

# COMPENSATION FOR ENVIRONMENTAL SERVICES AND RURAL COMMUNITIES

LESSONS FROM THE AMERICAS AND  
KEY ISSUES FOR STRENGTHENING  
COMMUNITY STRATEGIES



The Salvadoran Research Program on Development and Environment (PRISMA) seeks to influence local actions and national and regional initiatives, by promoting and developing territorial and resource management approaches that can strengthen rural livelihoods while furthering the sustainable management of natural resources.

PRISMA believes that in order to meet this objective it is necessary to:

- Expand secure access to and control over the natural resource base;
- Strengthen social capital and capacities for collective action; and
- Implement public policies and investments that support and recognize the values of rural areas and the contributions of the poor to natural resource management and the provision of environmental services.

**ISBN: 978-99961-903-5-3**

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Key Issues for Strengthening  
Community Strategies**

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# Acknowledgements

This report presents the findings of the “Payment for Environmental Services in the Americas” project (1999-2003), coordinated by PRISMA and supported by the Ford Foundation, as well as PRISMA’s framework for the compensation of environmental services from the perspective of peasant and indigenous communities. This framework has been developed under PRISMA’s general research program and has been made possible thanks to support from the Ford Foundation, SIDA, SDC and NOVIB.

The report has been enriched by contributions from many people. Michael Conroy and Deborah Barry of the Ford Foundation offered comments and suggestions throughout the entire preparation process. Participation by the teams from Mexico, Brazil, Costa Rica, El Salvador and New York State were also vital in bringing the process to fruition. The report on Mexico was undertaken by John Burstein (Coordinator), Gonzalo Chapela y Mendoza, Jazmín Aguilar, Emilienne de León, Adalberto Vargas, Luisa Paré, Héctor Marcelli, Martha Miranda and Francisco Chapela. The report on Brazil was prepared by Rubens Harry Born (Coordinator), Sergio Talocchi, Adalberto Veríssimo, Salo Vinocur Coslosky, Ramón Arigoni Ortiz, Yann Le Boulluec Alves, Ronaldo Seroa da Motta, Clarissa Riccio de Carvalho, Jasylene Pena de Abreu, and Muriel Saragoussi. The report on Costa Rica was written by María Antonieta Camacho (Coordinator), Olman Segura Bonilla, Virginia Reyes Gatjens and Miriam Miranda Quirós. The report on El Salvador was prepared by Doribel Herrador (Coordinator), Leopoldo Dimas, Ernesto Méndez, Nelson Cuéllar, Oscar Díaz and Margarita García. The report on New York was the responsibility of Ryan Isakson.

Some of the ideas that were formulated as part of the framework came out of a workshop held in February 2002, with the participation of the teams from Mexico, Costa Rica, Brazil and El Salvador; Ford Foundation officers; as well as a select group of international academics and experts including Susana Hecht, Sara Scherr, James Boyce, Stephen Gliessman, Arthur Getz-Escudero and Byron Miranda - all of whom offered important guidance for developing the alternative framework during the workshop. Many others helped flesh out the approach through their comments about progress reports presented at different international meetings. Finally, it is important to acknowledge that this work would not have been possible without direct contact with and feedback from many rural communities. We dedicate this work to them as a token of our appreciation, and with the hope that it will be of service to them.

# Contents

<b>PREFACE</b> .....	<b>1</b>
<b>SUMMARY</b> .....	<b>3</b>
<b>INTRODUCTION</b> .....	<b>11</b>
<b>COMPENSATION FOR ENVIRONMENTAL SERVICES AND RURAL COMMUNITIES IN THE AMERICAS</b> .....	<b>14</b>
<b>COSTA RICA</b> .....	14
Operation of the Official PES Scheme in Costa Rica .....	15
The Previous Experience with Subsidies and PES Financing Problems.....	16
Limited Participation of Small-Scale Producers and Indigenous Communities .....	18
PES and Local Processes.....	20
Adjusted Water Rate: Public Utilities Company of Heredia (ESPH).....	21
PES for Producers in the Platanar River Basin .....	22
PES for Producers in Sarapiquí.....	23
Assessment and Lessons .....	24
<b>MEXICO</b> .....	26
PES Initiatives and Rural Communities: Three Cases.....	27
Carbon Sequestration: BioClimatic Fund (Chiapas).....	27
Biodiversity and Carbon Sequestration: UZACHI (Oaxaca) .....	27
Ecotourism: Mazunte and Ventanilla, Oaxaca; Selva del Marinero, Veracruz.....	28
Taking Advantage of PES Opportunities: Key Issues.....	29
The Starting Point: Broad Access to Natural Resources.....	29
Developing the Supply from Existing Strategies and Strengthening the Demand.....	29
Strategic Partnerships Between Intermediary Organizations and Peasant Organizations.....	30
Organizational Capacity, Management Modality and Territorial Appropriation.....	30
Institutional Framework and Favorable Policies .....	31
<b>BRAZIL</b> .....	32
Case Studies .....	32
Subsidies for Rubber Tappers in Acre for their Role as Forest Rangers.....	32
Claiming Rights in Traditional Protected Areas: The Jaú National Park Case .....	34
Environmental Services and Strengthening of Livelihoods in Gurupá .....	35
Integrated Management of the Rio Ribeira de Iguape Watershed, São Paulo .....	36
Assessment and Lessons .....	38

EL SALVADOR.....	39
Case Studies .....	40
The Coffee and Biodiversity Project .....	40
Small Shade-Grown Coffee Producers and Environmental Services in Tacuba .....	41
PES in San Francisco Menéndez.....	42
Chalatenango: Territorial Provision of Environmental Services.....	42
The “Ecoservicios” Project: Toward a National System of Payment for Environmental Services .....	43
Assessment and Perspectives .....	44
Seeing Beyond the Forest .....	45
Participation in Defining the System and Negotiations for Local Management .....	45
Access to the Resource Base.....	45
Strengthening Social Organization .....	46
A Favorable Institutional and Policy Environment.....	46
New York State .....	46
Background .....	47
Negotiation Process and Inclusion of Multiple Stakeholders .....	48
Components of the Compensation Package.....	49
Non-Pecuniary Benefits.....	49
Assessment and Perspectives .....	50
The State and Regulatory Frameworks .....	50
Broad Compensation Package.....	50
Harmonizing Competing Visions Through Negotiations .....	51

## **STRENGTHENING COMMUNITY STRATEGIES FOR ENVIRONMENTAL SERVICES ..... 52**

Guiding Principles.....	52
Communities and Ecosystem Management: Integrating Levels .....	53
Level One: Self-Provisioning .....	54
Level Two: Income Generating Production and Natural Resource Management .....	54
Level Three: “Production” of Environmental Services and External Recognition.....	55
Broad Valuation Frameworks for Environmental Services.....	56
Traditional Approach to Economic Valuation .....	56
The Issue of Payment Amounts .....	57
Towards an Integrated Valuation Scheme.....	57
Economic Instruments for Compensation and Ground Rules.....	59
Taxes and Subsidies .....	59
Transfer Payments .....	60
Markets for Products with Environmental Attributes: Certificates and Labels .....	61
Support for Community Strategies for Rural Tourism or Ecotourism .....	62

Other Economic Instruments.....	62
Joint Use of Instruments.....	63
Ground Rules and Integration of Objectives.....	63
Environmental Services and Landscape Perspective .....	64
Importance of Agro-ecosystems as Components of a Landscape.....	65
Landscape Stewardship: Social Capital and Collective Action .....	67
Expanding Rights over Natural Resources.....	68
Role of the State, International Donor Agencies and Support Organizations.....	71
The State is not Neutral.....	71
International Donor Agencies Linked to the Process without Controlling it.....	71
Support Organizations .....	72
Concluding Remarks .....	73

<b>BIBLIOGRAPY.....</b>	<b>74</b>
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## ACRONYMS

ABAS	Asociación para el Bienestar de Sarapiquí
ACCVC	Área de Conservación de la Cordillera Volcánica Central
AFS	Agro-Forestry Systems
AGUA	Proyecto de Acción, Gestión y Uso Racional del Recurso Agua
APPTA	Asociación de Pequeños Productores de Talamanca
CACH	Comité Ambiental de Chaltenango
CACSA	Centro Agrícola Cantonal de Sarapiquí
CAF	Certificado de Abono Forestal
CAFA	Certificado de Abono Forestal por Adelantado
CAFMA	Certificado de Abono Forestal para el Manejo del Bosque
CATIE	Tropical Agricultural Research and Higher Education Center
CCF	Cámara Costarricense Forestal
CCMSS	Consejo Civil Mexicano para la Silvicultura Sostenible
CES	Recognition and Compensation for Environmental Services
CGIAR	Consultative Group on International Agricultural Research
CND	Comisión Nacional de Desarrollo
COCABO	Cooperativa del Cacao Bocatoreña
CODEFORSA	Comisión de Desarrollo Forestal de San Carlos
CPB	Certificado para la Protección del Bosque
ECOSUR	Colegio de la Frontera Sur
EHM	Empresa Hidroeléctrica de Matamoros
EPA	United States Environmental Protection Agency
ERA	Estudios Rurales y Asesoría Campesina

ESPH	Empresa de Servicios Públicos de Heredia
FAO	Food and Agriculture Organization of the United Nations
FECON	Federación Costarricense para la Conservación del Ambiente
FONAFIFO	Fondo Nacional de Financiamiento Forestal
FONASA	Fondo Nacional de Servicios Ambientales
FUG	Forest Users Groups
FUNDECOR	Fundación para el Desarrollo de la Cordillera Volcánica Central
GEF	Global Environment Facility
ICE	Instituto Costarricense de Electricidad
ICMS	Imposto sobre Circulação de Mercadorias e Serviços
IMAZON	Amazonian Institute of Man and the Environment
IUCN	The World Conservation Union
IXETO	Unión de Comunidades Ixtlán-Etla
JNP	Jaú National Park
KfW	Kreditanstalt für Wiederaufbau
LUP	Land Use Plan
MA	Millennium Ecosystem Assessment
MBC	Mesoamerican Biological Corridor
MINAE	Ministerio de Ambiente y Energía
NGO	Non-Governmental Organization
OCIC	Oficina Costarricense de Implementación Conjunta
OECD	Organisation for Economic Co-operation and Development
ONF	Oficina Nacional Forestal
PADEMA	Plan Departamental de Manejo Ambiental
PAJAL	Unión de Crédito Pajal Ya kac'tic
PES	Payment for Environmental Services
PROCAFE	Fundación Salvadoreña para Investigaciones del Café
PROSAGUAS	Proyecto de Promoción de la Salud a través de Agua y Saneamiento
PRISMA	Programa Salvadoreño de Investigación sobre Desarrollo y Medio Ambiente
PTT	Programa de Transferencia de Tierras
SFP	Small Farms Program
SINAC	Sistema Nacional de Áreas de Conservación
SUFRAMA	Superintendência da Zona Franca de Manaus
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UZACHI	Unión de Comunidades Zapoteco-Chinantecas
WAP	Watershed Agricultural Program
WRI	World Resources Institute
WWF	World Wide Fund for Nature



## PREFACE

**Deborah Barry, Ford Foundation**

The concept of Ecosystem Services has been developing slowly around the world since late in the 1950's and it gained inertia in the late seventies through the concerns of ecologists. The 'ecosystem' concept emerged as they sought to understand the interactions between living things, such as plants, animals, fungi, bacteria, and the non-living surrounding environments. The concept of 'services' arose later to acknowledge the reliance of people on ecosystems. The vital link between the two is recognition that ecosystems perform functions that allow humans to live on earth.

The understanding of the impact of human action on these ecosystems and their consequent determination of the limits for human existence has only recently emerged as a focus for scientific inquiry and political concern. As evidence of dramatic change in the world's ecosystems increases, the causes are more clearly linked to the pressures from growing human populations, the pattern of their settlements and the increasingly higher levels of consumption of natural resources and energy. These trends, in turn, are posing threats to the future of human food and water supply, quality of living conditions, physical and mental health, and that of the other species with which we share this planet.

Research to help us understand this complex relationship is of high-ranking importance. Yet, the rate of degradation is so accelerated that action to revert this trend is necessary now. Here, the concept of Ecosystem Ser-

vices and the notion of rewarding those who allow for the provision of such services, offers an opportunity to understand better the benefits that come from ecosystems, who helps provide them and who benefits from them.

During the past decade, we have witnessed a widespread emergence of markets and other compensation or payment schemes for ecosystem services (PES) around the world, particularly related to forests – such as watershed protection, biodiversity conservation and carbon sequestration. PES implementation focuses on the fact that the key to reverting ecosystem service degradation lies in changing the world's land-use and industrial production practices. This work focuses on the first concern, and is thus obligated to involve those who influence or affect land-use and especially those who work and live directly from the land and the natural resources it provides.

The research underpinning this publication was motivated by an overriding concern for equity and a special focus on those 'closest' to the land. The underlying interest was to explore if the PES concept could contribute to overcoming the inequities in the Poor's access to, control over and benefits from their natural resources, while guaranteeing the provision of environmental services.

Can PES schemes contributing to forest or other landscape restoration and conservation, become a sustainable source of additional income, and increase the decision-

making power for the over 1 billion natural resource-dependent poor in the world?

What elements must be included in an analytical framework for PES to empower land users with results that guarantee the provision of environmental services?

What are the dangers of implementing PES schemes that could deepen the problems of inequitable access to land and the natural resources of our planet, by those already marginalized?

This publication represents the first serious attempt at synthesizing “lessons learned” from the incipient and varied practice of implementing PES in the Americas, where equity is a central concern. It builds from the research findings of a small number of cases, incorporates the ‘learning’ from others, and organizes the results of a process of debate and reflection into this presentation.

The authors reflect upon the questions that emerged at every step of the process: from the conceptual PES framework itself; the differing motives, justifications behind PES schemes; the instruments for implementation; the dilemma of valuation of environmental services and the debate surrounding how to reward the service providers (compensation, payment, subsidy, etc). In each case they reveal the importance of the nature of the participation of the actors involved, be

they the state, private sector or communities living from the land. The resulting reflections constitute an initial and important contribution to the design of a universal framework for PES.

It is our fundamental belief that social inequity is one of the driving forces of environmental degradation. This perspective on PES provides some of the initial principles and methods needed to address the problem. However, the challenges are great, as the forces shaping the growing official-level interest for implementation are bound by the political economy of their contexts, a strong institutional legacy of either subsidies or over-emphasis on markets and pricing, and generally a lack for concern with the equity issues and empowerment potentials of PES.

By forging a perspective that begins with the interests of those most crucial to its success, the poor and ‘closest to the land’, the results of this work offer a unique and relevant contribution to explore the challenges and rewards of tackling the implementation of any PES proposal.

I would like to congratulate the authors of the country teams that participated in this effort and the PRISMA staff for their dedication and creativity in attempting to research phenomena that are still ‘in the making’, and for their devotion to sharing the results with those to whom it matters most.

## SUMMARY

According to the Millennium Ecosystem Assessment, ecosystem services are the benefits people obtain from ecosystems. These include provisioning services, such as food and water; regulating services, such as water regulation and disease control; supporting services, such as soil formation and nutrient cycling; and cultural services, such as recreational, spiritual, religious and other non-material benefits. The concept of environmental services does not have an agreed-upon definition. Commonly, it refers to regulating, supporting and cultural ecosystem services as outlined in the Millennium Assessment's definition.

The notion of paying or compensating for environmental services arises from different perspectives or interests. Thus, compensation mechanisms are variously seen as financial instruments for conservation; an option to ensure climate change mitigation at the lowest cost; an option to ensure environmental services of local or regional interest, such as regulation or filtration of water flows; and a possibility to strengthen rural livelihoods and revaluing rural landscapes, their diversity of practices and ecosystems.

Although the foregoing perspectives are not exclusive, their emphases are important. The emphasis on conservation from its most traditional perspective – conservation without people – can exclude or even expel indigenous and peasant communities. Likewise, looking for the lowest cost of carbon sequestration can have negative environmental and social impacts when based on simplified ecosystems and large-scale projects. On the

other hand, compensation for hydrological services, if it requires participation by small subsistence producers, can contribute to restoring degraded slopes, benefiting downstream consumers as well as the producers themselves.

Whatever the case, a rural community perspective to compensation for environmental services has not been dominant so far. Yet, a community perspective to compensation schemes is necessary for pragmatic reasons. Communities inhabit, manage and use many ecosystems of interest for conservation and environmental services provision. Furthermore, around the world, communities' struggles to expand their access rights and their control over natural resources are being settled in their favor. Moreover, certain environmental services, such as the genetic diversity of domesticated species essential for food security and other uses, can only be guaranteed if the traditional practices of communities that allow their reproduction are maintained.

From an ethical perspective, compensation schemes that do not fully integrate the social objective of directly benefiting communities with the environmental objective of guaranteeing the provision of environmental services can turn into instruments of exclusion. On the other hand, compensation strategies planned and implemented from the perspective of indigenous and peasant communities can contribute to strengthening their livelihoods and to the improved management of rural spaces.

## LESSONS FROM THE AMERICAS

In the Americas, the initiatives related to the idea of compensating or paying for environmental services are strongly shaped by their national and local contexts and especially by the interests of the different stakeholders who engage in these processes.

Costa Rica stands out with its State-driven national system of payment for environmental services; Mexico, by the ample access to and control over natural resources by peasant and indigenous communities. In contrast, in Brazil the expansion, innovation and defense of the rights of communities to resources still plays an important role. El Salvador, with small natural areas, forces us to see beyond the forest to consider the role of agro-ecosystems and the importance of restoring degraded landscapes. The experience with compensation in the Delaware/Catskill watersheds of New York State demonstrates the importance of negotiation processes in defining compensation schemes that respond to local needs.

Given such differing contexts, it would be mistaken and simplistic to copy a successful compensation scheme from one context, and expect it to work well in another. Nevertheless, lessons derived from different experiences can help identify key issues to consider when devising compensation schemes capable of benefiting rural communities.

### COSTA RICA

The official PES scheme in Costa Rica began in 1996 with amendments to the Forestry Law. While the official scheme concentrates payments in large and medium size private landowners, local initiatives operating

alongside the official scheme have emerged, that use more flexible criteria. The experience of Costa Rica offers several lessons:

- The importance of broad and genuine participation in the early stages of institutionalizing compensation schemes to ensure their long-term legitimacy and sustainability. An accelerated institutionalization of compensation schemes, without adequately including the interests of small producers and indigenous communities, generates restrictions that are difficult to overcome later on.
- The importance of paying attention to the overall orientation, eligibility criteria and operational rules, since they largely determine the capacity for inclusion of the compensation schemes.
- Compensation schemes can enhance their impacts when they support more directly environmentally improved productive activities that are of interest for the producers (agroforestry, agrotourism, ecotourism, non-timber products, sustainable agriculture, etc.).
- The importance of including local-level perspectives, priorities and visions. Valuing and enhancing environmental services from a local perspective empowers local communities and promotes participatory management.

### MEXICO

The various community-based initiatives in Mexico - in biodiversity protection, carbon sequestration, ecotourism and environmentally friendly production - also provide important lessons:

- When broad access to the resource base is guaranteed, as in Mexico, organizational capacity becomes the determining factor. Such capacity is crucial for establishing agreements, complying with norms, managing conflicts, dealing with external actors, and applying territorial management strategies at a scale that can guarantee environmental services provision.
- It is necessary to develop participatory territorial planning and management instruments at different scales: from the plot or farm level up to the landscape level where it may be necessary to deal with and harmonize different land uses.
- Peasant and indigenous communities rely on the support of NGOs for research, technical assistance, certification, seeking financial support, promotion and marketing. Yet, different visions and approaches can create conflicts. Therefore, it is necessary to establish strategic associations between communities or peasant organizations and intermediary organizations.
- Existing production strategies provide the most convenient starting point for meeting or creating the demand for environmental services, through diversification (e.g. expanding agro-forestry activities for carbon sequestration or water regulation), or by marketing environmental services associated with existing crops (e.g. biodiversity-friendly shade-grown coffee). Furthermore, it is useful to present an integrated supply of environmental products and services and to combine markets for environmental services with fair trade markets or solidarity markets associated with peasants and indigenous people.

## BRAZIL

Compared to Mexico, access to natural resources by indigenous and peasant communities in Brazil has been considerably less and much more insecure. Thus, the lessons of Brazil are associated with the expansion, innovation and defense of the rights of communities to the resource base and to other basic rights:

- A traditional conservation focus, and compensation mechanisms to support such conservation schemes, can have negative impacts on communities dependent on access to the resource base.
- Expanding access and usufruct rights, and compensating the stewardship role played by communities can strengthen their livelihoods while guaranteeing the flow of environmental services.
- Using a wide range of compensation mechanisms to promote productive activities of communities, that preserve or enhance the provision of environmental services, can strengthen their livelihoods and provide the greatest benefits.
- Strong social organization is necessary to ensure that compensation schemes operate in favor of the communities.
- It is crucial to integrate environmental objectives with social and equity objectives, in the design and implementation of compensation schemes. Public discussion and decisions on rights, responsibilities, procedures and rules and scrutiny of compensation schemes can prevent perverse effects and help in achieving equitable results.

## EL SALVADOR

El Salvador, with just over 20,000 km<sup>2</sup> provides an interesting set of features in terms of access to the resource base by the rural poor, predominance of anthropogenic landscapes, influence of traditional conservation discourses, social organization, and a remittances-driven economy that promotes accelerated urbanization processes, while agricultural activities collapse in rural areas. The context and initiatives of El Salvador provide several lessons:

- The importance of seeing beyond the forests and transcending traditional conservation perspectives. Improved practices in agro-ecosystems can enhance environmental services while strengthening livelihoods.
- Strong social organization is crucial. Managing heterogeneous landscapes for environmental services requires effective collective action achieved through strong local negotiating processes. Social organization is also essential for the negotiation of compensation schemes, their rules, and to guarantee an equitable distribution of the benefits.
- A favorable institutional and policy environment towards rural areas is necessary. Recognizing and revaluing the role of rural communities in providing environmental services assumes an institutional and policy framework that contributes to the inclusive management of anthropogenic landscapes, rural areas and the agricultural sector, all of which goes well beyond the scope of traditional policies, both in agriculture and in conservation.
- Genuine participation in defining policies and rules. Local realities and initiatives that attempt to integrate environmental objectives in production and local development strategies need to influence public policies towards rural areas, as well as the definition of the orientation and rules of compensation schemes.

## NEW YORK

New York City's water system supplies 1.4 billion gallons of water per day, with the Delaware/Catskill watersheds providing 90% of the water supply. To avoid filtering its water at a very high cost, New York City officials and many other stakeholders negotiated a watershed management strategy that supports farmer's activities that improve the quality of the water supply. This experience provides important lessons:

- Negotiation processes involving multiple stakeholders are essential in order to harmonize opposing landscape visions and establish compensation schemes that adapt to the priorities of those involved.
- A direct payment mechanism does not necessarily represent the most favorable form of compensation or the most appropriate. Instead, it is better to consider a broad package of compensations with different components.
- The empowerment of local actors with resources could enhance the capabilities and generate additional incentives for the provision of environmental services.
- The State can play a key role in catalyzing processes related to compensation for environmental services.

## **STRENGTHENING COMMUNITY STRATEGIES FOR ENVIRONMENTAL SERVICES**

### **INTEGRATING LEVELS**

Producers and communities manage the ecosystems they control seeking to meet their basic needs, like food, fuel-wood, water and spiritual well-being (Level 1); earning an income through their production strategies (Level 2); and pursuing new alternatives, often linked to environmental services provision, such as water protection for urban areas or power generation, biodiversity conservation, carbon sequestration, etc. (Level 3). Strengthening community strategies for environmental services should support the integration of these levels and enable overcoming hurdles in each one.

Learning about the relationships at the first level is crucial when considering compensation schemes for environmental services, from the perspective of rural communities. Such schemes can fail or be detrimental to the community, if it is not understood the way communities themselves value key environmental services for their basic subsistence, identity and spiritual well-being. At this first level, relations are internal to the community and transactions with outside actors and markets do not occur. The key concerns at this level are access to and management rights over natural resources, and the norms established by communities to ensure the continued flow of these basic services.

The second level has to do with the relationship between natural resource management and production strategies for income generation. In seeking better entry into or better

prices on the market, it is common an evolution in production forms to incorporate distinct environmental attributes or services into the production process. In other cases, where traditional forms of production already incorporate those attributes, the main effort is one of marketing, to make those attributes explicit. Examples that reflect both situations are organic farming, shade-grown coffee, certified sustainable forestry, ecotourism, handicraft production, etc. At this level, the primary needs include marketing efforts, certification of practices and products, training, and specialized technical assistance.

At the third level, outside recognition is sought for environmental services, such as biodiversity, water provision for urban centers or carbon sequestration to mitigate climate change. Outside recognition does not express itself, at this level, in a product that brings price premiums on the market. Instead, other compensation mechanisms are used to recognize particular ecosystem management practices, which guarantee the environmental services of interest to the actors or outside “consumers.” Moreover, rural communities must develop or facilitate specific ways to maintain or enhance the environmental service. This third level is, without a doubt, the most complex for communities and it can be unviable or turn into a threat if it is not rooted in the two previous levels.

### **BROAD VALUATION FRAMEWORKS FOR ENVIRONMENTAL SERVICES**

Valuation of environmental services in the context of heterogeneous landscapes, from a social and ecological point of view, is a complex task. Traditional economic valuation frameworks cannot grasp the complexity, reality and heterogeneity (biophysical,

social, institutional, etc.) and diversity of actors' interests in regards to the natural resources present in such landscapes. Therefore, it is necessary to apply broader, integrated frameworks of environmental services valuation, closer to the reality of community circumstances and contexts.

### **COMPENSATION PACKAGES AND GROUND RULES**

Compensation mechanisms need to establish a link with the environmental services or attributes they wish to compensate. Nevertheless, they should be tailored to the needs and demands of the communities and producers, according to the different levels of their natural resource use and management strategies. If the rules for implementing the compensation instruments are not designed explicitly to favor poor rural communities, they could generate greater inequity and social exclusion.

To avoid such situation, it is necessary to consider a broad approach to compensation that goes beyond financial payment mechanisms. It requires identifying the most appropriate types of compensation and mechanisms to strengthen community strategies at all levels, while at the same time ensuring the provision of the environmental services of interest. Within those compensation packages, various economic instruments can be used: taxes and subsidies, transfer payments, markets for products with environmental attributes (labels and certificates), support for community strategies for rural or ecological tourism, international markets for environmental services, etc. In addition, technical assistance, financing of investments, marketing support, may also be included in compensation packages.

### **LANDSCAPE PERSPECTIVE**

In order to guarantee environmental services, compensation mechanisms need to promote a landscape or territorial management perspective. A territorial rationale in the use of compensations is therefore an important consideration. The landscape perspective recognizes that environmental services are generated and distributed through a great variety of land uses (forests, wetlands, pastures, different types of farming, perturbed wooded areas, human settlements, etc.) and that interactions among the varied components of the landscape mosaics are also important.

### **SOCIAL CAPITAL AND COLLECTIVE ACTION**

Social capital is critical for landscape management and environmental services provision. In many cases the area involved exceeds the parcel or farm, therefore, the actors present in the landscape need to coordinate to ensure appropriate management.

Social capital serves as a bridge to building larger management units, thus allowing for the integrated management of heterogeneous landscapes with multiple actors. This is where collective action becomes important, understood as the coordination of individual or group activities in pursuit of a common interest. Indeed, collective action is a crucial factor in managing heterogeneous landscapes, given that the inhabitants, producers, landowners and, in general, those who manage the land, need to act in a coordinated manner to ensure good management.

At the community level, strong internal organization is necessary to establish and



comply with norms, and to settle disputes. In addition, it may be necessary to strengthen communities' capacities for establishing external links that ensure support, access to market niches, and mutually beneficial agreements with other actors.

## **EXPANDING RIGHTS**

The assignment of rights is a common way to ensure the provision of environmental services. Traditional conservation schemes seek to ensure such provision through restrictions on access and usufruct rights. In contrast, expanding rights has been used in recent years to ensure the provision of environmental services. Expanding rights is also an effective way of advancing poverty reduction objectives, because it puts assets into the hands of the poor, strengthening their livelihood strategies.

Defending and expanding natural-resource related rights is a form of compensation for many communities, since rights make basic livelihood strategies viable and lay the groundwork for other complementary compensation mechanisms. Here a wide-ranging perspective on these rights is needed, one that goes beyond the categories of private, state or communal property. The conceptual framework developed for common property regimes that breaks down property rights into rights of access, withdrawal, management, exclusion and alienation, provides a valuable tool for exploring the relationships between property rights, ecosystem management and livelihoods. Poor rural communities do not need to have alienation rights as in private property schemes in order to reap a benefit, but they do require, at least, to access and withdrawal rights, and, even if only partially, management rights.

## **THE STATE, INTERNATIONAL DONOR AGENCIES AND SUPPORT ORGANIZATIONS**

The State plays a decisive role in the development of compensation for environmental services schemes, in their orientation and in their equity. The State has the capacity to affect property rights. Likewise, a policy framework that revalues rural communities and areas can nurture community strategies seeking to revalue their improved practices and the local environment. The State also shapes markets and defines the specific frameworks and rules for compensation schemes. If compensation mechanism rules do not favor poor rural communities, they can be excluded from the benefits and greater inequality will result. Since rules tend to be influenced by the more powerful actors, the State needs to strengthen the participation of rural communities in rule-making processes.

The form of insertion of international donor agencies plays a critical role in the development of the compensation schemes. Donor supported initiatives should be inserted within the reality of the rural community and constructed upon the community's perspectives and priorities, respecting internal appropriation processes, local knowledge and decision-making over compensation mechanisms. They should avoid preconceived objectives, timeframes, or schemes, if they are to avoid the risk of compensation strategies leading to social exclusion or perverse environmental effects. External cooperation plays a positive role when it supports the strengthening of social capital and negotiating platforms that enable an effective participation of rural communities in

defining compensation strategies, their mechanisms and ground rules.

The complexity of compensation schemes, demands intermediaries at the local, national, and at times international level, for research, training, certification, funds management, market access, etc. Nevertheless, support organizations can have a negative influence. A large number of intermediaries can reduce the benefits received by producers and communities. Support organizations can also hamper appropriation processes. Likewise, conflicts can arise when there are differing approaches to compensation strategies and their mechanisms between support organizations and communities. Therefore, it is essential that support organizations respect communities' agendas, priorities, concerns, and rhythms of appropriation. They should work collaboratively with local actors, acting transparently, and respecting community decisions regarding the management of the resources under their control.

## CONCLUDING REMARKS

Compensation for environmental services is not a panacea for combating rural poverty and environmental degradation. To serve as valuable instruments for strengthening and diversifying community livelihood strategies, compensation schemes should be part of wider strategies.

The notion of compensating for environmental services can have an important catalyzing effect through the processes it sets in motion. For instance, it can catalyze local and territorial efforts to introduce more sustainable production and management practices. It can also facilitate a policy dialogue, in regards to the crucial roles in sustainable development of rural landscapes managed by rural indigenous and peasant communities. In this way, it can contribute to the development of policy frameworks that take up rural, agricultural, environmental and socio-cultural challenges in a more comprehensive way.

# INTRODUCTION

## COMMUNITIES, ECOSYSTEMS AND ENVIRONMENTAL SERVICES

Rural communities rely heavily on the natural resources and ecosystems surrounding them, for their food, energy (fuel-wood) water, medicinal plants and fibers. Almost all communities protect water sources. Certain ecosystems or nature as a whole are often imbued with religious or spiritual value, especially in indigenous communities. Market production is also tied to ecosystem management.

Beyond the community, humanity obtains important benefits from ecosystems. Those “*benefits people obtain from ecosystems*,” define “*ecosystem services*”, according to the Millennium Ecosystem Assessment (MA),<sup>1</sup> which classifies those services as provisioning, regulating, cultural and supporting services (see Box 1).

The concept of environmental services does not have a precise, agreed-upon definition. Commonly, it refers to regulating, supporting and cultural ecosystem services, as outlined in the Millennium Ecosystem Assessment’s definition.

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<sup>1</sup> The Millennium Ecosystem Assessment (MA) is an international effort seeking to establish the relationships between ecosystem change and human well-being. The assessment, to be completed in 2005, will include the work of some 600 natural and social scientists as authors and more than 1,000 as reviewers. The MA has the backing of different global environmental conventions (biodiversity, desertification, climate change and wetlands), different United Nations agencies (UNEP, UNDP, FAO, UNESCO), other organizations (IUCN, World Bank, GEF, et al.) and agricultural research organizations tied to the CGIAR. Further information in: <[www.millenniumassessment.org](http://www.millenniumassessment.org)>

## ENVIRONMENTAL SERVICES AND ITS COMPENSATION: PERSPECTIVES

The notion of paying or compensating for the provision of environmental services can be justified from different perspectives:

- First, payment for environmental services schemes are often seen as efficient financial instruments for conserving remnant natural ecosystems, by enabling owners of private forests and other ecosystems, to join in conservation efforts.
- Second, there is the search for lowest-cost options that can ensure the provi-

### Box 1 Ecosystem Services

**Provisioning:** Products obtained from ecosystems, including food, fresh water, fuel, fibers, ornamental resources, genetic resources, biochemicals, natural medicines.

**Regulating:** Benefits obtained from regulation of ecosystem processes, including air quality, climate regulation, water regulation, water purification, erosion control, human disease control, biological control, pollination, storm protection.

**Cultural:** Non-material benefits that enrich the quality of life, including cultural diversity, religious and spiritual values, knowledge systems (traditional and formal), inspiration, aesthetic values, social relations, sense of place, cultural heritage values, recreation and ecotourism.

**Supporting:** Services needed to produce all other services, including primary production, production of atmospheric oxygen, soil formation and retention, nutrient cycling, water cycling, and provision of habitat.

SOURCE: Millennium Ecosystem Assessment (2003)

sion of environmental services of global interest, such as carbon sequestration to mitigate climate change. Using this logic, there is a large effort to develop a global market for carbon sequestration services.

- Third, there are cases where the interest lies in ensuring the provision of environmental services of local or regional interest, such as regulation or natural filtration of water flows, in order to ensure its adequate supply. Since water flows through specific territories, it becomes necessary to deal with diverse land uses and multiple stakeholders to ensure the management of this service. In these cases, although examples do exist of simple payment mechanisms for water regulation and filtration, more complex compensation schemes arising from negotiating processes are more prevalent.
- Fourth, there is growing interest in using compensation for environmental services schemes as mechanisms for strengthening rural livelihoods,<sup>2</sup> and for revaluing rural spaces with their diversity of practices and ecosystems, both natural and managed. Here, the process of setting up compensation schemes becomes more complex, since the objective of strengthening rural livelihoods is a central rather than a secondary objective.

Although the foregoing perspectives are not exclusive, their emphases are important. The emphasis on conservation from its most traditional perspective – conservation without people – can exclude or even expel indige-

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<sup>2</sup> Livelihoods are understood as strategies used by people (individuals, households, communities) to meet their basic needs for food, energy, clothing, shelter, health, education and dignity. These strategies comprise monetary income as well as self-provisioning activities (PRISMA, 1995).

nous and peasant communities. Likewise, looking for lowest cost of carbon sequestration can have negative environmental and social impacts if based on the simplification of ecosystems and large-scale projects. On the other hand, compensations for hydrological services, to the extent that they require participation by small subsistence producers, can contribute to restoring degraded slopes, benefiting downstream consumers as well as the producers themselves.

Whatever the case, a rural community perspective to compensation for environmental services has not been dominant, so far. Many experiences include sincere efforts to maximize indigenous and peasant community participation, but this does not mean that they take into account the conditions and interests of these communities.

### **WHY FOCUS ON RURAL COMMUNITIES?**

Two lines of reasoning can justify compensation schemes from the indigenous and peasant community perspective. The first argument is purely pragmatic. Communities inhabit, manage and use many ecosystems of interest for conservation and environmental services provision, and it is not always possible to exclude them permanently. Furthermore, in many places around the world, community struggles to expand their rights over natural resources are being settled in their favor; therefore, it is necessary to develop compensation schemes that include them fully. Moreover, certain environmental services, such as the genetic diversity of domesticated species essential for food security and other uses, can only be guaranteed if the traditional practices of communities that allow their reproduction are maintained.

The second argument is along ethical lines. Compensation schemes that do not fully combine the social objective of directly benefiting communities with the environmental objective of guaranteeing the provision of environmental services can turn into instruments of exclusion. In contrast, compensation strategies planned and implemented from the perspective of poor rural communities, can strengthen their livelihoods and improve the management of rural spaces.

While payment or compensation for services schemes is not a panacea for the problems of exclusion and environmental degradation in rural areas, they can catalyze efforts that improve rural conditions and standards of living, through comprehensively revaluing the role of rural communities in natural resource management. When rural indigenous and peasant communities are the starting point, it is more feasible to build equitable, sustainable and legitimate compensation for environmental services strategies. Yet, a framework that adopts a rural community perspective presupposes changing the emphasis in many aspects:

- Instead of focusing on the use of economic instruments, broad compensation strategies should be sought that are equitable and contribute to strengthening communities' natural and social assets.
- Instead of focusing on conserving "primary" forests, anthropogenic components within ecosystems - especially agro-ecosystems - should be valued as much as the "natural" components, within schemes that seek the integral management of ecosystems.
- Instead of ensuring individual private property rights and focusing compensa-

tion on private landowners, it is crucial to ensure rural communities' usufruct rights and control over natural resources, and to compensate them for their role in safeguarding natural and anthropogenic ecosystems.

- Instead of defining compensation schemes without considering the ecosystemic and institutional contexts, truly participatory social processes embedded in such contexts should define the compensation schemes.

This report is divided into two parts. The first part, *"Compensation for Environmental Services and Rural Communities in the Americas,"* summarizes the results of the "Payment for Environmental Services in the Americas" project. This project, coordinated by PRISMA under the auspices of the Ford Foundation, sought to identify the risks and opportunities of payment for environmental services schemes for rural, poor indigenous and peasant communities. This section includes inputs from the work carried out by research teams in Mexico, Brazil, Costa Rica and El Salvador, and from a special report commissioned to analyze an experience in New York State.

The second part, *"Strengthening Community Strategies for Environmental Services,"* presents PRISMA's framework for environmental services and their compensation from the perspective of poor, rural communities. This framework, developed under PRISMA's overall applied research program, has been enriched by the experiences analyzed in the first part, a review of a large body of literature on the subject, and an intense process of reflection and exchange with many others interested in these issues.

# COMPENSATION FOR ENVIRONMENTAL SERVICES AND RURAL COMMUNITIES IN THE AMERICAS

The “Payment for Environmental Services (PES) in the Americas” project, coordinated by PRISMA under the auspices of the Ford Foundation, reviewed PES-related initiatives in Mexico, El Salvador, Costa Rica, Brazil and New York State, with the purpose of identifying opportunities, challenges and risks for rural communities from payment or compensation schemes for the provision of environmental services.

The review encountered a variety of initiatives under implementation or discussion related to the idea of compensating or paying for environmental services. The initiatives are shaped by their national and local contexts and especially by the interests of the different stakeholders who engage in these processes. This interplay of interests expresses itself in the particular features of the initiatives and even in the way the concepts are defined.

Here it is important to recognize the significant differences among the national contexts. Costa Rica stands out with its institutionalized State-driven national system of payment for environmental services; Mexico, by the ample access to and control over natural resources by peasant and indigenous communities. In contrast, in Brazil access to and control over resources by peasant and indigenous communities is more uneven and restricted. The Brazilian cases are thus associated with the expansion, innovation

and defense of the rights of communities to resources. El Salvador, with small natural areas, forces us to see beyond the forest to consider the role of agro-ecosystems and the importance of restoring degraded landscapes. The experience with compensation in the Delaware/Catskill watersheds of New York State demonstrates the importance of negotiation processes in defining compensation schemes that respond to local needs.

Given such differing contexts, it would be mistaken and simplistic to copy a successful compensation scheme from one context, and expect it to work well in another. Nevertheless, lessons derived from the different experiences can help identify key issues to be taken into account when devising compensation schemes capable of benefiting rural communities.

## COSTA RICA<sup>3</sup>

The experience of Costa Rica in regards to compensating for environmental services shows several important features:

- A significant State effort to institutionalize – and systematically innovate – a national system of “payment for environ-

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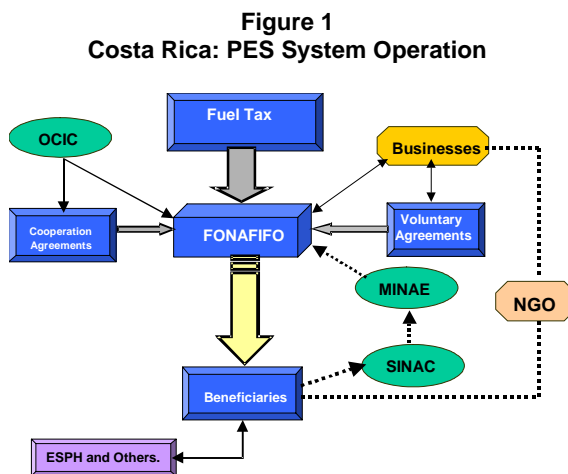
<sup>3</sup> This synthesis on Costa Rica is based on Camacho, et al. (2002) and other complementary materials. The authors thank María Antonieta Camacho for her detailed review, as well as her suggestions for clarifying, correcting and improving this section.

mental services". The scheme emerged out of the previous experience with direct subsidies for the forestry sector and external obligations to eliminate the use of subsidies.

- An approach that associates environmental services with the presence of trees, emphasizing global environmental services (biodiversity and carbon sequestration), but mainly using domestic resources for their compensation.
- Regulations that concentrate payments in large and medium size private landowners, to the detriment of small landowners, indigenous communities, and landholders and usufructuaries without registered property titles.
- A global orientation of the compensation scheme heavily influenced by conservation and private forestry sector interests, and very limited influence from peasant and indigenous sectors.
- A rich social process that has sought to broaden the vision of the valuation and retribution scheme for environmental services.
- Local processes for valuating and compensating for environmental services, operating alongside the official system.

- Defines "environmental services" as, "those provided by forests and forest plantations and which have a direct effect upon the protection and improvement of the environment" (Art. 3, Clause k).
- Establishes a funding source for the "payment for environmental services" based on the fossil fuel consumption tax (Art. 69).
- Creates the National Forestry Fund (FONAFIFO), to raise funds and administer the PES scheme, with a board of directors made up of two representatives from the private forestry sector and three from the public sector (Art. 48).

Figure 1 illustrates the operation of the PES system in Costa Rica.



SOURCE: Adapted from Camacho, et al. (2002)

### OPERATION OF THE OFFICIAL PES SCHEME IN COSTA RICA

The official PES scheme in Costa Rica began in 1996 with amendments to the Forestry Law (Law 7575). This Law:

FONAFIFO manages the system, but applications for PES are processed regionally through the National System of Conservation Areas (SINAC), following guidelines from the Ministry of Environment and Energy (MINAE). These guidelines are incor-

porated into annual executive decrees, which set priorities and amounts available for new contracts for forest protection, management and reforestation, while guaranteeing disbursements for contracts from previous years.

NGOs facilitate the process: they give advice to producers; do administrative and technical paperwork; offer forestry extension services; provide project design support; and seek to strengthen the forestry market through certification, pre-selling of timber, auctions and timber market information networks (Camacho, et al., 2002).

Even though most of the resources for PES come from the fuel tax, FONAFIFO also receives other funding (Camacho, et al., 2002):

- Outside funding through agreements negotiated by the Costa Rican Joint Implementation Office (OCIC); agreements with international agencies, such as GEF and the World Bank; and bilateral agreements with governments.
- Internal funding through voluntary agreements with decentralized public institutions, such as the National Power and Light Company; agreements with private electric utilities; or industries, such as *Cervecería Costa Rica*, a brewery.
- Funding through environmental certificates. The face value of each certificate issued by FONAFIFO is equivalent to the cost of protecting one hectare of forest for a specified period. The document, certified by an internationally recognized organization, is tax deductible and can be used to offset environmental costs.

- Some voluntary agreements do not involve FONAFIFO directly or from the beginning. Instead, they are made between NGOs and businesses (the case of the *Asociación Conservacionista Monteverde* and a hydroelectric company) or between public utility companies and customers (the case of the Heredia Public Utility Company - ESPH, which has set an environmentally adjusted water rate). However, they maintain ties with the SINAC conservation areas.

### THE PREVIOUS EXPERIENCE WITH SUBSIDIES AND PES FINANCING PROBLEMS

Costa Rica used forestry incentives before it set up the “payment for environmental services” scheme. Between 1979 and 1985 reforestation costs were income tax deductible. Later, direct subsidies were introduced for reforestation, and the management and protection of natural forests.<sup>4</sup> Some authors consider that these incentives played an important role in arresting deforestation.<sup>5</sup>

However, faced with the obligation to eliminate subsidies under the third structural adjustment loan, the government in 1996

<sup>4</sup> In 1986, the Forestry Credit Certificate (CAF) was introduced, and in 1988 the Forestry Advance Credit Certificate (CAFA), as direct reforestation subsidies. In 1994, subsidies were introduced aimed at the management and protection of natural forest (the *Certificado de Abono Forestal para el Manejo del Bosque – CAFMA*, and the *Certificado para la Protección del Bosque – CPB*).

<sup>5</sup> According to Lutz, et al. (1993), the area covered by forest decreased from 85% in 1900 to 56% in 1950 and to 29% in 1987. According to De Camino, et al. (2000), deforestation was reversed starting in 1986 when a net gain in forest cover of 4,000 ha/year began to occur, encouraged by the reforestation incentives provided for by the government starting in 1979, fewer incentives for agriculture, and low prices for cattle and traditional agricultural products (Ibid.).



amended the Forestry Law (Law 7575). Thus, the subsidy concept changed to one of “payment for environmental services” (PES) under the categories of reforestation, forest management and forestry plantations (De Camino, et al., 2000; Camacho, et al., 2002).

This change in concept was a clever solution, because it formally fulfilled the obligation to eliminate subsidies, while maintaining transfers toward the forestry sector. Indeed, the base payment for environmental service of US\$40/ha/year was set at the same level of the forest conservation subsidy (Rojas and Aylward, 2002). According to De Camino, et al. (2000), while “payments for environmental services” continue to be subsidies to many, they are different because their financing – the tax on fossil fuel consumption – is based on the polluter-pays principle. Nevertheless, the Treasury continued to consider such payments public subsidies, and was reluctant to completely disburse the resources to fund the payment scheme. Between 1998 and 2000 disbursements for CAF and PES barely amounted to a third of what the law provided for (Camacho, et al., 2002).

A government report, submitted in 1998 to the Environmental Services Commission of the Foro de Concertación Nacional (National Consensus-Building Forum), convened by the Rodríguez administration at the beginning of his term in office, criticized the compensation for environmental services scheme then in use. The report argued that the scheme represented “an unsustainable fiscal burden” and its benefits were concentrated “in the hands of large landowners and the independently wealthy” (Foro Nacional de Concertación, La Nación Digital).

In the end, Article 69 of the Forestry Law, which assigned one third of the revenues

from the fuel tax to CAF and PES, was repealed by the Tax Simplification and Efficiency Act of July 2001. In its place, the new law stipulated that 3.5% of revenues from the fuel tax would be allocated to payment for environmental services and that the Treasury would be required to disburse it. Although the new percentage was considerably lower, CAF and PES disbursements were more than double those of the previous year, due to a tax hike in 2001 (Camacho and Reyes, 2002). However, the financing rate for PES since 2000 has gone down to less than half of the funds paid out during the 1998-1999 period (Table 1), and long-term financing and payments are not assured (Estado de la Nación, 2002). The short-term solution has been to turn to external resources from the World Bank-GEF and KfW.<sup>6</sup>

Despite the financing problems, the scheme has mobilized considerable resources. Between 1997 and 2002, more than 314,000 ha were incorporated into the program, which meant payments of more than US\$80 million (Table 1). Over the entire period, 70% of the resources were allocated to forest protection, while the rest went to reforested areas and forests with management plans.

Payments under the forest management category have generated sharp conflicts between conservationists and private loggers. The Costa Rican Federation for Environmental Conservation (FECON), for example, recommended in 1999 that forest management be eliminated as eligible for compensa-

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<sup>6</sup> The ECOMERCADOS project (financed by a \$32.3 million World Bank loan, an \$8 million grant from the GEF, and \$8.6 million in matching funds from the Costa Rican government) seeks to use the PES scheme to conserve biodiversity in priority areas. An €11 million grant from KfW seeks forest development in the Huetar Norte region and Sarapiquí (Camacho and Reyes, 2002).

tion for environmental services, arguing that there were no effective mechanisms for monitoring the management plans (Asamblea Legislativa, Boletín de Prensa, 16 March 1999). The government agreed and in 2000 eliminated payments under this category (Table 1). Nevertheless, the private forestry sector successfully lobbied for the reinstatement of these payments for 2001. Funds allocated for forest management were executed partially in 2002, because in mid-year uncommitted funds were reassigned to forest protection, reforestation and agro-forestry systems (AFS), which became eligible by executive decree. According to FONAFIFO, in 2002, just 1,296 ha under forest management

were added or 30% of the planned area (Table 1), while the new reforested areas only totaled 727 ha or 23% of the planned area. In contrast, the area under forest conservation increased to 19,176 ha, or 14% more than originally planned. Actual payments for AFS began in 2003.

### LIMITED PARTICIPATION OF SMALL-SCALE PRODUCERS AND INDIGENOUS COMMUNITIES

According to Camacho, et al. (2002), although the current PES scheme in Costa Rica is more democratic than the previously forestry incentives scheme, obstacles to broadening the benefits of the PES scheme using equity-based criteria have not been overcome. Indeed, the participation of small-scale farmers or indigenous communities has been quite limited. This has led to parallel schemes alongside official ones and to growing pressure for the scheme to become more inclusive.

Ortiz et al. (2003) argue that the PES program in Costa Rica was not designed as a poverty mitigation mechanism and that the socioeconomic profile of those who have access to PES does not include persons living below the poverty line. Miranda and Porras (2002) found that those participating in PES with plots under 10 ha in the Virilla River basin in the Central Valley of Costa Rica, are on average professionals with an annual family income of US\$22,000. Thus, the

**Table 1**  
**Payment for Environmental Services Program in Costa Rica:**  
**Areas and Amounts Paid According to Project Type, 1997-2002**  
**(Hectares and Thousands of Dollars)**

Years	Forest Protection	Forest Management	Reforestation	Plantations	Total
<b>New Areas Incorporated in Hectares</b>					
1997	94,621	8,532	5,035	-	108,188
1998	44,452	9,170	4,283	226	58,132
1999	56,539	5,989	4,284	400	67,212
2000	26,111	-	2,500	-	28,611
2001	20,626	3,997	3,281	-	27,904
2002*	16,871	4,324	3,230	-	24,425
<b>Total</b>	<b>259,220</b>	<b>32,012</b>	<b>22,613</b>	<b>626</b>	<b>314,472</b>
<b>Amounts Paid in Thousands of Dollars</b>					
1997	20,281	2,934	2,849	-	26,064
1998	10,338	3,341	2,557	53	16,289
1999	11,842	1,965	2,303	84	16,194
2000	5,583	-	1,369	-	6,952
2001	4,546	1,375	1,851	-	7,771
2002*	3,853	1,541	1,889	-	7,284
<b>Total</b>	<b>56,443</b>	<b>11,156</b>	<b>2,818</b>	<b>137</b>	<b>80,554</b>

\*Areas planned and amounts budgeted for 2002, Executive Order No. 30090-MINAE. Average exchange rate: 1997:233.28, 1998:257.99, 1999:286.46, 2000:308.66, 2001:329.48, 2002:346.57.

Source: Camacho, et al. (2002), based on FONAFIFO data.

payments of US\$882/year for PES in this case represent just 4% of their income, although this situation is not representative of the whole country. Indigenous communities, whose territories cover an area of 330,271 ha and 20% of the natural forest outside protected areas, have very little participation: between 1997 and 2002, just 9,985 ha in indigenous territories were added to the PES program or 3.2% of the total (Camacho and Reyes, 2002).

According to Camacho et al. (2002), besides the lack of information, exclusionary factors have to do with complicated, bureaucratic procedures for accessing PES and the high transaction costs; along with the fact that the scheme only recognizes private landowners with title, not landholders or usufructuaries (Ibid.).<sup>7</sup> Thus, the requirements related to property titles, the forestry orientation and the technical requirements, have mainly favored large and medium size private landowners.

Another factor that makes the scheme exclusionary is the emphasis it puts on conservation. For example, in the Central Volcanic Range Conservation Area (ACCVC), the priority was presented as “conserving the forest” or the “environmental benefit”; farm size was not considered a relevant criteria and large projects were preferred, since “small ones introduce many distracting problems” (Camacho, et al., 2002). The weight of conservationist and private forestry sector interests is palpable even in the way Environmental Services are defined under the 1996 Forestry Law:

**Environmental Services:** *Those provided by forests and forestry plantations that have an impact on environmental protection and improvement. They are the following: mitigation of greenhouse gas emissions (fixing, reduction, sequestration, warehousing and absorption); protection of water for urban, rural or hydroelectric use; biodiversity protection to conserve it and for sustainable, scientific and pharmaceutical use; genetic research and improvement; protection of ecosystems, life forms and natural scenic beauty for tourism and scientific ends. (Law 7575, Art. 3, Clause k)*

This definition identifies environmental services with the presence of trees in “forests” or in “forestry plantations,” but does not include agro-forestry systems, reflecting the lack of clout of peasant sectors. As Camacho, et al. (2002) point out, the law also omits organic farming experiences that include “clean” technologies (coffee, bananas, horticulture, livestock), which protect ecosystems and benefit humanity, nor communities that foster the sustainable protection of green spaces, headwaters or river basins.

The institutionalization of the PES system consolidated and reinforced forestry and conservationist interests through a complicated system and rigid interpretations of the law. Nevertheless, internal criticism and pressure from indigenous and small-scale producer organizations have led to a slow evolution and rules that are more inclusive. As a result, the participation of indigenous reserves increased and agro-forestry systems finally became eligible through executive decree in mid-2002.<sup>8</sup> Nevertheless, just like

<sup>7</sup> According to Camacho and Reyes (2002), in 1997 recognized landholders were accepted, but the National Comptroller’s Office stipulated that the benefit could only be granted to property titleholders.

<sup>8</sup> Decree No. 30748-MINAE (5 June 2002) reassigned 2002 funds assigned for PES under the forest management heading to forest protection, reforestation and agro-forestry systems (AFS), making these systems eligible for PES for the first time. Decree No. 30962-MINAE (24 Octo-

indigenous reserves, the participation of agro-forestry systems is marginal.

The legitimacy and orientation of the existing payment for environmental services institutional scheme was questioned by diverse stakeholders. At the beginning of the Rodríguez administration (1998-2002) a commission was included in the national consensus-building process - Foro de Concertación Nacional - to assess the issue. The guiding idea was the creation of an "Integrated Environmental Services System" that would broaden the concept of environmental services, as well as the participation to other social sectors in the decision-making bodies that controlled the PES system, thus counterbalancing the influence of the forestry sector. The commission proposed including agro-forestry systems and urban reforestation alternatives as options eligible for receiving payment for environmental services.

Nevertheless, the legislative initiative for bringing about the changes (Box 2) faced many conflicting positions and interests, and limited representation from small-scale producers and community organizations in the different debates. In the end, the initiative was stalled due to the lack of consensus. As a result, the PES scheme instituted by the 1996 Forestry Law remains in effect.

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ber 2002) regulated and set the payment amount at 230 Costa Rican *colones* per tree (approximately US\$0.60 at the then-prevailing exchange rate) for PES for agro-forestry systems. This amount is to be indexed annually according to the consumer price index and disbursed over three years in unequal portions (65%, 20% and 15% in the first, second and third years respectively). The amount allocated for PES-AFS in 2002 was 37,556,160 Costa Rican *colones* (about US\$98,000 at the exchange rate in effect at the time of the decree), or around 4.8% of the total allocated for PES for new areas incorporated in 2002.

The stalemating of this innovative initiative leaves a lesson that should be taken into account in other countries attempting to institutionalize schemes for compensating environmental services. As this experience shows, institutionalization based on incomplete consensus-building processes, and without adequately including the interests of small farmers, indigenous communities and other organizations, generates restrictions that are difficult to overcome later on, especially once they are institutionalized. It therefore becomes critical to ensure broad, appropriate and genuine participation, especially in the initial stages of institutionalizing compensation schemes to ensure their long-term legitimacy and sustainability.

## PES AND LOCAL PROCESSES

While the official PES scheme in Costa Rica stresses global environmental services (biodiversity, carbon sequestration), in local spheres the efforts seek to protect water resources for human consumption and electricity generation. This has encouraged local initiatives that operate with more flexible criteria than the national system.

Valuing environmental services from a local perspective, also unleashes demands for participation and local management processes that seek greater control over natural resources in terms of local needs and perceptions. Camacho, et al. (2002) analyzed those local dynamics in PES processes through three case studies carried out during the course of the PRISMA-Ford Project. These cases are summarized below.

## Box 2

### The Integrated Environmental Services System in Costa Rica: The Stalling of an Innovative Initiative

As part of the 1998 national consensus-building process (Foro de Concertación Nacional), the Environmental Services Commission proposed compensating environmental services originating from “*forestry plantations, forest protection, primary and secondary forest management, urban reforestation and the forestry component of agro-forestry systems.*” Even though environmental services were still strongly associated with the presence of trees, the inclusion of agro-forestry systems, public areas (for protection and scenic beauty) and urban green spaces, offered a new range of options, opening the possibility for developing a more inclusive system.

The government’s proposed “*Valuation and Retribution for Environmental Services Act*” submitted to the Legislative Assembly in November 1998, included in part the Commission’s recommendations. It opened up the scheme by proposing payments for “*landowners and landholders, both public as well as private*”, a proposal which affected private forestry sector interests. The bill also proposed creating a National Environmental Services Fund (FONASA) for operating the system, replacing the National Forestry Fund (FONAFIFO) in that role. FONAFIFO was to become a specific fund within FONASA, the “*Greenhouse Gas Reduction Fund,*” along with funds for water, biodiversity and scenic beauty and others that might be created. An “*Environmental Services Advisory Council*” was also to be created, with representation from environmental organizations, the National Conservation Areas System (SINAC) and the private tourism sector, thus diminishing the influence that the forestry sector had in FONAFIFO.

The private forestry sector opposed the bill in its testimony before the Legislative Assembly’s Commission responsible for discussing the bill, and environmentalist, peasant and indigenous sectors also declared their positions on the bill:

The National Forestry Office (ONF), with strong influence from the private forestry sector, also rejected the creation of FONASA and the Advisory Council. It felt that the Advisory Council duplicated its functions and opposed the lack of representation on it from forestry entrepreneurs, small farmers, small forestry owners, reforesters and forest owners, which it considered to be “*responsible for the greater part of the generation of environmental services*” (Asamblea Legislativa, Boletín de Prensa, 19 January 1999).

The Costa Rican Forestry Chamber (CCF) argued that the bill did not improve the 1996 Forestry Law, nor PES, and therefore it opposed the Advisory Council’s creation because it would not have representation “*from the productive forestry sector, owner of the largest amount of natural primary and secondary forest and forestry plantations existing in the country in private hands*” (Ibid., 20 January 1999).

The National Peasant Commission (*Mesa Nacional Campesina*) requested that the Fund be extended to the entire agrarian sector and not only benefit the forestry sector. In addition, they asked for greater representation from the different sectors (Ibid., 9 March 1999).

The Costa Rican Federation for Environmental Conservation (FECON) demanded the participation of civil society on FONASA’s board of directors and recommended that forest management not be eligible for payment for environmental services (Ibid., 16 March 1999).

Finally, the Commission on Agriculture and Livestock and Natural Resources Affairs of the Legislative Assembly approved a substitute text, which in general terms, maintained the influence of the private forestry sector. Nevertheless, the Minister of the Environment requested in May 1999 that this text not be sent to the full Legislature and that it be returned for discussion in commission, because it did not clearly spell out that PES should preferentially seek “*conservation of the primary forest*” and not to foster forestry activities, since those were covered by other mechanisms in the Forestry Law. In practice, the Minister accepted the criticisms of FECON and the Peasant and Indigenous Commission, which according to the Minister’s letter, saw in the substitute text, “*a deviation from the original intent regarding the true concept of environmental service.*” The Minister also felt that it was important to include on FONASA’s board of directors “*environmental-interest groups, in order to have a balance in the definition of the goals to be reached*” (quoted in Camacho, et al., 2000).

In the end, there were no changes and the legal framework established by the 1996 Forestry Law is still in effect at present (2003).

### **ADJUSTED WATER RATE: PUBLIC UTILITIES COMPANY OF HEREDIA (ESPH)**

Since 1999, the Heredia Public Utilities Company (Empresa de Servicios Públicos de Heredia - ESPH) has been charging an “environmentally adjusted water rate.” The additional funds within the rate go into a trust fund run by the company itself, which has been using it for investing in PES in the mountainous region of Heredia province since 2002.<sup>9</sup> This is based on concern for the vulnerability of water sources caused by urban growth and land use changes. PES appears, then, as an instrument for ensuring the future water supply, by providing incentives to producers in the upper watersheds to convert into forest underused land or land currently used for livestock farming.

Nevertheless, an isolated, local PES scheme will not solve the problem that ESPH seeks to address. Experience highlights the need to insert PES schemes into more global participatory administration strategies for micro-regional development that link together the interventions that different institutional actors carry out in the territory.

### **PES FOR PRODUCERS IN THE PLATANAR RIVER BASIN**

The Matamoros Hydroelectric Company (*Empresa Hidroeléctrica Matamoros*) has four hydroelectric plants along the Platanar River with a total capacity of 20 MW. In 1999, under a voluntary agreement with FUNDECOR and MINAE, this company made the commitment to pay US\$15/ha/year for five years to FONAFIFO, so that this agency would include in the PES program farm

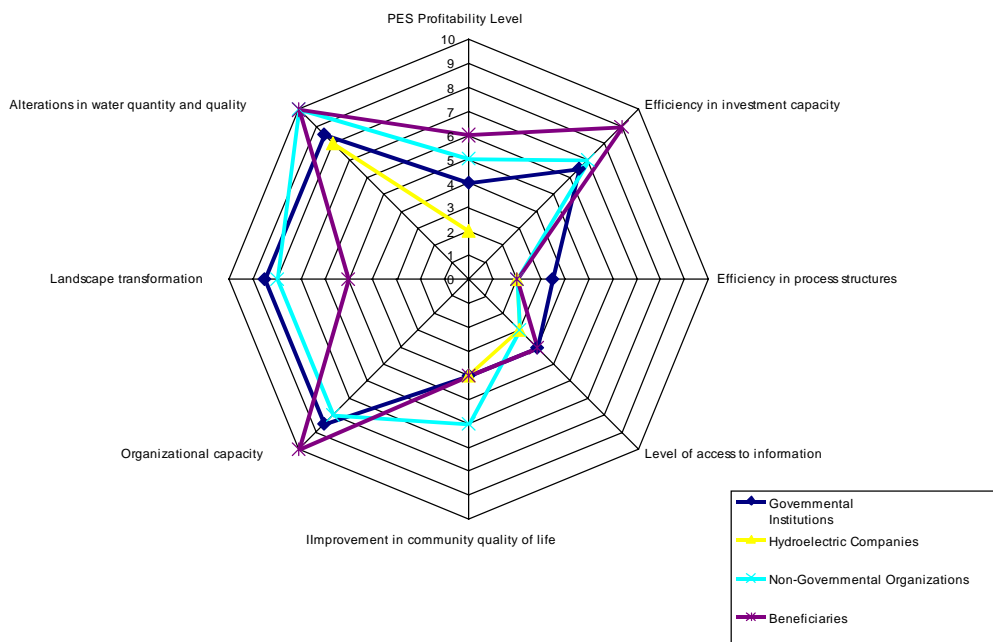
owners in the Platanar river basin who protected the forest or reforested stripped areas. A year later, the company agreed to pay US\$30/ha/year for forest protection, for a 10-year period. The agreement included provisions giving access to PES to producers who could not meet FONAFIFO’s usual titling requirements. Through this voluntary agreement, 26 producers participate in PES and 796 ha of Platanar River basin forest are being protected, representing 25% of the basin’s land area. The program is executed by CODEFORSA, the most experienced forestry NGO in the region, which does the studies and contracts with producers, following SINAC-MINAE-FONAFIFO regulations.

Using multi-criteria analysis based on a consultation process with focus groups, Camacho et al. (2002) evaluated the PES program and its local impact on the Northern Huetar region, where the Platanar river basin is located. As the spider web diagram shows (Figure 2), the lowest scores are in the “efficiency in process structure” and in “access to information”. Stakeholders consider PES access procedures time-consuming and complex, with many requirements; they also feel that information is not adequately disseminated.

The highest scores have to do with the PES effects on local organizing capacity, the improvement of water quality and quantity, and the positive transformation of the landscape. Since PES is not considered profitable, except for large landowners or those with land on steep slopes that cannot be used for anything else except forestry, the high value attached to those positive impacts that benefit the community as a whole, partly explains the interest of producers in participating in PES schemes and in efficiently investing the resources obtained.

<sup>9</sup> The amount paid into the trust fund for “water environmental service” is 1.90 Costa Rican *colones* per cubic meter, or approximately US\$0.005.

**Figure 2**  
**Costa Rica: Evaluation of the PES Program in the Northern Huetar Region**



Source: Camacho et al (2002)

Camacho, et al. (2002) conclude that for small-scale producers, the profitability of PES depends on its complementarities with agriculture, tourism, non-timber products and other activities. Therefore, it should be implemented integrating agro-forestry and environmental services management.

### **PES FOR PRODUCERS IN SARAPIQUÍ**

During 1997-2000, the PES program incorporated 12,495 ha and 164 producers in the municipality of Sarapiquí, with an estimated investment of around US\$786,000. Most of the incorporated area was under the forest protection category (11,217 ha), 1,076 ha fall under the forest management category, and just 203 ha, under the reforestation category. Among the participating producers, there are 120 *parceleros*\* affiliated with CACSA

(Sarapiquí Municipal Agricultural Center), who receive technical assistance from FUNDECOR, an NGO that is involved in other PES projects with small, medium and large-scale producers. Private hydroelectric companies that operate along tributaries of the Sarapiquí River (Volcán and San Pedro rivers) have also signed voluntary PES agreements to maintain the quality and quantity of water for hydroelectric generation.

The program evaluation in Sarapiquí had results similar to those found in the previous case. The *parceleros* feel that PES is not very profitable and its institutional framework not very efficient, but they value the information and training received on forestry activities. Likewise, they feel that it helps maintain water quantity and quality. Additionally, they consider that PES improves their standard of living.

\*Small landowners, beneficiaries of a land reform program.

This experience, framed around the interests of hydroelectric power generating projects, shows that the promise of payment for environmental services on behalf of these projects does not always makes them viable, because stakeholders in the local sphere may have alternative visions regarding natural resource management.

For example, the Heredia Public Utilities Company (ESPH) wanted to build a hydroelectric plant (La Virgen) to generate 30 megawatts using 42 m<sup>3</sup>/s of the Sarapiquí River and 8 m<sup>3</sup>/s of the Poza Azul River. The National Power Plan of the Costa Rican Electricity Institute, also included 13 new projects for the Sarapiquí river basin. This pretension by external actors over the local resource base, in a region rich in natural resources but with the highest poverty rates in the nation, sparked confrontations between promoters and opponents of using the river for hydroelectric generation.

FUNDECOR, ICE, MINAE, ESPH and other hydroelectric companies defended what they considered would be a sustainable use of the river. On the other side, the Sarapiquí Welfare Association (ABAS) spearheaded the municipality's position, with support from the local tourism board, the Network of Private Reserves (*Red de Reservas Privadas*), development associations and others, in opposition to the hydroelectric use of the Sarapiquí River. They felt that changes in the river's flow would negatively affect the basin's biodiversity, tourism and other economic activities.

In the end, the impasse was temporarily resolved in 2000 through a plebiscite (a mechanism used for the first time in Costa Rica), which rejected the dam and declared the Sarapiquí River a "national monument,"

a type of protected area where the municipal government has a say. In addition, a biological corridor was formed between La Selva Biological Reserve and the San Juan River, by the Nicaraguan border, as part of the Mesoamerican Biological Corridor.

## ASSESSMENT AND LESSONS

Camacho, et al. (2002), highlight in their assessment of the Costa Rican national PES system that the system works. A public institutional framework is in place, capable of guiding, coordinating, encouraging and controlling the process. There is a funding source through the fuel tax. Payments for environmental services use established procedures and decentralized management through SINAC, with a significant intermediary role played by regional NGOs, local organizations and trade organizations. There has been development of human resources and the administrative, financial and technical mechanisms required by the process.

Second, PES fosters not only the regeneration of forest cover and efficient use of natural resources, but also social innovation processes in the environmental and forestry sector, as well as local stewardship. New instruments and PES models are arising that go beyond the formal regulatory framework. Municipal capacity for assuming local environmental management is starting to develop. Associative efforts to link interests are getting stronger. NGOs, producers and companies are becoming more environmentally responsible as they become aware of the need to value natural resources and invest in their recovery or protection to secure private and community interests. Technical innovations are generated, as in timber production where traditional logging has



evolved into sustainable forest management and reforestation.

Camacho, et al. (2002) also point to several weaknesses. The fragmented vision in the processes for valuing environmental services. The lack of appropriate information regarding PES. Overlapping and disjointed sectoral approaches and strategies (environmental, agricultural, energy, tourism) in a given territory. Fragmented laws and sparse efforts to include municipalities and strengthen their capacities and competencies on environmental matters. The perception by stakeholders that the amount paid is low, hardly motivating or unprofitable, while administrative processes are long and cumbersome.

Faced with these limitations, Camacho et al. (2002) propose improving inter-sectoral and inter-institutional coordination, overcoming fragmented laws and the innovation of criteria used to administer PES. A move towards integral and differentiated environmental valuation for each region or location is proposed. The development of consensus criteria from a local development management perspective and the strengthening of local governmental authority over environmental issues and public services provision, is also suggested. Strengthening the capacity of businesses, municipalities, institutions and grassroots organizations to institutionalize participatory planning processes for micro-regional environmental management is deemed important.

They consider that developing access and distribution mechanisms, including differentiated payments scale, would have a greater positive impact on the quality of life of small farmers and indigenous communities. Improved profitability of PES could contribute

to these improvements, and it can be achieved if PES is tied to promoting diversified production activities that are of interest to producers, such as agro-forestry, agro-tourism or ecotourism, non-timber products, integration of production chains and secure markets, among others.

Some of these observations and recommendations gain greater weight when viewed from the perspective of the more deteriorated social situation of many rural communities in other countries of the Americas. While 8.9% of the rural Costa Rican population lived in dire poverty in 2001, and an additional 16.3% could not meet their basic needs (Octavo Informe Estado de la Nación, 2002), the situation is much worse in most of the other countries which have much weaker mechanisms than in Costa Rica for aiding underprivileged rural areas. Under these conditions, what it may be a strategic omission in Costa Rica - an exclusionary PES system that is not seen as an instrument for reducing rural poverty or fostering local development - in other contexts, that same logic could have much more negative impacts.

Beyond the foregoing, the Costa Rican experience seen from the perspective of poor, rural communities offers instructive clues. For example, the Platanar and Sarapiquí cases show that including small farmers in PES schemes can have positive impacts on their quality of life and on rural community dynamics in the areas where they operate. These cases demonstrate that income provided by PES is low, but it does represent an economic boost and, in the process, the participating producers recognize other benefits from their relationship with support organizations, such as training (technical, orga-

nizational, financial, marketing) for forestry management.

At the same time, to the degree that local communities increase their appreciation for the value of their natural resources and strengthen their social capital, they will also try to increase their control over how their local environment is used. Although this can generate socio-environmental conflicts, as in Sarapiquí, when local stakeholders have stronger capacities for local environmental stewardship and an increased sense of appropriation over the landscape, better opportunities are opened for generating strategies and mechanisms for the recognition and compensation for environmental services, keyed to local priorities and needs.

The experience in Costa Rica also highlights the importance of the scheme's overall orientation and its ground rules in determining its capacity for inclusiveness. In contexts marked by extensive rural poverty, it is even more crucial to ensure that the mechanisms' orientation and ground rules are defined in such a way that allow for simultaneous progress in strengthening rural livelihoods and natural resource management.

In some contexts, this means seeing beyond the forest and forestry interests, to link up more directly with other productive activities that are central to strengthening the livelihood strategies of rural communities. A broad focus for environmental services and compensation that identifies a wide range of practices for the provision of environmental services can be an important instrument for improving, diversifying and strengthening productive strategies for producers and communities.

## MEXICO<sup>10</sup>

In comparison with the rest of Latin America, the most striking feature of the Mexican context is the ample access to and control over natural resources by peasant and indigenous communities - they control more than half the land and 80% of the country's forests. This is a legacy of the Mexican Revolution and Article 27 of the Constitution of 1917, which established the precept, still in force, of public ownership of natural resources (land, subsoil and territorial waters) and the power of the State to establish social property (ejidos\* and communal property of indigenous peoples) and private property. Article 27 was amended in 1992 to allow the sale of ejido parcels, yet, the semi-collective domain over ejidos, especially forested land, has been maintained (Burstein, et al. 2002).

This context is favorable for initiatives that seek to value environmental services and benefit indigenous and peasant communities, especially when we consider the potential supply. According to Burstein et al. (2002), Mexico has a large potential for carbon sequestration. Existing genetic diversity - calculated at 10% of the Earth's total - also represents an important environmental service. Magnificent natural attractions exist, so that the appreciation of the landscape through ecotourism represents a promising opportunity for many peasant communities. Hydrological environmental services are widely recognized as essential, although users still perceive that these services should be free or subsidized.

<sup>10</sup> This synthesis of the experience in Mexico is based on Burstein, et al. (2002).

\*In Mexico, "expropriated land reallocated by the government to a workers' collective" (The Collins Concise Spanish Dictionary, HarperCollins, 2002).

## **PES INITIATIVES AND RURAL COMMUNITIES: THREE CASES**

Using this background, Burstein, et al. (2002), under the PRISMA-Ford Project, explored the issue of PES in Mexico through three case studies, which examine the involvement of rural communities in carbon sequestration, biodiversity and eco-tourism.

### ***CARBON SEQUESTRATION: BIOCLIMATIC FUND (CHIAPAS)***

The BioClimatic Fund (Fondo BioClimático) was set up in 1997 to administer the funds of Scolel Té, a carbon sequestration pilot project that arose from collaboration among the peasant organization, Pajal Ya kac'tic Credit Union (PAJAL), the Colegio de la Frontera Sur (ECOSUR), and the University of Edinburgh (United Kingdom). More than 300 peasant coffee and corn farmers participate in the project, planting one hectare on average of their individual four to five hectare parcels with trees to absorb carbon.

In 1997, the International Automobile Federation purchased the first 5,500 tons of carbon - their estimation of global annual emissions - at a price of US\$ 10 per ton (later raised to US\$12) - paid in three portions over 10 years, based on a 20-year commitment. One part of this amount covers the expenses for technical assistance and administration provided by the AMBIO professional cooperative.

The payment for carbon sequestration represents a minimal income for the peasants, but this incentive is reinforced by opportunities to penetrate the market for timber produced using sustainable forestry practices and to integrate carbon sequestration into other strategies such as organic coffee production

and other agro-ecological initiatives. Participants also take advantage of assistance for planning agro-ecosystems, provided by AMBIO through the "Plan Vivo," which orients growers and allows monitoring the carbon fixed using the grower's chosen strategy. Growers participating in the carbon sequestration project have shown the capacity to manage resources and maintain their cohesion, but they have also had conflicts with the rest of the community where they work.

### ***BIODIVERSITY AND CARBON SEQUESTRATION: UZACHI (OAXACA)***

The experience of UZACHI (Union of Zapotec-Chinantec Communities) began as a movement to regain control over forest use on community lands. It later evolved into community forestry and recently added biodiversity and carbon sequestration environmental services. During the entire process, UZACHI has been advised by ERA (Rural Studies and Peasant Advisory Services).

The 26,112 ha controlled by the four UZACHI member communities are collectively run under a Forest Management Plan and a Land Use Plan, developed in a participatory fashion. These plans zoned different areas for the protection of biological diversity, soils and water; for income-generating production (timber); and for subsistence farming (wheat and corn).

Developing the supply of environmental services has focused on researching biological resources and carbon sequestration. The study of biological resources supports crop diversification through growing mushrooms, orchids and other ornamental plants. In addition, under a three-year contract to research medicinal plants with SANDOZ (now NOVARTIS), signed in 1995, UZACHI

engaged in field and laboratory activities, while SANDOZ financed a laboratory, trained staff, paid for services rendered and agreed to pay UZACHI a set fee for its participation, in the event a new product with therapeutic applications is discovered. For the report's authors, this experience shows how to benefit communities, by fomenting the maintenance of wilderness areas while generating scientific advances.

UZACHI and IXETO (Union of Ixtlán-Etla Communities, Oaxaca), together with two civil organizations, ERA and CCMSS (Mexican Civil Council for Sustainable Forestry), drew up a proposal for fixing 836,000 tons of carbon over 30 years, by implementing silviculture and agro-silviculture systems. The project seeks to stabilize the agricultural frontier, increase forest cover and use firewood more efficiently. The estimated US\$6 per ton capital cost would leave net earnings of 40% based on a price of US\$10 per ton. They are not yet selling carbon, but they are exploring markets in the country's largest cities, particularly Mexico City.

**ECOTOURISM: MAZUNTE AND VENTANILLA, OAXACA; SELVA DEL MARINERO, VERACRUZ**

In Mazunte, after the government issued a ban on capturing turtles, the community looked for alternative income sources, and in 1992 established a 14,000 ha "Peasant Ecological Reserve" and a Joint Owners Association, which received concession of the shorefront. Seven years later, Mazunte had 400 beds, 12 restaurants, a small hotel, 30 businesses on the beach and four taxis. Most of the population lived off tourism and there was a natural cosmetics factory and a Turtle Museum. However, this success led to exceeding the carrying capacity, to the neglect of conservation.

The Ventanilla project was implemented after Hurricane Pauline (1997), when cleanup and reforestation of the mangrove forest led to an additional effort to adapt the area for ecotourists interested in bird and crocodile watching; with regeneration of these populations being a fundamental activity. The Ventanilla Joint Owners Association organized tourist services and the maintenance of the estuaries and mangrove forests. A more moderate tourist demand seems more favorable for conservation than in Mazunte.

The Selva del Marinero project, on the López Mateos ejido within a protected area, arose with the support of the "Proyecto Sierra Santa Marta" association. In 1997, the first tour was organized and they currently receive around 500 tourists a year, primarily from Mexico City. The providers show a high level of awareness and concern for the landscape; they separate garbage and did away with the custom of washing directly in streams. They earn a modest income of US\$35 a year per person on average, which represents 10 days of work. Distribution is based on individual effort and is quite uneven, which causes a certain amount of conflict. The project's viability depends on increasing the influx of tourists.

These ecotourism projects reinvest earnings in conservation and demonstrate an appropriation of environmental issues, although the reality of the tourism market can still undermine such appropriation, as in Mazunte. Ventanilla and Selva del Marinero, with a lower influx of tourists, preserve the landscape better, but their economic viability is questionable. The inequitable distribution of income derived from unequal involvement in using communal territory remains unresolved.

## **TAKING ADVANTAGE OF PES OPPORTUNITIES: KEY ISSUES**

The foregoing experiences range from forestry in UZACHI, to agriculture-based agroforestry in the BioClimatic Fund, and the tourism option of the Mazunte and Ventanilla ex-fishermen. Apart from these differences, the cases serve to envision opportunities for turning PES into a mechanism for strengthening the peasant economy. The comparative analysis of these experiences done by Burstein, et al. (2002), highlights a set of issues that need to be addressed to realize that potential:

- The importance of developing the supply starting from what exists and of strengthening the demand.
- The need for strategic partnerships between communities or peasant organizations and intermediary organizations that support with research, technical assistance, certification, fundraising, promotion and sales.
- The crucial role of community capacities for organization and collective action, so they can enter into agreements, manage conflicts, appropriate strategies and ensure land management that guarantees the provision of environmental services.
- The need for favorable institutional frameworks and public policies.

### ***THE STARTING POINT: BROAD ACCESS TO NATURAL RESOURCES***

The potential of PES for rural Mexican communities lies in the land tenure situation – unique in the Americas – in the sense that the indigenous and peasant communities have broad access to and control over the

natural resource base. With this condition of broad access to the resource base met, the Mexican case studies highlight other dimensions key for PES initiatives that diversify and strengthen peasant and indigenous community livelihood strategies.

### ***DEVELOPING THE SUPPLY FROM EXISTING STRATEGIES AND STRENGTHENING THE DEMAND***

According to Burstein et al. (2002), PES presents opportunities and risks for peasant populations. Among the risks, they mention the insecurity and instability of the marketplace; the need to enter into fragile intermediation chains, particularly when dealing with international markets; and high transaction costs, in comparison to large, individual landowners. Among the opportunities, they consider that PES can generate complementary economic alternatives; it can foster sustainable forms of natural resource management that diversify productive options, by promoting, for example, a change from farming to forestry in ecologically fragile lands; it can also empower peasant populations by recognizing the added value of their work in favor of environmental conservation.

In any event, they caution that PES, instead of replacing current activities, represents an additional opportunity for diversifying livelihood strategies, which is why it is advisable to develop the supply of environmental services starting with existing production strategies. For example, farmers can expand their agro-forestry activities for carbon sequestration or water regulation, or market environmental services associated with their existing crops (the case of biodiversity-friendly shade-grown coffee). Furthermore, rather than focusing on global environmental services markets (e.g. carbon seques-

tration), they propose giving first preference to developing local and national markets for water services and ecotourism.

Another critical dimension is the need to strengthen demand for environmental services. This highlights the importance of marketing and the role in creating demand of the institutional and regulatory frameworks in local, national and international spheres. For Burstein et al. (2002), the effort to market environmental services, is in some cases greater than the additional effort to be made in the productive sphere. Such is the case when the environmental service is being provided, but is not recognized, or when no significant additional effort is required to provide the service. They also suggest presenting an integrated offer of environmental products and services, combining markets for environmental services with fair trade markets or solidarity markets, associated with peasants and indigenous people.

Burstein et al. (2002) also stress the importance of the appropriation of PES strategies by peasant communities to ensure their success. That appropriation is demonstrated by demanding fair pay or compensation for an environmental service that is the outcome of consciously assumed decisions and activities, but also by the willingness to invest resources (money, labor, etc.) into guaranteeing that the service will be provided and the promised activities will be lasting.

#### ***STRATEGIC PARTNERSHIPS BETWEEN INTERMEDIARY ORGANIZATIONS AND PEASANT ORGANIZATIONS***

For Burstein et al. (2002), the roles played by intermediation are crucial in PES initiatives, especially those involving marketing, certification, technical assistance, research, fund-

raising and promotion. In most cases, peasant and indigenous communities do not have the capacity themselves to carry out these functions, so they rely heavily on the support of non-governmental organizations to handle these tasks.

The relationship between intermediary organizations and the peasant communities or organizations they serve is not conflict-free, due to differences in vision and approach. Operational costs of intermediary organizations can seem too high to peasant organizations, and this can be a great source of tension. Burstein et al. (2002), feel that these conflicts are normal and can be resolved if strategic partnerships can be created between intermediary organizations and peasant organizations.

#### ***ORGANIZATIONAL CAPACITY, MANAGEMENT MODALITY AND TERRITORIAL APPROPRIATION***

For Burstein et al. (2002), the determining factor in the conservation and sustainable use of natural resources is organizational capacity, making it necessary to foster that capacity and prioritize investment in this area. Organizational capacity becomes a crucial dimension, since in many cases, the provision of environmental services requires agreements on land use and practices that need to be sustained over a long time. This capacity for collective action is particularly important when dealing with heterogeneous landscapes where it is necessary to manage – in an integrated manner – different land uses at different scales. The development and use of participatory management and planning tools for different territorial scales is particularly useful in these cases.

Organizing capacity is also necessary to deal with internal conflicts that arise in the distri-

bution of benefits and other aspects, and to deal with the conflicts with support organizations and other external stakeholders. In any event, as has already been mentioned, it is fundamental to build strategic, respectful and empowering alliances between civil organizations and the social organizations they support. Likewise, it is vital to include a significant organizational strengthening component in the projects, including capacities for conflict resolution and arrangements for transferring capacities and functions to the social organizations.

The management modality – individual or collective – can be an important variable. In some cases, collective management facilitates collective action, as the UZACHI case demonstrates, where the integration of communal property from four communities enables sustainable forest use and the beginnings of integrating the production of environmental services derived from these forests. But even in cases where property is managed on a more individual basis, it is possible for PES schemes to advance when there is strong organizing capacity, as in the BioClimatic Fund, where the organizing capacity of PAJAL and advice from AMBIO, has been key. In contrast, a weakened organization can threaten the sustainability of any initiative, as in Mazunte.

UZACHI illustrates the importance of the appropriation, control over and management of the territory as the foundation for a strategy that seeks to expand the productive supply through components linked to the supply of environmental services. The model of the BioClimatic Fund does not emphasize this territorial component; nevertheless, it is organized around ejidos or primarily indigenous communities that have a strong concept of territoriality. The scale on

which PES schemes are applied do not seem to be that determining; their sustainability seems to depend more on organizational capacity and on the level of control over the territory or the land than on the scale itself.

#### **INSTITUTIONAL FRAMEWORK AND FAVORABLE POLICIES**

Burstein et al. (2002) stress the importance of the institutional framework in PES initiatives, through the restrictions or incentives it provides. For example, the turtle ban gave rise to the experiences in Mazunte and Ventanilla. The decree creating the Biosphere Reserve of the Tuxtlas was conducive to launching the Selva del Marinero ecotourism project. The 1986 Forestry Law facilitated the appropriation over the forests by the highland communities in Oaxaca, and the integration of the different forest environmental services into the UZACHI model.

Activities that enable basic social consensus on PES-related issues are important for ensuring a solid foundation. The sharp controversy around bioprospecting that took place in Mexico demonstrates that the lack of a social agreement on how to manage PES schemes, or the existence of gaping legal loopholes, can sharpen conflicts and slow processes intending to establish compensation for environmental services schemes.

Burstein, et al. (2002) believe that it is fundamental for PES to take a public policy approach, going beyond projects or pilot experiments promoted by civil society organizations, as was the case in Mexico until recently. They consider that there is great potential for incorporating PES schemes – by way of direct payment or other types of compensation and incentives – into governmental interventions targeted to rural areas.

To maximize the positive impacts on natural resources and on the living conditions of those who manage them, they advise that the priority should be on socially and ecologically impoverished regions.

## BRAZIL<sup>11</sup>

Compared to Mexico, access to natural resources by indigenous and peasant communities in Brazil has been less and much more insecure, which also generates more precarious social conditions. For these reasons, the Brazilian cases are associated with the expansion, innovation and defense of the rights of communities to the resource base and to other basic rights. Indeed, Born et al. (2002) see compensation mechanisms not only stimulating positive environmental actions, but also fostering greater social inclusion by enabling the true enjoyment of established rights or by creating new rights.

### CASE STUDIES

The Brazilian case studies under the PRISMA-Ford Project analyzed different territorial and institutional contexts: the State in Acre; the Municipality in Gurupá (Pará State); a National Conservation Park (Jaú, Amazonas State); and the watershed in the Vale do Ribeira region (São Paulo State).

#### **SUBSIDIES FOR RUBBER TAPPERS IN ACRE FOR THEIR ROLE AS FOREST RANGERS**

The State of Acre, within the Brazilian Amazon, covers an area of 153,150 km<sup>2</sup>, 92% of which is under forest. Forty percent of the land is protected as Indigenous Lands and Conservation Areas, including the extractive

reserves. Federal legislation opened the way for this kind of reserves in 1990, and their uniqueness is that they recognize usufruct rights to the forest to extractive groups. The economy of Brazil's extractive populations is based on the extraction of forest products (rubber, nuts and diverse fruits and plants). Complementarily, they engage in small-scale slash and burn agriculture, hunting, fishing and occasional logging.

The extractive reserves were established against a background of the rubber-tappers' struggles and confrontations to protect their livelihoods from the rapid land concentration and deforestation promoted by governmental policies that supported turning forests into pasture and crop lands. Confrontations and forest occupations ("empates") by rubber-tappers intensified in the 1980s, when large landholders and usurpers stepped up deforestation and burning activities for fear of future agrarian reform or expropriations justified by the notion, still prevalent, that forest lands were "unproductive." The confrontations came to a head in late 1988 with the murder of Chico Mendes, the Acre rubber-tapper movement's most prominent leader. This catalyzed the institutionalization of the extractive reserves in July 1989 through a federal law that introduced this new type of territorial unit protected under the National Environmental Policy Law.

Extractive reserves were regulated in early 1990 as territorial units under governmental authority set aside for the sustainable exploitation and conservation of renewable natural resources by community extractive associations. This use is regulated under a contract, providing concession for use of the reserve and can be terminated for environmental damage or for unauthorized convey-

<sup>11</sup> This synthesis of the experience in Brazil is based on Born et al. (2002) along with complementary materials.



ance to third parties. As such, instead of restricting community access and usufruct rights to the forest, as in many traditional reserves, extractive reserves expand, guarantee and regulate these rights.

Several extractive reserves were set up in Brazil in the 1990s, among them the Chico Mendes Reserve in Acre, which covers one million hectares, making it the largest in Brazil. In 2000, the State of Acre had 546,000 inhabitants, of which 32% were rural. Of that rural population, more than half were rubber-tappers. Responding to this reality in 1999, the State of Acre passed the Chico Mendes Law, which subsidizes rubber production in the state. This law established a payment of R\$0.40 per kilo of rubber harvested and in 2002 this fee was raised to R\$0.60/kg, or the same value in US dollars of 2000.<sup>12</sup>

This subsidy represents a compensation for environmental services since it recognizes the rubber-tappers' role in forest conservation. The amount of rubber harvested serves as an indicator for the forest area used and conserved. On average, each tapper family uses 300 hectares of forest, their stay in the forest ensures its conservation, and the latex is tapped in such a way that the forest structure remains virtually intact (Born, et al. 2002). According to IMAZON, the subsidy is an effective means of compensation for environmental services since the cost of conserving a hectare of forest was less than R\$1 in 2001 (Born, et al. 2002).

Besides the environmental benefits, the subsidy generates social benefits that reinforce the environmental ones. The additional in-

come ensures the stay of tapper families in the forest protecting it from encroachment; it has also led to an urban-rural exodus, since around 1,000 families have returned to the forest abandoning the outskirts of cities such as Rio Branco and other cities where they had lived in dire poverty. The subsidy benefited around 4,000 families in 2001 and it was expected that it would benefit 6,600 families in 2002.

The subsidy, insofar as it is channeled exclusively through the extractive associations, has also strengthened social capital, enabling more effective cooperation in the pursuit of solutions to common problems. It is estimated that the extractors' purchasing power has doubled or tripled in some cases, not only due to the added income, but also from the negotiating power of the rubber cooperatives, which besides selling rubber, purchase consumer goods for their members at lower prices.

In addition, strengthening their capacity for association has helped them get external support. The Ford Foundation and WWF provided training, technical assistance, the generation of information and management practices. Pirelli purchased rubber from the associations to make Xapuri tires and supported the establishment of a rubber technology laboratory. SUFRAMA (a federal agency) supported the building of rubber collection sites where the rubber can be taken to market. The Environment Ministry offered support for the cooperatives' infrastructure and working capital and the Banco da Amazônia opened credit lines.

The subsidy has also had a positive economic impact, making it possible to overcome the rubber production crisis. While in 1998 production had fallen to 962 tons of

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<sup>12</sup> R\$1 = US\$0.55 (June 2000), US\$0.43 (June 2001), US\$0.35 (June 2002).

low quality rubber, by 2001, production was up to 3,000 tons and a harvest of 4,000 tons was expected for 2002. One interesting facet is the low fiscal impact, since around 70% of the subsidy returns to state coffers due to increased amounts of rubber being sold through legal procedures, thus increasing tax collection.

In summary, this case represents an exceptional example of applying an economic instrument to furthering social and economic objectives while advancing environmental goals. Here, the subsidy expressly sought to benefit poor producers and strengthen their organizational capacity, which they have also used to achieve other objectives.

***CLAIMING RIGHTS IN TRADITIONAL PROTECTED AREAS: THE JAÚ NATIONAL PARK CASE***

The national parks represent the other face of conservation in Brazil. In comparison with the extractive reserves, which emerged under the democratic thrust, most of the national parks were created under the authoritarian conditions during the military dictatorship, without any discussion with local residents. This was the case of Jaú National Park (JNP), set up in 1980 and declared a World Heritage Site by UNESCO in 2000. With an area of 22,700 km<sup>2</sup>, Jaú Park was Brazil's largest national park until 2002, when Tucumaque Mountain National Park was created.

Under Brazilian law, national parks are classified as integral conservation areas and human settlements are not allowed within them. Nevertheless, the reality is quite different, since human settlements exist in many areas that were turned into national parks. In Jaú, for example, the first human settlements date from approximately 1,000

A.D. The current residents – 930 people in 175 families – live along the banks of rivers and their tributaries, engaging in subsistence activities that are compatible with the conservation area objectives.

In the 1990s, the communities living inside Jaú Park played an important role in the participatory planning process for running the park, in which official institutions and researchers also took part. The communities participated through community meetings, sessions of park communities' representatives, participatory resource-use mapping, and technical meetings to define parks zones and programs. The resulting Management Plan, completed in 1998, was the first such plan written in a participatory fashion for a Brazilian national park.

According to the Management Plan, land held by traditional communities falls under the category of agro-environmental or agro-ecological occupation. However, the legal status of these lands is undefined. Thus, under current legislation, residents are caught in an ambivalent situation. On the one hand, the law stipulates that they can be compensated for improvements made and relocated outside the park. On the other hand, the law also stipulates that until these two conditions are met (compensation and the opportunity to resettle), the inhabitants have the right to remain on the land they occupy.

One alternative provided for in the National System of Conservation Units Law is the reclassification of zones inside a conservation area, so that it would be feasible, according to the Vitória Amazônica Foundation, to establish an extractive reserve or an ecological-cultural reserve in an area of the park, which would guarantee traditional communities' rights. This could also open the way for us-

ing compensation for environmental services mechanisms, as in Acre.

The communities, in fact, perceive of and value their daily activities as means of conserving the flora, fauna, water and land. The different practices and uses of natural resources employed by the communities demonstrate the existence of traditional knowledge that aids in Park resource management. The Vitória Amazônica Foundation includes the preservation of knowledge about the area's existing biodiversity as an environmental service provided by residents of Jaú National Park. This service was recognized by the Manager of Jaú National Park, who expressed his concern that the knowledge these groups have about local biodiversity could be lost if they were relocated far away.

#### **ENVIRONMENTAL SERVICES AND STRENGTHENING OF LIVELIHOODS IN GURUPÁ**

Gurupá municipality (State of Pará), located on the shores of the Amazon River, covers an area of 8,540 km<sup>2</sup>: 24% is on dry land, 58% is taken up by flooded forests and flood plains, and the rest (18%) is water. 71% of the 23,084 inhabitants in 2000 lived in rural areas. Their livelihoods are based on extractive activities (timber, açai, palmetto and other non-timber products) and subsistence agriculture.

The Gurupá communities are quite clear about the role natural resources play in community survival, income generation and food supply. In fact, the residents of the community of Camatá do Pucuruí decided to designate 6,127 hectares of their 17,961 hectare Extractive Reserve as a permanent preservation area. They also have an educational project, which aims to value local cus-

toms and to reinforce young people's resolve to stay in the countryside by improving their living conditions. Through the "Rural Family Home" program, students receive three years of instruction; the first focuses on motivation, culture and agricultural and extractive practices; the second, on farming alternatives; and the third, on associativity.

Gurupá's population has a tightly knit social organization, with 70% of the rural population belonging to an association, union, cooperative or church. The municipality's social organization consolidated through local struggles against the invasion of their common lands by logging and palmetto companies, and the fight against "aviamento," an exceedingly unequal exchange system between the communities and outside merchants who exchange consumer goods not produced locally (grains, salt, fuel, clothing, etc.) for products extracted from the forest. Encouraged by the Christian base communities, these struggles joined forces at the municipal level, leading to the formation of the Union of Rural Workers in 1986. In the early 1990s, the union launched the "Fight for Life" project as a political platform for sustainable development based on family-based agro-extractive production.

In this context, environmental services and their compensation makes sense if it supports existing livelihood strategies that depend heavily on the access to and good management of natural resources. Thus, communities would be interested in compensation schemes that improve the productivity, profitability and sustainability of their activities.

However, most of Gurupá's population lacks basic personal documents, impairing

the power of their social organization to ensure the implementation of CES schemes of benefit to rural inhabitants.<sup>13</sup> While the existing social organization serves to represent the communities before middlemen and state agencies, they are invisible before legal and regulatory bodies where formal organization is necessary.

Furthermore, the status of land titles in Gurupá is chaotic: rural producers are generally squatters or illegal occupants on land held by the Brazilian Navy.<sup>14</sup> Accordingly, this case highlights the importance of innovating the rights of access to, use of, and control over natural resources.

**INTEGRATED MANAGEMENT OF THE RIO RIBEIRA DE IGUAPE WATERSHED, SÃO PAULO**

The Ribeira de Iguape river basin lies in the States of São Paulo and Paraná. The watershed's area covers 24,980 km<sup>2</sup>, of which 15,480 are in São Paulo State. This area, known as Vale do Ribeira, holds a large part of the remaining Mata Atlântica tropical forest. Concern for preserving the Mata Atlântica lead to an increasing number of protected areas, to the point where currently more than 50% of the valley is protected in one way or another.

In Vale do Ribeira there are 400 rural communities made up of farmers, caíçaras (traditional coastal populations), quilombolas (communities formed by slave descendents) and some indigenous groups. These com-

munities primarily work in banana growing, palmetto extraction and subsistence agriculture. They also engage in small-scale fishing, the extraction of aromatic, medicinal and ornamental plants, ginger growing and other kinds of subsistence production.

The growing emphasis on protection within the valley has imposed severe restrictions on these communities, since it limits "legal" activities and land uses. Nevertheless, the "illegal" activities continue, such as the illegal, excessive extraction of palmetto for sale to industry at low prices. The communities are aware that this extraction is unsustainable, but given their limited options, they continue with this underground trade. Likewise, most "legal" activities are carried out in an unsustainable fashion.

So far, guaranteeing environmental services provision in the valley has been sought via strict protection that has not benefited the communities. According to Born and Talocchi (2002), to ensure benefits for the communities, it would be necessary to focus on strengthening their productive activities, especially those that preserve or "produce" environmental services. The communities are quite clear about how they can contribute to improving the supply of environmental services. They mention organic farming, diversification of production, soil protection, restoring riparian forests, reforestation with native species, and forest preservation and protection. Compensation for environmental services mechanisms could be an instrument for aiding the communities in taking on these activities and strengthening their livelihoods.

Several compensation mechanisms that include environmental variables are used already in Vale do Ribeira, among these, the

<sup>13</sup> Most of Gurupá's population lacks official identity documents. In the community of Livramento, with 750 residents, around 250 have all their personal documents. In the community of São João do Alto Jaburú, only 50 of the 200 residents have identity documents.

<sup>14</sup> Occupation depends on permission from the Brazilian Marines, who have the property, but can lease it out for up to 90 years.

ICMS (Tax on the Sale of Merchandise and Services) ecological tax, a forest replenishment fee, certification for ecological agriculture, investment funds, and credit lines for environmental purposes and ecological tourism. Water use fees are also under study.

One option proposed is to adapt these instruments and their ground rules in such a way that they benefit rural communities more directly. For example, existing public funds for natural resource management could be targeted to promote activities such as organic farming, sustainable tourism and other activities, ensuring procedures that are tailored to the reality of the communities.

In Vale do Ribeira tourism has great potential because of its proximity to São Paulo and Curitiba. The challenge is to guarantee that the income generated stays in the communities instead of flowing toward outside operators. The communities view certification with mistrust because they are not able to see its advantages. It is therefore necessary to build the trust by involving communities in defining the rules and parameters for certification. Likewise, greater government support is needed for technical training and product marketing.

The ICMS sales tax is perhaps the most well known instrument. In accordance with federal law, each state must allocate 25% of revenues from this tax to the municipalities, using their own criteria. In some states, a portion of the resources earmarked for the municipalities is distributed in proportion to the municipal area under state protected areas. The State of Paraná set the precedent in 1992 and the State of São Paulo followed suit in 1993. The portion allocated using these criteria is called the Ecological ICMS and in

São Paulo it equals 0.5% of the total funds earmarked for the municipalities.

In 2002, the total amount distributed as Ecological ICMS in the State of São Paulo was R\$39.6 million (about US\$13.5 million at the 2002 average exchange rate). Vale do Ribeira region, the State's poorest region received 37% of the Ecological ICMS in 2001 because it has the largest contiguous area of the Mata Atlántica. The revenue from this source accounted for 45% of the total revenues in Iporanga, one of the valley's municipalities.<sup>15</sup> Nevertheless, some municipalities feel the compensation is not enough to "solve the social problems generated by the establishment of the environmental reserves" (Gazeta Mercantil, 5 May 2003).<sup>16</sup>

In Iguape, the municipality that received the most because a great proportion of its territory is taken up by environmental reserves, it is felt that the reserves push people toward urban areas, exacerbating problems of unemployment, drug addiction and prostitution (Ibid.). In Barra do Turvo, according to its mayor, many producers that lived off cattle raising, palmetto extraction and bean farming within Jacupiranga State Park lost their livelihoods with the reserve. Thus, this municipality requested suspension of their quota of the Ecological ICMS (R\$150,000 per month) and instead demanded that small farmers be allowed to use the park's degraded areas (Ibid.).

This example clearly illustrates the degree of exclusion that can generate conservation and compensation schemes when they exclude the interests of poor, rural communities.

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<sup>15</sup>See: <[www.estadao.com.br/ciencia/noticias/2003/abr/22/146.htm](http://www.estadao.com.br/ciencia/noticias/2003/abr/22/146.htm)>

<sup>16</sup> See: <[www.ipef.br/servicios/clipping/055-2003.html](http://www.ipef.br/servicios/clipping/055-2003.html)>

Other rules or different conservation logic, like that used in the extractive reserves, together with much higher compensation from the Ecological ICMS, could better integrate environmental objectives with social ones, because this could strengthen livelihoods by prompting small producers to use sustainable production practices, while improving the supply of environmental services and their long-term sustainability.

Water use fees, under initial implementation, are also a potentially important instrument for supporting community initiatives. In Brazil, the watershed committees, in which the state, municipalities and civil society have an equal voice, have the responsibility for setting the fees, exemptions and investment priorities for funds raised. Again, the challenge here is to guarantee that the voices of the communities are present in these decision-making bodies, which is why organizational strengthening is so necessary.

### ASSESSMENT AND LESSONS

According to Born (2002), mechanisms to compensate and recognize the conservation and restoration of environmental services offer great opportunities for traditional, riparian and indigenous rural communities. Such mechanisms, not necessarily financial ones, can generate the means and services for a healthy, decent quality of life. They can also serve for establishing new rights or for creating new channels for access to benefits and to other basic rights already set forth in national legal systems.

Brazil has shown strong interest for some time in exploring the use of economic instruments for environmental management stemming from polluter-pays or user-pays

principles. From this economic rationale, the compensation for environmental services mechanisms would operate under the principle of protector-receives, transferring resources from those who benefit to those who “aid” nature to produce or maintain the conditions that guarantee the ecological processes we depend upon.

Transfers and compensation, according to Born et al. (2002), can take different forms: the direct transfer of financial resources, credit support, tax exemptions, allocation of fiscal resources for special programs, preferential access to public services, access to technology and training, product subsidies, access to markets and special programs, etc.

Nevertheless, Born (2002) warns of the danger of excessive pragmatism or opportunism that lead to strengthening initiatives that turn the compensation mechanisms into simple economic instruments or new business opportunities. On the contrary, Born feels that it is necessary to take a broad approach to compensation or recognition for environmental services – he avoids using the concept of payment or market for environmental services – and to evaluate them in terms of social justice, not just in regards to their environmental effectiveness.

In that sense, Born (2002) feels that a public discussion and decisions on rights, responsibilities and procedures or rules, is necessary, to prevent perverse effects and achieve acceptable, equitable compensation mechanisms. Likewise, he feels that the implementation and operating procedures of compensation instruments should be subject to scrutiny and ongoing public oversight. That assumes strong involvement and coordination from civil society organizations in the accompaniment and the evaluation of mecha-

nisms, regarding their environmental effectiveness and their relationship to social justice.

Several questions need to be answered using these criteria in public discussion on the issue (Born, 2002): Who should pay for or compensate environmental services maintained by others, and under what circumstances? Who should certify the provision of such services? Who should receive the income or compensation generated by the direct or indirect use of environmental services? How can the entire community be compensated and not just some of its members, for example, in the case of biodiversity and traditional knowledge preservation? Should basic services provision (healthcare, sanitation, education, etc.) be considered a form of compensation or should these be considered basic rights that must be provided? What is the government's role in compensation mechanisms?

The Brazilian context and experiences demonstrate that it is possible to think of the combination of a wide range of mechanisms and types of compensation. What is important is to ensure that the aims and rules work in favor of communities. That means integrating environmental objectives with social and equity objectives in the design and implementation of schemes and mechanisms. Beyond the mechanisms, the Brazilian experience shows the importance of guaranteeing certain prerequisites, fundamentally the expansion of the rights of access, usufruct and control. The Brazilian cases also show that strong social organization is a necessary condition to ensure that compensation schemes work in favor of communities and in general, to achieve enforcement of rights and effective improvements in livelihoods.

## EL SALVADOR<sup>17</sup>

El Salvador, in contrast to Brazil, Mexico and Costa Rica, has small natural and secondary forested areas. The forested areas are fragmented and form part of mosaics in which agro-ecosystems predominate, such as basic grain crops, pastureland, shade-grown coffee, as well as degraded areas. In this context, the discussion of environmental services and their compensation has been less tied to traditional conservation strategies. Instead, it has emphasized the role of agro-ecosystems.

Furthermore, given the high percentage of territory without year-round vegetation, hydrological services are the environmental services of greatest domestic importance. The loss of the capacity to regulate hydrological resource flows is associated with drought and flooding, problems in potable water supply and hydroelectric power generating capacity, the lowest cost energy option. Accordingly, many compensation for environmental services initiatives have water availability as their underlying concern.

The deepening agrarian crisis has also underscored the need to recognize and revalue environmental services from rural areas and the country's agro-ecosystems. Given the collapse of traditional agriculture "agrarian environmental services" have taken on greater importance in the country, by linking compensation mechanisms to agricultural sector reconversion and the development of tourism in poor rural areas.

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<sup>17</sup> This synthesis of the experience in El Salvador includes text by Nelson Cuéllar.

## CASE STUDIES

In El Salvador, there are local initiatives that seek to explore and implement compensation schemes linked to water provision, ecotourism and biodiversity conservation. The cases studied over the course of the PRISMA-Ford Project examined two contrasting experiences with shade-grown coffee and two experiences related to the provision and conservation of water. The team also assessed the “Ecoservicios” Project, a governmental initiative supported by GEF and the World Bank, which seeks to strengthen protected area management, and set up a “national system of payment for environmental services.”

### *THE COFFEE AND BIODIVERSITY PROJECT*

The “Coffee and Biodiversity” project, financed by GEF-World Bank, executed between 1998 and 2001, sought to conserve critical components of biodiversity by maintaining and improving habitats on shade-grown coffee plantations. Through certification and entry into international specialty markets, an attempt was made to increase the areas covered with “biodiversity-friendly” shade-grown coffee.

The Salvadoran Foundation for Coffee Studies (PROCAFE), in charge of executing the project, carried out agricultural research, geographical monitoring, technology transfer and financial analysis activities. The Ecological Foundation of El Salvador, a conservation NGO known as SalvaNatura, was responsible for certifying farms, using the Rainforest Alliance ECO-OK label. Based on financial and logistical criteria for the certification and for gathering ecological data, the project worked almost exclusively with medium and large size farms.

The project sought to establish a compensation for environmental services mechanism through the certification of “biodiversity-friendly coffee” that could fetch a price premium on international alternative coffee markets. The premium would compensate the growers for implementing biodiversity management practices in shade-grown coffee agro-ecosystems.

The project had nine components: biological monitoring, environmental education, agricultural research, geographical monitoring, farm certification, a market study, a socio-economic assessment, a financial assessment, and technology transfer. The study of ecological criteria concluded that shaded coffee groves on medium and large size estates, although not a substitute for natural forest, do contain relatively high levels of arboreal (137 species) and avifauna (126 species) biodiversity. The market study for biodiversity-friendly shade-grown coffee found that markets for this product are not developed to ensure stable price premiums over the long term.

The financial assessment concluded that certification is not profitable on farms smaller than 7 ha, due to the additional expenses. Nevertheless, the assessment only focused on income earned from coffee sales and not from other farm products. A small-farmers cooperative managed to join the certification program, confirming that certifying small coffee growers is possible, when they are well organized, as explained by the certification manager (Belloso, 2001).

Nevertheless, the case highlights the fact that the inclusion of small growers does not happen spontaneously. It is therefore necessary to have explicit objectives regarding their inclusion in this type of initiatives.



This, in turn, requires broader farm selection criteria, organizational strengthening actions and encouraging collective action in order to achieve landscape-scale management. This case also points out the importance of paying more attention to marketing, especially when seeking to build markets that recognize environmental services.

#### **SMALL SHADE-GROWN COFFEE PRODUCERS AND ENVIRONMENTAL SERVICES IN TACUBA**

This case analyzed the capacity for providing environmental services in three coffee growing cooperatives of small producers in the municipality of Tacuba – bordering El Imposible National Park – and the viability of constructing a compensation mechanism in a participatory fashion together with the farmers. The analysis showed that shade-grown coffee agro-ecosystems managed by small coffee growers do have the capacity to provide multiple environmental services, especially arboreal biodiversity conservation and water provision services.

In relation to arboreal biodiversity, on the three cooperatives studied, 123 tree species were identified, of which 109 are native and 14 are introduced (Méndez, in process). The per-parcel biodiversity average is relatively high, with a minimum of 15 species per ha. This arboreal biodiversity level fulfills the criteria of the number of native tree species per hectare for the “biodiversity-friendly” certification program discussed in the preceding case. The diversity of arboreal species found on small, individual farms from one of the cooperatives was 30% greater than that found in the larger collective areas of the other two cooperatives. This high degree of arboreal biodiversity on small, individual farms highlights the importance of including and supporting this sector as part of local

and regional conservation initiatives. Besides their conservation value, shade trees provide different products to the cooperatives’ households. Of these, the most important is firewood, which represents an approximate savings of US\$71.50 per year (Méndez, in process).

In El Salvador, shade-grown coffee farms represent the country’s principal forest cover. Since small farms (under 7 ha) represent 80% of individual farms, cooperatives of small growers play an important role in maintaining landscape-scale environmental services. Small shade-coffee growers manage mixed production systems, providing a variety of goods – fruit, firewood, medicinal plants and forage – besides coffee. These plots have an important role in self-provisioning and buffering households and extended families from the volatile international coffee market. Likewise, these fragmented holdings mean greater diversification at the plot level, and much more “inertia” for land transformation. This tenure “patchiness” impedes large-scale clearing more typical of large holdings, given the structural crisis in the agricultural sector and the current severe coffee crisis.

The Tacuba cooperatives play an important role due to their proximity to El Imposible National Park and because they fall within the proposed area for the Mesoamerican Biological Corridor (MBC). The environmental service of scenic beauty through ecotourism and recreational activities can be developed as well. There is, however, an evident need to strengthen the organizations and their capacity to relate to external stakeholders.

One of the cooperatives has a spring that is the main water source for the town of Tacuba. This situation provides an opportu-

nity to develop a compensation mechanism around this service. An effort along these lines through an aid agency and the municipal government already exists, but according to the board of the cooperative where the spring is located, the cooperative does not have adequate negotiating and management strength to ensure that the compensation mechanism will benefit them. They feel that the greatest risk to the implementation of compensation mechanisms is the lack of transparency by the actors involved in designing these mechanisms.

This case highlights the importance of promoting broad, transparent negotiating processes to guarantee equitable, efficient mechanisms. Equity requires appropriate compensation for small producers and consumer-end redistribution mechanisms so that the additional burden does not translate into greater consumer-end inequities. Efficiency in this case also means locating the recharge zones that feed the spring and identifying practices that would enable maintaining or increasing the flow of this environmental service in the future.

#### ***PES IN SAN FRANCISCO MENÉNDEZ***

In March 2001, in the communities of Los Conacastes and Cara Sucia (municipality of San Francisco Menéndez), a water supply related compensation scheme for environmental services scheme that uses water fees began to operate. The actors involved in this experience were the local communities, the Health Promotion through Water and Sanitation Project (PROSAGUAS), the Action, Management and Rational Use of Water Resources Project (AGUA), and the support agencies that contributed to building the potable water systems and organizing community water boards.

The mechanism was set-up through the agreement that transferred the water systems built by local support agencies to the communities. Under the agreement, the community would cover the salary of a “watershed warden” in El Imposible National Park in recognition of the environmental service of “water protection” provided by the park, the primary water source for both communities’ systems. The funds to pay warden’s salary come from the water use fee. Yet, most of the water systems’ beneficiaries ignore that fact, because only the projects’ representatives and members of both systems’ governing boards participated in the negotiation of the agreement.

This case shows the overriding role that support agencies can play in establishing compensation mechanisms. From the perspective of equity, the case is controversial because rural poor communities are paying for environmental services generated in a national park.

#### ***CHALATENANGO: TERRITORIAL PROVISION OF ENVIRONMENTAL SERVICES***

The province of Chalatenango, in northern El Salvador, is a mountainous region, with small, forested areas and a high number of small subsistence farmers. This province was an important armed conflict zone throughout the civil war of the 1980s, and in the immediate postwar reconstruction period attracted the attention of international aid agencies. In that setting, the Environmental Committee of Chalatenango (CACH) began as an open forum that brought together most of the governmental and non-governmental organizations working for Chalatenango’s development. One of the most important products of CACH was the participatory formulation of the Provincial

Environmental Management Plan – Foundations for Sustainable Development in Chalatenango (PADEMA). The focus on economic reconversion – one of the Plan’s four lines of action – stresses the role of the province of Chalatenango in the provision of environmental services.

Water protection is the environmental service highlighted in CACH’s proposals, since Chalatenango plays a key role in supplying water to the San Salvador metropolitan area via the Lempa River, as well as in hydroelectric power generation. Therefore, CACH is demanding territorial compensation for the province for the provision of environmental services to the rest of the country. CACH is also exploring the ecotourism potential of the province’s landscapes. The National Development Commission (CND), a presidential commission, took up CACH’s ideas. In its proposed “Initial Actions for the Nation’s Plan”, it designated Chalatenango as an “environmental services producing zone” (CND, 1999).

Among the local strategies within the province, the environmental services issue has been taking on greater importance. For example, the “*Mancomunidad La Montañona*,” an association of seven municipalities in Chalatenango, is engaged in a process of territorial management and local development, where environmental services play a strategic role. In their external dimension, by taking advantage of its scenic landscapes, and in its internal dimension, regarding water resource management, given its diverse uses within the microregion.

The main challenges facing the construction of compensation for environmental services mechanisms relate to the need to include a landscape vision. This would allow the con-

sideration of the current conditions which generate such services, the need to foster changes in farming practices that improve and ensure their provision, and greater appropriation by producers – among other stakeholders – to ensure that the process continues moving forward in a participatory informed fashion.

**THE “ECOSERVICIOS” PROJECT:  
TOWARD A NATIONAL SYSTEM OF  
PAYMENT FOR ENVIRONMENTAL SERVICES**

Alongside local initiatives that attempt to implement compensation for environmental services schemes, there is a governmental initiative which, among other things, seeks to establish a national system of payments for environmental services. Supported by GEF and World Bank, the “Ecoservices”<sup>18</sup> Project has been under discussion since 2000 and currently (2003) is in the preparatory phase. According to the World Bank (2003), the project to be executed by the Ministry of Environment and Natural Resources will include three components: institutional strengthening; strengthening protected area management; and designing a payment for environmental services system.<sup>19</sup>

The five-year goals, in the initial project design, include two local markets for environmental services in priority project areas;<sup>20</sup> 5,000 ha integrated into project actions; 300

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<sup>18</sup> In the GEF project portfolio, this project appears under the title, “Natural Resources Management through Conservation and Restoration of Environmental Services,” while in the World Bank, it appears as the “National Environmental Management Project.”

<sup>19</sup> The third component is of particular interest to the GEF, which highlights that El Salvador has high levels of biodiversity in spite of its meager natural forest cover (GEF, 2000).

<sup>20</sup> There are five preliminary pilot sites: La Montañona, Cinquera, Gualobo River, Coatepeque Lake and Los Volcanes.

farmers involved; a design of a field-tested institutional framework for environmental services markets; three new protected areas declared with their respective management and monitoring plans for the core zones; and completed biodiversity inventories.

Institutional strengthening actions focus in the Ministry of Environment, and revolve around managing the protected areas, identifying sustainable funding mechanisms and developing associations with the private sector and local government. To consolidate protected areas, management plans are to include long-range funding plans that take advantage of environmental services markets to promote biodiversity-friendly land uses in the buffer zones.<sup>21</sup>

The foregoing elements appear to indicate that the project's main emphasis is geared toward conservation and that the "payment for environmental services" system is being seen as a financial mechanism for conservation.<sup>22</sup> Additionally, for hydrological services, where changing practices on hillsides plays a central role, it appears to emphasize converting hillside agricultural areas to forest. Thus, as in Costa Rica, the proposed system emphasizes the presence of trees, natural areas, and "forests".

Certainly, finding a compensation for environmental services scheme that is adapted to

El Salvador's characteristics is not an easy task. The opportunity to access GEF resources in the form of grants, where the main concern is on biodiversity, could introduce distortions in priorities or in the way different project components are presented. Nevertheless, the focus of the payment for environmental services system needs to shift more toward the idiosyncrasies of the Salvadoran context, particularly in terms of recognizing the role of agroecosystems, of strengthening the role of peasants' small farming practices and of revaluing the role of the agricultural sector and rural landscapes.

As has been seen in Mexico, Costa Rica and Brazil, the orientation of the compensation strategies are extremely critical. Thus, "Ecoservicios" should face the challenge of broadening its focus beyond trees, forests and natural areas, strategically incorporating those traits that define the Salvadoran context, especially the impact and role of small farming on hillsides. This will not be possible without concrete spaces for participation and consultation in the project's final design process and its implementation. Since the "Ecoservices" project is a mechanism for formulating a public policy which seeks to institutionalize a payment for environmental services system on a national scale, it becomes critical for the project to institutionalize mechanisms for genuinely informed participation of diverse stakeholders.

## ASSESSMENT AND PERSPECTIVES

The Salvadoran context and experiences highlight the importance of anthropogenic landscapes and the need to engage in participatory processes, as critical factors when devising compensation for environmental services schemes. Therefore, it is particularly

<sup>21</sup> Other elements considered are investments in boundary demarcation, basic infrastructure and communication equipment that facilitate protection; and a monitoring system using satellite images and geographical information systems, with field verification in the selected corridors.

<sup>22</sup> The limited access to information about the project – as of this writing there was still no complete public version of the project concept paper available – do not allow a more comprehensive evaluation of its orientation. The partial project document can be obtained online at: <[http://www.marn.gob.sv/economia%20ambiental/MARN\\_BM\\_GEF.htm](http://www.marn.gob.sv/economia%20ambiental/MARN_BM_GEF.htm)>

critical to see beyond the forest, to support organizational strengthening processes for territorial management, to guarantee and broaden access to the resource base, as well as fostering favorable institutional and policy environment for the management of anthropogenic landscapes.

### **SEEING BEYOND THE FOREST**

El Salvador, with its small forests and a long history of anthropogenic landscapes, highlights the importance of seeing beyond the forest and acknowledging the importance of other land uses to guarantee the provision of environmental services, particularly agro-ecosystems, the use of improved agricultural practices, and other efforts aimed at ecosystem restoration.

Coffee farms constitute the country's principal forests and small shade-grown coffee farms are particularly important. These farms have much more structural and ecological diversity than large-scale monocrops, including forestry plantations. In addition to their inherently high ecological complexity, they have great potential for flora and fauna biodiversity conservation, water and soil protection. They also provide a variety of intangible cultural benefits for the producers and inhabitants.

Beyond coffee growing agro-ecosystems, improved practices by small hillside farmers offer great potential in terms of improving the environmental services supply and their livelihood strategies. Indeed, in El Salvador it makes sense to focus attention on restoring and maintaining degraded anthropogenic ecosystems – as the strategic choice in environmental services provision – as well as to highlight and recognize the biodiversity generated from agricultural ecosystems.

### **PARTICIPATION IN DEFINING THE SYSTEM AND NEGOTIATIONS FOR LOCAL MANAGEMENT**

The challenge of incorporating environmental services and their compensation into rural strategies in El Salvador is considerable, due to the socio-environmental complexity intrinsic to heterogeneous anthropogenic landscapes and the need to improve the capacity for providing environmental services, while at the same time strengthening the livelihoods of the rural poor. This highlights the importance of having truly participatory processes for public policy-making in this field.

Given the complexity of the mosaics to be managed and the need to transform practices, it is crucial to strengthen local negotiating processes for environmental and territorial management. These negotiation processes can be quite successful if compensation mechanisms promote practices that contribute to maintaining and increasing the flow of environmental services, as well as strengthening rural community livelihoods.

### **ACCESS TO THE RESOURCE BASE**

The agrarian reform of the 1980s and the Land Transfer Program (PTT) coming out of the 1992 Peace Accords redistributed one-fifth of the territory and succeeded in broadening rural community access to the resource base. Nevertheless, the fragmentation of the land into small parcels demands strong organizing processes in order to achieve landscape-scale collective action. This is complicated by the context of the agricultural crisis, which has been conducive to a more dynamic land market, speeding-up processes of land use change toward urban and industrial uses, with a negative impact on environmental services provision.

Many cooperatives that arose from the agrarian reform, must confront the effects of the agricultural crisis, but also the impact from the strengthening of traditional conservation strategies and the consolidation of the protected areas system, which limit community rights to the resource base. On the other hand, in biological corridor zones, opportunities are opening up for rural communities, but these require informed participation in processes negotiating land use changes, as well as compensation mechanisms for environmental services.

#### **STRENGTHENING SOCIAL ORGANIZATION**

Strengthening community-scale social organization is essential for the negotiation, establishment of agreements and distribution of benefits stemming from compensation schemes. This is especially so, considering that the approaches and practices promoted by external stakeholders (governmental agencies, foreign aid agencies, technical cooperation projects, and even support agencies) do not always benefit communities.

The complexity present in El Salvador also explains the multiple perspectives concerning compensation for environmental services. While most local initiatives consider that compensation schemes should aim at reinforcing synergies between production and environmental restoration in degraded and impoverished rural areas, government initiatives appear to prioritize the use of compensation mechanisms as financial instruments for conservation, as in Costa Rica. This difference in the perspectives is not trivial. On the contrary, it requires enhanced community participation in the rule-making process and genuine discussion and negotiation processes to bring positions closer together. Thus, commitments can be forged

that can then be translated into institutional frameworks and policies.

#### **A FAVORABLE INSTITUTIONAL AND POLICY ENVIRONMENT**

El Salvador needs a compensation scheme capable of responding to the conditions and contexts of the different local initiatives that seek to implement compensation for environmental services schemes. Given local conditions, environmental services are critically important for the communities themselves, and are directly linked to local productive strategies. Their initiatives constitute important sources that should inform public policymaking, as in the case of the national payment for environmental services system.

A collapsed agricultural sector of little importance to macroeconomic stability is a feature of the Salvadoran economy supported by migration and remittances. In this context, recognizing and revaluing the role of rural communities in providing environmental services presumes an institutional and policy framework that contributes to the inclusive management of anthropogenic landscapes, rural areas and the agricultural sector, all of which goes beyond the scope of traditional conservation strategies for natural ecosystems and protected areas.

#### **NEW YORK STATE<sup>23</sup>**

New York City has an innovative watershed management strategy, which provides financial support and other aid to communities in the Catskill/Delaware watersheds in exchange for efforts to improve water quality in these watersheds. This case demon-

<sup>23</sup> The synthesis of New York's experience is based on Isakson (2002).

strates the important link between the well-being of rural communities and the provision of environmental services.

Although New York State clearly differs from the so-called developing countries, the case is particularly interesting because agriculture is one of the defining characteristics in the Catskill/Delaware watersheds, and farmers in these watersheds are among the poorest residents in New York State.<sup>24</sup> Accordingly, the experience with compensation for environmental services in New York offers insights for developing countries faced with the dual challenge of protecting natural resources and alleviating rural poverty.

## BACKGROUND

New York City's water supply system provides 7.4 million people living in New York City—along with some 1.5 million visitors, workers, and residents of neighboring communities—with 1.4 billion gallons of water per day (Stave, 1998). The water comes from three upstate watersheds: the Delaware, Catskill, and Croton watersheds (the former two provide about 90% of the City's water supply). The City's water system tapped the Croton River Watershed in 1842, then in 1907 extended out to the remote Catskill watershed and, in 1938, to the even more distant headwaters of the Delaware River, an unprecedented engineering feat for its time. When it was completed in 1965, New York City could lay claim to the largest urban water supply system in the world.

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<sup>24</sup> More than 12,000 residents of the Catskill/Delaware watersheds live in poverty (Stave, 1998). Poverty is defined as annual earnings of \$10,963 or less for a family of three.

In the 1990s, New York City once again reinforced its identity as the vanguard of water management. This time, however, its recognition was not the result of any technological feat. Instead, it was the product of a new watershed management strategy – a social institution - that links water quality protection to the socio-economic objectives of distant watershed communities.

The impetus for New York City's watershed management plan was the Surface Water Treatment Rule issued by the United States Environmental Protection Agency (EPA) in 1989. The ruling requires all municipalities to filter public water obtained from surface sources unless stringent public health criteria are met and an approved watershed management strategy is in place.

The financial implications of the EPA ruling for New York City were enormous. Constructing a filtration system for the Catskill and Delaware systems was estimated to cost as much as US\$6 billion; another \$200-\$300 million a year would be necessary for operation and maintenance costs (NYT, 1996).

Faced with the exorbitant cost of filtering its water supply, the New York City Department of Environmental Protection in 1990 tried to impose new land use regulations that would have severely limited agricultural opportunities and rural livelihoods in the watershed areas.<sup>25</sup>

The proposed regulations were met with resounding opposition from watershed communities, boosted by the collective memory of past disruption to lives and livelihoods

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<sup>25</sup> New York City obtained the authority to regulate land use in the Catskill/Delaware watersheds through the McClellan Act, a law issued by the state legislature in 1905 (Finnegan, 1997, cited in Isakson, 2002).

caused by the construction of the reservoirs and aqueducts connecting the watersheds to New York City. Moreover, the agricultural community resented the implication that farmers were poor stewards of the land. Indeed, they maintained that the residents of New York City were, in fact, the real environmental polluters. Moreover, relative to residential land use or other forms of development, low-density agriculture presents the least danger to water quality.<sup>26</sup>

After several years of intense negotiations among numerous stakeholders, a monumental watershed management strategy was devised in 1997. The new plan, officially known as the New York City Watershed Memorandum of Agreement (MOA), commits New York City to a long-term watershed management strategy that enables empowering farmers with economic resources to improve the quality of the water supply. This plan combines land acquisition, new watershed rules and regulations, and financial assistance to watershed communities to promote environmental quality and their local economies.

### **NEGOTIATION PROCESS AND INCLUSION OF MULTIPLE STAKEHOLDERS**

The categorical opposition by watershed residents to the initial proposals forced New York City to negotiate a less antagonistic agreement. The negotiations produced, at first, the Watershed Agricultural Program

(WAP) in 1991, followed by the Memorandum of Agreement in 1997. This experience highlights the importance of envisioning the establishment of a negotiating platform as a process; one that implicitly brings with it a long timeframe. It also demonstrates the importance of involving diverse key stakeholders in the negotiating process.

The farming community was the group that most strongly opposed the land use regulations that the City's Department of Environmental Protection tried to put into effect in 1990. The farmers quickly mobilized and were able to convince City officials of the positive role that agriculture could play in protecting water quality. They argued that, instead of putting up new barriers to the farming sector, the City should provide farmers with the technical and economic assistance necessary for improving their environmental practices.

The New York State Department of Agriculture and Markets, the agency in charge of regulating and protecting agriculture in the state, offered to mediate the negotiations. Thus, in December 1990, three months after the City's Department of Environmental Protection proposed the regulations, an ad hoc Task Force was set up with twelve members: farmers, public health officials, the commissioners of the City's Department of Environmental Protection (chair of the Task Force), The State Department of Agriculture and Markets (facilitator) and other agricultural agencies (e.g. the Farmers' Preservation Alliance).

While the WAP was taking shape, non-farming watershed residents began to make their voices heard. Under the guidance of the Delaware County Board of Supervisors, watershed residents formed the Coalition of

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<sup>26</sup> Agriculture has the potential to maintain many of the land's natural buffering and filtering capacities. However, if not practiced properly it can be a potential nonpoint pollution source. Due to their precarious economic situation, many farmers in the Catskill and Delaware watersheds are unable to implement practices that control these pollution risks; those farmers who are forced out of business often sell their lands to commercial developers.



Watershed Towns, with the purpose of supporting those stakeholders who would be the most disadvantaged when the regulations went into effect.

New York City's watershed management plan is the outcome of seven years of intense, heated negotiations among several stakeholder groups: New York City, the watershed communities, the New York State Department of Health, several environmental NGOs, the New York City Department of Environmental Protection, the federal Environmental Protection Agency and the New York State Department of Agriculture and Markets.

### **COMPONENTS OF THE COMPENSATION PACKAGE**

The combination of the different initiatives to support farmers can be described as a compensation package. The centerpiece of the package is the Watershed Agricultural Program (WAP), a voluntary and locally administered program whereby City funds are used to implement environmentally friendly practices on watershed farms.

Each farmer who chooses to participate in the WAP receives technical assistance to develop a Whole Farm Plan, which is a comprehensive strategy for controlling potential sources of pollution on the farm. The objective of the plan is to design and implement Best Management Practices that address pressing environmental concerns yet remains compatible with the farmer's business objectives. New York City covers all costs associated with the implementation of these best practices on participating farms. In this way, farmers often receive technical and managerial assistance, new farming equip-

ment, and infrastructure improvements to their agricultural operations.

Farmers who participate in the WAP are eligible for other components of this compensation package, which includes: a Conservation Reserve Enhancement Program that pays farmers to remove streamside lands from agricultural production; a Whole Farm Easement Program that compensates farmers for their long-term commitment to sustainable agriculture thus forgoing development rights to their land; a Natural Resources Viability Program that helps to develop markets for the products of watershed farmers; and, a Catskill Family Farms Cooperative dedicated to tapping niche markets for vegetables and other produce cultivated in the area. This cooperative provides the capital equipment and organizational structure for produce farmers to achieve economies of scale and market power.

Given that the pollutants of concern to New York City's water system are closely associated with livestock operations, the WAP is targeted primarily toward dairy and cattle farms – generally, these are the larger farms. Indeed, the WAP is limited to watershed farmers with at least US\$10,000 in gross annual revenues. Given this limitation, a Small Farms Program is also being initiated, which like the WAP, will implement Whole Farm Plans, but will only finance structural improvements on the farms that pose the greatest risk to water quality.

### **NON-PECUNIARY BENEFITS**

The negotiation process and consequent agreement provided farmers with a territorial voice in determining how the watersheds are managed, and in how the rules are interpreted. It is a substantial improvement

over the regulations that New York City had tried to impose upon them in 1990. Furthermore, the PES package has coalesced farmers around a common landscape vision where agriculture is directly linked to the protection of water quality.

Watershed farmers, aside from the direct and indirect economic benefits, receive a number of non-pecuniary benefits that have been key in assuring widespread participation and enthusiasm in this watershed program. In addition to a territorial voice, it has improved their psychic well-being by protecting them from future land use regulations and explicitly recognizing watershed farmers as good stewards of the land. Finally, the process has strengthened their social capital. The community first organized together to oppose the land use regulations that had been drafted by New York City. The subsequent establishment of the Watershed Agricultural Council and farmer participation on it has been an important vehicle for facilitating social cooperation and forging a common identity among watershed farmers as both farmers and environmentalists.

### **ASSESSMENT AND PERSPECTIVES**

This case shows that empowering local stakeholders with economic resources can enhance their ability and produce additional incentives for them to provide environmental services. Likewise, this case shows that the state can play a key role in giving rise to processes related to compensation for environmental services. It shows that a broad approach to compensation and processes to negotiate rules, compensation and visions, are key for building compensation schemes that are potentially beneficial to rural communities.

### ***THE STATE AND REGULATORY FRAMEWORKS***

As Isakson (2002) notes, the state can play multiple roles and those roles are largely determined by the level at which the state governs. In this particular case, the local, state (i.e. New York State), and national governments all played a distinct yet important role in the design of New York City's watershed management plan. At the national level, the EPA served as the catalyst. Local governments then stepped in to defend the interests of their respective constituencies. New York State played one of the most crucial roles: mediating the competing interests of the various stakeholders and, ultimately, producing a mutually beneficial arrangement.

### ***BROAD COMPENSATION PACKAGE***

This experience points to the importance of offering a compensation package that goes beyond a monetary payment. The use of simple direct payment mechanisms does not always ensure participation, nor is it necessarily efficient in terms of achieving the objectives sought.

In fact, Isakson (2002) points out that a noticeably higher percentage of farmers are satisfied with WAP than those who claim that the program has improved their economic well-being. This suggests that the willingness to participate and the farmers' satisfaction depend to a large degree on the farmers receiving a complete compensation package that combines material and pecuniary benefits with non-material benefits that are highly valued (like land use security in dealing with market pressure). They receive technical assistance, financial aid for equipment and infrastructure improvements, support for improving farm administration,

and also a territorial voice, psychic well-being and the opportunity to strengthen their social capital.

***HARMONIZING COMPETING VISIONS  
THROUGH NEGOTIATIONS***

This case illustrates the importance of negotiating processes for reaching shared landscape visions and acceptable rules for the stakeholders involved. Initially, the Catskill/Delaware watersheds were seen by New York City, simply as a source of water; the farmers were a threat to be dealt with by imposing restrictions on land use. For the

farmers, the watersheds defined their livelihoods, identity and community; the restrictions proposed by New York City threatened their right to live according to their own landscape vision. The struggle to impose the particular landscape visions was resolved through negotiations. The Watershed Agricultural Program reflects the shared landscape vision that resulted from the negotiations. The City accepted farming as the preferred land use for the watershed. The farmers, for their part, jointly committed themselves to changing their practices with substantial support from the City.

# STRENGTHENING COMMUNITY STRATEGIES FOR ENVIRONMENTAL SERVICES

## GUIDING PRINCIPLES

The foregoing discussions offer guidelines about ways to compensate rural communities and small producers for their role in guaranteeing the provision of environmental services:

- Producers and communities manage the ecosystems they control with an eye toward ensuring their basic needs like food, fuel-wood, and water (Level 1); earning an income based on their production strategies related to natural resource management (Level 2); and the pursuit of new alternatives, which are often linked to environmental services provision, such as water for urban areas or to generate power, biodiversity, carbon sequestration, etc. (Level 3). Strengthening of community strategies should support the integration of these levels and enable overcoming hurdles in each one.
- Valuing environmental services in heterogeneous landscapes is a complex task that requires broad valuation frameworks that transcend traditional economic valuation frameworks.
- The use of economic instruments for compensation can play an important role; however, special attention has to be paid to the overall orientation and ground rules of these instruments, to ensure that they are not exclusionary or do not deepen existing inequities.
- Moving beyond financial compensation mechanisms: It makes more sense to think in terms of a compensation “package” that responds to community needs and demands, supports community and producer strategies at the different levels previously mentioned, and at the same time enables ensuring environmental services provision.
- Environmental services provision, in many cases, requires integrated ecosystem management at a spatial scale that transcends the farm, property boundaries or homogeneous territorial components. Therefore, a landscape perspective needs to be adopted in order to take into account the existing ecological as well as social heterogeneity we find in real life, as well as the interactions of the diverse ecosystem components and stakeholders present within a landscape.
- Stewardship of environmentally and socially heterogeneous landscapes depends on strengthening social capital. At the community level, this means strengthening internal organizational capacity to be able to reach agreements, establish rules, and resolve conflicts, as well as strengthening external linking

capacity in order to garner support, access niche markets, and establish mutually beneficial agreements with other stakeholders. At the landscape level, the accumulation of social capital is crucial for enabling concerted action between the different communities and other stakeholders, and to ensure proper management that meets common goals, including environmental services provision.

- The defense and expansion of rights over natural resources is a form of compensation for many communities, since this makes basic livelihood strategies viable and lays the foundation for other complementary compensation mechanisms.
- The State, foreign aid agencies and support organizations are called on to play a decisive role in establishing compensation schemes that favor rural communities. The State establishes the global orientation of the schemes and determines the conditions and rules under which these schemes operate. Foreign aid agencies, because of the resources they mobilize, can facilitate or obstruct inclusive processes, depending on their approach, the way they allocate their resources and how they participate in national and local processes. Support organizations, because of their direct relationship with the communities, play a crucial role, but they need to be respectful of community priorities.
- Finally, it must be stressed that compensation for environmental services schemes are not a panacea for solving the problems of rural poverty and environmental degradation, but they can be

an important catalyst for revaluing the role of rural spaces and of the rural communities that manage them.

## **COMMUNITIES AND ECOSYSTEM MANAGEMENT: INTEGRATING LEVELS**

Rural communities rely heavily on the natural resources and ecosystems, since they represent their main source for the supply of food, energy (firewood) and water, medicinal plants and fibers. Almost all communities protect water sources and have a good understanding of the role vegetation plays in ensuring proper water flow regulation. It is common, especially in indigenous communities, for certain ecosystems or nature as a whole to be imbued with religious or spiritual meaning. Also, production for the market is strongly tied to natural resource management.

For many rural communities, it is difficult to separate resource management performed in response to satisfying and meeting their most immediate needs, from those elements that are managed in relation to the market. In general, the two dimensions overlap and seek, rather, the integrated management of the resources they control, in order to ensure both aspects.

Nevertheless, certain priorities or levels can be distinguished with regard to the way communities manage their resources. These levels become important when trying to strengthen community environmental services strategies, improve market participation and develop compensation for environmental services mechanisms that truly benefit them.

### **LEVEL ONE: SELF-PROVISIONING**

When addressing environmental services and their compensation from a community perspective, the first thing that needs to be considered is how natural resources are managed in order to secure the supply of basic necessities such as water, energy and food; their importance in cultural and spiritual terms; and the norms communities establish to ensure appropriate management. Understanding the relationships at this first level is crucial when considering compensation for environmental services strategies. Such strategies can fail or be detrimental to the community if it is not understood how the communities themselves value key environmental services for their basic subsistence, identity and spiritual well-being.

At this first level, where the relationships are solely internal to the community and transactions with outside stakeholders and markets do not occur, key concerns are the rights of access to and control over natural resources, and the norms established by communities to ensure self-provisioning. Experiences with appropriation, valuation and sustainable management at this first level are particularly strong in indigenous communities that have not undergone significant ruptures in their relationship with their territory nor have lost their traditional knowledge.

### **LEVEL TWO: INCOME GENERATING PRODUCTION AND NATURAL RESOURCE MANAGEMENT**

The second level deals with the relationship between natural resource management and production strategies for earning income or for the market in general. Commonly, com-

munities seek to generate income either by extracting products from ecosystems to sell or by generating marketable products through farming, forestry or livestock practices. Some communities generate complementary income by making handicrafts or through activities related to rural or ecological tourism.

In seeking better entry into or better prices on the market, it is common to evolve toward types of production that incorporate distinct environmental attributes or services into the production processes. In other cases where traditional forms of production already incorporate those attributes, the principal effort is one of marketing, to make those attributes explicit. Examples that reflect both situations are organic farming or biodiversity-friendly products such as shade-grown coffee, certified sustainable forestry, ecotourism, handicraft production, etc. “Environmental services” incorporated into production processes at this level are almost always recognized through price premiums obtained on the market (usually specialized markets).

Strengthening the potential of community productive processes and better market participation through merchandising of environmental attributes generally requires major marketing efforts, the certification of practices and products, training, and specialized technical assistance. In any case, access to specific markets or developing new economic alternatives requires a detailed knowledge of community production strategies and their management practices, in order to improve the marketing of products using the environmental attributes already present or to better incorporate these attributes into production processes and management practices. It certainly means ensur-

ing that any strategy aimed at promoting environmental services is inserted within and strengthens community productive prospects.

### **LEVEL THREE: “PRODUCTION” OF ENVIRONMENTAL SERVICES AND EXTERNAL RECOGNITION**

At this level, outside recognition is sought for environmental services such as biodiversity, water provision for neighboring urban areas, or carbon sequestration to mitigate climate change. At this third level, outside recognition is not expressed in a product that brings price premiums on the market. Instead, the challenge is more one of finding other compensation mechanisms that recognize particular ecosystem management practices that enable guaranteeing the environmental services of interest to the outside stakeholders or “consumers.”

This third level is, without a doubt, the most complex one for communities and it can be unviable or jeopardize rural communities if it is not rooted in the two previous levels. At this level, rural communities develop or facilitate specific management practices for the provision of the environmental service (regulation of water quantity and/or its quality control, biodiversity, carbon sequestration to mitigate climate change, etc.). However, this specific management offers greater opportunities and generates greater interest in the communities insofar as they receive benefits at the other levels. For example, when the adopted practices also improve their own water supply, or when new production alternatives arise, as in the case of timber associated with carbon sequestration projects.

UZACHI in Mexico, previously mentioned, provides an example of integration of the three levels. This integration is reflected in the decisions regarding land use in the territory controlled by UZACHI. The communities have zoned certain areas for domestic production (wheat and corn), areas for the protection of biological diversity, land and water and areas for income generating production (certified timber). Local biodiversity is used for creating new income-generating alternatives like ornamental plants and edible mushrooms. In addition, together with other communities, they have put together a proposal for carbon sequestration with forestry and agro-forestry systems.

A perspective on environmental services that keeps the three levels in mind and tries to integrate them can reduce the risks of strategies that focus directly on level three. Furthermore, such a perspective requires taking into account livelihood strategies as a whole, as well as the ecological complexity of the ecosystems managed by the communities.

Under this perspective, it becomes obvious that it does not make sense, for example, to promote planting exotic tree species to sequester carbon, if that is going to impoverish the local biodiversity, or reduce the availability of medicinal plants and of other elements obtained from ecosystems less efficient at carbon sequestration, but that provide other benefits. It is also clear that it is not sensible to have a biodiversity conservation strategy and compensation scheme, that results in communities’ having reduced access to natural resources, with the goal of “protecting” them.

## BROAD VALUATION FRAMEWORKS FOR ENVIRONMENTAL SERVICES

The stakeholders in a territory value the environmental services generated there in different ways. For example, hydrological environmental services are important for a variety of stakeholders (agricultural producers; families in urban areas; power generators; commercial, industrial and agro-industrial businesses, etc.). Each one of the stakeholders values the benefits of environmental services based on their particular conditions and goals. This diversity in valuation provides a challenge when prioritizing which set of environmental services to provide so that they will generate the greatest possible benefits.

### TRADITIONAL APPROACH TO ECONOMIC VALUATION

Under the traditional economic valuation framework, environmental services have value to the extent that they bring satisfaction or utility to people (Goulder and Kennedy, 1997). From this perspective, the utility that a human derives from a given environmental service depends on the person's individual preferences.

The utilitarian approach, backbone of the traditional economic valuation framework, bases its notion of value on the attempts to measure this specific utility that an individual derives from a given environmental service or set of services, and then adds all the individuals together, weighting them all equally. In addition, with the purpose of providing a common unit of measurement to express the benefits of the diversity of environmental services provided by ecosystems, the utilitarian approach usually at-

tempts to measure all services in monetary terms. This is the essence of the traditional valuation framework.<sup>27</sup>

According to Bawa and Gadgil (1997), the traditional environmental services valuation framework has several shortcomings:

- Economic valuation techniques involve the subjective value judgments of people who live in modern, urbanized societies. Applying these value judgments to other societies comes up against methodological problems, and also raises ethical and moral issues, such as trying to place a monetary value on the lifestyles and cultures of rural and indigenous communities that make up an integral part of the ecosystems they live in.
- In spite of the availability of sophisticated techniques, certain benefits are difficult to quantify in monetary terms. For example, efforts at valuing medicinal plants focus on the option value for pharmaceutical companies, but ignore the uses these plants have in local communities. In this sense, cultural, traditional knowledge, religious and spiritual services are more difficult to value than regulation, provisioning and support environmental services.
- Economic valuation methodologies do not take into account the variation between different segments of society in assigning values to environmental services.

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<sup>27</sup> The choice of economic valuation methods (for example, the contingent valuation method, the travel cost technique, hedonic pricing, etc.) depends on the context and a number of factors and conditions (type of services, property rights, etc.) (Goulder and Kennedy, 1997).



## THE ISSUE OF PAYMENT AMOUNTS

Often, it is assumed that compensations for environmental services must assume a monetary form, and that to do so, it is crucial to “objectively” determine payment amounts using traditional valuation methods. However, in setting up compensation mechanisms it is important to understand that monetary estimates (of the benefits provided by such services) resulting from economic valuation studies will not directly yield the price that should be paid (compensated) to environmental services producers.

In theory, the payment amount should be set between a “floor” and a “ceiling”, so that at least covers the costs of providing the service and is high enough to reflect the benefits received by the consumers. In practice, payment or compensation amounts are set taking into consideration other considerations. Negotiation and consensus-building processes among all interested and involved stakeholders, the political will that backs the process are some of the considerations that end up shaping how this amount is determined in practice, and whether monetary compensations are used at all.

## TOWARDS AN INTEGRATED VALUATION SCHEME

Traditional approaches to economic valuation of environmental services cannot grasp the complexity, reality and heterogeneity (biophysical, social, institutional, etc.) of a territory. In addition, the diversity and dynamics of stakeholder interests regarding the territory’s natural resources simply exceeds the scope of traditional approaches to environmental services valuation.

Therefore, it is necessary to move towards broader, integrated frameworks for environmental services valuation, closer to the reality of existing community circumstances and contexts.

In the end, valuation refers to the contribution of something toward reaching a specific goal. Therefore, a value cannot be set without having set the goal to which it is going to contribute. Nevertheless, there are diverse goals and, therefore, diverse values, which may be in conflict.

Constanza and Folke (1997) propose an integrated environmental services valuation framework that takes into account the valuation of services based on individual preferences (traditional valuation framework) as well as the fair distribution of resources and ecological sustainability. This approach combines public discussion and consensus building, in such a way that personal preferences regarding environmental services co-evolve along with other ecological, economic and social variables.

Constanza and Tognetti (1996) also propose an alternative integrated approach that can be used for environmental services valuation. This framework aims at building mutual understanding, soliciting input from a variety of stakeholders and maintaining a dialogue between them. In this creative learning process, decisions are made with consensus of the stakeholders in the territory. This process, organized in twelve steps,<sup>28</sup> has been used to improve the under-

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<sup>28</sup> Among those are the following: Definition of the issue of interest; identification of stakeholders; establishment of a means for bringing all the stakeholders together; search for a facilitator; definition of the interests of all the stakeholders; meetings; performing an assessment; definition of scenarios.

standing of regional systems, evaluating the potential impact of agricultural and development policy and to better assess the value of environmental services.

Australia has used a method that seeks to ensure public participation in the environmental services valuation process. This method integrates two techniques - the Multi-criteria Decision Analysis and the Citizen's Jury - to determine the values or priorities for environmental services through a deliberative, structured process (see Box 3).

In short, integral valuation acknowledges differences and conflicts, but also the possi-

bility of reaching a shared valuation through deliberative and participatory processes. The deliberative processes enable incorporating and harmonizing multiple visions in order to get to effective, legitimate management and compensation schemes. Therefore, it makes sense in most cases to favor and support setting up negotiating platforms and processes. As these processes advance, expert information about ecosystem behavior from a landscape perspective can be an important input. Likewise, depending on how they are formulated and presented, traditional economic valuation studies can also become a useful input for the negotiations, although they rarely play the crucial role so often attributed to them.

### **Box 3 Valuing Environmental Services Incorporating Multiple Views**

The Citizens' Jury: The typical jury ranges from 10 to 20 participants. It is given a specific mandate, which is clear and direct. Ideally, the process uses a facilitator, with the jury given sufficient time to deliberate, ask questions and call "witnesses" (experts in the area). The final outcome is a consensus position reached by the jury.

Multi-criteria Decision Analysis: This is a means of simplifying complex decision-making tasks, which may involve many stakeholders, a diversity of possible outcomes and many criteria by which to assess the outcomes.

The combined approach using both techniques includes the following steps:

- **Scenarios and Objectives**: Although the objectives and scenarios should be chosen by the jury, input from other sources, such as expert advice, can occur. The objective can be as broad as necessary, but in the case of multiple decision-makers, overall agreement should be reached.
- **Selecting the Criteria**: The jury should select the criteria with the purpose of comparing and assessing each of the scenarios with relation to the overall objective.
- **Weighting the Criteria**: In Multi-criteria Analysis, the preferences and values of the decision-makers are accounted for by the weight or score given to each of the criteria. The weights may be qualitatively or quantitatively expressed, or a mixture of both.
- **Evaluation of Scenarios**: The scenarios are assessed in two stages: first, by how important each of the criteria is to the stakeholders, with scenarios being played out in terms of each criteria. In the second phase, using an Impact Matrix, the different scenarios are ranked using a simple operation that involves preferences and impacts.

(Proctor, 2002)

## ECONOMIC INSTRUMENTS FOR COMPENSATION AND GROUND RULES

From an economic perspective, the concept of environmental services is associated with the “positive externalities” or external benefits derived from production or management decisions. Using this logic, environmental services are generated, when a land-manager decides to maintain the forest cover on a piece of land under his or her control or when small hillside farmers decide to implement soil and water conservation practices, since other agents also earn benefits from these decisions. Those benefits are external for the producers.

Under this framework, payment for environmental services refers to the mechanisms used to internalize those external benefits. The basic principle is that the people who benefit should compensate those who make it possible to generate these environmental services.<sup>29</sup> It is assumed that the owners, usufructuaries or managers of the resource that allows generation of the environmental service will have little incentive to continue the practices that permit this generation, unless they are compensated. From an economic perspective, instruments such as taxes or subsidies, transfers, the creation or

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<sup>29</sup> Payment for environmental services is based on the Beneficiary Pays Principle. Its basis constitutes the counterpart of the polluter pays principle proposed by the Organization for Economic Cooperation and Development (OECD), and constitutes the analytic basis of economic instruments for regulating pollution. The principle that the polluter pays was first adopted by the OECD in 1972. The OECD extended the polluter pays principle to the “cost of damages” generated by the pollution. In its preventive form, the principle implies that those whose emissions could create an environmental hazard should assume the total cost of reducing or eliminating those emissions with the objective of keeping the hazard from materializing.

strengthening of markets, are particularly important.<sup>30</sup>

## TAXES AND SUBSIDIES

One way to stimulate the supply of environmental services is by granting subsidies to the provider as remuneration for specific actions. Subsidies can be targeted to specific stakeholders in exchange for specific productive or complementary activities that ensure environmental services provision (WRI/EPA, 1999).

The Environmental Quality Incentives Program of the United States Department of Agriculture is a well known example of using subsidies (through direct payments) to encourage specific activities, such as nutrient management, fertilizer management, integrated pest management, irrigation management and wildlife management (Ibid.). However, the rules of this system tie payments to farm size, to the detriment of small farmers. In 1999, 61% of the US\$22 billion paid out was received by 10% of the farms. Since big farms get these subsidies, they stay profitable even if they sell below their production cost. Small farmers cannot compete under this scheme because they do not have enough land to obtain a subsidy level that would enable them to stay in the market (Rosset, 2000).

The ICMS tax is used in Brazil as a compensation instrument, since a small percentage goes to the municipalities in proportion to

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<sup>30</sup> For a wider look at PES as a market instrument see: Chomitz, K., Brenes and Constantino (1998); Ferraro (2000); Seroa de Motta (1997); Totten (1999); Krieger (2001); Neely (1989); Merrifield (1996); McGaughey and Gregersen (1988); Munasinghe and McNeely (1994); Gáviria (1997); Haltia and Keipi (1997); Richards (1999); Johnson, et al. (2001); Reid (1999); Smith, et al. (1998); Stuart and Moura-Costa (1998).

the area under traditional conservation. However, since municipalities with larger protected areas tend to receive more resources, they have an incentive to restrict community access in zones where protected areas can be established. In some cases, traditional protection threatens local livelihoods to such a degree that it is preferable to forego financial compensation in exchange for guaranteeing that the population has access to natural resources, as was seen in one of the municipalities in Vale do Ribeira.

In contrast to these experiences, we find that when social objectives are taken on strategically, environmental goals can be reached in a more efficient, sustainable and equitable manner. An important example of a balance between social and environmental objectives is the Chico Mendes Law and related measures used to support rubber tappers in Acre, Brazil. This case, nevertheless, is unique, since the economic instrument for compensation is used for achieving social objectives while at the same time advancing environmental goals. Here the subsidy expressly seeks to benefit poor producers and strengthen their organizing capacity, which is then used to pursue other objectives.

## TRANSFER PAYMENTS

These payments provide financial incentives to resource owners, managers and usufructuaries for the implementation of more sustainable practices. They are called “transfer payments” because the funds are transferred through an intermediary between the buyer and the seller (Aylward, 2002).

In Colombia, levies on electric companies for water use enable transferring significant amounts of money to regional environmental agencies for reforestation and water-

shed management (Gaviria, 1997 in Richards, 1999). In Costa Rica, as was seen, the National System of Payment for Environmental Services transferred around US\$80 million between 1997 and 2002, primarily to forest owners. The funds transferred in this case came primarily from the fuel tax.

Transfer payments, are generally designed to pay natural resource owners, managers and usufructuaries to cover the costs of land management and land use practices that enable maintaining and increasing the flow of environmental services (Aylward, 2002). Yet, of the main problems with these payments has been ensuring that the money is spent properly, as it has turned out to be easier to get the funds than to channel them to environmental stewardship (Richards, 1999).

The simplest option is to target transfers to traditional protection, like in the Costa Rican case where 70% of PES resources have gone towards “Forest Protection,” which considerably limits opportunities for including small producers. Indeed, as was discussed, the Costa Rican system is not very inclusive and it has taken strong pressure from peasant and indigenous groups to achieve rules that are somewhat more inclusive. As was seen, agroforestry systems became eligible for payments since 2002, although only minimal funds have been allocated. Other production practices that contribute to the environment are simply not eligible.

On the international level, transfers and their ground rules are extremely important. Here the role of the Global Environment Facility (GEF) is worth pointing out, because it has a strong influence over the orientation or consolidation of emerging national schemes, especially because it provides grants, although they often tied to World Bank loans.

For example, the “Ecomarkets” project has become important for dealing with the PES system’s financial crisis in Costa Rica. This project began in 2001 and included a US\$8 million GEF grant and a US\$32.6 million World Bank loan. It is foreseeable that this project could reinforce the orientation of Costa Rica’s PES scheme toward protection, since among its goals is the incorporation of 100,000 ha under the modality of forest protection.<sup>31</sup> Although the project also foresees indigenous communities doubling their participation in the PES system, the goal for the end of the project does not represent a substantial increase, because the baseline participation is so limited.

The “Ecoservices” project under preparation for El Salvador, will also include a GEF grant and a World Bank loan. This project, which intends to set up a national payment for environmental services system, also appears to be adopting a fundamentally conservationist orientation regarding resource allocation. If this orientation remains in the final design, it could considerably limit the scheme’s capacity for inclusiveness.

### **MARKETS FOR PRODUCTS WITH ENVIRONMENTAL ATTRIBUTES: CERTIFICATES AND LABELS**

This compensation mechanism assumes that consumers are willing to pay more for products with environmental attributes or those using environmentally friendly production processes. To a certain extent, the higher price expresses the willingness to pay for environmental services, and represents a great boost to the ecological market (Richards, 1999). These markets promote certified,

labeled products where their quality is associated with specific environmental services. These products include traditional handicrafts, agricultural products and tourism services (OECD, 1999).

Product certification is currently the most often used mechanism, but it can also turn into a significant barrier due to its cost or because certification rules and criteria in some cases do not take into account conditions on small farms (See Box 4 and the abovementioned “Coffee and Biodiversity” case in El Salvador). In some cases, certification can also turn out to be problematic if it imposes external criteria that impinge upon traditional community practices. The other option is to eco-label products. One example is the ECO-OK label for biodiversity-friendly coffee in El Salvador. Nevertheless, the label option is more difficult to implement due to the great confusion and quantity of currently existing products and processes (Richards, 1999).

#### **Box 4 Organic Production and Certification: Experiences from Talamanca and Bocas del Toro**

In Talamanca (Costa Rica) and Bocas del Toro (Panama), indigenous communities like the Bribri, Cabécares and Gnöbe Buglé, have succeeded in maintaining agroforestry production systems that are allowing them to penetrate organic markets. Production of cacao, bananas, pepper and honey, along with other products, is based on preserving ancestral productive systems that have maintained environmental attributes, such as organic farming, management of the forest canopy on plantations and biodiversity conservation, among others. Several organizations help with marketing these products, such as APPTA, ABACO and COCABO, which have operated as the only channels for certifying the crops’ organic attributes. In practice, they have been paying for several certifiers simultaneously, to enter different markets. However, in most cases, certification is the only mechanism that guarantees selling in the market niches they have penetrated.

<sup>31</sup> <[www.fonafifo.com/psaweb/ECOMERCADOS.htm](http://www.fonafifo.com/psaweb/ECOMERCADOS.htm)>

## SUPPORT FOR COMMUNITY STRATEGIES FOR RURAL TOURISM OR ECOTOURISM

Support for rural community businesses or organizations that want to value the environmental services in their territory is one interesting possibility, especially in those disadvantaged areas where the comparative advantage lies on the supply of environmental services (OECD, 1999). For example, the *Mancomunidad La Montañona* (comprised of seven municipalities in the department of Chalatenango, El Salvador) wants to ensure conservation of the forest and water through diverse strategies, among them the development of rural tourism. This could be viable because of the forest's attractiveness, scenic panoramic vistas and historic sites from the war, but strategic support will be needed to ensure that this strategy takes off (Rosa, et al. 2003).

Ecological tourism appears to be an alternative for diversifying the options for many communities that control territories with attractive ecosystems or landscape features. Tourists who enjoy wildlife and natural resources can contribute to the creation of jobs and to direct financing for the conservation of tourism zones, as well as strengthening local community economies (Coppin, 1992).

Ecotourism projects constitute a compensation for environmental services strategy, when a portion of the income is systematically invested in conserving scenic beauty – which is the motive for tourism (Burstein, 2000). However, that does not always happen, or is not sustained, like in Mazunte, Mexico. When these projects target domestic tourism, they can be viable options. However, targeting international tourists may become a more difficult strategy, because tourist activity at this level tends to be controlled

by intermediaries that retain the greater part of the benefits.

## OTHER ECONOMIC INSTRUMENTS

Other instruments, such as negotiable permit systems used in countries with strict environmental quality standards, may not be useful from the perspective of small producers and rural communities. In the Australian Murray-Darling watershed, where deforestation has worsened salinization, State Forest of New South Wales, a state company managing more than two million hectares of native forest, plants trees in the upper watershed and sells transpiration credits to farmers who use water for irrigation. Farmers can buy additional transpiration credits from other landowners in the lower watershed. This pilot project tests the possibility of creating a water transpiration market to benefit irrigators and other water users (State Forest of New South Wales, 1999 in Johnson, et al., 2001).

International-scale markets for environmental services are seen as mechanisms through which developing countries can obtain benefits from the provision of global environmental services through the adoption of particular land use systems, without having to turn to subsidies or legal restrictions on land use (Pearce, 1996; Smith, et al., 1998b; Swisher, 1992 in Smith, et al., 1998a). For example, in the coming years, a large carbon sequestration market will probably develop. This market is tied to progress in international negotiations on measures to mitigate climate change (Stuart and Moura-Costa, 1998 in Richards, 1999).

Nevertheless, as with any market, the lowest cost options will likely dominate, making it difficult for small producers and communi-

ties to participate, unless the regulatory framework that determines how these markets will work (e.g. eligibility rules under the Clean Development Mechanism) favor activities or projects in which small producers and poor communities participate, something that seems hardly feasible at present.

### **JOINT USE OF INSTRUMENTS**

Throughout this report, various mechanisms that are linked to strengthening the productive strategies of producers have been mentioned: technical assistance, investment financing, marketing assistance for market penetration, subsidies, transfers, etc. In practice, compensation mechanisms should be tailored to the needs and demands of communities and producers according to the different levels of their natural resource use and management strategies. Furthermore, they should establish a link with the environmental services or attributes they wish to compensate.

This assumes a broad approach to compensation that, beyond financial payment mechanisms, has to consider the entire possible gamut of compensation mechanisms. Accordingly, it requires identifying the most appropriate compensation mechanisms or “package” for strengthening community strategies at all levels, while at the same time ensuring the provision of the environmental services of interest.

One important aspect, not always considered, is that for many environmental services the mechanisms need to promote landscape or territorial scale management. This requires the incorporation of a territorial perspective into the use of compensations, a point that is discussed below.

### **GROUND RULES AND INTEGRATION OF OBJECTIVES**

Ground rules for compensation mechanisms largely determine their capacity for inclusiveness. If the rules are not designed to deliberately favor poor, rural communities, the compensation instruments can generate greater inequity and social exclusion.

The experiences discussed in this publication highlight the decisive role played by the government in determining the rules of compensation for environmental services schemes. It is common, therefore, for different sectors to lobby the government in order to influence decisions to their benefit. Since more powerful groups generally have greater influence over how the rules are set, a special effort is required to ensure the informed participation of small producers and poor, rural communities in the processes defining mechanisms and their ground rules.

The rules also have to do with the way objectives are put forth. Generally, environmental and social objectives are pursued separately. Natural resource protection and conservation is usually separated from the goal of strengthening livelihood strategies of rural communities. In this context, Payment for Environmental Services (PES) strategies tend to be seen as financing strategies for the conservation of “natural” ecosystems, generally excluding poor, rural communities.

Thus, it is necessary to integrate social and environmental objectives, to avoid the trap of promoting PES schemes, which in the end become instruments for social exclusion only benefiting large landowners and excluding large segments of the population that for a long time have been marginalized from the benefits of development.

Ignoring the presence of rural communities opens the door to achieving environmental goals but at a high social cost. Therefore, environmental services provision will be sustainable, when strengthening poor, rural community livelihood strategies constitutes one of the main priorities – if not the first – in establishing compensation strategies for environmental services. Indeed, compensation strategies for environmental services, planned and implemented from the perspective of rural communities, can contribute to strengthening their livelihoods and to the improved management of rural areas.

## ENVIRONMENTAL SERVICES AND LANDSCAPE PERSPECTIVE<sup>32</sup>

The traditional conservation perspective has a narrow territorial focus. Concern is centered on conserving large areas, enlarging or buffering existing protected areas and connecting them together through biological corridors. Using this logic, compensation mechanisms can be focused territorially on conserving forests or fostering natural regeneration in specific areas of interest. It is a way to preserve complex ecosystems, but which are homogeneous in the sense that they are seen as “natural ecosystems.”

When we turn our sights toward rural communities and the rural spaces where they seek their livelihoods, we find complex mosaics that combine natural ecosystems and intervened ecosystems. The concept of **landscape** is useful for encompassing the conditions and complex interactions that take place in these mosaics. Here we adopt the definition of the Forest Stewardship

Council (2000), which defines *landscape* as “a geographical mosaic composed of interacting ecosystems resulting from the influence of geological, topographical, soil, climatic, biotic and human interactions in a given area.”

In contrast to idyllic notions of pristine nature, a landscape perspective enables grasping and valuing the complex heterogeneity of land use as it exists in reality, where forests, wetlands, pastures, different types of farming, perturbed wooded areas, human settlements, etc. all coexist. A landscape perspective enables us to recognize that environmental services are generated and distributed throughout a great variety of land uses and that the interactions among the varied components of the mosaics are also important. Environmental services are not exclusive to “natural” ecosystems and more and more are generated by heterogeneous landscapes. Therefore, it is important to consider all landscape elements, its particular features and the interactions that have a positive or negative impact on the capacity to generate environmental services.

Landscapes are multifunctional by definition and offer a variety of services (Helming and Wiggering, 2003). By focusing on the landscape, we can avoid the risks of focusing on generating isolated services, which can have negative environmental impacts and increase the vulnerability of local communities. This can occur, for example, when monocrops and forestry plantations aimed at facilitating the provision of a service in an isolated manner (e.g. carbon sequestration) are promoted. The result is a simplification of reality because the landscape’s complexity is hidden or because it deliberately promotes the simplification of the landscape’s socio-ecological complexity. This simplification obscures the heterogeneity of land-

<sup>32</sup> This section is based on a draft prepared by Ernesto Méndez.



scapes and the biophysical and social interactions that are crucial for generating and maintaining the different services.

A landscape perspective, on the contrary, emphasizes the interactions between the components, which can be critical for generating certain services. For example, species conservation in a tropical forest can be increased with the genetic material of individuals in neighboring agro-ecosystems. In a similar way, in a mosaic, certain components act as critical links for enabling the flow of environmental services. In this way, even degraded or altered patches can play an important role in maintaining the flow of environmental services.

In summary, a landscape vision becomes important, if we are interested in integral strategies for managing and compensating for environmental services that strategically include rural communities, but also from a strictly environmental perspective, because increasingly in real life, heterogeneous landscapes is what must be managed to generate environmental services.

### IMPORTANCE OF AGRO-ECOSYSTEMS AS COMPONENTS OF A LANDSCAPE<sup>33</sup>

**Agro-ecosystems** are one of the main forms assumed by anthropogenic ecosystems, or those intervened by humans.<sup>34</sup> However, there are great differences be-

tween conventional agro-ecosystems of modern mechanized agriculture and traditional agro-ecosystems that many indigenous and peasant communities manage, since the latter share some of the characteristics of natural ecosystems (Altieri, 1995).

According to Gliessman, conventional agriculture, in the pursuit of higher productivity in the present, compromises future productivity, and in that measure is not sustainable. Conventional agriculture degrades the soil, water and genetic resources; it alters the global ecological processes agriculture depends upon; and it weakens the social conditions that make resource conservation possible. In contrast, traditional and local agro-ecosystems resemble natural ecosystems while providing crops (see Table 2).

**Table 2**  
**Natural Ecosystems and Agro-ecosystems: Properties**

	<b>Sustainable Agro-ecosystems</b>	<b>Natural Ecosystems</b>	<b>Conventional Agro-ecosystems</b>
Sustainability	High	High	Low
Autonomy	High	High	Low
Resilience	Medium	High	Low
Flexibility	Medium	High	Low
Diversity	Medium	High	Low
Dependence on external inputs	Medium	Low	High
Production stability	Low/Medium	Medium	High

SOURCE: Gliessman (2000)

Traditional agro-ecosystems are sustainable because they maintain the resource base they depend upon; few of the inputs come from off the farm, pests and diseases are managed through internal control mecha-

<sup>33</sup> This section was reviewed by Ernesto Méndez and is based on Gliessman (2000).

<sup>34</sup> According to the Convention on Biological Diversity, an ecosystem is “a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.” Non-living or abiotic factors refer to soil, light, humidity and temperature (Gliessman, 2000).

nisms and these systems are capable of recovering from the disturbances caused by the crop and the harvest. Although yields are lower, there is less dependency on external inputs and less negative environmental impact and do not compromise future productivity.

From the environmental services perspective, the **ecological diversity**, or the degree of heterogeneity of an ecosystem, is an important feature.<sup>35</sup> As Gliessman points out, ecological diversity in agro-ecosystems can increase in various ways, for example, by using intercropping or strip cropping, live fencerows, cover crops, minimal tilling, rotation, fallow periods, applying organic products and reducing agrochemicals, etc

One notable example of biological diversity is found in many tropical home gardens. These ecosystems include human beings, plants, animals, soil, water and trees and play a key ecological role. The mixture of annuals and perennials of different heights form vegetation layers that approach the structure of the natural forest (Lok, 1998; Gliessman, 2000; Méndez, et al., 2001). The high diversity present in these “non-natural” ecosystems stresses the need to see beyond the forests and the importance of re-valuing intervened ecosystems in regions and countries that traditionally have been seen as lacking in ecological value.

<sup>35</sup> The concept of ecological diversity is broader than that of biodiversity, which generally refers to species and genetic diversity. Ecological diversity also includes vertical diversity (different horizontal layers), horizontal diversity (the spatial distribution of organisms), structural diversity (niches in the system’s organization), functional diversity (the complexity of the interaction, the energy flow and matter cycling between the system’s components) and temporal diversity or the degree of heterogeneity of cyclical changes (Gliessman, 2000, p. 230; Altieri, 1995).

Affirmations such as those of Terbourgh (1999) that, “*In El Salvador, nature has already been extinguished,*” reflect a deep prejudice regarding the importance in providing environmental services of complex heterogeneous landscapes found in this and other countries with a high population density. In reality, the diversity present in El Salvador is significant, despite the fact that the recognized forested area is one-tenth that of Costa Rica’s (see Table 3). This highlights the importance of secondary vegetation in live fencerows, home gardens, agro-forestry systems (particularly shade-grown coffee) and pastures in an advanced stage of succession. These “secret” forests raise the forest cover to around 600,000 - 700,000 ha or almost one-third of the country’s land area (Hecht, Rosa and Kandel, 2002).

**Table 3**  
**Species Diversity in**  
**El Salvador and Costa Rica**

	<b>El Salvador</b>	<b>Costa Rica</b>
Forest (thousands ha)	167	1,569
Mammals	106	120
Birds	365	496
Reptiles	57	125
Amphibians	18	95
Higher Plants	1,956	6,421

Source: World Resources Institute (1996)

The basic problem is that many analysts and conservationists underestimate and devalue the human action that maintains these ecosystems. In this way, significant vegetation types become invisible and remain outside the policy frameworks that could strengthen livelihoods and improve the supply of environmental services originating from anthropogenic ecosystems.

This is a serious issue when these limited approaches are applied in countries with high rural poverty rates and lacking adequate policies for rural spaces. While attempting to protect “natural” ecosystems that are viewed as endangered, the opportunity is lost to apply a more comprehensive approach, which is the only guarantee that the “natural” components can be preserved.

### LANDSCAPE STEWARDSHIP: SOCIAL CAPITAL AND COLLECTIVE ACTION

The landscape perspective recognizes and values the role of human action, an important aspect, because, as Brunckhorst (2000) points out: “*All landscapes are dominated by human activity. Ecosystems and human activity are inextricably linked with social and ecological components closely entwined...*”

Human action within a landscape is generally carried out by diverse stakeholders who have different interests in and visions of the landscape. In the long run, generating and conserving environmental services demands integrated management schemes that include, harmonize and value all the components present in the landscape. This involves conflict resolution and negotiating mechanisms, given the different interests, demands and visions of the stakeholders present in the landscape. Likewise, developing participatory planning methodologies and tools for different landscape scales is crucial for integrated management schemes (Bebbington and Batterbury, 2001).

Social capital constitutes a critical element for landscape stewardship and environmental services provision, because in many cases the area involved exceeds the parcel or farm. Therefore, the stakeholders present in the landscape (producers, landowners, usu-

fructuaries, etc.) need to coordinate to ensure appropriate management.

**Social capital** refers to the organizing capacities in a locality, and the communities’ abilities for securing resources (knowledge, collective action, market access, etc.) as the result of their belonging to social networks and other social structures.<sup>36</sup> The concept of social capital includes two key dimensions: a) The capacity of a community to use its organizational structure to discuss, agree, implement and monitor actions and activities among its members; and b) the quality and density of its external social network employed for receiving support and resources that advance community goals.

This capacity for internal organization and external links, according to Pretty and Ward (2001), is based on four elements that constitute the source of social capital: a) relations of trust; b) reciprocity and exchanges; c) common rules, norms and sanctions; and d) connectedness, networks and groups. *Relations of trust* facilitate cooperation. A history of *reciprocity and exchanges* contributes to long-term obligations between people, thus favoring effective organization. The existence of *common rules, norms and sanctions* forms the basis for constructing new management institutions (conflict resolution, graduated sanctions, etc.). Likewise, the quality and density of existing *connectedness, networks and groups* facilitate access to information, technology, markets, etc.

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<sup>36</sup> This definition of social capital is a hybrid of Portes’ definition (“the capacity of agents to ensure resources by virtue of their membership status in social networks or other social structures”) and Putman’s definition (“characteristics of social organizations such as networks, norms and social trust that facilitate cooperation and coordination for mutual benefits”). In addition, it is recognized that social capital can also have negative effects (see Portes and Landolt, 2000).

The accumulation of social capital is essential for ensuring that compensation for environmental services mechanisms effectively benefit poor, rural communities. Without strong social organization and external linkages, rural communities cannot influence the rules for applying payment for environmental services schemes or other compensation schemes, nor effectively engage in a struggle to expand, defend and secure their rights to access, usufruct and control over their resource base.

Social organization is also required for successfully negotiating proposals from intermediaries and external agents, so that these can effectively contribute to reducing existing vulnerabilities through diversifying and strengthening their livelihoods. In addition, social organization is needed for managing issues of internal distribution and other conflicts that arise when new benefits come into the communities.

Effective organization is a condition for collective action. It also enables the appropriation and valuation of a territory and the rescue, generation and exchange of local knowledge. Acquired rights of usufruct and control of the land largely depend on organizational strength. Likewise, organization is a fundamental pillar contributing to linkages, participation and representation of rural communities when dealing with external stakeholders. In the same way, social networks ensure the necessary support (information or financing, among others) for carrying out a set of plans and actions regarding territorial strategies.

Social capital also serves as a bridge to building larger management units, which can be crucial for integrated management of heterogeneous landscapes with multiple

stakeholders. This is where collective action becomes important, understood as the coordination of individual or group activities in pursuit of a common interest. Indeed, collective action is a crucial factor in managing heterogeneous landscapes, given that the inhabitants, producers, landowners and, in general, those who manage the land, need to act in a coordinated manner to ensure good stewardship.

It is widely recognized that well-established rules are necessary, but not a sufficient condition, for achieving successful collective action (Eythorsson, 1995; Stein, 1995, quoted in Edwards and Stein, 1998). For natural resource management, collective action should be sustained over time, which can mean rules for the use or non-use of a resource, as well as processes for monitoring, sanctioning and resolving disputes (Ostrom, 1992). In landscapes where there are multiple visions, multiple uses and multiple users, collective action refers to the coordination of various types and levels of action.

In summary, collective action is related to building institutions for stewardship. This coordination has to include all the different user groups; meaning all the individuals who directly or indirectly have influence over, or are influenced by, arrangements relating to the territory's resources (Edwards and Stein, 1998).

## **EXPANDING RIGHTS OVER NATURAL RESOURCES**

The way natural resources are used and controlled within a landscape play a key role in their management, and therefore, in the capacity to provide environmental services. The use and control of natural resources is, to a large degree, determined by property

rights. The lack of formally established property rights is an obstacle to good natural resource management. For example, it is recognized that peasants who have secure land tenure are more inclined to adopt better farming practices.

The assignment of rights is a rather common way to ensure the provision of environmental services. Traditionally, this has been sought through restrictions on the rights to access and usufruct, whether by establishing protected areas or through conservation on publicly owned lands or on private lands that are purchased or expropriated for this reason. Another method used on private lands is the establishment of ecological easements through a voluntary legal agreement that restricts the use of the land to protect a specific habitat in exchange for monetary compensation from the institution or organization that acquires the rights to control the land (OECD, 1999; Richards, 1999).

In contrast to those attempts to restrict access and usufruct rights, expanding rights is another modality that has been used with greater frequency in recent years, in efforts to integrate environmental with social objectives. On the one hand, there is growing recognition that expanding rights can better ensure environmental services provision than restricting access, since it turns usufructuaries into partners interested in ensuring this provision. Furthermore, the expansion of rights is an effective way of advancing poverty reduction objectives, because it puts assets into the hands of the poor, strengthening their livelihood strategies.

Indeed, property rights, besides being a determining factor in how natural resources are managed, can strengthen rural livelihoods. In this sense, their expansion, defense

and innovation not only create the incentive for maintaining the flow of environmental services in the long term, but can also contribute to the recognition of the role of small producers and communities in their provision and maintenance.

Nevertheless, a wide-ranging approach on these rights is needed, one that goes further than categories of private, state or communal property. The conceptual scheme for common property rights regimes, proposed by Schlager and Ostrom (1992), provides a valuable framework for exploring the relationships between property rights, ecosystem management and livelihoods. These authors break down property rights into rights of access, withdrawal, management, exclusion and alienation, according to the authority they grant:

**Access:** The right to enter a defined physical property and enjoy non-extractive benefits, primarily recreational activities.

**Withdrawal:** The right to extract the resources or products of a system (e.g., catch fish, fuel wood, water for irrigation or human consumption, etc.).

**Management:** The right to regulate internal use patterns and transform the resource.

**Exclusion:** The right to determine who will have an access or withdrawal right, and how those rights may be transferred.

**Alienation:** The right to transfer the rights of management and exclusion.

Users with “right to access” acquire an operational right to enter and enjoy the scenic beauty of a determined ecosystem, but do not have the right to extract products from

it. Likewise, users who enter and extract resources or products hold the “right to withdrawal or extraction.” Following this logical progression, users who enter, extract products, and also manage a resource, hold a “management right.” Those users who have a right to management, and additionally have the right to determine who can have access and extract resources, hold the “right to exclusion.” Finally, users who have the right to transfer the resource – without it losing its attributes or uses – possess the “right to alienation.” These are the ones normally considered the resource’s owners.

In most situations, the different property right powers are divided among a variety of agents. In Mexico, for example, natural resources (lands, subsoil and territorial seas) are publicly owned property and the State has the authority to construct social or private property. In that way, the State retains the powers of exclusion and alienation. However, more than half of the national territory and 80% of the nation’s forests are under the domain of ejidos and indigenous communities, with rights of access, extraction and management.

In reality, ownership as a social construct has quite variable scopes, with limits on private ownership being quite common. Even in the United States, bastion of private property, there is a substantial body of legislation and case law limiting the rights of private landowners.<sup>37</sup> Sweden has incorporated into

its legal framework the concept of “Allmänna rätten” – the right to public access or literally, the “right of everyman” – which grants every individual the rights to access and extraction of resources on private property in the countryside, thus subordinating individual interests to collective interests.<sup>38</sup>

In contrast, the traditional conservation framework tends to restrict rights of access, extraction and management, making invisible the role communities play in preserving natural resources. For example, the residents living inside Jaú National Park (JNP) in Amazonas State, Brazil, have no recognized rights. Yet, they have been there since before JNP was created, and their knowledge about the existing diversity is an important service that goes unacknowledged. The extractive reserves in Brazil provide a model for a different conservation logic. These reserves constitute protected areas where the extractors are granted rights, like the right to extract rubber in such a way that the forest structure remains virtually intact. These reserves, instead of restricting community access and usufruct rights to the forest, expand and guarantee them under law.

This case shows that poor, rural communities do not need to have alienation rights (as in private or state property schemes) to reap a benefit, but they do require, at the least, rights to access and withdrawal, and, even if only partially, management rights. The so-

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<sup>37</sup> In accordance with Friedman (2003), in the late 19<sup>th</sup> century there was substantial judicial activism to try to sanctify private property and limit the scope of government regulation. In the case of *In re Jacobs* (1885), the concept of individual liberty was applied to the protection of property rights. However, the Supreme Court ruling in *Pennsylvania Coal Co. v. Mahon* (1922), introduced the need to weigh and balance competing rights. In *United States v. Carolene Products Co.* (1938), the right to property was

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explicitly separated from the sanctified civil liberties, such as free speech or religious practices, guaranteed by the Bill of Rights.

<sup>38</sup> This law includes rights to access (such as swimming or boating or camping overnight) and extraction (picking wild flowers and fruit, mushrooms, nuts, etc.) on individually owned land in the countryside, as long as you remain away from the area immediately surrounding the dwelling and no damage is caused (Holmberg and Akerblom, 1998).

cial ownership scheme established in Mexico with the ejidos has a wider scope, since it grants full management rights to communities, so they can determine the different options for production and land use.

Community forestry concessions in Petén, Guatemala provide another example of the expansion of rights, where one of their impacts has been a significant reduction in forest fires, in contrast with what is happening in neighboring zones under traditional protection. According to Richards (1991), the Nepalese community forests also tend to be much better managed and protected than when they belonged to the State.<sup>39</sup>

Land redistribution programs, like those carried out in El Salvador during the 1980s and 90s, which grant full title to the land (right of alienation), have also expanded livelihood options for many peasant communities, while at the same time stimulating the development of natural resource management options that seek to value them in an integral manner.

## **ROLE OF THE STATE, INTERNATIONAL DONOR AGENCIES AND SUPPORT ORGANIZATIONS**

### **THE STATE IS NOT NEUTRAL**

The State is not neutral and plays a decisive role – through action or omission – in the development of compensation for environmental services (CES) schemes, in their orientation and in their equity.

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<sup>39</sup> In Nepal, 150,000 ha of state forest were transferred to 3,500 Forest Users Groups (FUG). Each FUG sets the rules for extraction of forest products, forest maintenance, fire control, etc. Most have also set up funds for community development projects.

The State has the capacity to profoundly affect property rights. Therefore, it plays a fundamental role in the expansion, defense and innovation of rural communities' rights to access, usufruct and control of natural resources. Likewise, state policies determine to a large extent the outcome of compensation schemes. If the State does not provide a policy framework that revalues rural communities and spaces, local strategies seeking to reevaluate and compensate for environmental services run the risk of being suffocated by the lack of a favorable investment and public policy framework.

The State shapes the market through its laws and policies and defines the specific frameworks and rules of compensation schemes. If the rules for compensation mechanisms do not favor poor, rural communities, these communities can be excluded from the benefits, and greater inequity will be the end result. Since rules tend to be made by the more powerful stakeholders, it is important that the State expands the capacity of rural communities to manage their resources and strengthens their participation in rule-making processes.

### **INTERNATIONAL DONOR AGENCIES LINKED TO THE PROCESS WITHOUT CONTROLLING IT**

Donor agencies have been key in the promotion and implementation of compensation for environmental services initiatives and experiences. But the way they insert themselves within the process becomes a critical factor. Donor initiatives directed at supporting communities on the issue of environmental services and its compensation should be inserted within the reality of the rural community and constructed based upon the

community's perspectives and priorities, respecting internal appropriation processes, local knowledge and decision-making over compensation mechanisms. These processes cannot be subordinated to preconceived objectives, timeframes, budgets or schemes from outside agents, as this can limit the potential of the compensation strategies, and can result in social exclusion or perverse environmental effects.

Thus, it is important to avoid establishing compensation strategies using preconceived schemes and structures, since they can make these strategies unviable, undesirable or detrimental to the communities. Inappropriate external support, instead of facilitating processes, can obstruct appropriation and turn into one more hurdle to be overcome by communities.

Donor agencies can also play a key role in ensuring that rural communities benefit from compensation schemes. For example, they can decisively contribute to 'leveling the playing field' by supporting processes to strengthen social capital and negotiating platforms, which facilitate the effective participation of rural communities in defining compensation strategies, their mechanisms and ground rules.

As has been seen, social capital is essential for ensuring that compensation for environmental services mechanisms effectively benefit poor, rural communities, as well as for ensuring the provision of the services themselves. However, the organizational implications of jumping from managing a farm to managing a heterogeneous landscape are significant. Accordingly, the costs of social organization should be factored in when a compensation process is developed. While these costs are substantial at the be-

ginning, they drop considerably when the organizational capacity has already matured. In this way, investment in building up social capital is useful and necessary. Moreover, investing in social capital will have benefits for rural communities and for natural resource management, whether or not a compensation for environmental services scheme is adopted.

### **SUPPORT ORGANIZATIONS**

Support organizations play a decisive role in the successful or unsuccessful implementation of compensation for environmental services schemes. The relationship between producers and consumers of environmental services is not a simple one. Given the complexity of any compensation scheme, intermediaries are needed, at the local, national, and international level. The intermediary role varies depending on the case and its circumstances, but can include research, training, certification, funds management, market access, etc.

Nevertheless, support organizations can have a negative influence on compensation processes. The existence of a large number of intermediaries can seriously limit the benefits received by producers and communities. Therefore, it is important to understand the role that support organizations can play in increasing or reducing transaction costs. Support organizations can also hamper appropriation processes. Likewise, conflicts can arise when there are differing or opposing approaches to compensation strategies and their mechanisms between support organizations and communities.

Given the foregoing, it is essential that support organizations respect communities' agendas priorities and concerns, and their



rhythms of appropriation. Support organizations should work collaboratively with local stakeholders, acting transparently and respecting community decisions regarding the management of their natural resources and territory.

## CONCLUDING REMARKS

Compensation for environmental services is not a panacea for combating rural poverty and environmental degradation. However, it provides an excellent entry for revaluing the role of rural spaces and communities and it has an important catalyzing effect due to the processes it sets in motion.

Compensation for environmental services alone is insufficient for significantly strengthening indigenous and peasant livelihoods, but it can add value to existing livelihoods. Compensation schemes should therefore be part of wider strategies otherwise they could fail or create unrealistic ex-

pectations. Using this logic, compensation for environmental services schemes can become valuable instruments for diversifying existing community livelihood strategies.

These schemes can catalyze local and territorial efforts to introduce more sustainable production and management practices, and facilitate building a shared vision among a great variety of stakeholders, one that revalues rural landscapes managed by rural indigenous and peasant communities. Compensation for environmental services can thus become a useful tool for fostering a policy dialogue that moves toward revaluing rural communities and areas, and their role in sustainable development. Under favorable conditions, compensation schemes focused on rural, poor communities can contribute to the development of policy frameworks that take up rural, agricultural, environmental and socio-cultural challenges in a more comprehensive manner.

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