot be the provision of a particular ecosystem service, since, as described earlier, all these are the property of the state and as such are excluded from private transactions or commerce.

5.1.2 Contracting Parties

In Colombian legislation, all individuals have the capacity to enter into and become a party to a contract. Each party may consist of one or more persons. Article 1502 of the Civil Code establishes the following conditions for a party to enter into a contract:

- Capacity to make a commitment without requiring any authorization from others;
- Voluntary agreement with the terms of the contract; and
- Licit purpose and cause.

As mentioned earlier, indigenous and Afro-Colombian communities may also become a party to and participate in PES contracts provided that the individual signing the contract has the authority to do so, either as a legal representative of the Community Council or as indigenous governor of the reserve.

In a PES contract, the following parties have to be distinguished: the service provider/seller, who is a private person or a private or public entity that as a landowner or landholder is willing to undertake activities to increase or maintain ecosystem services, and the service beneficiary/buyer, who is a private person or a private or public entity that as a direct beneficiary of the ecosystem service or as an intermediary is willing to pay for the increase or maintenance of the service.

It is important to note that when a public entity is the buyer of a service, the activities subject to the transaction shall not be considered as obligatory in the law or its regulations or in specific administrative proceedings. This is because a public entity shall not pay anyone for compliance with existing legislation. The fact that the different nature of a party alters the requirements for contracts is one reason that the Draft PES Strategy classifies PES contracts as either:

- Private, when the parties are regulated by private law; or
- Public or public-private, when at least one party in the contract is of a public nature and therefore regulated by public law.

All the PES cases reviewed are examples of the first category, private PES contracts. This indicates certain difficulties for public entities to directly sign this type of a contract. For example, in the case of the Cauca Valley Water User Associations, the regional environmental authority (CVC) decided to invest 'only' in the formulation of watershed management plans and provided technical support and information to members of associations to execute the projects included in the planning tool.

As a consequence, the Draft PES National Strategy proposes the option of developing inter-administrative agreements when various public entities wish to undertake a PES project. In such an instance, while all public entities may finance the project, a single operator of the PES must be clearly identified and sign the contracts with the suppliers of the ecosystem services (landowners or possessors).

5.1.3 Rights and Obligations of the Parties

The concrete rights and obligations of the parties have to be identified in the contract too. The contract has to cover all the activities and conditions that must be fulfilled in order to meet the contractual objective. For example, in the Chaina case, the following obligations are included in the agreements with the farmers, which must be verified every year in order to make the payments:

- Maintain the conservation area included in the project (as outlined on map) and implement the activities of the conservation plan;
- Avoid activities that harm conservation, such as unsustainable agricultural practices, wood extraction, and cattle grazing inside the conservation area;

- Prevent forest fires;
- Not build roads inside the conservation area;
- Prevent illegal activities (hunting and illegal forest uses);
- Permit free access to the water users association in order to monitor compliance with the obligations included in the conservation plan; and
- Communicate with the water users association about any alteration or incident that may affect the conservation area.

As part of the rights and obligations, the Draft PES National Strategy recommends that a contract include provisions regulating the actual monitoring of the required activity or inactivity (depending on the concrete obligation of the seller). Similarly, the contract may include provisions to specify consequences in the case of non-compliance.

It is also important that the contract clearly determine the requirements that have to be met so that the contractual obligation is fulfilled and compliance is achieved. In this context it has to distinguish between the requirement to provide 'input' (an activity) and the requirement to achieve an 'output' (in this case, the ecosystem service).

However, the contracts in some of the reviewed cases are not specific in this regard. For example, in the Cauca Valley Water Users Associations, the communities involved in the activities include land-owners with title or land possessors who are willing to work with the association. The contracts are established under civil jurisdiction and with a focus on projects included in the watershed management plans. In this case, economic compensation is not for a specific ecosystem service but rather for activities in different types of projects (reforestation, environmental sanitation, etc.) that are further described in the management plans of the respective sub-watersheds.

In the Fúquene Lagoon case, there are no specifically defined conditions in the credit agreement with small farmers that differ from traditional requirements in this type of transaction. The farmers sign a contract for the debt that establishes the amount of money, credit rate, period for the credit, and co-debtors. There is a clause that stipulates that the money received must be used to change agricultural practices. There is no explicit reference to the ecosystem services or defined commitments that must be fulfilled by the farmer.

5.1.4 Payment Structure

The contract also has to include a clear and sustainable payment structure. This requires, first of all, that the type and the amount of payment, as well as the conditions for the compensation, are clearly regulated. Payments can be made in cash or in kind. Making the right decision with regard to the type of payment can be crucial, as shown in the Munchique – Pinche case implemented by CIPAV (Centro para la investigación en sistemas sostenibles de producción agropecuaria), where there is serious concern about how the introduction of monetary payments for the protection of the environment might affect the stability of the community. This situation is expected to be resolved through the use of alternatives to monetary payments.

This can be particularly true for PES schemes involving indigenous communities. An example can be found in the PES agreement that was reached with Morales indigenous communities for the initiation

of a PES scheme with a focus on the catchment areas of rural aqueducts. Compensation was made in labour provided through community work that was coordinated by local indigenous authorities (*mingas*) and through various materials provided by the project for sites that voluntarily agreed to implement changes in land use towards water regulation.

The reviewed cases also differ with regard to the conditions imposed for the payments to be made and the period in which they are verified. In the Chaina watershed case, three separate payments are made: 50 per cent upon signature of the contract, 25 per cent after six months, and another 25 per cent at the end of the year. In the Morales indigenous communities PES scheme, the payments depend on the valuation of land use changes that have been undertaken. Higher scores are assigned to land uses changes that were considered more important for the regulation of the water supply. In general, payments are only made after a successful monitoring process.

Furthermore, the PES scheme can only succeed in the long term if a sustainable source of funding is available. An example of this challenge is provided by the Cauca Valley Water Users Associations. Here, the CVC charged the water users in 2000 a fee for water supply ranging from US\$0.50 to \$2.00 per litre to be paid every second month. These funds were designed to be used for the implementation of the watershed management plans. However, as the funds collected are distributed among the different CVC programmes, they are not enough to go beyond the payment of personnel. As a consequence, the watershed associations had to impose an additional fee on members, which could be invested in activities to protect the watershed and ensure the long-term viability of the water resource. In an attempt to encourage these payments, CVC offers a discount of 25 per cent of its charges on users that pay the additional fee to their water user association.

5.1.5 Contract Period

The contractual period is the time frame within which obligations must be fulfilled. The period may be defined as a specific number of days, months, or years or it may remain undefined. When the period is undefined, the contract should include specific conditions for its termination.

In general, it must be said that the contract period depends on the individual PES scheme. In the case of the water user associations, the contractual period depends on the objectives and activities of the project (reforestation, sanitation, etc). If this involved a Conservation CIF, for example, the contractual period would be 10 years of annual payments.

As a consequence, the Draft PES National Strategy proposes that the PES contract period allow for actual fulfilment of the corresponding project activities. Thus it is assumed that the PES scheme is supported by a project that specifies the activities in detail. The strategy recommends that the contract period should not be longer than the duration of the project.

5.1.6 Property Rights Issues

Overall, it is important to consider property rights as a key issue in the contractual process of PES schemes. In the absence of clarity, it will be impossible at the outset of the project to require compliance with the obligations in the signed contract. One interesting finding is that in the process of designing a contract, an intermediary institution can be very helpful to clarify property rights by promoting the granting of land titles for small farmers or landowners.

If there are unclear property rights in a specific area, a PES initiative can help solve this problem. In the Procuencia carbon PES case, the project intermediary signed contracts only with legal landowners and simultaneously initiated a process to help landholders properly register their titles. This process is considered an important achievement of the project and a good practice that should be replicated in other PES initiatives.

5.1.7 Securities and Risk Allocation

Provisions securing compliance with the contract obligations and regulating the potential risks arising from their implementation as well as matters related to external causes could be further issues to regulate in PES contracts.

In Colombia, in general, contracts do not have to be registered. An exception is a purchase contract for real estate, which must be registered in the corresponding property registration archive in the Registry Offices of Public Instruments. Without this, the buyer cannot be considered the legal owner of the property.

In the case of contracts between private parties, fulfilment of contract obligations can be secured with an insurance policy issued by a properly constituted insurance company or through mortgages. However, only landowners with registered titles over an estate can constitute a mortgage while other landholders can only enter into a guarantee without tenure. In the latter case, Decree 1270 of 1970 foresees that products of forestry plantations, such as the 'forest canopy', can be pledged until the moment that the contract is fulfilled.

Nevertheless, there were no specific clauses related to this matter in any of the water cases reviewed.

5.1.8 Conflict Resolution

During contract negotiations, the parties can also agree on a mechanism for conflict resolution. Colombian legislation recognizes the following mechanisms:

- Referee or neutral mediator, regulated by the Commerce Code;
- Arbitrator as regulated under Decree 1818 of 1998; and
- Conciliation, which includes Peace Judges, regulated under Law 640 of 2001.

While none of the contracts in the reviewed water PES cases contained specific provisions related to conflict resolution mechanisms, this does not constitute a barrier for the use of any of the mentioned mechanisms as long as the parties agree on the selection of a given mechanism at any point in their relationship.

One exception is the Procuencia carbon PES project contract, which includes an article for conflict resolution and clarifies that direct agreement among the parties has to be the first option. It stipulates that if agreement is not reached, parties must resort to legal mechanisms for conflict resolution before entering into a judicial process.

5.2 Fiscal Implications of Deriving Income from the Sale of Ecosystem Services

While PES is not specifically mentioned in Colombian legislation, there is related income and tax legislation that differs for buyers and sellers and establishes the tax obligations to be met. Relevant

taxes that can be applied to PES transactions include income tax and the value-added tax (VAT).

5.2.1 Income Tax

As of the 2008 tax year, the income tax rate was 33 per cent. All profitable entities and high-income individuals must pay income tax. Depending on the nature of their activities, non-profit organizations either do not have to pay income tax or pay a lower rate. While low-income individuals are not obligated to declare their earnings and pay taxes, up to 10 per cent of their payments are subject to withholding.

From the perspective of the ecosystem services seller, the payment received may be considered income, in which case it will be subject to income tax. In practice, however, most sellers are considered low-income and therefore unlikely to be liable to pay the tax. But if the buyer is a private entity, it will withhold a percentage of the payment.

From the buyer's perspective, a PES transaction can be deducted from the income tax if it is considered a donation to a registered environmental non-profit organization or a voluntary investment in environmental management or improvement that is certified by the regional environmental authority. Decree 3172 of 2003 defines and establishes the requirements for such deductions, which can be up to 20 per cent of the taxpayer's net income. Only private entities can deduct such investments, if they present evidence for it along with quantification of the environmental benefits to the regional environmental authority.

5.2.2 VAT

The value-added tax is a national tax on services rendered and on sales and imports of physical goods. Events that are subject to VAT include:

- Sale of material goods and services in Colombia that have not been explicitly excluded;
- Import of material goods that have not been explicitly excluded; and
- Circulation, sale, or operation of chance games (except lotteries).

Although Article 424 of the Tax Code defines the type of goods and services that are excluded from the VAT, none of the categories are related to ecosystem services. Thus, in principle, the seller of ecosystem services will have to add VAT in the transaction. However, if the service is provided by a low-income person, services will not generate a VAT. Thus, in most PES transactions, VAT does not apply.

6. Monitoring, Non-compliance, and Enforcement

Monitoring is a key issue to consider when implementing water PES schemes. Under the Draft PES National Strategy, monitoring is defined as direct or indirect measurement of the ecosystem service or the related land use; it is to be periodically undertaken by the operator of the PES scheme or by the seller of the service. Monitoring can verify compliance with the contractual commitments, which can (depending on the contract) trigger the actual payments. But it is also important in order to observe whether the necessary actions to respond to cases of non-compliance have been undertaken or not. As a consequence, provisions related to monitoring should be explicitly incorporated in PES contracts.

For this, it is crucial to have a clear description of the baseline—that is, the land conditions at the moment of signing the PES contract. Such a baseline will allow a comparison of the land use that needs to be modified or preserved to generate or maintain the ecosystem services with the land use for which payments are requested under the PES contract. In addition, when defining baselines for water PES schemes it is important to develop a reference point for the hydrological services at the beginning of the PES implementation. This reference point will help to broadly assess the delivery of the water ecosystem service.

In the water PES cases analyzed, a description of the baseline is always included, though not in a single clause but in an annex that is part of the contract. Monitoring activities are undertaken by the project developer, the project operator, or another entity responsible for technical support:

- In the case of Munchique–Pinche, CIPAV contracts or arrangements establish the obligation to annually monitor changes in land use against the baseline. Landholders must authorize CIPAV (or an entity it designates) to conduct the monitoring and land use certification, as well as the socioeconomic, biodiversity, carbon, and water quality indices. The expenses for these activities should be the responsibility of the operator of the PES scheme.
- In the Chaina case, the water users associations are in charge of monitoring jointly with rangers of the Iguaque Flora and Fauna Sanctuary (a protected area included within the National Natural Parks System). The costs of these activities are covered by resources allocated to the project's administration.
- In the case of Fúquene Lagoon, the benefits of the re-conversion practices were determined through monitoring activities that involved field visits to farms, geo-referencing, and the collection of soil samples where 'green fertilizer' was used. During the same visit, farmers had to present documentation that verifies that the money from the credit was used according to the plan.
- In the Cauca Valley Water Users Associations, the Board of Directors is in charge of fund administration, approval of projects to be financed, and control and monitoring. The Board is responsible for verifying compliance of the beneficiaries identified in the contractual arrangements.

In the case of CIPAV Munchique–Pinche, the description of the baseline further refers to a baseline biophysical assessment of the property, micro-watersheds, and corridors. This assessment is a mechanism designed to monitor land uses and includes uploading of local information with global positioning systems and remote sensing images. Through the assessment, strategic maps could be developed. These include the particular properties, micro-watersheds, and land uses, and they establish environmental, socioeconomic, and productive indicators as well as a scale of 1 to 5 for ranking, which will facilitate monitoring at the farm level. The maps were developed and tested in the field and served as important elements to discuss the proposed changes in land use with indigenous people and farmers. Based on discussions with these parties, the maps were adjusted and submitted to producers or indigenous people as a planning tool of the property or *resguardo*.

Non-compliance with contractual obligations has to be regulated as well. In this regard it is important to have a closer look at the Civil Code in order to understand when a contract party can be held liable. Article 1604 of the Civil Code establishes that the debtor is liable for non-compliance only when he or she is responsible for such events. According to Article 63, this is the case when negligence

can be determined. However, the debtor is not responsible for events considered *force majeure* ('acts of God'), which are unforeseen circumstances that cannot be avoided.

The legislation also allows parties to include specific penalties in order to react to situations of non-compliance. Such penalties can foresee the payment of a fine to the other contract party that is in compliance. In the contracts of the reviewed PES cases, however, the compliance clauses instead foresee the exclusion of the landholder from the programme and the obligation to return any resources that have been received.

Parties may also use judicial procedures to declare both non-compliance and corresponding compensation. In Colombia, there is no specific jurisdiction dedicated to resolving conflicts over the environment and natural resources. Such issues thus go to the civil jurisdiction or administrative courts, depending on the nature of the parties in conflict. Given that a legal process usually takes a long time, conflict resolution mechanisms are generally preferred. However, the reviewed cases do not mention any mechanisms for resolving disputes or conflicts that arise as a result of non-compliance.

7. Good Governance

The new concept of the state as expressed in the 1991 Constitution significantly expands the role of the citizen in public affairs, in particular in cases related to the environment. The development of PES schemes is in line with this new concept, as it provides a mechanism for citizens to exercise their right to participate in decisions that affect the environment.

In the event that a contract is endorsed by a public entity, the law includes participatory figures such as 'citizen's follow up', public hearings on environmental management, and the mechanism of 'disclosure of accounts', in which all are afforded access to the same information regarding a public entity's investments and project development. In addition, all contracts signed by a public entity must be published in the Official Tabloid in order to be valid.

Further transparency mechanisms and public information requirements are often included in PES projects that involve communities, as such mechanisms contribute to the successful implementation of the project and help avoid misinformation. Workshops, community meetings, and site visits all contribute to a clearer understanding of the obligations formalized in PES contracts. CIPAV, for example, publishes booklets and distributes guidelines that explain the payment method used.

8. Conclusions

Although there is no specific legal framework related to payments for water-related ecosystem services in Colombia, a general legal framework provides a basis for the implementation of certain PES projects.

It is important to note, however, that in the water-related PES cases reviewed, the buyers are still limited to the private sector, landowners, and multilateral agencies (for example, the World Bank). In contrast, existing pilot projects do not yet include public entities as buyers of ecosystem services. This may indicate the need for regulation that clarifies the conditions under which such entities can participate in a PES scheme. In addition to articulating the roles and responsibilities of public entities, it appears to be important that the legal framework also outline the role of all actors, basic processes

and procedures for project implementation, as well as methodologies to acquire adequate scientific and technical knowledge (through modelling, monitoring, economic analysis, and strategies to achieve political and social support).

Furthermore, it can be determined that so far the main references to PES in the current legal framework are related to the recognition of the importance of ecosystem services and the need to undertake actions for their conservation and restoration. More specific regulations concerning the valuation and monitoring of ecosystems allow for regional identification of environmental problems that can guide the development and implementation of water PES projects. In many regions, however, the degradation and vulnerability of water resources and their ecosystem services continue to increase. This indicates that, beyond the planning aspects, some political, social, and economic conditions need further improvement in order to trigger the development and implementation of more PES projects.

A possible trigger could be the adoption of a National PES Strategy and the empowerment of the Ministry of Environment to lead the national implementation process. Such a strategy accompanied by a document of the Council of Ministers for Economic and Social Policy that defines resources, priority areas for implementation based on the national and regional water diagnoses, sectoral inputs, and implementation mechanisms could be a decisive step forward.

Another important aspect of PES in Colombia is that a regulatory framework with environmental obligations related to water use—fees for water use, mandatory investment of 1 per cent of the value of an environmental management plan, charges for water pollution, and financial transfers of the power sector and irrigation districts—already exists. With the exception of the mandatory 1 per cent investment, these obligations contribute to the budget of the regional environmental authorities. In certain cases, however, water users have questioned the efficiency of management and investment of these resources. For example, transfers from the electricity sector are aimed at conservation and management of the catchment area of dams for hydropower generation, and they seek to improve environmental conditions of the area of influence and maintain the utility's infrastructure. The fact that these objectives have, in some cases, not been met constitutes a major barrier to securing additional funds for PES schemes that theoretically already have specific resources allocated to their activities.

Beyond discussion of the legal and institutional feasibility of PES projects, further progress is needed to increase capacity to develop such initiatives, especially in relation to methodological development and technical procedures to support payments for water-related ecosystem services. In order to address concrete realities and needs, this fundamental task must accompany the discussion process in the political and legal fora.

Under Colombian law, it is clear that water resources and their ecosystem services are the property of the nation. However, this does not preclude the creation of PES contracts, provided that the purpose of the contract respects this right.

Colombian legislation allows both owners and possessors to sign PES contracts, although titles must be legally registered. In practice, land registration is not widespread in rural areas. This constitutes a barrier for PES projects unless they include a component aimed at the supporting legalization of titles.

Black communities and indigenous peoples in Colombia have collective property rights over their lands. Although the law allows mechanisms for distribution of land use and the signing of contracts collectively, enforcement capacity is limited. This constitutes an additional barrier for PES projects within these communities.

The contractual regime provides an extensive basis for the full development of PES contracts, as it addresses issues of negotiation, compliance, monitoring, insurance, payments, conflict resolution, and enforcement that could each be adapted for a PES scheme. In the contracts of the cases reviewed, clauses as well as different implementation alternatives are used.

Although PES contracts may be enforced by judicial procedures, the long-term nature of these processes means that parties often prefer to resolve disputes via alternate means, such as conciliation or arbitration.

Analysis of the fiscal implications of water PES payments reveals that buyers can deduct payments as long as certification is carried out by the relevant environmental authority. This may constitute an additional incentive for private entities to finance ecosystem services. Although payments will theoretically generate VAT, in practice the transaction will not generate a tax burden, as sellers of ecosystem services are typically low-income individuals.

Some projects related to water PES schemes have demonstrated that project design can be modified and the quality of results improved during project implementation and through ongoing research and monitoring. It is important to consider different variables (e.g., social impacts, transaction costs, level of stakeholder satisfaction for both buyer and supplier) that also lead to effective project operations.

It is common for transparency mechanisms and public information to be included in water PES projects. Both contribute to successful project implementation and help reduce misinformation. Such mechanisms include workshops, community meetings, and site visits, all of which contribute to a clearer understanding of the agreements formalized in the contracts.

In the event that a contract is endorsed by a public entity, the law includes participatory figures such as 'citizen's follow up', public hearings on environmental management, and the mechanism of 'disclosure of accounts', in which all are afforded access to the same information regarding the public entity's investments and project development. In addition, all contracts signed by a public entity must be published in the Official Tabloid in order to be valid.

ANNEX 1

Water User Associations in the Cauca Valley

Background Description

The Cauca River flows northward 1,348 km (838 miles) from its source in the Andes and passes through two of Colombia's largest cities, Cali and Medellin. The watershed is essential to the country's economic well-being. Not only does it support significant industrial and agricultural bases of production, but its surrounding highlands and watersheds are the source of almost two-thirds of the country's coffee, nearly all of its sugar, and a variety of other crops.

As a consequence of these productive agricultural activities, erosion and water scarcity are the main problems perceived by water users in the Cauca River watershed in Valle del Cauca department. Users include the regional environmental authority (Cauca Valley Corporation, or CVC), the sugar cane producers association (Asocaña), and a regional NGO (Corpocuencas), who have together worked to form water users associations in each of the sub-watersheds of the river in order to carry out water conservation activities.

Based on an institutional mechanism created by the 1974 Natural Resources Law, water users associations were established in the late 1980s and early 1990s. Due to a growing concern over water supply, large-scale agricultural water users in the valley decided to take action and fund the implementation of sub-watershed management plans. These were prepared by CVC, which lacked sufficient resources to invest in implementation.

The first water users association was created in 1987. Currently 15 associations cover approximately 602,000 hectares and include 3,825 water users. This represents 90 per cent of the water demand of the watersheds covered by the associations. Table 1 highlights the characteristics of some of these associations.

Annex Table 1. Characteristics of Water Users Associations in the Cauca River Watershed (Echavarria 2001)

Association	River	Area (Has)	Population Watershed	Members	Funds collected 2000 - US\$
Asodes	Desbaratado	19,920	1,620	90	18,600
Asofraile	Fraile	28,015	3,750	200	8,400
Asobolo	Bolo> Guachal	19,875	3,250	144	41,900
Asoamaime	Amaime	55,500	16,500	124	52,000
Asumima	Nima> Amaime	12,120	3,200	21	8,400
Asoguabas	Guabas	17,000	630	452	18,600
Corp. Rio Guadaluja	Guadalajara	13,000	30,000	160	12,600
Fundación Ríos Tulua Morales	Tulua/Morales	103,000	21,000	309	35,000



Association	River	Area (Has)	Population Watershed	Members	Funds collected 2000 - US\$
Fundación Rio Bugalagrande	Bugalagrande	80,000	1,765	306	18,600
Asojamundi	Jamundi	61,000	12,400	40	22,300
Fundación Rio Riofrio	Riofrio	28,000	8,000	22	15,000
Corpopalo*	Palo	92,000	12,308	44	42,800
Total		529,430	114,423	1,912	294,300

*Corpopalo, located in Cauca Department, started under CVC's old jurisdiction of the Cauca watershed. Currently, the regional Cauca corporation works with Corpopalo. Source: Asocaña, "Asociaciones Cuencas Hidrográficas Sector Azucarero". 2.000.

The principal actors are the associations that have the support of the CVC, the institution that provides technical information about the status of the watershed and its management plan, including data regarding water supply and demand. Asocaña and Corpocuenca help users legally establish associations through two decision-making bodies: the Assembly and the Board of Directors.

Watershed management units are the basis for the watershed associations composed of water users registered with CVC. The user fees levied by CVC in 2000 ranged from US\$0.50 to US\$2 per litre per second per month, depending on the flow. Greater consumption results in a higher price. These funds were designed to be used for the implementation of watershed management plans. However, as funds collected are distributed among numerous CVC programmes, they are not sufficient to go beyond the payment of personnel. The pioneer organization was the Association of the Guabas River (Asoguabas), which acquired land in the upper part of the watershed to reduce deforestation rates (Echavarría 2001).

To invest in activities that protect the watershed and ensure the long-term viability of the water resource, the Assembly defines an amount additional to the fee that CVC charges for the use of water. As an additional incentive, CVC offers a discount of 25 per cent of the value for charges on users who pay money to the association. The Board of Directors manages the funds, approves the projects to be funded, and controls project implementation. CVC and Asocaña act as advisers and supporting parties to the Board. Projects are proposed and executed directly by the associations. In certain instances, communities in the upper parts of the watersheds present projects to be funded.

To date these associations have collected an estimated US\$4.8 million. Their principal investments were the purchase of lands in strategic areas of the watersheds (14,000 ha), support for sustainable agricultural practices, capacity building, and environmental sanitation and utilities (Blanco et al. 2008).

Key challenges to this initiative have been the increment in the water use fee and elimination of the CVC discount (considered illegal since 2005). The status of implementation of local initiatives remains unclear.

Analysis of the Case

All the communities involved in association activities are landowners (titled or as possessor) who are willing to work with the association. In fact, without collaboration among the beneficiaries, project activities would not be able to proceed. The associations are not concerned with direct payments for ecosystem services to communities in the highlands; instead they define their role as providing project financing to communities, without focusing on which types of projects to fund. In this sense, the implementation of agreed-upon activities constitutes a contract between the landowner and the association under the terms established under civil jurisdiction and with a focus on projects included in the watershed management plans.

Associations have the support of CVC, the institution that provides technical information about the status of the watershed and its management plan, including data regarding water supply and demand.

As mentioned, economic recognition is not provided for a specific ecosystem service but rather for the inclusion of activities in different type of projects (reforestation, environmental sanitation, etc.) that contribute to improving the quality and water supply in the sub-watersheds. This implies that enforcement of contractual obligations of landowners or communities involved in project development is to be conducted by the corresponding auditory. Contracts also include non-compliance clauses to be used by both parties if necessary.

ANNEX 2

PES Scheme in the Fúquene Lagoon; Andean Watersheds Project (CONDESAN-GTZ)

Background Description

The Andean Watersheds Project seeks to reduce the eutrophication process taking place in the Fúquene Lagoon. The main objective is to offer technical support to improve agriculture practices, thereby reducing the amounts of pesticides and synthetic fertilizers used by local farmers. The seed capital necessary to initially finance the project was provided by the GTZ. The project goal is to develop a financial mechanism that includes a rotating credit that small farmers can manage independently.

The regional environmental authority and Sustainable Development of the Andean Ecoregion Consortium worked together to create a PES scheme that would promote sustainable agriculture while providing access to low-rate credits for local farmers.

The project was designed to be inclusive of a water quality improvement initiative in the form of reduced nitrate and phosphate loads, water supply, and sediment reduction. Four years after implementation, some technical support agreements with local farmers were established, but access to low credits was not as good as expected. In 2004, a total of 39 farmers obtained US\$20,000 from the fund, which they used to establish a more sustainable agricultural system on 86 hectares. At the end of the period, the farmers returned 99 per cent of the money borrowed.

This project was designed to promote alternative agriculture practices that would reduce the use of pesticides and agrochemicals and the use of green fertilizer, thereby reducing the amount of sediment run-off into the Fúquene Lagoon. It features a financial mechanism that creates a rotating credit, with low rates for farmers who decide to alter their traditional agricultural practices.

The funds were distributed according to the following criteria:

- Land area not to exceed 2 ha;
- Credit rates not to exceed 0.9 per cent;
- Debt to be returned by the eleventh month;
- For credit approval, farmers must present the re-conversion activities they intend to pursue, along with proof of technical approval of and support for their project; and
- The contract must be signed by a co-debtor who agrees to pay the debt in the case of non-compliance of the contract.

Analysis of the Case

There are no conditions in the credit agreement about the property rights of farmers that are different from the requirements typically found in this kind of transaction. Farmers sign a contract establishing the amount of money involved, the credit rate, the period for the credit, and the co-debtors. There is a clause indicating that the money must be used to change the agricultural practices currently in place. There is no explicit reference to ecosystem services or commitments that must be fulfilled by the farmer.

With the support of the technical group, farmers who participated in the project calculated the amount of money needed for the re-conversion process.

The benefits of the re-conversion practices were determined through monitoring activities that involved field visits to farms, geo-referencing, and collection of soil samples where 'green fertilizer' was used. During the same visit, farmers had to present documentation that verifies that the money from the credit was used according to the plan.

The project ended in 2006, once GTZ funds were exhausted. As there had been little advanced training to design low-rate credits with the commercial banks, the project thus was not economically viable. While there are reports that some farmers continued to receive support from local environmental authorities, there has been no mention of the areas included.

ANNEX 3

PES Chaina Payments for Watershed Protection Services Scheme

Background Description

The Chaina micro-watershed is located in the Boyacá Department and encompasses 444 ha that includes the municipalities of Villa de Leyva and Chíquiza as well as the Iguaque Sanctuary of Flora and Fauna (an area included in the National System of National Parks). This basin supplies fresh water to 5,000 people throughout seven rural areas within these municipalities.

The aim of the project is to guarantee the provision of sufficient amounts of potable water for the entire region. The PES scheme provides technical support to smallholders in order to promote sustainable agriculture and native forest conservation, while creating payments for owners who take part in the project.

The payments estimate is calculated using an opportunity costs methodology, and payments are conditionally based on an annual site evaluation. The first payment of this PES scheme was made in April 2007 and involved six farmers. The contracts involved the Villa de Leyva municipality (as project operator) and the water users association of the Chaina watershed, which was in charge of the monitoring process and collection of payments made by users of the rural aqueducts.

The scheme was designed to protect the Chaina watershed through conservation activities and the promotion of environmental agricultural practices. Project design was carried out by the Humboldt Institute, with the support of CIFOR. Both institutions have experience using valuation methodologies and market and economic instruments.

Analysis of the Case

The contracts used involved farmers with clear property rights to their lands. The contractual agreement included a clause that clarified that participation in the scheme would not signify recognition of property right to the Asociación de Usuarios de la Microcuenca de Chaina. The owners agreed to restrict the kind of activities or land use activities that would take place on their property.

There was no reported negotiation prior to the signing of the contract. However, during the period of contract design the owners were interviewed in order to assess the opportunity cost of their land so that appropriate payment sums could be determined.

The contract established the responsibilities and obligations of both parties. In addition, it included a clause for the resolution of potential conflict between parties, and an agreed-upon methodology for project monitoring throughout the term of the agreement, as well as a set contractual period of one year.

The contract also outlined a monitoring process to be used over the course of the project. This is to be carried out by a team that includes an individual designated by the Asociación de Usuarios de la Microcuenca de Chaina, a representative from the Iguaque Sanctuary of Flora and Fauna, and the owner. The process will occur during a pre-arranged field visit. Disbursement of the payment will occur in three phases. An initial payment of 50 per cent will be made at the signing of the contract, an additional 25 per cent will be paid after 6 months, and the final 25 per cent at the end of the year.

During the process, the involvement of the Villa de Leyva municipality and the Iguaque Sanctuary of Flora and Fauna helped to build the community's trust and capacity.

ANNEX 4

Payment for Ecosystem Services to Support Reforestation of Riparian Zones in the Munchique–Pinche Corridor, Cauca

Background Description

CIPAV, PROSELVA Foundation, and the Asociación de Cabildos Indígenas del Sur Occidente, designed a PES scheme with funds provided by the Global Environmental Facility. The project aims to create a biological corridor in the western mountain range of the Cauca Department in Colombia. (See Annex Figure 1.)



Annex Figure 1.
Location of the proposed
Munchique–Pinche Conserva-
tion and Multi Cultural Corridor
(CIPAV 2006)

The proposed biological and multicultural conservation corridor extends 350,000 ha across 10 municipalities. The largest part is located in the Morales municipality in the north. This area includes the Nasa–Paez indigenous community, who inhabit 27,000 ha of the corridor and adjacent areas that face significant land pressure. The indigenous area is located along the Dinde and Inguító Rivers, major tributaries of the Cauca River, where the Salvajina hydroelectric dam is located.

Many of the watersheds in the area supply the aqueducts for the same indigenous population. This project was designed to develop a compensation scheme for ecosystem services in two selected areas of the Corridor Munchique–Pinche: the indigenous area and an area inhabited by farmers in Galera. It is expected that the information, experience, and lessons learned in this project will enhance the initiative, involving stakeholders and institutional key actors in project development, operation, and sustainability.

As a Compensation Environmental Services project, the initiative focuses on the conservation and restoration of micro-basins and watersheds that supply rural aqueducts and the multi-use Salvajina dam. These generate cycles of reciprocity among providers of water resources, which includes the Nasa–Paez indigenous communities who inhabit the river watersheds and the Dinde Inguító in the

municipality of Morales, the buffer zone of Munchique National Natural Park. Beneficiaries are either in terms of consumption or electricity generation (rural aqueducts and the Pacific Energy Company SA – EPSA).

In the short term the project aims at conservation and restoration of micro-watersheds for the supply of aqueducts and small rural micro-power plants in indigenous and rural communities. In the medium and long term, the project aims to contribute to Dinde and Inguitó the management and territorial ordering of the watershed, supply the dam, and establish riparian corridors to link the downstream zone of the basin with Munchique National Park along its buffer zone.

Project design involved different types of ecosystem services, including watershed protection, reduction of the sedimentation, and biological conservation. The principal focus of the project is to promote sustainable land use alternatives.

The project plans to develop in four stages:

- Establishment of the ecosystem service supply and demands related to the watershed;
- Strengthening of local knowledge related to sustainable use of natural resources and local understanding of the role of monitoring in preserving the natural conditions;
- Design of the PES scheme; and
- Commencement of project operation and initiation of fund with local investment contributed by the operators of the Salvajina dam.

As of December 2008, the project had made progress on the first two stages.

Analysis of the Case

The legal framework that involves indigenous communities is regulated differently from that relating to private landowners. One of the challenges reported was identifying how the PES scheme would manage contractual responsibilities upon implementation. In the project design, contractual matters were reportedly difficult. Some of the areas that participants had wanted to include were from indigenous communities where legal treatment was different, as communal property rights did not permit the designation of individual responsibilities upon signing of the contracts.

In addition, there is concern about how the introduction of payments for the protection of the environmental conditions might affect the stability of the community. This situation could potentially be resolved by using alternatives to monetary payments.

According to the results provided by CIPAV (the organization in charge of the initiative's execution) the project will provide the following:

- Analysis of opportunities for conservation and restoration and the establishment of corridors in two areas of the Multicultural Munchique–Pinche National Park Biological Corridor;
- A baseline in the biophysical and socioeconomic areas with priority for the establishment of corridors, including mapping and analysis of land use change to identify trends;
- Technical proposals for change in land use;
- Pilot mechanism for payment for ecosystem services, based on the rankings of different land uses and recommended management practices;

- A mechanism for monitoring changes in land use, based on field data from global positioning systems and supplemented by the use of remote sensing images; and
- A fund established by CIPAV and stakeholders to manage other funds and strengthen the operation of the compensation ecosystem services mechanism.

References and Bibliography

Allen, R. G., L. D. Pereira, D. Raes, and M. Smith. 2006. Evapotranspiración del Cultivo. Rome: Food and Agriculture Organization.

Blanco, J., S. Wunder, and F. Navarrete. 2008. La Experiencia Colombiana en Esquemas de Pagos por Servicios Ambientales. In *Reconocimiento de los Servicios Ambientales: Una Oportunidad para la Gestión de los Recursos Naturales en Colombia*, ed. S. C. Ortega, pp.109–17. Bogotá: Minambiente, UAESPNN, WWF, Conservation International, The Nature Conservancy, and Center for International Forestry Research.

Carriazo, F., A. M. Ibañez, and M. García. 2003. *Valoración de los Beneficios Económicos Provistos por el Sistema de Parques Nacionales Naturales: Una Aplicación para el Análisis de Transferencia de Beneficios*. Bogotá: Fedesarrollo, Universidad de los Andes y PFI Holanda.

Chará, Juan David. 2002. *Interacciones entre el uso del suelo y los aspectos bióticos y abióticos de microcuencas en el departamento del Quindío*. Informe del Convenio CIPAV - Corporación Autónoma Regional Del Quindío CRQ, Cali, Colombia.

CIPAV (Centro de para la Investigación en sistemas sostenibles de producción agropecuaria). 2006. Payment for Ecosystem Services to Support Reforestation of Riparian Zones in the Munchique-Pinche Corridor, Cauca. <http://munchiquepinche.cipav.org.co/index.php?section=20>

Echavarria, M. 2002. Water user associations in the Cauca Valley, Colombia. A voluntary mechanism to promote upstream-downstream cooperation in the protection of rural watersheds. In *Land-Water Linkages in Rural Watersheds Case Study Series*. Rome: Food and Agricultural Organization. <http://www.rlc.fao.org/foro/psa/pdf/water.pdf>

IDEAM (Instituto de Hidrología, Meteorología y Estudios Ambientales). 2008. Resumen Técnico del Módulo Uso de la Tierra, Cambio en el Uso de la Tierra y Silvicultura del inventario Nacional de GEI Años 2000 y 2004: Proyecto 'Preparación de la Segunda Comunicación Nacional ante la Convención Marco de Naciones Unidas sobre el Cambio Climático'. Bogotá, Colombia.

Johnson, N., A. White, and D. Perrot-Maître. *Developing Markets for Water Services from Forests: Issues and Lessons for Innovators*. Washington, DC: Forest Trends, World Resources Institute, and The Katoomba Group.

Krchnak, K. M. 2007. *Valoración de Cuencas como una Herramienta para la Conservación de la Biodiversidad. Lecciones Aprendidas de Proyectos de Conservación*, Arlington, VA: The Nature Conservancy.

Livestock, Environment and Development Initiative and Food and Agriculture Organization. 2006. *Livestock's Long Shadow: Environmental Issues and Options*. Rome.

Murgueitio, E., M. Ibrahim, E. Ramírez, A. Zapata, C. Mejia, and F. Casasola. 2003. *Usos de la Tierra en Fincas Ganaderas: Guía para el Pago de Servicios Ambientales en el Proyecto Enfoques Silvopastoriles Integrados para el Manejo de Ecosistemas*. 2nd ed. Medellín, Colombia.

Myers, et al, 2000. Biodiversity hotspots for conservation priorities. *Nature* 403, 853-858.

Pagiola, Stefano. 2008. Payments for Environmental Services in Costa Rica. *Ecological Economics* 65 (4): 712–24.

Rodríguez, Nelly. 2006. *Ecosistemas de los Andes Colombianos*. Instituto de Investigación de Recursos Biológicos, 2nd ed. Bogotá: Alexander Von Humboldt.

Wunder, Sven. 2005. *Payments for Environmental Services: Some Nuts and Bolts*. Bogor, Indonesia: Center for International Forestry Research.

—. 2006. *Pagos por Servicios Ambientales: Principios Básicos Esenciales*. Occasional Paper No. 42. Bogor, Indonesia: Center for International Forestry Research.

Annex IV: Peru Report

(January 2009)

Legal disclaimer: The information contained in this report is for general informational purposes only. Laws, rules and regulations may have changed since the writing of this report, and the application of such laws, rules, or regulations will, in any case, vary widely depending upon the particular facts and circumstances involved. Accordingly this report should not be construed to contain legal, accounting, tax or other professional advice. The IUCN Environmental Law Centre and Forest Trends, Katoomba Group, are not responsible for any errors or omissions in the report, and make no representations as to the accuracy, completeness, or timeliness of the information contained herein.

Table of Contents

List of Acronyms	243
Executive Summary	245
1. Introduction	247
2. Legal and Institutional Frameworks Regarding PES Schemes	249
2.1 Legal Framework	249
2.1.1 Constitution, Organic Law for Sustainable Management of Natural Resources, and General Environmental Law	249
2.1.2 Specific PES Legislation	251
2.1.3 Ecosystem-related Legislation	252
2.1.4 Indirectly Relevant Legislation	259
2.2 Institutional Framework	261
2.2.1 Institutions Involved at All Levels	261
2.2.2 Scale for Establishing PES Schemes	263
2.3 Conclusions on Legal and Institutional Frameworks	263
3. Property Rights Issues	264
3.1 Land Ownership, Ownership of Natural Resources, and Ownership of Ecosystem Services	264
3.1.1 Rights Granted over Water Resources	264
3.1.2 Rights Granted under the Forestry Law's Framework	265
3.1.3 Rights Granted under the Natural Protected Areas Law	266
3.1.4 Rights of Native and Peasant Communities	267
3.1.5 Conclusion on Land and Natural Resources Ownership	268
3.2 Transfer and Inheritance Issues	268
3.3 Customary Rights Legislation	269
3.4 Land Use Change	269
3.5 Protection from Illegal Exploitation	270
3.6 Conclusions and Recommendations on Property Rights	270
4. Negotiation	270
5. Contractual Issues	271
5.1 Parties to the Contract	271
5.1.1 Legal Capacity	271
5.1.2 The State's Role in PES Agreements	272

5.2	Legal Nature of the Contract	272
5.3	Obligations of the Parties	272
5.4	Period of Time/Duration	273
5.5	Fiscal Implications of Deriving Income from Sale of Ecosystem Services	273
5.6	Securities and Risk Allocation	273
6.	Monitoring, Non-compliance, and Enforcement	274
6.1	Monitoring the Provision of Services	274
6.2	Non-compliance and Dispute Resolution	274
7.	Good Governance	274
7.1	Public Participation	274
7.2	Access to Information	275
7.3	Accountability	275
7.4	Transparency	275
8.	Conclusions	275
	ANNEX	279
I.	Background Description	279
II.	Analysis	281
	Bibliography	285

List of Acronyms

ANA	National Water Authority
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
INRENA	National Institute of Natural Resources
MINAG	Ministry of Agriculture
MINAM	Ministry of the Environment
NGO	nongovernmental organization
NPA	natural protected area
PES	Payment for Ecosystem Services
SINANPE	National System of Natural Protected Areas
SUNASS	National Superintendence of Sanitary Services
SUNAT	Tax Administration

Executive Summary

This document provides an overview of the legal and institutional frameworks of voluntary payments for ecosystem services (PES) for water in Peru, as part of a larger study entitled *Improved Understanding of Payments for Ecosystem Services – PES*. The overall goal of this and similar research done in several other countries of the region is to develop guidelines for the legal and institutional structures required to support PES schemes and their implementation. The scope of the work includes legislation, institutions, property rights, negotiations, contracts, monitoring and enforcement, and good governance related to water PES schemes.

At the moment, there are no water-related PES schemes being implemented in Peru. Thus the research done for this document analysed existing legislation – from the Constitution to environmental and natural resources legislation – as well as some of the ideas being considered in the design of an initial PES scheme in two local conservation areas in the region of San Martin that are responsible for providing water to the city of Moyobamba. The peasants who live in these two local conservation areas do not have property or any kind of rights over the land they work in or other natural resources found in these areas. Thus this first scheme is an interesting challenge for the establishment of any legal agreement on this type of area.

The document explains legal and institutional framework obstacles found in the design of the initial PES scheme as well as how these are being surpassed and how diverse organizations are working together. Given the interest displayed by so many stakeholders and the water quality and quantity problems facing many cities in Peru, the design of PES schemes is gaining in importance.

The study's recommendations include the following:

- There is a need to clarify who can be considered providers of ecosystem services and who can have rights over them. The rights that can be granted over these services also need clarification.
- Changes need to be made in the institutional framework in order to promote the conservation of water resources.
- The decentralization process currently under way in Peru may have a positive influence on the design and establishment of PES schemes.
- In many cases, people who should be included in the design of a PES scheme do not have rights over the land or the natural resources, and although working with these individuals implies great risks for the design and establishment of the scheme, it is important to patiently analyse the situation in order to establish mechanisms to include them (as beneficiaries of the scheme or as sellers of ecosystem services).
- The benefits of performing sustainable and/or conservation activities could involve actual benefits, such as the establishment of PES schemes that can compete with perverse incentives that grant rights over land when changing land use from forestry to agriculture.
- Legal mechanisms should be innovative, given that many of the people who will be considered sellers of these services do not have rights over the land or the natural resources found in the areas where the schemes are being designed.

1. Introduction

In Peru, the provision and quality of water resources is of increasing importance because these resources are considered scarce, finite, and expensive due to demographic growth, economic expansion, and climate change. Peru has three main geographical regions – the coast, the highlands, and the rain forest – which vary tremendously in the quantity and quality of water available.

Peru's water resources are found primarily in three main basins (see Table).

Basin	Population (%)	Water (%)	Comment
Pacific	70	1.7	Ironically, although this basin does not have big amounts of water resources, it contains the majority of Peru's population. Thus the use of water for agricultural needs combined with the population's irresponsible use is putting water resources at risk.
Atlantic	26	97.8	This area includes some Andean regions and especially the rainforest. Population density here is very low. In this basin there are very big areas destined for conservation and natural protected areas (NPAs). Management of water resources is not very developed but should be given priority because their conservation will in turn contribute to the conservation of the basin's ecosystems.
Titicaca	4	0.5	There is low population density in this area, and thus there are no problems concerning the demand of water resources.

The Atlantic Basin, better known as the Amazon Basin, is of extreme importance because the Amazon River is considered the longest, widest, and deepest freshwater course and is home to one of the richest biodiversities of the world. The Amazon Basin is formed by several rivers that are found in the highlands of Peru, which in turn highlights the importance of conserving these areas through different mechanisms.

Despite the important role of the Amazon in regulating this whole ecosystem, it faces several threats. The environmental problems that can affect the sustainability of this resource can be summarized as follows:

- Anthropogenic pressure, which contributes to the destruction of fragile ecosystems and the Andean foothills, due to the uncontrollable advance of the agricultural and cattle raising frontiers.
- Deforestation and clearance of vegetative cover, mainly in the upper basin, causing problems involving the loss and erosion of soils, reduction of biodiversity, and silting of rivers. In the middle and lower basins, deforestation problems are related to excessive exploitation of the higher-value forest species, indiscriminate fires, and the development of models on soil use that favour monoculture crops of species with short-term cycles.
- Contamination of water bodies mainly due to the indiscriminate use of biocides in agriculture, the discharge of solid residues and residual waters from the principal urban centres, the use of chemical precursors in plantations of illicit crops, the discharge of mercury in gold extraction, natural and anthropogenic alterations to the soils, and, in certain areas, oil spills due to oil exploration.¹

¹ ACTO. 2004. *Strategic Plan of the Amazon Cooperation Treaty Organization (2004–2012)*. DOC/XII ACC- ACTO/04. Brasilia, Brasil. Available at: www.otca.info/PDF/Strategic_Plan.pdf

In relation to the Pacific Basin, which produces water resources for most Peruvians, the following threats can be identified:

- Irrigation infrastructure built to help maintain agricultural lands, which in turn risks the capacity of the basins found here, giving priority to the use of water for agricultural over human use.
- Lately, projects for the production of ethanol or crops that can produce biofuels. These projects are settling here because of the supply of agricultural land due to irrigation projects in the area. The irrigation projects have been promoted by the central government for more than two decades. These projects pose a threat to water resources in some areas of the coast, considering the amount of water they need.

Considering these conditions, people living in these areas are beginning to understand the problems caused by the indiscriminate use of water and the destruction of related ecosystems. And payments for ecosystem services (PES) are rapidly gaining in importance as an instrument that can help preserve these ecosystems and freshwater resources.

Peru has limited experience with implementation of water PES schemes so far. No schemes are being implemented, but considerable research and elaboration for the future implementation of PES schemes is being done:

- In the National Reserve Salinas and Aguada Blanca – River Chili Basin, the National Institute of Natural Resources (INRENA)² has proposed a study to implement a PES scheme. The possibility of implementing a PES scheme in water resources have been evaluated in the River Chili Basin. The study's goal is to implement schemes that will finance the conservation activities in natural protected areas, given the limited budget of these areas. Among the identified potential sellers of the services are poor peasants living in the upper basin. In the case of potential buyers, this study has identified the population of the city of Arequipa (located downstream) as well as diverse companies located downstream such as mining companies, sewage companies, and big farming companies.
- A second study is being conducted in the National Park Yanachaga Chemillen in the San Alberto River Basin for the implementation of a PES scheme for water resources.
- The Project for the Equitative Compensation of Hydrological Ecosystem Services in Peru is part of an interinstitutional cooperation between CARE Peru, World Wide Fund for Nature (WWF), and the International Institute for Environment and Development (IIED). The main objective is the establishment of water-related PES schemes that will result in the sustainable management of natural resources and better conditions for the poor people who live in the basins of the Jequetepeque and Piura Rivers. The project's execution is in its first phase, with a business proposal being developed based on scientifically validated data, to convince potential buyers and sellers of the economic and ecological opportunities of PES schemes. This scheme is being elaborated in the northern part of Peru, in the regions of Cajamarca, La Libertad, and Piura.

2 Public Decentralized Organism of the Ministry of Agriculture created in 1992. It is in charge to make the necessary actions for the sustainable management of renewable natural resources and secure the conservation of the sustainable management of the rural environment and biodiversity. As national authority it should work closely to regional and local governments, organized civil society, public and private institutions.

In addition to these developments, the most advanced experience is found in the basins of Rumi-yacu-Mishhquiyacu and Almendra Rivers in the Region of San Martin. Here the German development agency, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), has been working on the implementation of an experimental PES scheme with farmers who are located in the upper basin of these rivers and who are also part of two local conservation areas established by the local government. (See Annex.)

- One of the principal barriers to implementing water-related PES schemes is probably the lack of execution of the national government's duties as well as the lack of enforcement and compliance with the environmental legal framework on natural resources. These can be considered some of the most important issues that may have impeded the development of water-related PES schemes, as well as any other PES scheme. Another important issue to consider is that the environmental institutions are plagued with fragmentation, poor coordination, and scattered water competences. This is true even after the creation of the National Water Authority (ANA) within the Ministry of Agriculture.
- Thus in order to promote, design, and establish any PES scheme it is necessary to clarify certain issues regarding who can have rights over ecosystem services and any limits to those rights. However, recent modifications of the legal and institutional frameworks on environmental and natural resources issues are opening up interesting possibilities to promote the establishment of PES schemes in Peru in order to finance sustainable management and conservation activities.

2. Legal and Institutional Frameworks Regarding PES Schemes

2.1 Legal Framework

2.1.1 Constitution, Organic Law for Sustainable Management of Natural Resources, and General Environmental Law

Peru's Constitution (*Constitución Política del Perú*) dates back to 1993. There is no specific reference in the Constitution to PES or to any payment or compensation for managing or preserving natural resources. But there are certain provisions regarding the environment, natural resources, and the state's role in relation to these.

The Constitution establishes the fundamental right to enjoy an appropriate and adequate environment for the correct development of a person's life. This implies that the government has a concrete obligation to provide or secure an adequate environment and an appropriate use of natural resources for its population. In addition, it means that people have the duty to interact with the environment in an adequate way (Article 2).

Regarding natural resources, it clarifies that these are all considered the natural heritage of the nation. Based on this premise, the Organic Law for Sustainable Management of Natural Resources (*Ley Orgánica para el Aprovechamiento Sostenible de los Recursos Naturales*), establishes the conditions through which the state will grant rights over these resources. This law also enumerates what may be considered a natural resource, which includes underground and superficial water as well as soil, subsoil, and land classified by its overall capacity or possible use as agricultural, livestock, forest, protection lands, etc.

The Organic Law for Sustainable Management of Natural Resources does refer to ecosystem services³ when establishing that the state will elaborate inventories and/or value natural resources as well as the ecosystem services these may provide (Article 10). However, it does not include any reference to establishment of any kind of compensation or payment for the provision or maintenance of these services.

On the other hand, the General Environmental Law (*Ley General del Ambiente*)⁴ recognizes explicitly the importance of ecosystem services, as well as pointing out that the benefits these services produce are not compensated. It orders the state to create the necessary financial mechanisms to value, reward, and maintain the provision of these services: “Article 94° – Natural resources and other components of the environment accomplish functions that allow maintaining the conditions of the ecosystems and of the environment, generating benefits that are being used without paying any retribution or compensation. This is why the State establishes mechanisms to value, reward and maintain the provision of the environmental services, trying to achieve the conservation of the ecosystems, the biological diversity and other natural resources.”

In order to promote the establishment of PES schemes, it is necessary first to take certain steps that are included under this law and other specific natural resources laws, such as:

- Design and establish an adequate surface planning system (Article 17);
- Include in the national accounts the value of the natural heritage of the nation (Article 45);
- Elaborate and update permanently the inventory of natural resources and the ecosystem services they provide, as well establish a value for these services (Article 85); and
- Promote the creation of mechanisms that may finance, pay, and supervise ecosystem services (Article 94).

The lack of implementation of the national government's duties such as those just described has hindered and made the establishment of PES schemes more difficult in Peru. The lack of enforcement of and compliance with the environmental legal framework regarding natural resources can also be considered an important issue that may have impeded the development of water-related PES schemes.

However, following the creation of the Ministry of the Environment (described later), many of the duties derived from the General Environmental Law, among other laws, will be directly assumed by this new institution. One of its duties is to elaborate the inventory and establish mechanisms to value the natural heritage of the nation, in coordination with sectoral and regional authorities, in order to maintain the provision of ecosystem services as well as promote their funding, payments, and supervision.

3 For reasons of consistency, the term 'ecosystem services' is used in this document as a translation from the Spanish 'servicios ambientales'.

4 Law 28611, General Environmental Law, issued in October 2005.

2.1.2 Specific PES Legislation

As noted earlier, there is no specific law or regulation regarding the establishment of PES schemes. But the enactment of a specific PES law is not a prerequisite for designing or implementing such schemes. In fact, despite the lack of specific PES legislation, several initiatives are currently being designed for water-related PES schemes as well as for reducing carbon emissions from deforestation and forest degradation.

One of the most important issues encountered when designing these PES schemes is clarity over who owns the ecosystem services or who has rights over them. This has a direct relation to clarifying the cause-and-effect models required to link land use and PES schemes. Therefore, although it is not imperative to enact specific PES legislation, it is necessary to clarify specific natural resources legislation that has included the ecosystem services perspective.

Nevertheless, last year due to the growing interest in promoting and regulating PES design or establishment, one proposed law was presented in Congress: Legal Proposal no. 2386/2007 –CR Law for the Promotion and Compensation of Environmental Services. This law's proposed goal is to define, regulate, and promote activities to value and compensate ecosystem services, proposing:

1. *A definition of ecosystem services.* This definition does not consider an ecosystem approach and does not relate to the existing definition found in the General Environmental Law.
2. *Creation of a fund (FONAFISA) composed of the economic receipts from PES schemes.* This is an important issue that is brought into discussion by this proposal. Probably the need to create one fund for all PES schemes should be discussed, considering that in cases such as water PES schemes the idea is to have a more local scheme and thus diverse funds. Given that the bodies involved in the design of PES schemes are local (governmental and nongovernmental organizations (NGOs)), a national fund could be a bureaucratic disincentive for these institutions.
3. *Granting concessions for ecosystem services.* This component was erased from the Forestry Law in its last modification. The creation of this type of concession does not consider that in order to obtain rights over ecosystem services it is necessary to implement sustainable management, conservation activities, or wise land use. These activities are implemented through legal instruments such as conservation, ecotourism, timber and non-timber concessions, among others. Thus the creation of this legal instrument does not have a special objective other than benefiting from negotiating ecosystem services.

Concerning the institutional framework, this legislative proposal does not consider the diverse public institutions that have a role in natural resources or ecosystem services, such as the Ministry of the Environment. Also, it does not consider in depth the importance of regional and local governments as well as the need to coordinate activities between the Ministry of Environment, Ministry of Agriculture (Forestry Authority and National Water Authority), and other sectoral authorities that may have some supervision of ecosystem services.

This proposal has not become law. But given the growing interest in these issues, it is possible that other such proposals will be presented in Congress. Also, considering the mandate contained in several laws regarding the Ministry of the Environment's regulation of ecosystem services, a legal proposal on these issues is found in the Ministry of Environment's Webpage⁵ (www.minam.gob.pe). (See Box.)

Ministry of Environment's Proposal: Law that Regulates the Compensation of Ecosystem Services

The objective of this draft law is to establish the general framework for the compensation and/or retribution of ecosystem services in order to promote the conservation, recovery and sustainable use of biodiversity and the natural resources of Peru. It establishes an important link between natural resources and the ecosystem services these provide, and it clarifies that one of the goals of their compensation is to stimulate private initiatives in the conservation of the national heritage.

The draft law states that people who collaborate in the provision and maintenance of ecosystem services should be compensated. Furthermore, the law foresees that the State can assign or transfer the right to benefit from these services to individuals that help out in the conservation of the natural heritage of the Nation. However, there is no reference to the existing legal instruments that establish duties with regard to the sustainable management and conservation of natural resources. Reference to such existing legal instruments could clarify the uncertainties that exist nowadays regarding the cause effect relationships between land use and PES schemes.

As the General Environmental Law this draft law states that the Ministry of Environment has the duty to elaborate an inventory of ecosystem services, as well as to establish the mechanisms to value, reward and maintain their provision. An innovation, however, is that this Ministry should additionally approve the initiatives that establish ecosystem services compensation. In the specific case of PES water related schemes the draft law determines that the national water authority in coordination with the Ministry of Environment should approve and supervise these initiatives.

In general, it can be said that this proposal is a step in the right direction as it starts an important discussion led by the Ministry of Environment about the necessary legal framework to establish PES schemes.

2.1.3 Ecosystem-related Legislation

Several important ecosystem-related laws have been approved over the last 10 years. These have established the concept of ecosystem services or recognized the possibility of implementing PES schemes. However, laws that date back to the late 1960s or 1970s, such as the Water Law, do not contain such concepts.

General Water Law and New Legislation on Water Resources ⁶

The General Water Law dates back to 1969. It establishes a system based on agricultural and human

5 This legal proposal containing diverse modifications was given to the Congress on April 2009, and is now under discussion.

use of the natural resource, with an extractive/use perspective. The vision of this law is to use water resources as an instrument to promote agricultural activities.

This law contains several issues that can be considered as core aspects for the design and establishment of a PES scheme:

- *Water as a good of public domain.*⁷ This makes the state a key stakeholder in any PES schemes established. As explained later in this report, several governmental institutions are playing important roles in the design of PES schemes. In the case of the two local conservation areas, the number of government agencies involved, as well as other private institutions, has made it necessary to create a Management Committee that will help coordinate the institutions for the implementation of the future PES scheme.
- *Water has no economic value.* This makes it very difficult to establish a PES scheme, considering there is no economic point of view in the management of the resource.
- *Priority for water use and non-existence of an ecological flow.* The law gives priority not only to human use but also to agricultural use above other uses, such as mining or industrial use. Another important issue is that there are no considerations regarding ecological flows, which becomes important when establishing the baseline for water resources.
- *Securing the complementary goods associated with water services.* The law only establishes that some goods associated with water cannot be granted in property, but it does not establish how the state or private institutions can achieve their conservation.

Successive efforts from several governments and civil society have attempted to amend the Water Law, especially since the 1990s, when important regulations related to the environment and natural resources were enacted. As of January 2009, however, it still was not possible to agree on a new legal framework. Nevertheless, other regulations enacted over the last few years have added interesting changes to the water regulatory framework that can support the construction of PES schemes, like the Forestry Law and the Natural Protected Areas Law, as described later.

The opportunity of a legal framework with a more integral perspective was developed in 2005 by the General Environmental Law, which establishes in its Article 90 that the State promotes and monitors the sustainable use of continental waters and the integrated management of the water resources, prevents the further degradation of water quality and the natural conditions of the ecosystems where the water is located. Furthermore, the State regulates the assignment of water use rights depending on social, environmental and economic criteria, and promotes investment and private sector participation in the sustainable use of the resources.

6 After the elaboration of this study the General Water Law and its regulations were annulled, and a new Hydroic Resources Law was enacted, which in turn also annulled the Legislative Decree 1081: National System of Water Resources and its regulations.

7 Article 1 of the General Water Law establishes: 'Water, without exception, is state-owned, and its domain is inalienable and indefeasible. There is no private ownership of water rights or on them. Justified and rational use of water can only be granted considering the interests of society and the country's development.'

Legislative Decree 1081 and Its Regulation: National System of Water Resources

This Legislative Decree 1081 approves the National System of Water Resources. It was enacted in June 2008, its regulations were passed in September 2008. The system's purpose is to secure the integrated and multisectoral management, sustainable development, conservation, and increase of water resources, in order to guarantee their supply to this and future generations.

Among the new vision that this law brings are the following principles for the integrated management of water resources:

- a) Economic, social, environmental, and cultural value of water resources and thus sustainable use that promotes and controls the use and conservation of these resources.
- b) Legal security for granting rights over water resources.
- c) An ecosystem vision in the management of water resources, interacting with multiple uses that are related to the hydrological cycle, considering the other natural resources involved (e.g., forests, lands, air, and biodiversity).

In addition, this law differentiates the concepts of economic retribution and water tariff:

Economic Retribution	Water Tariff
Economic retribution refers to the compulsory payment to the state that must be done by water users. This payment is based on the idea that water is a natural resource, part of the natural heritage of the nation, and thus the state should be compensated for its use. The amount is determined by taking into account social, economic, and environmental criteria.	The water tariff is the payment done by water users to the operators of water infrastructure which provides services such as regulation, derivation, conduct, distribution, and supply of water resources. This tariff's structure includes the costs of operation and maintenance of the infrastructure, the recovery of the investments, and the management of risks that will allow having a contingency fund to respond to emergencies or any other non-programmed event.

Considering the definition of economic retribution, it seems that one of the environmental criteria to include when determining the amount to be paid could be the conservation of a watershed as well as the ecosystem that surrounds it. Thus, this opens an interesting opportunity to establish PES schemes related to urban areas, where sanitary service companies could pay the state for the conservation of the upper basin areas, and the state could establish relationships with the people living in those areas.

However, this law and its regulations do not clarify the possibility of modifying the water tariff's structure by including the concept of conserving the ecosystem of the watershed. This is important, considering that many PES schemes under design, especially the two conservation areas in the region of San Martin, have indicated the need to raise the water tariff in order to implement the PES scheme.

The regulations of this Legislative Decree establish that one of the components of the economic retribution for the use of water resources for agriculture and of the water tariffs for the use of hydraulic infrastructure can be an item labeled “Voluntary Contributions”. In order to include this item in the water receipts, the Water User Board (which brings together all the users of water resources) should make a request to the National Water Authority to include this item. Given that the regulations have not defined specifically what can be considered under this item, there is an opportunity to include a payment to fund the conservation of the upper basins.

Natural Protected Areas Regulations

Today about 14 per cent of Peru's territory is in the Natural Protected Areas System. The establishment of these areas is based on the mandate found in Article 68 of the Constitution, which indicates that the state has the obligation to preserve a certain portion of the natural heritage of the country. These obligations have been reinforced by the diverse international treaties signed by Peru that stress the importance of protecting these areas. These are the main reasons why Peru has made important progress in the development of a legal framework for the establishment of natural protected areas, as well as in their creation.

The relationship between ecosystem services, specifically the ones derived from water resources, is explained in the Natural Protected Areas Law, Law 26834,⁸ which establishes as its goals “to maintain and manage the functional conditions of watersheds and thus ensure the capture, flow and water quality, controlling erosion and sedimentation; and to ensure continuity of environmental services that the NPAs provide”.

Several management plans for these areas have included components on the protection of watersheds, control of the basin's erosion, and protection of water-related ecosystem services, among others, as one of the main reasons/goals to create these areas, such as in the cases of:

- Salinas and Aguada Blanca Reserve in the region of Arequipa – water for the population as well as for agriculture and livestock activities;
- National Park Huascarán – conservation of glaciers and water for the city of Huaraz;
- National Park Bahuaja Sonene – conservation of the Amazon Basin that provides clean water to the city of Puerto Maldonado; and
- National Park Yanachaga Chemillén – preserve the upper basin of the rivers Palcazo, Huanca-bamba, and Pozuzo in order to guarantee the sustainable production of nearby valleys, avoid natural disasters produced by the erosion of protection lands, maintain water quality, and preserve scenic beauty.

The relationship between natural protected areas and water-related ecosystem services is also found in the local field, where diverse regional governments such as those with forests in highlands and others found in the Andes region have approved the creation of local conservation areas. One of the

8 Law 26834, Natural Protected Areas Law, issued on June 1997.

principal goals of these areas is the protection of water resources and its elements as well as the values this includes, such as the forests that can be found around the basins.

Thus, regarding local conservation areas that have been created it is important to consider that:

- Given the information included in the local laws enacted for their creation, an important percentage of these have established that one of the goals for their creation is the protection of basins.
- GTZ has promoted the creation of local conservation areas as a way to protect ecosystems in danger, linked to the fact that they are important for the maintenance of water resources.
- The goals for the creation of these local conservation areas are accompanied with a management model that aims to have the basin's stakeholders understand and appropriate the idea of common management, assuming that these stakeholders have different responsibilities towards this management.

Actually, these areas have important legal problems. Their creation was based on a mandate established in the regulations of the Natural Protected Areas Law. However, this specific article in the law was eliminated, so now there is no legal basis for the creation of future local conservation areas.

Local Conservation Areas

Local conservation areas as well as regional conservation areas are natural protected areas that are established and managed to secure the conservation of biological diversity and the maintenance of ecosystem services and other associated values of regional or local interest. The only difference from national natural protected areas is that these respond to an interest of local governments.

The establishment of these areas responds to the decentralization process Peru is going through and thus should be coherent with the idea of a Natural Protected Areas System that is unitary and decentralized. Their creation should also respond to land zoning that is handled by regional governments.

In March 2007, however, the central government established through the enactment of a supreme decree that local conservation areas were not natural protected areas. Given this, a proposal was made to legally consolidate both regional and local conservation areas, which has been considered through several participatory processes. The proposal still has not been presented to Congress.

Among the proposals in this legislative initiative, are the following:

The redefinition of the SINANPE as the National System of Natural Protected Areas of Peru, integrated through a system of national-level areas and the Regional Conservation System. This new system will include four different levels of protected areas: national, regional, local, and private.

The Regional Conservation System would coordinate and manage the natural protected areas of any level in the region.

Requisites and conditions for the establishment of regional and local conservation areas would be developed.

Both regional and local conservation areas should be created by regional law (*ordenanza regional*), based on the previous approval of the national authority.

The ability to sanction inside these areas would be established.

The Natural Protected Areas Law would be modified to incorporate these new concepts and to adjust the legal and institutional framework to these changes.

Financially, the maintenance of the SINANPE is a great challenge for the Peruvian government. In this context, water-related PES schemes can contribute to obtain the necessary economic resources to ensure the sustainability of these important areas.

However, one of the major problems for the establishment of PES schemes in these areas is that the goods and services found in them have not been valued. Thus, many people ignore the real dimensions of the value these areas have for the country.⁹ The necessary public awareness is only about to develop.

Last but not least, another important issue that can be considered an obstacle to designing and implementing water-related PES schemes in NPAs is that there is no uniform methodology to monitor conservation in these areas. There is no information related to the link between the ecosystem's conservation and the provision of water resources. In order to establish a water-related PES scheme, this information should be obtained during the design phase.

Forestry Law

The Forestry Law is very important for PES schemes because it contains the best definition of the intrinsic relationship between forest resources and land use. As such, the Forestry Law's main objective is to regulate and promote the sustainable management of forestry resources.

Forestry legislation had some important modifications during 2008 and 2009. The Forestry Law issued in 2000 was modified when the Legislative Decree 1090 and its modification Law 29317 were enacted¹⁰.

9 Based on the facts of what is happening in practice, León (2007) in his publication on the national administration of these areas notes the following:

'Over 2.700.000 Peruvians – including the population of the cities of Arequipa, Lambayeque, el Callejón de Huaylas, Chimbote, Coronel Portillo, San Martín, Huanuco, Cañete, Oxapampa, Amazonas y Tumbes – receive water from natural protected areas. All of these together consume annually 254.900.000 cubic meters, whose value is approximately US\$ 81.000.000.' 'Considering agricultural production, 376.411 hectares are irrigated with water from Natural Protected Areas. The annual value of this production is approximately US\$ 513.900.000.' Indirectly, it is important to highlight the protection of forests in Natural Protected Areas, considering that these maintain the environmental integrity of the basins as well as help improve the operation of the hydrological regimes.

10 After the conclusion of this document, in June 2009, Legislative Decree 1090, its modification as well as its regulations were annulled, and Law 27308, regained effectiveness.

The original Forestry Law established as ecosystem services the protection of:

- Land;
- Water regulation;
- Biological diversity;
- Ecosystems and the scenic beauty;
- Absorption of carbon dioxide; and
- In general, the maintenance of all the essential ecological processes.

It thus established the link between water resources, aquatic ecosystems, and forests (conservation and wise land use). This in turn implied recognition of the importance of an ecosystem approach in the administration, use, and establishment of any scheme (including ecosystem services), along with the importance of establishing a basin management vision.

However, this definition has changed under Law 29317, which modified Legislative Decree 1090. The new definition is not so detailed, establishing that ecosystem services are those provided by forestry and fauna resources, which in turn are granted by the legal instruments contained under this law. In other words, although the definition of ecosystem services is not as specific or as accurate as before, this modification continues to recognize the intrinsic relationship between the rights given in the Forestry Law's framework and the ecosystem services the resources granted under this law produce and/or maintain. Then this new definition legally clarifies the cause-and-effect relationship between good management practices and the provision of ecosystem services. Nevertheless, each specific PES scheme should prove scientifically this intrinsic relationship.

The new law also recognizes that the legal framework of ecosystem services includes:

- The General Environmental Law;
- A special law that should be enacted; and
- Complementary regulations that should be enacted by the Ministry of Environment as the public institution in charge of regulating these services.¹¹

With these modifications, the legal and institutional framework regarding ecosystem services is beginning to be clarified.

In addition, it is important to point out that the Forestry Law has included important tools like land/forest zoning and categorization (different forest categories exist, such as forestry production, land/forestry protection, natural protected areas, and native and peasant communities' forests). With these tools, diverse conservation and/or sustainable management areas will be identified and categorized, considering elements such as land, ecosystems, and biodiversity. Zoning is one of the first attempts by the state to define the characteristics of each forest space. Unfortunately, the important tool of categorization has not been fully implemented. Today only forestry production zones have been identified. In these areas, timber concessions have been granted. Nevertheless, even though it

¹¹ As of this writing, no specific laws regarding PES schemes have been enacted by the Ministry of Environment; see the law proposal described in section 2.1.2.

is necessary to identify other zones, this has not impeded the granting of other forestry concessions, such as conservation or ecotourism concessions.

It is important to point out that the lack of identification and/or designation of areas has not helped to promote or establish PES schemes in areas where they are especially needed (for example, protection areas). This is probably why most of the PES schemes that are being designed at the moment are in areas that have been previously identified (such as natural protected areas).

Rights over forestry resources are discussed further later in this report. However, it is important to state that the diverse types of rights over these resources include the establishment of sustainable management practices that help produce or maintain ecosystem services. Even more, the regulations of the past Forestry Law stated that timber concessionaries could benefit from the ecosystem services their concessions provided. Thus, in order to benefit from the transactions over these services, the rights holder had to include this initiative in its forestry management plan.

While this concept was not included in the new Forestry Law's regulations, it could be included under the new legal framework that the Ministry of Environment will enact.

2.1.4 Indirectly Relevant Legislation

Mining and Water-related Ecosystem Services

As a traditional mining country, Peru faces important challenges in balancing the development of this economic activity with conservation of the environment. Before the 1990s, mining activities were carried out without considering the harm that could be produced in the diverse ecosystems and therefore could endanger forests and water resources, among others.

Today the mining sector has made important progress in consolidating management instruments and environmental legislation. Any mining activity must have an environmental impact assessment as a prerequisite to start activities. Specific environmental regulations ¹² exist for these activities, including the establishment of monitoring and control activities, as well as several measures to protect the environment from harmful agents and thus avoid surpassing maximum permissible levels, as well as to promote new technologies and processes related to the improvement of the environment.

Not all of these tools have achieved optimum results, however, and thus many mining activities have become one of the principal environmental problems in the country. Many mining concessions now overlap with forestry concessions, community forests, and private property, among other areas. Although this is allowed, the negative effects regarding the sustainability of these areas have not been regulated. Also, while large-scale mining has achieved some positive results, complaints of serious failures in compliance with management tools, such as the elaboration of environmental impact assessments that do not correspond to reality, still exist. And a permanent case of non-compliance exists in small- and medium-scale mining. This type of mining is being developed in rainforest areas, where they unfortunately affect water basins and ecosystems and thus ecosystem-related water resources and forests. Important basins in the regions of Madre de Dios, Cusco, and Puno suffer from these informal mining activities.

¹² Environmental protection regulations for metal mining activities approved by Supreme Decree 016-93-EM of May 1, 1993, modified and expanded by other legislation.

It is important to highlight that in Peru there is no restriction on the particular areas where mining activities can be established. In other words, these activities can take place on any Peruvian territory except in natural protected areas, parks, and sanctuaries (as well as urban areas). Thus, any water-related PES scheme established outside protected areas has the potential of being affected (positively or negatively) by the establishment of mining activities near or in areas where the schemes can be implemented.

However, responsible mining activities that comply with the legislation and support sustainable management of the areas where their activities are established could provide some interesting opportunities to develop water-related PES schemes.

Hydrocarbons and Ecosystem Services

Since 2004 the exploitation of hydrocarbon resources in Peru has increased significantly. As a result, a big part of the Amazon Basin is under some type of contract related with the exploitation of hydrocarbon resources. Through May 2008, and according to the Group of Natural Protected Areas and Hydrocarbon Resources,¹³ approximately 71 per cent of the Peruvian Amazon had been covered with rights to explore these resources.

As in the case of mining, Peruvian legislation does not limit the establishment of hydrocarbon resources lots except in natural protected areas, parks, and sanctuaries. This is why the legal tools for basin conservation and forests management should consider the possibility that the state could establish hydrocarbon resources rights on top of them.

Thus, it is important to consider the compatibility between the strategies of PES-implemented schemes and hydrocarbon resources activities.¹⁴

Agriculture and Plantations

Peru has a historical agricultural expansion that in many cases has negatively affected natural ecosystems that provide services. This is why many areas in the country, especially in the Amazon, suffer from water quality and quantity problems. This is the case, for example, in the region of San Martín, where deforestation and illegal land use change are the reasons for water scarcity as well as water quality problems.

Still, today perverse incentives can be found in Peruvian legislation that may directly affect water basins and the ecosystem services they provide.¹⁵ One of the most important of these is agricultural legislation that was created to grant property rights on the coast of Peru but that has been used for titling in the rain forests also. The procedures for titling these lands include the need to “improve the

13 For more information, visit www.observaperu.com. This contains information on the relationship between ecosystem conservation and hydrocarbon resource activities.

14 For more information about NPAs and hydrocarbon resources concessions, see the publications of the Peruvian Society for Environmental Law at www.spda.org.pe

15 With the publication of Legislative Decree 1064, the government has tried to order land tenure's legal framework in Peru. However, this law has been severely criticized because it does not protect forestry land from land use change, establishing the possibility of gaining property rights from deforestation or land use change activities. (Legislative Decree 1064 was annulled on June 2009)

land" in order to demonstrate that people asking for the property rights are using the land peacefully. These improvements in the rain forest are conditioned on land use change, going from an area with forest to one where agricultural activities should be given priority. In other words, deforestation is being rewarded with the granting of a property title.

Thus, the establishment of PES schemes could be hindered because the incentive to promote sustainable management, conservation, or wise land use will be low when a person is being rewarded with a property right for the cutting and slashing of trees.

Legal aspects regarding the design and establishment of PES schemes should consider limiting the possibilities of executing activities that may harm the forestry resources from a certain area, such as land use change activities. Instead, performing sustainable and conservation activities should be rewarded with real benefits that can compete with the granting of property rights.

2.2 Institutional Framework

In Peru, some of the most prominent characteristics of environmental institutional frameworks are fragmentation, poor coordination among entities, and scattered water competences. This situation persists even after the creation of the National Water Authority – ANA within the Ministry of Agriculture.

2.2.1 Institutions Involved at All Levels

The General Water Law establishes two important roles for two different public institutions regarding water resources:

- Ministry of Agriculture: responsible for water resources management and conservation.
- Ministry of Health: responsible for water quality as well as its preservation.

These are the two main public institutions responsible for water resources. But this framework becomes more complex when other public institutions from central, regional, or local governments that have some jurisdiction over these resources are included, such as the Ministry of Energy and Mining and the Ministry of Production (for hydro biological resources).

In June 2008, the National System of Water Resources was created ¹⁶ through the enactment of several laws (such as Legislative Decree 1081, the Ministry of Environment's creation law, and ANA's creation law), which has created a new institutional framework.

National Water Authority

Within the Ministry of Agriculture, the ANA will be in charge of articulating the functions of diverse institutions in terms of water resources. In addition, this public institution is now in charge of granting rights over water resources except for medicinal and mineral waters, which are controlled by the Ministry of Exterior Commerce and Tourism. These institutions should be considered in any water-related PES scheme because together with the Ministry of Environment they will approve the scheme's establishment.

16 Legislative Decree 1081 of June 27, 2008.

National Superintendence of Sanitary Services (SUNASS)

SUNASS is in charge of the regulation and supervision of the supply and distribution of potable water. It guarantees users access to sanitation services – potable water and sewerage, among others – in the best quality conditions. It also proposes policies and rules for the provision of sanitation services, controls their provision, establishes the sanctions according to the sanitation legislation, and evaluates the development of the companies in charge of providing sanitation services. And it is in charge of evaluating and supervising the services that sanitary service companies provide.

SUNASS is helping to promote and establish water-related PES schemes. In the case of the two local conservation areas in Moyobamba (see Annex), SUNASS enacted the five-year rate plan of the sanitary service company of Moyobamba, which, among other acts, approved the creation of a fund that will help conserve the basins that provide water resources to the city. This fund will receive economic resources through the increase of the water tariff that the city's residents pay.

Ministry of Environment

The Ministry of Environment is responsible for establishing the national ecosystem services policy as well as its specific regulations, in order to design and implement any PES scheme. Before its creation, the General Environmental Law stated that the national environmental authority will be in charge of giving value to and establishing the needed measures to compensate for ecosystem services. These duties have now been transferred to this new ministry and have even been cleared by the new Forestry Law and its regulations, which establish that the Ministry of Environment is the ecosystem services authority throughout Peru and, as such, will establish specific regulations. With these modifications, responsibilities for ecosystem services are much clearer.

Watershed Councils

Watershed Councils bring together the principal public institutions of the basins as well as delegates of the sanitary service company of a basin and different water users. Their duties include promotion of an integrated management of water resources. This kind of council is similar to the Management Committee (*Comité Gestor*) that is being proposed in the PES scheme in the region of San Martin. (See Annex.)

It is important to point out that the members of the Watershed Councils include the director of the National Water Authority, the presidents of the regional governments that represent the watersheds, and a major body that represents the local governments of the watershed, among others. The participation of diverse regional and local authorities responds to environmental and land zoning responsibilities that cover the formulation of plans and the development and implementation of programs to sell the ecosystem services found in areas with natural forests or in natural protected areas.¹⁷

In this context, it is necessary to understand that in most cases watershed basins do not correspond to political frontiers of regional or local governments. This indicates the importance of the Watershed Councils when elaborating PES schemes and when managing basins in a more regional way. They will also support the different regions to develop complementary public policies for the sustainable management of the basins which reflect national ones.

17 Art. 53 of the Organic Law for Regional Governments, Law 27867.

NGOs and Other Private Institutions

As in the PES cases analysed in this study, some NGOs are supporting PES scheme initiatives that are at different stages of development. Their technical experiences indicate that they can contribute significantly to the design and establishment of PES schemes. These institutions are working on establishing the value of the ecosystem services, helping to raise awareness of the need to establish PES schemes, and also identifying the sellers and thus the people who will have to modify their land use activities in order to maintain or provide the requested ecosystem services.

2.2.2 Scale for Establishing PES Schemes

The water PES schemes being designed in Peru are being established on specific watersheds. In the case of the scheme being designed in two local conservation areas in San Martín, the design is being done at the micro-watershed level, after which it might be repeated in other watersheds in the region.

Establishing first a PES schemes at this scale probably responds to the need to experiment on smaller areas, given that these are new initiatives. In addition, working with peasants who do not have property rights over the areas in the scheme is not easy. Thus the work that will be done in these two local conservation areas is very demanding and requires anticipating any problems that may arise.

Anyone establishing either small-scale or large-scale schemes has to consider the different realities and needs of the people living in these areas. Peru's differences in terms of geography, beliefs, water problems (either of quantity or quality or both), necessities, and land tenure, among other issues, all have to be considered while designing and implementing water-related PES schemes.

2.3 Conclusions on Legal and Institutional Frameworks

Water resources, ecosystem services, and natural forests are considered natural resources and as such are the natural heritage of the nation. This makes the state a key stakeholder in any PES schemes that might be established.

The importance of ecosystem services has been recognized in several specific laws. Moreover, certain laws have ordered the state to create the necessary financial mechanisms to value, reward, and maintain the provisions of these services. But lack of implementation of the national government's duties have hindered and made the establishment of PES schemes more difficult in Peru. The lack of enforcement of and compliance with the environmental legal framework, specifically regarding natural resources, can also be considered an important constraint on development of any PES schemes.

One of the most important characteristics of the environmental institutional framework in Peru is its fragmentation, poor coordination among entities, and scattered competence on water issues. This situation seems to persist despite the creation of the National Water Authority within the Ministry of Agriculture. However, the creation of the new Ministry of the Environment and its establishment as the regulator of ecosystem services brings interesting changes to the institutional framework. It is expected that this ministry will promote the establishment of PES schemes in a more decisive way.

3. Property Rights Issues

3.1 Land Ownership, Ownership of Natural Resources, and Ownership of Ecosystem Services

This section identifies the characteristics of rights that can be granted over land and natural resources (water, forest, and biodiversity)¹⁸ and how the correct use of these rights can promote the implementation of PES schemes.

In order to establish PES schemes, one of the most important questions is, Who owns the ecosystem services? As of now, the answer to this question is the state. However, the state could transfer these rights to certain individuals who through their activities maintain or improve the ecosystem services that the natural resource or land under their management provide. Therefore, in this section it is important to trace a route through which rights over ecosystem services can be granted to individuals.

3.1.1 Rights Granted over Water Resources

At the moment, the rights granted over water resources do not imply for the rights holder specific obligations regarding the maintenance of the ecosystem that provides or maintains this resource. These specific obligations have been granted to the state, which should be in charge of ensuring water quality and quantity. The recently enacted law that creates the National Water Resources System introduces explicitly the sustainability and ecosystem principles¹⁹ that explain the state's duties.

Table 1 details the administrative legal instruments that grant rights in relation to water resources and the kind of activities that are being covered. In all cases the rights are granted by decentralized offices of the National Water Authority.

Table 1: Rights Granted over Water Resources

Administrative instrument	Kind of activities
Authorization	To develop studies (e.g., drilling of wells, studies to establish hydroelectrics)
Permit	Temporary uses (e.g., to establish temporary crops)

¹⁸ It is important to understand that these differences have their origin in the Constitution. The Constitution establishes that property rights can be granted only over land whose major use is for agriculture and/or livestock. In the case of other natural resources, the state grants rights over these to those who consider their sustainable management and/or conservation (for more details, see section 2.1.1).

¹⁹ Legislative Decree 1081: 'Article 4. Principles for an integrated management of water resources 4.3. Sustainability principle: The State promotes and controls the sustainable management and conservation of water resources preventing the affectation of its environmental quality and of the natural conditions of its environment, as part of the ecosystem where it is located. The State also regulates its assignation considering social, environmental and economic objectives. It also promotes investment and the participation of the public sector in the sustainable management of the resource. 4.8. Ecosystem principle: Water management is based on the integral management of the watersheds and aquifers, the multiple uses of water resources and the interrelation that exists among this resource and air, soil, forests and the biodiversity that is part of the water cycle.'

Administrative instrument	Kind of activities
License	Permanent uses, such as mining, fishery, population uses (given to sanitation companies), hydroenergetics

3.1.2 Rights Granted under the Forestry Law's Framework

This section analyses the different legal instruments created by the Forestry Law, how they could help establish water-related PES schemes, the obstacles currently faced, and how these obstacles can be overcome.

The legal framework related to forest resources has been recently modified by the enactment of a new Forestry Law in June 2008, which was modified by Law 29317 (see section 2.1.3).²⁰ This law promotes granting individuals rights for the sustainable use of natural resources through certain legal instruments such as concessions, permits, or authorizations. (See Table 2.) In all cases the rights will be held by the General Forestry Division of the Ministry of Agriculture. After the decentralization process, regional governments will be able to grant these rights, and the Ministry of Agriculture will establish the policies for the regional governments to implement.

Table 2: Rights Granted under Forestry Law

Administrative instrument	Right derived	Granted to	Term
Concession	Sustainable management and/or conservation of an area (e.g., in the Forestry Law: concessions for timber, non-timber goods, conservation, ecotourism)	Individuals, companies, NGOs, etc. interested in sustainable management and/or conservation of natural renewable resources	40 renewable years
Permit	Sustainable use of natural renewable resources in areas that have property rights, secondary forests, forestry plantations, and local forests	Property owners, and peasant and indigenous communities	To be determined in each individual permit
Authorization	Sustainable use of natural renewable resources found in dry forests of the coast of Peru, and for land use change	Private stakeholders	Granted up to 10 years for areas up to 500 hectares in the case of authorizations that are granted in dried forests of the north of Peru (<i>bosques secos</i>)

²⁰ Today this law establishes that both protection and productive forestry land integrate national heritage. Thus, these lands cannot be used for agricultural purposes or other activities that may affect the forestry surface or their sustainable use and conservation. Land use change is prohibited in this area, whatever its category. The only exception is when certain projects are declared of national interest. In that case, the institution that is in charge of declaring the possibility of this land use change is the Ministry of Environment together with the public institution in charge of the activity (e.g., the Ministry of Agriculture).

The main purpose of granting these rights under the Forestry Law is to promote the sustainable management, conservation, and wise land use of certain forestry areas. The forestry rights include obligations for the rights holders to preserve the ecosystems found in the particular areas. Considering these obligations (which include wise land use in order to maintain the watershed's ecosystem), this situation could become an opportunity to establish water-related PES schemes by forestry rights holders.

Rights granted over forestry resources lead to the obligations described, but they do not include at the same time rights over the ecosystem services provided.²¹ This is one of the main barriers found for the establishment of PES schemes in these areas, given the need to determine who owns the services in order to design and implement the scheme with the correct rights holder. Considering the sustainable management practices established by these rights holders (through the design and implementation of their forestry management plans), these areas provide ecosystem services that have not yet been valued or compensated. This is why it is necessary not only to value these services but also to give the rights holders the necessary rights over ecosystem services so that they can obtain financial resources to implement their management plans among other important activities related to the sustainable management and conservation of the ecosystem. One solution to this is establishing PES schemes.

Furthermore, it is important to note that the granting of forest-related rights does not include the granting of rights over water resources (such as those described in Table 1). This could cause a conflict between two different rights holders in the same ecosystem.²²

Thus it is necessary to redefine some aspects of forest management instruments (concessions, licenses, or permits), including:

- Incorporate in the forestry management plans, as one of the activities, assessing and establishing the value of the ecosystem services provided by the conservation and management of the forest; and
- Clarify the problems regarding the overlapping of rights granted in a single ecosystem, such as water rights and forestry rights.

3.1.3 Rights Granted under the Natural Protected Areas Law

The Natural Protected Areas Law established administrative contracts as a legal instrument by which nonprofit organizations, such as NGOs, universities, or associations, could co-manage implementation of NPA management plans together with the national authority. In other words, these contracts consist of co-delegating the responsibility of implementing the management plan (*Plan Maestro*) or

21 The modification of the Forestry Law and its regulations does not include the concept of being able to have rights over these services. The regulations of the old Forestry Law established that in order to benefit from these services it was only necessary to include the initiative in the forestry management plan.

22 This was the case of a concessionary of ecotourism (whose right was granted by the Forestry Authority) that had as its main attraction (and hence its conservation objective) a lake, for which the Water Authority also granted a water use right to another individual (with an interest in ecotourism). This created a conflict regarding the exclusive use of the lake.

a part of it with another organization. In order to implement the management plan, the National NPA Authority must approve it through a participatory process. The administration contract should describe specifically the objective and the results that these organizations need to fulfil.

As part of the administration contract, these organizations are allowed to establish a financial plan in order to give economic sustainability to the implementation of the plan. Some organizations have proposed the implementation of PES schemes, such as those for reducing carbon emissions from deforestation and degradation. This is the case in Cordillera Azul National Park (with the NGO CIMA Cordillera Azul; see www.cima.org.pe) and also in the Bahuaja Sonene National Park and the Tambopata National Reserve (with the NGO AIDER; see www.aider.org.pe).

In addition, this co-administration system is an interesting way in which to involve private stakeholders in the administration of NPAs. With a level of commitment and stability, stakeholders could be granted the rights to design and establish PES schemes in order to obtain financial stability to implement the management plans.

3.1.4 Rights of Native and Peasant Communities

Native and peasant communities have specific regulations regarding the recognition and granting of their rights to land and natural resources.

According to the Native Community and Agricultural Development of the Rainforest Law (*Ley de Comunidades Nativas y Desarrollo Agrícola en la Selva y Ceja de Selva*), the state is in charge of the recognition of native communities, including their legal existence and legal personality. The traditional areas where these communities are established have different characteristics and are different in relation to their ancestral practices. In light of this, the state grants property rights only over land whose major use is for agricultural or livestock purposes. Land whose major use is, for example, forestry or protection is granted under a special right called assignment in use (*cesión en uso*), signing a contract between the state and the community. Thus the area is given for the exclusive use of the community (for the renewable natural resources).

In the case of peasant communities, two categories can also be distinguished: The first category is peasant communities found on the coast or in the Andes region. In most cases these communities have a long history of living in these areas. Also, the areas where they have settled have been used historically for agricultural or livestock activities. Considering all these factors, this first type of community has been granted property rights over all the land they are settled in.

However, the second category of peasant communities is found in the rain forest area (sometimes called riverside peasant communities), and these do not necessarily have a long history of settlement in the area. In these cases, some of these communities have been granted property rights over a portion of the land they are settled in. Other areas, with the major use being forestry or protection lands, have been granted to these communities as assignment in use (in similar terms as in native communities).

If any of these communities (either native or peasant) decide to exploit the forestry resources found in these areas, the National Forest Authority should grant a permit or authorization for this purpose (see section 3.1.2). However, the community should present and later implement a forestry management plan. Considering that these communities are doing sustainable management activities that help

maintain or produce ecosystem services, they should be able to be part of a PES scheme.

3.1.5 Conclusion on Land and Natural Resources Ownership

As noted earlier, according to Peruvian legislation, property rights over natural resources cannot be granted (notwithstanding the special situation of land whose major use is for agriculture or livestock). This is why before designing PES schemes in these areas, it is necessary to sort out whether forestry concessionaries, native and peasant communities, or other forest rights holders can be considered as holding the rights to the ecosystem services.

All these rights holders have to comply with certain obligations in order to use the forestry resources. These obligations include activities focused on sustainable management and conservation of the forestry resources granted. In this way, through implementation of their sustainable activities (that should be part of a forestry management plan), they help maintain the ecosystem services that the forests produce or store. Considering this situation, forestry rights holders should be able to have rights over the ecosystem services that they are helping maintain.

In conclusion, in order to achieve legal security for the establishment of PES schemes and thus generate income from the ecosystem services, it is necessary to clarify that the rights derived from forestry resources or land use should include the right to receive benefits from the provision of related ecosystem services and thus participate in potential PES negotiations. These rights can be granted under the specific law and regulations that the Ministry of Environment still has to enact.

3.2 Transfer and Inheritance Issues

If a landowner transfers property rights over the land, it is important that the PES scheme in the area is recognized in the contract that transfers the property. In this way the new landowner will know that the provision of ecosystem services is an obligation that must be maintained. Without doubt the best way to continue the scheme is for the landowner who accepted the arrangement to publicize it by registering the PES contract in the Public Registry. This way any person interested in the land will know that owning it carries certain obligations.

In order to transfer rights over natural resources, an authorization from the public institution that granted the rights will be necessary. Again, the best way to publicize a PES scheme in the area is to register the contract or document that establishes this transaction in the Public Registry.

The possibility of inheriting the land or the resources will depend on the nature of the rights that the original owner had over these. While the heir(s) will inherit both the property as well as the rights over the ecosystem services (including the obligations to implement the PES scheme), if the rights holder is a company, NGO, or any other form of association or similar, the death of its members will not affect the destiny of the land or the rights granted.

Key Considerations for the Transfer of Ecosystem Services

The granting of rights over ecosystem services should be derived from the principal obligation, which is to manage and conserve in a sustainable way the natural resources granted. These denominated “principal obligations” are one of the main reasons why ecosystem services in a certain area are being produced.

When the transfer of the rights over ecosystem services has been authorized, special regulations should establish that the responsibility for the production or maintenance of these services is the obligation of the rights holder who has the principal rights.

The transactions done over any type of right, including ecosystem services rights, should be included in the Public Registry.

There is a need to clarify the destiny of the ecosystem services if a rights holder loses the rights over the natural resources.

3.3 Customary Rights Legislation

The recognition of customary rights in Peru has not been an easy task. In many cases the recognition of rights over certain areas of land to communities of fishers, riverside habitants, or groups of families living from forests products or goods has been done by the recognition of native or peasant communities. However, other important populations living in the Amazon rain forest still have no rights over the area they live in.

One very interesting case is in the PES scheme being designed in the two conservation areas in the region of San Martin (see Annex). The scheme is being designed with consideration of the peasants living in the upper basin. These people do not have rights over the land, nor does the PES scheme consider the granting of these rights. But considering that the activities of these people are affecting water quality and quantity negatively, it is crucial to include them in the PES scheme.

Thus, it is important to consider that people living in forests have an impact on the conservation or sustainable management activities that many want to implement in these areas. With or without titles or rights granted over the particular areas, these people therefore need to be included in the design and establishment of PES schemes.

3.4 Land Use Change

According to the Forestry Law of 2000, for land whose major use is other than agricultural (e.g., forestry), prior approval is required for a land use change. Where natural resources have been given under the figure of concessions, land use change is prohibited.

The Forestry Law of 2008 and its modifications of 2009 established an interesting mechanism in order to approve land use change. According to this law, land use change can be approved only where the area of the project to be implemented is declared of national interest. The authority that approves this change is the Ministry of Environment in coordination with the public institution that is the source of the proposal.

In addition, these projects have to comply with the National System of Environmental Impact Assessment. It is interesting that the Ministry of Agriculture is no longer the only agency with oversight on land use change; now the Ministry of Environment has a duty to verify that projects comply with additional legislation.

One of the main causes of land use change is agricultural migration. Through the Special Project for Property Titling (*Proyecto Especial de Titulización de Tierras*), the Ministry of Agriculture granted

property rights in the rain forest, implementing a law designed for the coastal region, which is why the so-called improvements (land use change from forest to agricultural lands) were rewarded with ownership. This caused a perverse incentive, which in turn diminished the potential of sustainable management. This is why the establishment of PES schemes in order to grant value to natural resources is an interesting opportunity to reverse this situation.

In many cases, in the PES schemes being designed the change in land use is focused on reforesting areas that are being used for agricultural and livestock activities. Thus, the change in the use of the land will be from agricultural and livestock practices to agroforestry.

3.5 Protection from Illegal Exploitation

Illegal exploitation of natural resources is a critical problem in Peru. Illegal logging, for example, is very hard to control and is primarily done to exploit specific valuable timber species. These selective logging activities accelerate ecosystem degradation.

According to Peru's legal framework, the state is responsible for the protection of natural protected areas and other areas under its domain. There is even a multisectoral public institution group created by law whose principal goal is to fight against illegal logging activities from diverse public institutions. However, considering the few resources invested in these issues throughout Peru's history, it is difficult to establish real control mechanisms.

There is an emerging need to create incentives that dissuade these activities, which will in turn promote the granting of rights for sustainable management and thus increase economic activities in these areas, protecting them from illegal activities.

In some of the areas where experimental projects of PES schemes are being designed, forest cover is being lost because of illegal exploitation. It is expected that the possibility of illegal exploitation will be reduced with the establishment of the PES schemes and that the mechanisms of control and surveillance used for PES will also help fight against illegal logging (although this is not the main objective of establishing this scheme).

3.6 Conclusions and Recommendations on Property Rights

At the moment, no rights granted over natural resources in Peru imply the granting of rights over the ecosystem services, and it is still not clear who should hold these rights. However, the intrinsic relationship between sustainable management and conservation legal tools (such as those found in the Forestry and NPA Laws) and the provision and maintenance of these services is becoming clearer.

Thus, in order to establish PES schemes it is important to have clarity over who has rights over these services, regardless of land owned in property or rights granted over certain resources. In practice, however, many people who can influence the provision of ecosystem services lack rights over land or natural resources. This is truly a challenge for the establishment of PES schemes, but it should not hinder their design and establishment.

4. Negotiation

Negotiations are one of the principal steps that must be taken in order for a PES scheme to work efficiently. The process of negotiation is tremendously different depending on where the PES scheme

will be established. These negotiations include not only the seller and buyer of the ecosystem services, but also several public institutions, NGOs, and diverse basin stakeholders.

Probably the most important initial negotiation process is getting stakeholders interested in helping to establish the PES scheme. That is why in the case of the two conservation areas in San Martin, one of the most important challenges is to get the public's interest and make people understand the importance of their contribution in securing their water's quality and quantity.

Another step in the negotiation is the one that should be carried out with the providers/sellers of the service. Again, in the case of the two local conservation areas in San Martin, the peasants (sellers) lack rights over the natural resources or the land that will be included under the PES scheme. Thus, in this specific case the sellers will see the scheme as a win-win negotiation, where the PES arrangement will give them special recognition for the activities they are implementing. It is also important to point out that in order to facilitate the negotiation processes among stakeholders in the basin, a management committee (*comité gestor*) will be created that will later implement the PES scheme.

5. Contractual Issues

The contract or legal agreement is the heart of a PES scheme. In it the rights and obligations of each of the parties should be clearly stated. Contracts will vary depending on the different stakeholders involved in the scheme. Thus, there is no limit on the number of contracts or agreements that could become part of a PES scheme.

It is important to remember here that water-related PES schemes in Peru are not yet being implemented. In most cases the negotiation process is ongoing and the contracts are still being designed. While no contracts have been signed yet, for example, in the two local conservation areas in San Martin one of the options being studied is to implement agreements between the local government of Moyobamba and the peasants living in these two areas.

5.1 Parties to the Contract

5.1.1 Legal Capacity

The legal capacity for establishing PES schemes involves having rights over the ecosystem services and having the legal ability to sign agreements and thus enter into a PES scheme.

One of the documents that should be available is the annotation of the land property as registered in the Public Registry. As easy as this may sound in a city like Lima, in rural areas many of the landowners do not have their titles registered. Trying to register it now is very complex because property or possession titles were enacted many years ago, when the requirements for registering were totally different (the title may lack, for example, information on the precise geographical limits of the area owned).

Important documents to consider when verifying legal capacities are also the national document of identification and valid public documents that prove that the seller has rights over the ecosystem services (contract or authorization signed by the state and in the Public Registry).

In terms of legal ability to sign agreements, both sellers and buyers can act on their own behalf or they can be represented by a third party. In the case of institutions or companies, the legal represen-

tative should be listed in the Public Registry.

5.1.2 The State's Role in PES Agreements

As explained in section 2.1.1, the state has domain over natural resources (water, forests, and protection lands, among others). This is why the government should be considered when establishing any PES agreement, as it will approve the legal instrument through which it will grant rights over the ecosystem services. Additionally the state will also have the capacity of monitoring through certain public institutions the wise land use of those who were granted rights over the services.

5.2 Legal Nature of the Contract

The establishment of PES schemes is still in a first stage, without any actual contracts. Even more, the suitability of elaborating and signing contracts between the parties is still being discussed, given that in some PES schemes (as in the local conservation areas in San Martin) the sellers cannot demonstrate the legal capacity to sign any type of contract.

5.3 Obligations of the Parties

In most of the PES schemes analysed and being designed, the agreements require that the provider or seller of the ecosystem service carry out specific land use change activities. In the case of the two local conservation areas in San Martin, one of the obligations will involve having the peasants change their use of land from agricultural to agroforestry activities as well as preserving standing forests.

In general, the obligations will be established in light of the activities that can be implemented in a conservation area and that could benefit the quality and quantity of the water basins, considering environmental and natural resources legislation.

As well as establishing activities to be done by the providers of the service, the agreements should also include the activities that would be restricted (e.g., land use change that implies deforestation, agriculture, or livestock, among others). It is important to remember that this project considered the scheme of activities allowed and prohibited in a natural protected area of direct use, in accordance with the Law of Natural Protected Areas.²³

In addition, it is also important to establish monitoring indicators that could be measurable and adaptable to change, in order to establish adequate governance of the scheme, with a good level of unforced compliance.

Other obligations from the seller's side could include the implementation of forestry management plans and being part of the control and surveillance mechanisms to be established in both local conservation areas as well as buffer zones. Monitoring activities will also be carried out as a legal obligation of the local government, as manager of the local conservation areas.

From the buyer's side, one of the principal obligations is paying the sellers for the services they provide. In the case of the scheme being designed in the two conservation areas in San Martin, the

²³ The local conservation areas are direct use NPAs, which is why they allow some uses of the land like ecotourism, reforestation, and even agroforestry in certain areas. Nowadays, the legal framework of local conservation areas is lacking because of a modification in the NPA regulations, and several attempts to restore these areas to the NPA System are being made.

payments will be given through technical assistance and establishment of infrastructure projects, among other projects.

5.4 Period of Time/Duration

In the majority of PES schemes being designed, the goal is to establish the scheme for very long periods of time, or even to become permanent. To establish such long terms, however, first it is necessary to run pilot initiatives in order to evaluate the success of these projects.

In the case of the two local conservation areas in San Martin, no term has been defined yet for the pilot initiative. But the sanitary service of Moyobamba's project, which includes raising the water service tariff in Moyobamba city (part of the PES scheme in San Martin), was approved by SUNASS for five years, as noted earlier. Thus, this timeline should influence the terms of any agreement with the peasants living in the two conservation areas.

5.5 Fiscal Implications of Deriving Income from Sale of Ecosystem Services

Most of the providers/sellers of the ecosystem services are low-income rural participants, who are not necessarily registered in the tax system (through the National Superintendence of Tax Administration – *Superintendencia Nacional de Administración Tributaria* or SUNAT). If the ecosystem services are paid for in cash, the sellers have to register in SUNAT.

In Peru, individuals earning less than S/ 2,500 a month (approximately US\$ 780) or S/ 25,000 a year are considered exempt by SUNAT and only have to file a declaration at the end of each fiscal year. This should be considered by the providers of the service, for if they exceed this limit they will have to pay the tax for services, which is 10 per cent of the amount earned.

In some cases, such as the one in the two local conservation areas in San Martin, the payment will be given in technical assistance and capacity building, among other similar activities. This payment has no fiscal consequences for individual peasants.

5.6 Securities and Risk Allocation

Although no PES schemes have been registered in Peru to date, registration of these schemes can give legal security to the scheme and grant public domain for these agreements.

Three different registries have been identified. Two are linked to land under property rights and forestry resources rights (Property Rights Registry and the Public Registry of Forestry concessions). The third is an administrative registry of the granting of water resources, which is under the administration of the National Water Authority.

For the management of risk, the creation of a representative board or committee (like the Management Committee in San Martin) is an interesting idea. This committee will make decisions on the implementation of the scheme. This will allow the establishment of some compliance strategies that involve not only legal compliance but also social compliance and social sanction if peasants or any other party do not comply with the obligations established in the scheme.

6. Monitoring, Non-compliance, and Enforcement

The design of the scheme should include an important emphasis on the relationship between the incentives and the monitoring of positive results on the conservation of the basin. Thus probably one of the most important elements when implementing PES schemes is establishing adequate and effective monitoring processes, clear consequences for non-compliance, and enforcement mechanisms.

In the case studies analysed, none of these mechanisms have been established yet, as all these schemes are still under development. It will be very important to establish adequate compliance arrangements in order to assure the fully implementation of the obligations that arise from the scheme. Also, a good non-compliance management system should be operating, and it should take into account the poor enforcement capacities of the state.

6.1 Monitoring the Provision of Services

Given that the state has domain over all natural resources, the PES schemes that will be established will be monitored by public institutions. In the projects with private buyers, however, they can establish their own monitoring, which can be carried out by third parties.

In the case of the PES scheme designed in the two local conservation areas in San Martin, monitoring activities could be done by the Management Committee as representative of all the interests of the buyers involved in the PES scheme. As public institutions (e.g., the local government of Moyobamba) have responsibilities over these conservation areas, they can also carry out monitoring activities of their own.

6.2 Non-compliance and Dispute Resolution

Although PES schemes are still not being implemented, the individuals designing them are considering what measures can be taken when non-compliance occurs. In the case of the two local conservation areas in San Martin, the local government, as manager of these areas, can sanction any activity that does not comply with what is allowed. There is still no specific sanction established, although it is very likely that this will include suspension of any payments.

If non-compliance goes beyond this and sellers perform illegal activities (e.g., illegal logging), such actions should be prosecuted by the state. The buyers represented on the Management Committee have an obligation to report these actions.

It is common to establish some kind of conflict resolution between parties. If no solution is found, then a third party is involved or the dispute is handled by the judicial court.

7. Good Governance

7.1 Public Participation

The PES schemes being designed ensure public participation through the Management Committees that will be created. These committees will have representatives of all public or private stakeholders interested in contributing to the conservation and recovery of ecosystems. They will be in charge of helping out in the elaboration and implementation of projects that aim at conserving and recovering the ecosystem. Among the members of this committee are:

- Local government of Moyobamba (Municipality);
- National University of San Martín;
- Agrarian agency of Moyobamba;
- Ministry of Production;
- Special Project Alto Mayo (under the Regional Government of San Martín);
- National Association of Journalists;
- Watershed Commissions of Moyobamba; and
- Sanitary Company of Moyobamba.

7.2 Access to Information

Information on the establishment of the schemes should be public. Considering the composition of the Management Committees, the information will be accessible through these committees and their members. Information on the design and implementation of these schemes will also be provided through workshops, radio, bulletin boards, etc. through both communication and environmental education strategies.

In the past, SUNASS also has disseminated information regarding the PES scheme (explaining why the water tariff would rise) through a public hearing in the city of Moyobamba.

7.3 Accountability

Accountability between the parties is an important issue that should be considered when developing the legal agreements. Moreover, given that in many cases the compensation is made in kind through capacity building and technical assistance to the sellers of the ecosystem services, it is important that the buyers or the organization that represents them (e.g., Management Committees) create a compensation fund with clear monitoring and reporting rules in order to avoid any irregularities or misunderstandings in the way the financial resources are disbursed.

7.4 Transparency

Transparency is a key issue in the establishment of any legal arrangement. In the case of the two local conservation areas in San Martín, it will be important to know how decisions are made within the Management Committee, and all stakeholders need to feel they are part of these decisions by having the possibility to participate through different ways. Including representatives of diverse public and private stakeholders on these committees is a way for all stakeholders to be part of the decisions.

An interesting concept that is also being discussed is the possibility of including in the sanitary services' receipt the different services that the users are paying for. This will help the water users know exactly what they are buying.

8. Conclusions

The findings of this study show that Peru lacks a specific legal framework for ecosystem services. However, key legislation regarding environmental law and natural resources recognizes their importance as well as promoting compensation schemes. These laws establish special mandates to

certain public institutions (especially the recently created Ministry of Environment) in order to value, reward, and maintain the provisions of these services.

Although there is currently no express need to enact a special law on ecosystem services, a legislative proposal elaborated by the Ministry of Environment (regulator of these services) will soon be considered by Congress.

Recent modifications of legal and institutional frameworks regarding ecosystem services, especially those related to watersheds, promise an interesting opportunity for the promotion of PES schemes. The state is a key stakeholder in any PES scheme, given that all natural resources are considered the natural heritage of the nation. The new Water Management System will be an important element to take into account.

Based on the analysis presented throughout the document and the Annex, the following recommendations should be considered for the promotion of water-related PES schemes in Peru:

1. National Legislation: There is a need to clarify who can be considered providers of ecosystem services and as such can have rights over them. The rights that can be granted over these services also need clarification. This clarification can be done either by enacting a new ecosystem service law or by modifying the legal framework that now exists. The Ministry of Environment plays an important role as the regulator of ecosystem services.

The relationship between adequate or wise use of the land and the forests, as well as the conservation of basins, is included in several laws and regulations, such as the Forestry Law and NPA Law. Therefore there are some interesting opportunities to promote the establishment of water-related PES schemes.

2. Institutional Framework: Due to recent modifications, the institutional framework for water resources has changed. These changes imply that although it is under the Ministry of Agriculture, the National Water Authority has to include a multisectoral view of water resources, considering the goals of the National System of Water Resources. Thus it is necessary to implement these changes in order to promote the conservation of water resources through several instruments under which PES schemes could be established.

3. Decentralization Process: The decentralization process that Peru is undergoing will influence the establishment of PES schemes. Regional and local governments will be able to identify the needs of the people (e.g., water problems of quality and quantity) and thus establish the necessary measures in order to promote the conservation and sustainable management of natural resources. These institutions need to focus on capacity building and increasing financial and human resources.

4. Property Issues: It is necessary to consider not only property rights over the land in order to establish a PES scheme but also other types of rights established through Peruvian legislation. Working with people who do not have rights over the land has many risks, but it is a situation that should be encountered and patiently analysed in order to establish the correct mechanisms.

5. Land Use Change: Performing sustainable and/or conservation activities should be rewarded with real benefits (e.g., establishment of PES schemes) that can compete with the perverse incen-

tives that currently grant rights over land when changing its use from forestry to agriculture, which although not legally allowed is something that is happening in reality in the Peruvian rainforest.

6. Contracts: Given that PES schemes are still under development, any legal agreement on their establishment is still being designed. Any legal mechanism should be innovative, considering that many of the people who could be sellers of these services do not have rights over the land or the natural resources found in the areas where the schemes are being designed.

ANNEX

City of Moyobamba and Two Local Conservation Areas in the Region of San Martin²⁴

I. Background Description

The region of San Martin is found in the northwestern part of Peru, and its territory mainly consists of high-altitude forests. One of the biggest problems that San Martin faces is migration and the change of forestry areas for agriculture or livestock purposes. Due to this, San Martin is considered the region with the greatest deforestation problems in Peru.

Diverse public and private institutions interested in reversing this situation have been working to find ways to promote the conservation and sustainable management of San Martin's forests, biodiversity, and water, among other resources. Under this framework, the German development agency, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), has fostered the creation of local conservation areas in order to conserve San Martin's natural resources, especially the watersheds found in upper basins.

The main problem of this area is that local people harmed the ecosystem through agricultural or livestock activities. Thus the two local conservation areas – Rumiyacu-Michquiyacu and Almendra, in the upper basin of Rio Mayo, which supplies water to San Martin's capital, Moyobamba – became a tool to promote the conservation of this upper basin.

Objective of the PES Project

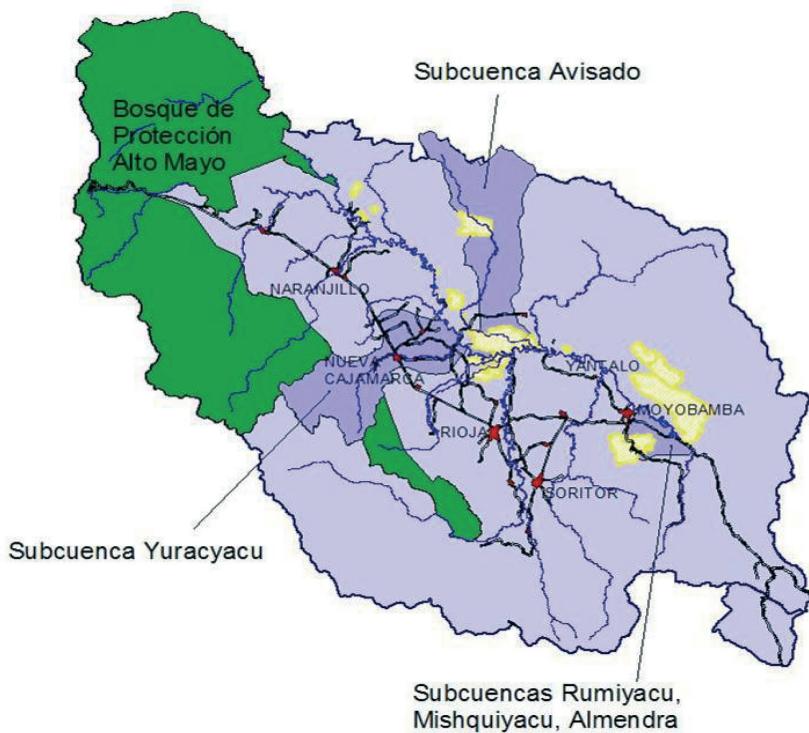
The objective of the PES arrangement is to compensate farmers settled in the two conservation areas for shifting from doing non sustainable agricultural practices (e.g., coffee or other crops) to agroforestry activities. In return, they will receive technical and/or financial support.

Thus the overall goal of this PES scheme is that the two conservation areas and the sustainable management activities carried out in them have positive impacts on water quality and quantity problems in Moyobamba.

Location

- Local conservation area Rumiyacu-Mishquiyacu in the upper basin of Rio Mayo, Moyobamba, San Martin. 864 ha.
- Local conservation area Almendra in the upper basin of Rio Mayo, Moyobamba, San Martin. 1,620 ha.

²⁴ Information regarding the elaboration on this scheme was kindly given by GTZ. Special thanks go to Ingrid Prem and Lily Rodriguez of GTZ, and Cristina Del Aguila, legal consultant.



Parties Involved

The parties involved in the establishment of this PES scheme are:

- Peasants: Approximately 99 peasants live in the upper and middle basins where the two local conservation areas have been created. Under the PES scheme they will be considered as sellers of the ecosystem services. For their legal representation they will probably designate delegates from among themselves.
- Municipality of Moyobamba: The municipality is responsible for the management of the two local conservation areas.
- Management Committee: The Management Committee includes delegates of all stakeholders of the watershed who have an interest in establishing the PES scheme. Among the organizations or institutions represented are the Regional Government of San Martín, the National Water Authority (under the Ministry of Agriculture), the National Superintendance of Sanitary Services – SUNASS, GTZ, local universities, and local nongovernmental organizations. This committee will manage a fund that will be created with the economic contributions made by the institutions or organizations that belong to it. In addition, the committee is responsible for monitoring the activities being implemented by the peasants in the two local conservation areas.

It is important to point out the important role that SUNASS as well as the sanitary company of Moyobamba are playing in the establishment of the PES scheme. SUNASS has approved the five-year tariff structure of the Sanitary Company of Moyobamba, which this time has included the approval of a project named Improvement of the Quality and Quantity of Water Resources. Through this project the company will raise its potable water supply tariff in Moyobamba. The money collected will be used to establish a fund that will help compensate the peasants in the upper basin of the two local conservation areas.

Contracts Signed

No contracts have been signed as this PES scheme is still being designed.

Duration of the Project

The duration has not yet been established. However, SUNASS approved a five-year project that should be considered when elaborating any contracts or agreements between the sellers and the buyers.

Status of Payments Made

As indicated, the scheme is still being designed so no payments have been made as yet.

II. Analysis

1. Property Rights

The peasants living and/or working in the two local conservation areas do not have property rights or any right granted over the land or the natural resources found in these areas.

The establishment of the PES scheme does not consider granting any rights to these peasants, considering that these areas are mainly forests that cannot be granted as property.

However, we believe that in order to secure the establishment of the PES scheme, it will be necessary to grant some type of rights over the natural resources in this area.

2. Contracts

The possibility of signing any contract with the sellers of the ecosystem services is still being evaluated, considering that most of these people lack documents regarding the granting of any rights over the land or the natural resources found in these two local conservation areas.

One way to avoid this problem is making the sellers sign an agreement with the Municipality of Moyobamba (manager of the two local conservation areas) in which they as individuals agree to enter into the scheme considering that they are living in this specific area and agree to do certain activities (reforestation activities). This agreement will be signed in the framework of diverse environmental and natural resources laws and their regulations that establish the obligation of conserving upper basins, among other areas of importance for the water cycle.

As indicated, there are many possible solutions proposed for an arrangement that will give legal security to the PES scheme. Whatever legal arrangement is made, the goal is that all the parties are aware of the rights and obligations being created that should be complied with.

The term of the contracts has not yet been established; however, some parallel projects that will help this scheme, such as the project of the sanitary company of the city of Moyobamba, has been established for five years. Considering that the increase in the water tariff has been approved for five years, the arrangements between peasants and the buyers of the service (probably the Municipality of Moyobamba) will have to consider this term.

Under these circumstances, when peasants receive technical assistance or capacity building, among other activities, that do not involve receiving income, there are no fiscal implications for the peasants.

3. Securities and Risk Allocation

There is a proposal to register the two local conservation areas as part of the domain of the Regional Government of San Martin. If this happens, the PES that will be implemented in this area and could be registered here.

4. Negotiation Process

As in any negotiation process, transparency is a key issue. The diverse issues that are being negotiated include the following:

Getting Moyobamba's residents to approve becoming part of the PES schemes as buyers of the ecosystem service.

Getting the peasants interested in becoming part of the PES scheme as sellers of the ecosystem services. (As they do not have property rights over the area, getting them to join the scheme is not so difficult.)

Getting the Management Committee members to agree on the duties of the committee.

5. Monitoring, Non-compliance, Enforcement

The Management Committee has established as one of its duties the monitoring of the PES scheme. The monitoring will be complemented by technical assistance the peasants are due to receive from some organizations that are members of this committee.

The activities that will be monitored include not only the obligations on implementing reforestation activities for the PES scheme but also obligations that are part of environmental and natural resources legislation. This is why public institutions will also be monitoring this scheme.

In case of non-compliance with any of these obligations, the sanctions could include those derived from the PES scheme (e.g., not receiving technical assistance) or those derived from environmental or natural resources legislation or even the Penal Code.

6. Dispute Resolution

Even though there is no action specified yet for when a dispute or doubts arise between the parties, it is likely that public authorities such as the Municipality of Moyobamba will play an important role.

7. Public Participation, Access to Information, Transparency, Accountability

Public participation is guaranteed in this PES scheme through the creation of the Management Committee, which has as its members diverse public and private institutions such as:

- Local government of Moyabamba (Municipality);
- National University of San Martín;
- Agrarian agency of Moyabamba;
- Ministry of Production;
- Special Project Alto Mayo (under the Regional Government of San Martín);
- National Association of Journalists;
- Watershed Commissions of Moyobamba; and
- Sanitary Company of Moyobamba.

Information on the establishment of the schemes should be public. Moreover, information will be accessible through the Management Committee. Information on the design and implementation of the scheme will also be provided through workshops, radio, bulletin boards, etc.

The PES design implies that accountability for the projects will be part of the job of the Management Committee. It will be necessary to know how decisions are made within the committee and that all stakeholders feel they are part of these decisions by having the possibility to participate through different ways. The establishment of representatives in various committees from diverse public and private stakeholders is a way in which all stakeholders can be part of the decisions.

An interesting concept that is also being discussed is the possibility of including in the sanitary service's bills the different components that users are paying for. This will help water users know exactly what they are buying.

For more information on this scheme, see www.gtz-rural.org.pe.

Bibliography

ACTO (Amazon Cooperation Treaty Organization). 2004. *Strategic Plan 2004 / 2012*. Brasilia, Brazil.

CEPES (Centro Peruano de Estudios Sociales). 2004. *Informativo Legal Agrario, La Legislación de Aguas en el Perú*. Lima: Punto y Como Editores e Impresores EIRL.

GTZ (Gesellschaft für Technische Zusammenarbeit). INRENA. *Proyecto Especial Altomayo*, Gobierno Regional de San Martín, Boletín financiamiento Ambiental en el Perú.

IUCN (International Union for Conservation of Nature). 2006. *Gobernanza del agua en América del Sur*. Editores del Puerto S.R.L.; Gland, Switzerland, and Cambridge, U.K.

León Morales, Fernando. 2007. *El Aporte de las Áreas Naturales Protegidas a la Economía Nacional*. Lima, STAMPA GRAFICA S.A.C.

Solano, Pedro, and Bruno Monteferri. 2009. *Áreas de Conservación Regional y Áreas de Conservación Municipales Propuestas para su Consolidación*. Lima: Lerma Gómez EIRL.

Annex V: Guiding Questionnaire for Country Assessments

The following questionnaire offers guidance on the issues to be considered when conducting an assessment of a country's legal and institutional frameworks relating to Payments for Ecosystem Services (PES). This is the guideline that was developed and provided for the country reports included in ANNEXES I-IV.

The IUCN Environmental Law Centre and The Katoomba Group request to be notified of any use or reproduction of this questionnaire. Analyses produced based on this questionnaire should acknowledge the IUCN Environmental Law Centre and The Katoomba Group. The IUCN Environmental Law Centre and The Katoomba Group kindly request that the resulting analyses be shared with both organizations so that results may be disseminated to members of global networks working on Ecosystem Services. Please contact: thomas.greiber@iucn.org and hmurray@katoombagroup.org.

Directions to country analysts:

Presentation of the information may vary from the order of these questions, as there is a need to maintain a reader-friendliness of the reports. If a question is not applicable or no information is available, the issue raised may not need to be addressed. However, it might be helpful to reconsider such questions in the course of the analysis and conclusions/recommendations in order to think about legal challenges (e.g., how to enforce contracts), and suggest possible solutions (e.g., how to clarify rights, how to avoid clashes between statutory and customary rights).

1. Introduction

2. Legal and institutional framework regarding PES schemes

2.1 Legal framework

2.1.1 Constitution

- Is PES in compliance with the constitution?

2.1.2 Specific PES legislation which

- Could provide the legal basis for all aspects of PES:
 - Definition of ecosystem services to be purchased
 - Legislative authorization to allocate budgets
 - Administrative rules and responsibilities
 - General capacity of potential parties to enter into agreements (individuals, communities, private companies, municipalities, governments, ...)
 - Procedures and possible content of contracts

2.1.3 Ecosystem-related legislation which

- Addresses ecosystem services and market instruments such as payments (but only among other issues and not in detail)
 - Environmental (framework) law, forestry law, water law, nature conservation law, PA law, etc.
 - Planning law (including integrated water resources management), EIA (Forestry Management Plans), other zoning or land use laws

2.1.4 Indirectly relevant legislation which

- Encourages the use of economic instruments or creates perverse incentives
 - Development law, tax law, trade law, mining law, procurement law, etc.
 - Especially, land law/property rights law (which will be analyzed in more detail in section 3.)
 - Liability rules in other sectors that may include provisions for obtaining funds based on impacts or harm caused to land cover

2.1.5 Future legislation proposals in design or under consideration

2.1.6 Pros and cons of having/not -having a specific PES legislation:

- Greater stability of PES schemes because of political and public acceptability of the law
- Greater legal certainty (e.g., legal standing of PES parties and institutions, enforceability of contracts)

2.1.7 Conclusions/recommendations on legal framework

2.2 Institutional framework

2.2.1 Institutions involved at all levels

- Public institutions: e.g., agencies that exist to regulate and manage the ecosystem services (e.g. carbon office, EIA office, etc.), mapping of ecosystem services or of demand for ecosystem services, certification bodies, funding agencies, national/local registries for land rights and ecosystem services, etc.
- Private institutions: NGOs (national or international), civil society organizations, private business
- Intermediaries: in charge of finance, identification of sellers/buyers, negotiation, bundling services, support/advisory/capacity building services, roundtables to inform potential buyers and sellers

Remarks:

- Analysis of
 - Role of the different institutions (who plays the leading role and who should play this role?)

- Their jurisdiction (legal and institutional form, legal and institutional requirements they have to be fulfilled)
- Potential conflicts/gaps, possible solutions/needed institutions
- Assess current situation and identify how to ensure collaboration between/integration of different institutions (Ministry of Finance, Agriculture, Forest, Water, Planning, other Environmental/Management Authorities)

2.2.2 At what scale can or should PES be established?

- Local: at the micro-watershed level (easiest to establish)
- Regional: involving two or even more provinces
- National: initiated by the central government and its institutions (e.g. through the water law)
- Trans-national: between neighbouring countries (possibility of bi-lateral agreements)

Remarks:

- Analysis of the scales at which PES schemes already exist, obstacles to the establishment of PES schemes at other levels (e.g., different water visions within the country might be a barrier to PES at regional and national levels)

2.2.3 How to achieve efficiency of the institutional framework

- Reduction of transaction costs
- Clarification of roles and responsibilities
- Other

2.2.4 Conclusions and recommendations on institutional framework

3. Property rights issues

3.1 What does the law say regarding land rights?

3.1.1 Who owns the land, who owns the natural resources of the land and who owns the ecosystem services of the land?

- Address this question for individuals and communities (do only individuals hold rights, or also communities?)

3.1.2 Is there a possibility to have a right to use the ecosystem services without being the owner of the land?

3.1.3 Is there a possibility to have a right to derive income from the ecosystem services without being the owner of the land (which will enable you to enter into PES contracts)?

3.1.4 Is there a possibility to transfer the right to derive income to others, either permanently, or for a limited time (such as through a lease) which might enable continuity?

3.1.5 Will the right to derive income from ecosystem services be passed down to one's successors (the right of descendants to inherit land or resource rights) which will ensure continuity?

3.1.6 Are customary rights recognized by the legislation?

3.1.7 Is there a customary right to access the land and enjoy extractive benefits without being owner or tenant (e.g., indigenous peoples having customary access rights)?

3.1.8 Does land use change require prior approval, and are there limits to dividing land rights?

3.1.9 How is the land protected from illegal exploitation of the resource?

3.2 What is the practice like?

3.2.1 If different rights/titles exist regarding the resource, does this lead to conflicts, because one person might be able to benefit more from the payments than the other person?

- E.g., companies vs. local farmers and communities

3.2.2 Are the rights given for a sufficient period of time, and over a sufficient size of land?

- If the land of each single individual is too small (to provide the ecosystem service), will they be able to enter into joint agreements?
 - In order to ensure the sufficient provision of ecosystem services
 - In order to create an incentive to enter into PES schemes

3.2.3 How to deal with unclear rights?

- Can PES be a means to solve the problem of unclear titles?
 - PES might facilitate recognition of rights and strengthen claims
 - PES might give an opportunity to open up for (re-) negotiation of rights
 - Clear land titles can also be considered as a “reward” to enter into PES
 - But PES might also weaken claims/lead to greater conflict, if only holders of secure rights/titles are able to participate and benefit
- Do other means exist to clarify rights?
 - E.g., registration (why is this a solution or why not?)

3.2.4 Land rights and water rights might be separated (prices foron land that goes within-
clude water rights are higher, so thatthus poor people are excluded from lands with
water rights)

3.2.5 How do to deal with customary rights not recognized in the legislation? E.g., if users
do not accept water as a market commodity because of their culture/“vision”?

3.2.6 How do local people understand all these issues? Do their local definitions match
legal principles? What effect is there of differences in perceptions and understand-
ing?

3.2.7 Conclusions and recommendations on property rights issues

4. Negotiation

4.1 How are PES contracts negotiated in the country?

4.1.1 Participants in these processes: Reflections on the ability/capacity of the institutions for negotiation

4.1.2 Pro bono legal expertise available in country?

4.1.3 Guidelines and other support tools

4.2 Are tender/bidding processes being used?

- Potential sellers calculate how much it would cost them to undertake the management interventions that ensure ecosystem services, and submit a formal bid for funding. Each landholder bid is then divided by its ‘environmental benefit’ score and the bids with the lowest cost per unit of environmental outcome are selected, until the available budget is exhausted.

4.3 Are conflict resolution processes being used?

4.4 Conclusions and recommendations on negotiation

5. Contractual issues

5.1 Parties to the contract

- Seller/supplier of the environmental service as well as buyer/beneficiary
- Notion of authority: representation by “honest brokers”
- All parties to PES must have legal capacity to enter into contracts
 - Individuals and organizations might have the right, but not necessarily communities

5.2 Legal nature of the contract

- Private or public nature of the contract (especially in case of public PES)
- In case of private contract, applicable provisions depend on whether the contract is an input-oriented contract (only a certain land use/land use change is owed) or an output-oriented contract (a result is owed, e.g. increased amount/improved quality)
 - Depends on the obligations regulated by the contract

5.3 Objective regulated by the contract

- Explanation of the significant water management problem
- Definition of the water-related ecosystem service which solves this problem

5.4 Obligations of the parties

- Identification of obligations on seller’s side
 - Input-oriented obligation (certain behaviour is owed) or output-oriented (result is owed)

- Possibility to refer to a management plan annexed to the contract, including baseline, indicators, clauses prohibiting leakages etc.
- Level of “payments” has to be specified
 - Payments can be made to a number of individuals or their community
 - Especially in cases where indigenous communities are involved, payments need to fit into the existing socio-cultural environment (e.g., if a few individuals receive payments while others do not, the risk of disrupting a community which is based on strong cooperative bonds is created)
 - Where land ownership is communal but individuals have long-term rights to use, it may even be necessary to involve both levels
 - Benefit sharing arrangements and practices
- Definition of payments/benefit sharing arrangements and practices
 - Parties have to determine whether the payments will be in kind or in cash
 - Additionally, the specific amount has to be agreed on
- When will the payments be made
 - Important to set the right timeframe and sequence for the payments
 - If all or majority of the payments are already made at an early stage of the contract, possibilities to enforce contractual obligations over the full contract period will decrease
- Narrow definition of exemptions

5.5 Period of time/duration

- Of the contract
 - Ensure an appropriately long timeframe
 - Interest in renewing expired contracts will come automatically, if the PES scheme is well designed
- Of the service provision
 - If a long-term sustainability/permanent provision is envisaged, possibility of prohibition of future land use changes after the contract expires
 - During the contract period valuable sites (e.g., habitats, biotopes) might have developed which then fall under the protection of a (sectoral) environmental law
- Periodical review of contract obligations
 - Will help to evaluate efficiency and ensure adaptability
 - Provisions for moving prices along with market prices

5.6 Fiscal implications of deriving income from sale of ecosystem services

- Are there differences in establishing sales as a provider vs. a seller, vs. another denomination?

- Implications for a buyer, or investor of ecosystem services

5.7 Securities and risk allocation

- Registration of PES contracts in public registries
- In case the service provider sells his property to another individual, buyer needs to secure that the contractual service will be further provided
 - Can be done by requiring the seller to register the restrictions on the particular property in the public land registry (if one exists) which then also have to be honoured by the potential buyer of the land
- Insurance for non-compliance
 - Private insurance companies
 - Government to back up certain cases of non-compliance
 - Self-insurance by creating a reserve fund (part of the payments will be retained/held back in order to use them in case of non-compliance)
 - Use of escrow accounts – retaining revenues to serve as insurance
- Burden of proof
 - Depends on the nature of contract
 - Could also be reversed in the contract according to the parties will
- Evidence
- Other involvement of Government in decreasing risks associated with PES

5.8 Conclusions and recommendations on contractual issues

6. Monitoring, non-compliance and enforcement

6.1 How will the provision of services be monitored?

- Definition of how contractual compliance will be determined
 - In order to do so, the baseline has to be set from which the evaluation of the seller's performance can start
- Authority to monitor the seller's activities
 - Granted to the buyer or
 - Granted to a public institution or
 - Granted to an independent verifier
 - Adequate structure to avoid corruption must exist
- Decision on a clear and affordable monitoring process
 - Field inspections

- Specific, field-level assessments are defined.
- Exactly what will be inspected and what test methods will be used are defined.
- Inspection procedures are agreed and include: the legal authority for inspections; the frequency of inspections; the consequences of refusing inspection; rights of entry for inspectors; whether notification is needed and what documents may be examined.
 - Self-assessments
- Reports based on self-monitoring and record-keeping by service sellers and buyers are monitored.
- Information in these reports is then used either as a direct basis for enforcement actions, or to target inspections.
- A clearly defined, standard procedure is again required, including the method, schedule and format for reporting.
- Data requirements and how long records must be kept must be defined, and whether reports will be made public should be agreed.
 - Inspections by the buyers (e.g., water guardians)

6.2 Non-compliance

- Reasons for non-compliance
 - Lack of trust between the parties
 - Possibility of a free ride
 - Unfair valuation of the ecosystem services provided
 - Lack of authority in the field (possibility to get away with violations)
 - Lack of (effective) enforcement mechanisms (no deterrence/penalties are too low)
- If an effective contract law is in place, a comprehensive non-compliance regime already exists by law
- If this is not the case, or parties wish to include individual responses to non-compliance, further instruments can be included
 - E.g., contractual penalties
- Enforcement instruments: carrots and sticks
 - Sticks require credibility (meaning that there is a high chance violations will be detected and that responses to violations will be swift and predictable) and disincentives for non-compliance (appropriate sanctions)

6.3 Dispute resolution

- According to the legislation in place, such disputes will probably already fall under the competence of a particular court (which one?)

- However, the parties can also decide to submit the dispute to an arbitral tribunal or to mediation, if this is preferred
 - Consideration should then be given to submitting the disputes to arbitration under the 2001 Permanent Court of Arbitration Optional Rules for Arbitration of Disputes Relating to Natural Resources and/or the Environment
 - It has to be ensured that both sides of the contract have locus standi (legal personality before the court/tribunal)

6.4 Conclusions and recommendations on monitoring, non-compliance and enforcement

7. Good governance

7.1 Public participation

- Through consultations or negotiations that bring the parties to one table
- Through formal (written) comments within a limited period of time after the public has been officially informed of a draft scheme
- Through field testing by volunteers to determine whether the scheme is effective and efficient or not

7.2 Access to information

7.3 Accountability

7.4 Transparency

7.5 Conclusions and recommendations on good governance

8. Overall conclusions

