

Organization and Governance for Fostering Pro-Poor Compensation for Environmental Services

Carina Bracer, Sara Scherr, Augusta Molnar, Madhushree Sekher,
Benson Owuor Ochieng and Gaya Sriskanthan



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The World Agroforestry Centre (ICRAF) and a diverse team of partners were tasked by the International Development Research Centre (IDRC) to contribute to the conceptualization and development of their Rural Poverty and Environment (RPE) programme related to Compensation and Rewards for Environmental Services (CRES) by providing an overview of relevant developments in Africa, Asia and Latin America, a global synthesis of results and recommendations. Truly global in nature, the CRES Scoping Study was undertaken by the following partners and collaborators based in 7 countries across 4 continents.

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The World Agroforestry Centre (ICRAF) is the international leader in the science and practice of integrating 'working trees' on small farms and in rural landscapes. We have invigorated the ancient practice of growing trees on farms, using innovative science for development to transform lives and landscapes. The World Agroforestry Centre is one of the 15 centres supported by the Consultative Group on International Agricultural Research (CGIAR).

<http://www.worldagroforestry.org>



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Abstract

This paper is the 8th in a series of nine interlinked papers commissioned by the Rural Poverty and Environment Programme (RPE) of the International Development Research Center (IDRC) as part of a research project entitled 'Scoping Study of Compensation for Ecosystem Services'. The purpose of this project is to provide the RPE with a broader and richer deliberation on the potential for economic instruments (including market, financial and incentive based instruments) which conserve ecosystem services and at the same time contribute to poverty reduction in the developing world.

This paper was prepared by Forest Trends, Ecoagriculture Partners and the Rights and Resources Initiative, with the support of the Institute for Social and Economic Change (ISEC), African Centre for Technology Studies (ACTS), and the World Conservation Union (IUCN) office in Sri Lanka, as well as coauthors of the remaining issue papers in the series. The purpose of this paper is to assess the requirements, current state and key issues related to organization and governance in the compensation and reward for ecosystem services (CRES) needed to achieve pro-poor outcomes. It reviews the institutional evolution of CRES both conceptually and in practice, and presents a broad view of the many governance, legal and political economy related aspects of CRES.

To increase potential for pro-poor outcomes of CRES, the opportunity for local conditions to define the supporting institutional structures and norms that surround CRES is critical. There are a wide range of institutional models of CRES that can benefit the poor, and these tend to include features such as: building upon and strengthening existing institutions of the poor, allowing flexibility in land use options and in the timeframe for adoption and adaptation of land use, simplification of monitoring and reporting to fit local capacity, and orientation and training of intermediary organizations who serve as brokers to the poor and help them to aggregate supply of CRES services and mediate with buyers. Some key priority actions and areas for further research conclude the paper.

Keywords

Environmental services, Latin America, ecosystem services, Bolivia, Brazil, Columbia, Costa Rica, Ecuador, Mexico, Peru, payment for environmental services (PES), compensation and rewards for environmental services (CRES), pro-poor institution building, pro-poor CRES.

Preface

From the beginning of 2006 until March 2007, World Agroforestry Centre (ICRAF) led a consortium of organizations and individuals from around the world in a pan-tropical scoping study of Compensation and Rewards for Environmental Services (CRES). The scoping study was commissioned by Rural Poverty and Environment Programme of the International Development Research Centre (IDRC) to identify critical issues affecting the development, operation, impacts and institutionalization of mechanisms linking beneficiaries of ecosystem services with stewards of those ecosystems. Particular attention is paid to the potential for CRES to alleviate or exacerbate the multiple dimensions of poverty: rights to productive assets, streams of income and consumption, and vulnerability to shocks.

The scoping study included a series of regional workshops held in Latin America (Quito, Ecuador), Asia (Bangalore, India) and Africa (Nairobi, Kenya). Participants presented and discussed practical CRES experiences from across the developing world, experiences which informed and challenged the development of several cross-cutting issue papers. A series of nine working papers have been prepared to summarize the results of the scoping study, including an introductory paper, three regional workshop reports, and five issue papers on key topics.

ICRAF Working paper 32 – Compensation and Rewards for Environmental Services in the Developing World: Framing Pan-Tropical Analysis and Comparison.

ICRAF Working paper 33 – Report on the Latin American Regional Workshop on Compensation for Environmental Services and Poverty Alleviation in Latin America.

ICRAF Working paper 34 – Asia Regional Workshop on Compensation for Ecosystems Services. A component of the global scoping study on compensation for ecosystem services.

ICRAF Working paper 35 – African Regional Workshop on Compensation for Ecosystem Services (CES).

ICRAF Working paper 36 – Exploring the inter-linkages among and between Compensation and Rewards for Ecosystem Services (CRES) and human well-being: CES Scoping Study Issue Paper no. 1.

ICRAF Working paper 37 – Criteria and indicators for environmental service compensation and reward mechanisms: realistic, voluntary, conditional and pro-poor: CES Scoping Study Issue Paper no. 2.

ICRAF Working paper 38 – The conditions for effective mechanisms of Compensation and Reward for Environmental Services (CRES): CES Scoping Study Issue Paper no. 3.

ICRAF Working paper 39 – Organization and governance for fostering pro-poor Compensation for Environmental Services: CES Scoping Study Issue Paper no. 4.

ICRAF Working paper 40 – How important will different types of Compensation and Reward Mechanisms be in shaping poverty & ecosystem services across Africa, Asia & Latin America over the next two decades? CES Scoping Study Issue Paper no. 5.

The working papers are designed for relatively limited circulation of preliminary material. We anticipate that all of the papers will be revised and published in a formal outlet within the next year.

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1. Introduction

Compensation and Rewards for Environmental Services (CRES) is an approach to securing and financing the conservation of ecosystem services through contingent contracts/agreements between the beneficiaries and providers of those services. New types of exchange and market arrangements involve new institutions to develop and govern the 'rules of the game,' to link actors along the market chains to provide specialized services. CRES is early in the process of institutional development, but it anticipates that within the next decades, the major shape of institutional frameworks for CRES will be established (private, public and civic) that will profoundly shape future developments of CRES, including the impacts on and benefits for poverty reduction and empowerment of poor rural communities as resource stewards. Pro-poor aspects need to be considered within the broader institutional context that will shape their design and implementation.

The purpose of this paper is to assess the requirements, current state and key issues related to organization and governance in the CRES needed to achieve pro-poor outcomes. CRES here includes payments for threat reduction (forgoing legitimate land uses that would be detrimental to environment), investment and management (encourage new investments or land uses), environmental damage (transfers of funds to ecosystem service beneficiaries for misuse of ecosystem by modifiers), foregone use (e.g., sale of water use credit to heavy water user by farmer with unused water right/credit).

A pro-poor lens, or pro-poor institutional, is important for three aspects of developing CRES:

- (a) Within the overall development of markets and arrangements for CRES, a pro-poor lens is needed to ensure that markets and institutions for CRES does not negatively impact the poor, by setting standards or criteria that create precedents that undermine livelihood strategies or tenure rights;
- (b) For types of CRES specifically targeted to benefit the poor, it is important to design or use institutions that have demonstrated promise for supporting the poor, and to draw on lessons other pro-poor Natural Resource Management engagement that can be applied to CRES (e.g., Community Forest Management and Co-management);
- (c) For emerging markets of CRES overall, it is important to provide evidence to buyers that institutional arrangements and deals with poor stewards or guardians can be manageable and cost-effective.

The specific objectives of the paper, reflected in its organization, are to:

- Identify organizational characteristics of current CRES systems and programmes and to evaluate elements of existing CRES;
- Draw out lessons on effective pro-poor elements of CRES, from key literature, case studies and policy experience in CRES, as well as other types of pro-poor NRM;
- Examine the governance and political economy issues that underlie CRES and their implications for the poor;

- Make recommendations on the desired institutional development for pro-poor CRES; and priority research questions related to organizational needs and roles to advance the pro-poor CRES agenda.

This paper uses definitions from and builds on the 8 other papers (ICRAF Working Papers 32, 33, 34, 35, 36, 37, 38, 40) developed for the IDRC project on pro-poor CRES, including the conceptual framework (Swallow, et al 2007a), criteria and indicators of pro-poor CRES (van Noordwijk, et al 2007), conditions for pro-poor CRES (Swallow, et al 2007b), and future opportunities for pro-poor CES (Scherr et al 2007).

CRES is one of many possible instruments to enhance local land and resource management, which is distinguished by a contingent agreed payment for ecosystem management behavior or outcomes. While superficially similar to approaches like integrated conservation and development projects or co-management arrangements in protected areas, where payments or investments are made in response to limitations on or loss of livelihoods created by establishment of the reserve, institutional arrangements for CRES will differ, particularly in terms of governance, decision-making, incentives, obligations and responsibilities. CRES reflects a particular political economy context where local people with rights to manage their own resources play a central role in providing ecosystem services benefiting others.

Methods used for the paper include analyses of case studies, review of key literature, and expert consultation in three regional workshops in Africa, Asia and Latin America, as well as interviews with ten individuals involved in community-based Payment for Environmental Services (PES) in the developing world undertaken during 2005 by Forest Trends. Materials related to legislative frameworks were drawn from various studies by Rights and Resources Group (RRG) and its partner organizations and from secondary literature on pro-poor development and CRES experience, while many of the insights and examples regarding institutional elements of PES¹ were contributed by members of The Katoomba Group.

¹ The Katoomba Group defines PES broadly: “The key characteristic of these buyer/seller transactions is that the focus is on maintaining a flow of a specified ecological “service,” such as retaining clean water, biodiversity, and carbon sequestration capabilities, etc. In order to ensure that the ecological service is indeed maintained—as buyers expect for their money—the transactions require regular, independent verification of sellers’ actions and effects on the resources. In sum, the key attributes of ecosystem service payments and markets are that sellers (a) maintain specific ecological structures and functions, and (b) remain accountable to independent verifiers that the “service” being paid for is indeed being delivered. ” (from: <http://www.katoombagroup.org/africa/documents/inventories/National%20Inventory%20Framework.doc>)

2. Institutional Evolution of CRES

Given that the systems of CRES payments which can be categorized as ‘markets’ are so incipient and few in number, most of the experience and lessons to date are from the dynamics of individual CES projects and from the separate, but very relevant experiences, of participatory natural resource management, including co-management in biodiversity conservation schemes or community-driven resource management of local or government owned resources. As CES schemes become more prevalent and widespread, and as organizations develop expertise and experience with CES schemes, the institutional framework will evolve, including governance and interplay of stakeholders. Institutions and institutional frameworks for pro-poor CRES need to be analyzed and understood at two levels: the overall stage of development of ecosystem services transactions within local and national economies, and the development of institutions to undertake activities within specific CRES deals and projects.

2.1. Institutional Building Blocks of CRES

When focusing on how CRES transactions and projects evolve, different types of expertise and advice are required. Specific CRES transactions take place in four key phases. In **step 1**, the parties interested in applying CRES² analyze the legal and regulatory framework that will support payments schemes; market rules and standards that can guide individual transactions; and technical services necessary to implement and monitor trading. After the status of these key institutional elements is identified, the process of assessing prospects for delivering an ecosystem service begins in earnest in **step 2** with the identification of: the ecosystem service being provided; potential buyers who benefit from the service; and prospective sellers who are in a position to provide the service. In **step 3**, key activities are outlined related to structuring agreements, including the: design of the management and business plan to provide the service, ways to reduce transactions costs, and options for payment types, as well as other financial provisions of the agreement. The final **step 4** in developing payments for ecosystem services focuses on initiation of the project, as well as monitoring, evaluation, certification and verification.

Annex A summarizes the functional description and activities that take place, based on analysis of distinct CRES cases. Figure 1 indicates the key roles that need to be filled as the projects develop,³ including:

- technical expertise to identify ecosystem service market opportunities,
- technical expertise to develop and design projects;
- market intermediation (aggregating buyers and sellers, brokering and contracting);
- business advisory services;
- verification, certification and registration;
- financing and insurance;

² As outlined in previous sections of this issue paper, the choice to use CRES as a land management option should be reached in consideration of all alternative options.

³ The Katoomba Group publication “Getting Started: An Introductory Primer to Making Payment for Ecosystem Services Agreements” provides more detail on each step, the functions fulfilled in each step, and links to tools and how-to guides from many Katoomba member organizations. The Web version can be found on www.katoombagroup.org.

- conflict resolution and contract law.

If CRES payments and markets are to generate the significant new financial resources essential to ensure ecosystem stewardship, particularly from private sector buyers, a wide range of new institutions will be needed to develop and support these systems, most of which are not in place today. Because of the historical role of governments in protecting and managing ecosystem services, the reticence of private sector entities to invest in markets with unclear legal frameworks, and the ambivalence of many civil society conservation organizations towards market-based mechanisms, governments undertake many of the aforementioned institutional roles in current forms of CRES. It is expected that as markets and payment systems develop and scale up, the process will involve privatization of many of these roles throughout the value chain, to enable specialization, promote innovation to radically reduce transaction costs, and motivate private investment. But decisions about the nature and degree of devolution, as well as the extent and type of government oversight, will profoundly affect the participation of, and impacts on, poor producers and beneficiaries of ecosystem services. For example, in public payment CRES, the government's role includes a political willingness (in many situations) to target the poor preferentially, subsidize transaction costs and provide oversight of potentially exploitative behaviors. To what extent can these functions be played by others? As CRES expands, how will private parties fulfill these roles? Ultimate outcomes for equity will likely depend upon the degree to which private, civic and community institutions evolve to protect and serve the needs of low-income ecosystem stewards and beneficiaries.

2.2. Changing Roles and Functions in the Evolution of CRES Systems

This section considers the experience over the last 15-20 years of organizations and institutions that have participated in CRES, and proposes that there will likely be distinguishable phases of evolution in the development of 'markets' for ecosystem services. It is within the expected evolution of market governance structures that actions by donors, non governmental and governmental actors will be situated, and exercise influence over the developments as new legal and institutional frameworks arise. In early phases, individual projects and instances of CRES transactions will likely give rise to ad hoc institutionality and governance specific to the CRES transaction or deal. In latest phases of CRES systems, a more comprehensive array of institutions and governance is expected to exist, with CRES transactions taking place within a system characterized more like a 'true' market, where information flows, rights are clear and well defined, trading and lending occurs, and players respond to price signals of the market to underpin supply and demand.

A common mistake in developing these institutional frameworks, particularly when designed by a central entity or government, is that actors try to create a complete but complex system that is not in fact viable, nor a reflection of the organic emergence of demand-driven markets. Recent studies of models for sustainable resource management⁴ have compared human organization systems for fostering sustainability with the analysis of natural ecosystems and their responses to stress and change. These studies observe

⁴ Allen, Hoefstra, and Tainter, *Supply Side Sustainability: Complexity in Ecological Systems*. New York: Columbia University Press, 2003.

that policy makers tend to minimize the complexity of the institutional framework they plan to implement, and create legal and institutional frameworks that can only be sustained over time at great cost and effort. Simpler arrangements may not guarantee a specific level of sustainability, but may be more resilient to change and stresses, surviving better over the long term.

In the **first phase**, CRES schemes are often developed with government impetus, or by non-profit institutions who consider CRES a positive form of community and environmental development. This stage is characterized by the predominance of various pilot projects and CRES deals arising independently in various parts of the world. Rights over land use and ecosystem services are not always clear, nor well defined, and suppliers face large transactions costs in defining and implementing the different facets of CRES project development. Resource managers must reach out to support institutions for technical expertise, and in many cases these are not specialized in CRES.

As CRES initiatives have developed over the last fifteen years, few linkages and synergies have been built between the players in the different projects, and thus the context is highly fragmented. Institutions are mostly involved on a case by case basis as they learn about their potential role in the markets. In this stage, particularly in the less developed countries, the role of the government as buyer is common, and as buyer, the governments fill a range of required market functions, including technical support for project design, verification and monitoring of service delivered, and also the role of intermediary to establish private sector buyers. The case of the National Forestry Commission in Mexico's Payment for Hydrological Services program began as such. Analysts who work in the area, often refer to CRES transactions as 'market-like', recognizing that the instances are not characterized as an 'ecosystem market' as described by economic theory.

A **second stage** of the ecosystem services market is already slowly evolving as lessons about the shortcomings and limitations of current institutional arrangements and CRES outcomes are seen. This second generation of the CRES market is expected to demonstrate more integration, both among the institutions involved in different projects, as well as by actors linking supply of their different ecosystem services, selling in a 'bundled'⁵ format, for example. Landscape level initiatives will also become more prevalent, thus creating the opportunity for larger scale impacts on ecosystems and on the economic outcomes of CES on sellers. In more cases, property rights will become more clearly defined, as well as enforceable, and transferable. The different categories of CRES schemes⁶ are expected to become more clearly differentiated and distinct rules of operation and practices will also become established for the ecosystem service segments of carbon, water and biodiversity.

It is expected that as more players step in to find their appropriate role, and as CRES transactions need to become more sophisticated, different actors will be needed to fill necessary roles. In early stages of this phase, where it is argued that CRES in Latin America is currently, inefficiencies and duplication that exist may be resulting in a period of higher transactions costs. Similarly, with the proliferation of participants and higher

⁵ Bundled Environment Services (ES) projects are those in which a supplier/community identifies and sells multiple ecosystem services (carbon, water, biodiversity) at the same time.

⁶ As described in Issue Paper 1 of this series (ICRAF Working Paper no. 36), these include public payments, open trading, private deals, and ecolabelling of products

interest, information about suppliers, buyers and intermediation in ecosystem services will become more easily accessible, lessening market uncertainty.⁷ All actors (buyers, sellers, intermediaries) will benefit from this greater transparency. In theory, the scene will be set for the lowering of transactions costs in CRES as the most efficient and prepared actors outbid less efficient ones. International and national aid and support institutions could potentially guide the evolution of institutions acting in the initiatives, and shorten the period of wasteful resources by analytically engaging with selected processes and institutions. Transactions based on trust and relationships are expected to slowly give way to transactions and agreements based on the legal standing and reputational expertise of organizations.

As the direct public role in implementation diminishes, the public interest may be less well safeguarded, unless key governance and institutional lessons are clarified and put into practice, both legally or otherwise.

Clear property rights are a foundation for legal transactions. Thus institutions that can certify the validity of those rights are expected to play a larger role within the broader governance structure. Predefined flexibility in established legal frameworks for CRES will allow for transferability of property rights. An oversight agency to monitor compliance of legal rights, and participate in conflict resolution is also expected to have a strong role. Another area where support institutions can play a role in Africa, Asia and Latin America is in strengthening transparency and enforceability of these needed legal frameworks.

More broadly accepted methodologies for establishing the validity of ecosystem service provision will also likely be a key feature of CRES market development. Systems of standards, monitoring and verification, using independent third parties where needed, will evolve to guarantee the worthiness, durability and enforceability of ecosystem services that are bought and sold.

Importantly for the many poor providers of ecosystem services, this stage can be expected to lead to greater transparency in processes of ecosystem service verification, transferability of legal rights, that will enable buyers and financial institutions to consider flexible financing instruments that can be designed to be in line with needs of liquidity poor, asset rich resource managers and owners.

As CRES systems mature in a **third stage** of development, new institutions will evolve to fulfill needs of the burgeoning market. This is the stage at which CRES ‘markets’ can be spoken of – in the sense of having multiple buyers and multiple sellers competing to take part in transactions, responding to market signals⁸.

Information is expected to be both more transparent and accessible, leading to broader participation of a suite of institutions fulfilling the roles discussed above, and again more fully in the next section on roles and functions of institutions. Rather than prescribing behavior or technology use via regulation, market based initiatives will rely more on price signals to affect behavior in relation to the environment. In this latter phase of the

⁷ Witness efforts such as the Katoomba Group’s Ecosystem Marketplace to lend transparency to the CRES system. Evolving at www.ecosystemmarketplace.com.

⁸ Many CRES markets will be defined according to different geographies, for example in CRES for water services; location of the sellers is necessarily in the same watershed as the buyer. The market for carbon and biodiversity are more global in nature.

market, more cap and trade type of markets are expected to exist, and units of measurement will become more standardized, increasing liquidity of the ecosystem services, making trading both more possible and more prevalent. Ecosystem services will be transformed into commodity-like goods that can be measured, valued and sold, and risks that are part of CRES transactions will be incorporated into costs and practices. Broader portfolios of projects are one way that risk in investments will be diversified. More roles will be met by entities of the private sector, requiring less support from government and international aid institutions, except for in a broad societal public interest role.

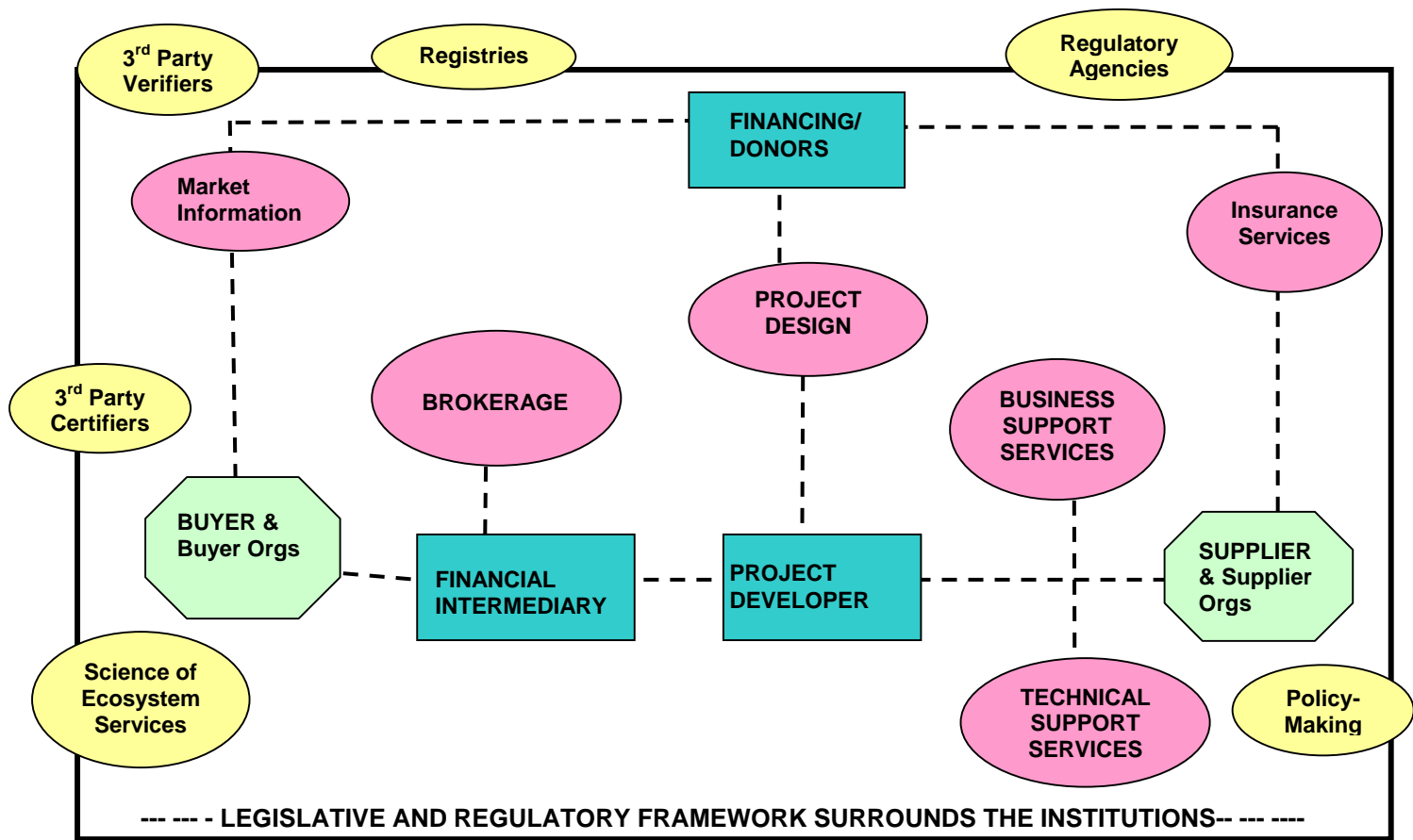
A key message from this summary of the potential evolution of ecosystem services from the present day prevalence of project or CRES deal based transactions to market-like interactions in future, is that many new actors are expected to emerge. It is important too, to note that while general market development theory can apply to the CRES arena, many of the expected roles and market activities will need to be *created*, instead of expected to emerge on their own, as they do in markets where profit maximizing firms and entities arise naturally. This is especially true if the pro-poor perspective is to be maintained.

The institutional structure of CRES schemes can be very complex, and varies depending on, for example, the location, the existing institutional structure and previously existing partnerships among suppliers and the public, private and civil institutions of the area. Figure 1 shows some potential interactions between institutions. Some locations may have more developed institutions that fulfill more specific roles, while others may rely on one institution to help meet various functions at once. It is difficult to speak of a model of institutions required to participate for CRES to exist or be successful.

The window of opportunity is short for transforming ecosystem services from deals relying on trust and project or location specific underpinnings to creating and establishing the needed legal, scientific and regulatory frameworks for the transactions to stand alone (i.e. moving from stage 2 to stage 3). Many of these evolving markets, particularly the global forest carbon market, are still small and fragile, given their complexities. Thus strong concerted efforts in the coming years are needed to ensure a robust set of institutions to guarantee needs of buyers and sellers, and society as a whole.

In Africa, Asia and Latin America, some characteristics of the first two phases exist already. It is often considered that within Latin America, CRES systems are moving from the first to the second phase of market development described here, while a majority of the CRES examples from both Asia and Africa place it in the early phase of CRES market development.

Figure 1: Institutional Actors in a CRES Project or System



3. Institutional Models and Lessons from Pro-poor CRES and NRM

This section reviews current examples of institutional arrangements that involve low-income communities and groups of smallholders in CRES transactions and compares this emerging experience with the institutional arrangements that have proved effective for other pro-poor natural resource management (NRM).

3.1. Current Institutional Models of Pro-poor CRES.

The current models cover a range of arrangements, most of them public, but including:

- government-sponsored funds,
- contracts with private sector investors,
- intermediary-mediated bundled contracts for CRES through arrangements with community organizations, smallholders, or indigenous peoples' customary governance institutions.

Because of the newness of most of these arrangements and the demand for sophisticated information assembly or documentation, most smallholders and communities have worked through NGO or private sector intermediaries, or government outreach staff, not directly with the buyers. Some of the most flexible and organic institutional arrangements have been around water services, ranging from organic agreements with municipal water agencies to foment resource management and restoration among watershed residents or payments from a fund financed through a percentage of water tariffs or resource earnings for land management and restoration activities. Some of the limitations in developing sound CRES transactions have arisen because of inappropriate or poorly prepared intermediaries. Intermediaries have varied track records in serving the needs of poor sellers, with many intermediaries poorly informed of the institutional options or the nature of the CRES markets and standards.

Because so many models are public, there are limited examples of the types of roles played by private investors. Tourism operators have co-invested with government in villages within a protected area or in buffer zones in return for conservation and rehabilitation activities. Government funds or corporations have bundled carbon from farm ecoagricultural systems for sale to a private entity, as in the case of Colombia (MASBOSQUES) or FONAFIFO. The Mexican Forest Fund encourages co-investment by private sector for specific transactions with residents of degraded water catchments or generally into the Fund.

Government sponsored transactions are more likely to include a set of pro-poor elements such as provision of intermediary brokers, training support, or financial services to mitigate the investment costs of improved land and resource management. Exceptions are the private-public partnerships such as MASBOSQUES or a number of the arrangements between ecotourism operators and residents of protected areas, who have advanced financing for land use changes or management and capacity building.

Intermediary mediated contracts are common, and involve institutions such as retailers, aggregators, brokers, and organizations playing multiple roles. The services that organizations such as the Edinburgh Center for Carbon Management (ECCM) provide

are commonly needed in a scenario of pro-poor CRES transactions, in the sense that many communities lack various areas of expertise required for delivery of high quality, scientifically rigorous ecosystem services.

Typology of participation of communities in current CRES models. Current experience with communities and smallholders includes CRES with high investments – from US\$5 billion dollar Chinese government PES programs, to very small local community initiatives; from paying for non-use of resources to promote ecosystem services, to mobilizing new investment in resource rich areas where ecosystem services can be developed; and from payments to individuals, to community-scale payments. The type of services which are involved include forest management and conservation for hydrological services- with and without revegetation- conservation of biodiversity, removal of invasive plants, control of salinity through vegetation, plantation management for carbon sequestration, biological pest control, and bundled ecosystem services.

Arrangements. There is a range of buyer and seller types and arrangements.

Buyers:

- operate on their own (single buyer)
- structure the PES deal in tandem with other (multiple) buyers. More than one buyer can also separately purchase environmental services from one seller.

Sellers are typically found operating:

- under a community association selling services on communally held land or on land to which community members have rights.
- in an association established for selling bundled services as individual land owners, even when they operate communally or use funds for community purposes.
- on their own, when governments or governmental agencies have rights to the land where communities live and are the sellers. In these cases, agencies subcontract with community or inhabitants for the ecosystem service management (i.e. New Zealand).

Table 1 below summarizes a set of case studies prepared by Forest Trends⁹ on single and multiple buyers, with information on intermediation in Table 2 following. Intermediaries include special units of government agencies, associations of resource users (water users, etc), farmer associations, universities with CRES expertise, trust funds or special development fund staff, hydroelectric or water authorities, or private specialists contracted by funders. Current experience is still limited where private companies are buyers, particularly in developing countries with poor governance and no clear government criteria for standards and risk management. Single buyers and single sellers are most common, or a buyer purchasing services from a landowner subcontracts individuals or communities as land managers – commonly where national parks, reserves or forest land is owned by government agencies, but communities live and help manage the resources. There are limited cases of individual landowners associating collectively to coordinate the sale of services.

⁹ Bracer, C. and S. Scherr. 2006. *Survey of cases of community participation in markets for ecosystem services*. Annex 3 of Molnar, Liddle, Bracer, Khare, White, Bull et al, *Community Forest Based Enterprises in Tropical Forest Countries: Status and Potential: Report to the ITTO*, forthcoming July 2007.

Payment types also vary, involving cash or in-kind payments, tax incentives or trust-fund disbursements. Compensation packages also can include non-monetary benefits, such as support for community strategies for rural or ecological tourism, international markets for environmental services, etc. In addition, technical assistance, financing of investments and marketing support may also be included in compensation packages. The means of channelling the funds to sellers also varies, ranging between direct payments to landowners, payments to a trust fund, or payments to a community organization to be distributed. Some of these differences can be seen in Table 1 below. Most common is the Trust Fund mechanism, seen here in 7 out of the 15 cases, whereby buyers, intermediaries and often community members participate in the fund management.

Engaging and empowering local community resource stewards. In addition to the role of transaction costs and property rights in shaping incentives and the success of participatory resource management, another crucial factor is changes in the net benefits perceived by the participants for using a community resource. Through interactions among stakeholders about NRM strategies, the value of ecosystem services is inculcated. If the community appreciate the value of the ecosystem services it becomes easy to create mutual understanding on the forms of compensation.

CRES mechanisms need to take into account interactions with different stakeholder groups – the beneficiaries (buyers), the intermediaries and the sellers/stewards – with a view to assisting the vulnerable groups to express themselves and participate in decision-making.

Table 1: Sample Structures of CRES Deals

Type of Transaction	Latin America	Type of Buyer	Asia	Type of buyer	Africa	Type of buyer
Single buyer						
Community seller	Santa Catarina Ixtepeji, Mexico	Govt. Forestry Fund; Biocarbon fund groups buyers	Vietnam Nam Ty commune sells biocarbon to Swedish funded Research and Development program;	Govt./donor project; multiple buyers organized by NGO for carbon credits	Masai Ecotourism Community sells biodiversity values	Individual tourists
	San Nicolas, Colombia, local landowners sell carbon through regional watershed corporation	carbon market, intermediary is MASBOSQUES, public, private corporation fiscal funds to municipalities with more environmental services	Chalpadi village, Andra Pradesh, India			
Owner sells and contracts services from community-		Environmental institutions at state level, Brazil	State govt. Macquarie Salinity Credits, Australia	Government		
Individual sellers in an association-water	Cauca valley corporation watershed program	Water user associations buy from upstream landowners			Wildlife leases to communities for safari hunting in southern Africa, Zimbabwe, Mozambique	safari hunters through tourism operators
Multiple buyers						
Community Seller- carbon	Scolec-Te, Mexico, watershed	Future forests and the Federation Internationale de Automobile, via ECCM			Nhambita Community, Mozambique distributes emission reduction units; Arabuko Sokoke Forest Guides Association (ASFGA), Kenya	Future forests groups buyers; USAID and German Nature Fund (biodiversity payments)
Owner sells and contracts services from community – water	FONAG, Ecuador: Water fund—upland farmers are paid to protect water quality and flow; Municipality of Pimampiro	Quito Water company buys from parks who subcontract communities; Municipal governments			Working for Water, South Africa, agriculture and forestry water users buy from program, 33,000 individual contractors; Budongo Forest Ecotourism project community association, Uganda	DFID UK and NORAD, Norway buy biodiversity credits with fees from tourists

Institutional roles played in CRES. Little data exists on the adequacy of the services provided by governments, community organization, private service providers or NGOs or on their comparative advantages or their costs of intervention. Few community-based organizations or associations yet provide services, information or capacity building. Missing in most case examples are the institutions for helping farmers and communities manage risk, providing interim financing needs, or negotiating and mediating conflicts.

A rapidly developing set of experiences in Ecuador in Latin America involve compensation and rewards for watershed management, ranging from payment schemes developed by individual municipalities to a water fund created by the Quito water company with involvement of the protected areas agency, FONAG. Ecuador's original 'true' CRES experience is with the municipality of Pimampiro and the Nueva America forest, which protects the headwaters of the municipal water system, whose residents are paid to protect their land via funds raised from the water system. Similar models exist in Brazil, Bolivia, Peru, and Mexico, but information on their institutionality is limited.

Additional examples from the regional workshops include CRES that compensate farmers and pastoralists for conserving savannah or leaving land fallow, leasing or concession of state-owned forest or management of savannah lands for wildlife viewing or hunting values, in return for conservation of biodiversity values. Several projects in process are public-private partnerships to develop cap and trade deals for offsetting carbon (Vanilla-Jatropha project in Kenya)

Table 2: Roles of Different Institutions in CRES: Examples

CRES example	Role of Government	Role of NGOs	Role of Community/Farmers Organization	Role of Private Sector Buyer or Firm
Mexico: Community Sta Catarina Ixtepeji, near Oaxaca city.	CONAFOR National Forestry Commission identifies or approves projects/activities and makes payments from fund	Community has own professional training plan to develop own skills	Special Unit in community enterprise carries out and monitors activities payments for watershed biodiversity improvement	Hired forest advisers include CRES in planning
Fund for Water (FONAG) Ecuador	Quito City Government and Park Service are the responsible agencies for FONAG. Monitor and enforce compliance and promote projects.	FONAG- NGO with endowment trust; resources from The Nature Conservancy and Fundación Antisana.		Quito Municipal Water & Sewage Agency provide start up costs.
Cauca Valley Corporation Watershed Program, Colombia	State and municipal government authorities promote and monitor the model.		Voluntary Water users Associations (14) are grouped into a larger CORPOCUENCAS Association.	
Working for Water South Africa	Department of Water Affairs and Forestry Accounting system (WARMS).	Information dissemination, outreach, Technical Assistance	Water User Association	
Macquarie Salinity Credits Project Australia	State Forest of New South Wales has title to timber resource and carbon on private land. outreach and extension.		Farmers and timber producers participate under control of State Forest.	Macquarie River Food and Fibre Company provides funds
Nam Ty Commune, Vietnam	Government oversees program.		Participatory meeting with villages to discuss and approve agreement with buyers.	

CRES example	Role of Government	Role of NGOs	Role of Community/Farmers Organization	Role of Private Sector Buyer or Firm
San Nicolas Agroforestry Colombia	CONARE Environmental Agency provides government counterpart, participates in MASBOSQUES and monitors.	MASBOSQUES created in watershed basin with governmental and non-governmental stakeholders and operates Trust Fund.	Farmers and associations agree on a sustainable land use and set of productive activities in catchment area.	Intercooperation IUCN invest in carbon credits
Scolec-Te Carbon Project Mexico	Farmers organizations allied to various other local institutes.	ECCM provides various support services	Forestry activities are planned and undertaken by groups and communities of small farmers affiliated to local organizations.	Income to the process.
Nhambita Community Carbon Project Mozambique	DFID and European Commission helped finance Project.	Univ of Edinburgh and ICRAF provided technical support.		Envirotrade Limited: project design and funding.
Giang Cai Village, Vietnam	Swedish Development Agency funding; Local extension staff from Districts.			
Chalpadi Village, India	Integrated Tribal Development Agency funds plantations.	Local NGO intermediates with private individuals.	Village Self Help Group coordinates activities and deals.	Private individuals.
Arabuko Sokoke Project, Kenya	Government since forest is public trust land.	Nature Kenya operates the project on the ground.	ASFCA is community entity.	
Mgahinga Bwindi Impenetrable Forest Conservation Fund, Uganda	GEF- World Bank, Government of Uganda through Uganda Wildlife Authority (UWA).	A Trust Board also established for the Reserve Fund.	Local Community Steering Committee; communities.	
Budongo Forest Ecotourism Development Project Uganda	Protected areas agency.		Communities.	Premium paid for tourism.
Guanacaste Conservation Area, Costa Rica	Guanacaste Community.			Local orange growing company pays conservation area for a bundled set of ecosystem services.

Institutional Context for Pro-Poor PES. The legal and institutional issues for designing and implementing effective and pro-poor CES will differ depending upon the type of resource and the historical relationship of the local population to the resource, and current trends of management and use. Communities and poor individual families who are agricultural, livestock, and forest managers face very different constraints and opportunities depending upon their history of relationship to the resource in question and depending upon their land use trends. A typology of community conservation developed by Forest Trends and Ecoagriculture Partners provides a possible research typology that differentiates among indigenous peoples and traditional peoples, settlers on the agricultural frontiers, long-standing farmers or pastoralists facing management of declining resources, and agro-pastoral and forest dwellers who have been successful in restoring their resource base, albeit often at threat of reversal (see Table 3). What is relevant in this typology is the nature of tenure and use rights, knowledge and practice of integrated ecosystems management and resource monitoring; indigenous knowledge, social and political capital from internal organizations and alliances with other stakeholders, and relationships with buyers.

Table 3: CRES Potentials according to Typology of Communities

Typology of Community Conservation/Use	Potential and Constraints for CRES	Potential Institutional Options and Roles
Lands of indigenous peoples/ those with longstanding land use, rights relatively secure and existing management practices and cultural institutions important to sustainable ecosystem management.	Non-market mechanisms, secure recognition of tenure rights, recognition of traditional management practices and criteria. Avoid setting precedents on accepted land use and governance vs traditional systems (slash and burn) or cultural choices. Avoid overlay of external, complex institutions. Lack horizontal information flows.	Study experience with ecolabeling, social responsible markets Bolivia studies of success/failure of resource management decentralization found more resource management, dispute resolution, and local investment in municipalities with information, authority and some resources, empowered civil society, and some central government commitment/presence.
Lands on the agricultural frontier and fragile uplands where many rights not recognized and often a problem of governance – i.e. not easy to develop needed institutions.	Where governments may be most interested in CES, yet most difficult to affect pro-poor or just outcomes. Rethink priorities and approaches. Extension agents recommending land use practices need awareness of high risks of failure for poor, if not desired outcomes or adequate returns relative to opportunity costs will be difficult to achieve.	Local governments as effective brokers for CES with communities and smallholders, particularly in remote regions. NGOs strong advocates if well informed about issues that poor farmers and communities face and if versed in particular lessons of and dynamics of CES. NGOs, private sector actors or CBOs for informal dispute resolution mechanisms and awareness raising with government, roles in evaluation and verifying compliance.
Settled areas in rural areas and in multiple landscapes where there is danger that land use practices will not include those favored by local smallholders.	Most settlers limited bargaining power, organizational linkages, or political influence to ensure compliance with contracts. Short term incentives and investment will be needed. There are risks of costly failure. Here and below, issues for: a) negotiating contracts and recourse for non-compliance; b) contract flexibility to incorporate learning; c) arrangement not too complex (i.e. trust fund should be manageable by multiple power brokers and stakeholders).	Sound development of institutions can result in good practice for smallholders. Government is important mediator between buyers and sellers, creating enabling conditions for participation, simplifying and modifying legislation, tenure rights and their security, and bridge of short-term capital and technical assistance. Develop effective mechanisms for dispute resolution and contract assistance. Private firms have greatest incentives where the value of the resource is high (San Nicolas watershed in Colombia; Perrier in France, etc).
Areas with long history of settlement and traditional practices but resource degraded over time, now in recuperation process with new markets and local commitment. i.e. reforestation, watershed management, ecoagric.	Governments, civil society organizations, donors, and technical service providers can support strengthening of associations and cooperatives and foster shared learning. Nurture local institutions, Time and space for community capacity needed. Don't impose structure that cannot be sustained when a pilot or project ends.	In 20+ years, water scarcity will make markets in these areas pervasive, requiring good institutional development for the long term. NGOs and CBOs important in informal dispute resolution mechanisms, and raising issues in political fora. Rule-setting by multiple stakeholders, plus government and private sector. Private sector as technical assistance and service provider to poor. Most firms will engage relative to risk and return.

Limiting institutional factors for participation of the poor. Experiences reported from these cases suggest that the poor face particular institutional constraints on participation in CRES (Smith and Scherr 2002; Scherr et al 2006). These include:

- the limited information that institutions have about the economics of land use and livelihoods which would allow them to tailor CRES to needs and interest of poor sellers;
- limited CRES mechanisms for managing risk (insurance), financing start-up costs or creating a regular flow of income;
- no affordable mechanisms or political influence to enforce contracts, resolve disputes or process grievances;
- limited bargaining power to influence or shape rules and contract, particularly with private sector actors used to a more affluent set of sellers;
- limited asset base to absorb risks, invest time and resources in management, or to weather periods of lower returns or higher labor requirements;
- limited organization or outreach to aggregate supply of services and attract a range of buyers; and
- lack of efficient intermediary institutions to reduce transaction costs along the value chain to buyers.

Lessons learned for pro-poor CRES. Much has been learned over the past decade of PES about how to design projects so that they do benefit the poor, and many lessons can be borrowed from other types of natural resource management projects (Scherr and Bracer 2007, forthcoming; Molnar et al. 2007, Smith and Scherr 2002, Bracer and Scherr, 2005, Rosa et al. 2003). Key design elements include the following:

- 1) Provide ample opportunity for communities themselves to have meaningful input into the design of the ‘deal’ and into oversight of implementation. This enables communities to devise their own least-cost solutions to deliver ecosystem services, and will enhance sustainability.
- 2) Build on prior local self-assessment of ecosystem service needs and issues, so that communities understand their own priorities, opportunities and limitations for ecosystem management locally before initiating negotiations with outside buyer interests. This is relevant even for PES made to individual land managers, to ensure that impacts of management changes will not have undesirable effects on others in the landscape.
- 3) Maximize program flexibility to adapt to dynamic changes. PES must be sustainable despite ongoing changes in climate, markets, local land use and population, and must learn and adapt to new innovations and information about what works. Thus, mechanisms must be in place to allow for regular re-assessment of PES agreements.
- 4) Work to develop PES agreements/contracts that ensure local livelihood and environmental co-benefits. The World Bank’s BioCarbon Fund projects are required to demonstrate co-benefits including improved food security, improved access to water and fuel, diversified income sources and restoration of degraded production lands (BioCarbon Fund 2006).
- 5) Establish eligibility criteria that include poor households and communities that contribute to ecosystem stewardship.
- 6) Prioritize communities that already have well-established community organizations to undertake planning, conflict resolution, coordination, etc., so that better performance is achieved at lower cost.
- 7) Include in the design a certification system that explicitly monitors livelihood and other co-benefits. For example, the Climate, Community and Biodiversity Alliance has developed

voluntary standards to help design and identify land management projects that simultaneously minimize climate change, support sustainable development and conserve biodiversity (<http://www.climate-standards.org/>).

3.2. Institutional Mechanisms to Reduce Transaction Costs of CRES for Low-Income Sellers

Transaction costs include the cost of attracting potential buyers (such as establishing ecosystem service potential), costs of working with project partners (such as negotiating with project participants and capacity-building), and costs of ensuring parties fulfill their obligations (such as contract development and enforcement, legal costs and insurance, and monitoring of ecosystem services). In cases where buyers are physically and socially remote from sellers, a chain of intermediaries may be required for the transfer of funds. The potential of CRES to deliver new streams of income to rural communities depends crucially on reducing costs and risks throughout the 'value chain' for CRES. Some pilot CRES projects have found various ways to dramatically reduce these costs and risks (from Scherr et al 2006).

Simplifying the rules. A rule of thumb is to use simplest rules possible and the simplest compliance mechanisms that will satisfy the buyer/beneficiaries in the contract. One way to reduce transaction costs is to simplify modalities of PES programs, for example, for determining baselines and monitoring carbon outcomes. Standardized measures can be developed and scientifically evaluated, to serve as proxies for detailed measures. An example is simplified carbon emission reduction credits, calculated using standardized reference emission rates for different land use activities in defined locations. If necessary, an uncertainty discount could be applied. Independent bodies would determine the reference rates and verification would only involve a third party confirming that activities had been undertaken (Sandor 2000, cited in Landell-Mills, et al 2002).

Facilitate buyer-seller linkages. Most CRES involves buyers and sellers who are geographically and socially distant from other another. The search costs to find partners for CRES transactions can be quite high, as are the risks. Various approaches have been developed to address this problem. Some countries have established '1-stop shops' for potential buyers of carbon emission offsets, where they can find out all the relevant rules, identify pre-screened sellers, and learn about locally knowledgeable market intermediaries. Governments, NGOs and private sector groups have also established temporary platforms for buyers and sellers to meet one another face-to-face and share information about resources and needs. The Katoomba Group's *Ecosystem Marketplace* has begun to post information electronically about offers to buy ecosystem services.

Simplify insurance. Since CRES involves contracts for delivery of services, mechanisms must be put in place for either sellers or buyers or both to insure against non-delivery. One approach is self-insurance, whereby land stewards produce more services than they have contracted (for example, by planning extra area for carbon offsets), or buyers contract for more services than they need. In Guatemala, for example, markets for watershed services needed plans to offer three times the area, to ensure delivery of contracted services to the investor. In some cases, NGOs absorb risks of CRES contracts; although care must be taken that they explicitly recognize the organizational risks to themselves and actively manage them. Governments often play role of absorbing risk of both buyers and sellers, but this should probably be seen as transitional. CRES risks can be reduced by diversifying sources of funds. For example, China's

CRES is carried out, at all levels, by government agencies. FONAFIFO of Costa Rica, while state-created, has the ability, and flexibility, of being able to behave as a (relatively) private organization. In Costa Rica the funds come from earmarked taxes, while in China they come from general budget, and are thus subject to greater fluctuations in funding (IIED 2004).

Exploit economies of scale. As costs such as project design, management and certification are characterized by economies of scale, project size has an important effect on unit costs. Transaction costs can be greatly reduced by developing projects in communities where there are already active local organizations and participatory development programs in place, with community representatives already selected and authorized to negotiate with outsiders. For example, organized indigenous communities in El Salvador have done their own diagnostic studies of local needs and priorities and are actively marketing specific ecosystem services from specific areas that would contribute to meeting those priorities (Rosa *et al.* 2003).

If critical ecosystem services are found in areas with little organization, NGOs or public agencies with an interest in co-benefits may be willing to cover selected transaction costs for community organization needed for payments for ecosystem services. Intermediary groups with expertise in community organization can take responsibility for local project management and mediation between investors and local people. Where highly specialized expertise is needed, this can be contracted in. Because carbon can be sequestered in almost any site (unlike more site-specific biodiversity and watershed services), area-based projects (sometimes called ‘bubble projects’) can be designed in which an entire jurisdiction commits to a defined increase in forest cover or area of forest protected. This increases land use flexibility, and is especially useful for landscape mosaics dominated by non-contiguous forest patches (Smith and Scherr 2002).

Projects may be pooled together in a ‘mutual fund’ type arrangement to significantly lower transaction costs and the risk of individual project failure, and offer specialization. For example, the independent non-profit Face Foundation has developed a portfolio of five projects in five countries, affecting 135,000 hectares that are sequestering 82 million tons of carbon (Emmer and Verweij 2000). The World Bank’s Prototype Carbon Fund, BioCarbon Fund and Community Development Carbon Fund are also examples. National and local Environment Trust Funds could also pool investments.

Intermediary organizations can attract investors by ‘bundling’ projects within a country to market a large supply of ecosystem services (e.g., carbon offsets). For example, Costa Rica markets certified Tradable Offsets from two large national ‘umbrella’ projects for forest protection, regeneration and reforestation on over a million hectares of mostly small-scale farm-level contracts (Chomitz, *et al.* 1999).

Institutional coordination. Enabling smaller-scale forest producers to participate in ecosystem service markets also requires institutional innovations from the government to reduce marketing costs and reduce risks to outside buyers and investors. As some markets mature, more open trading systems will begin to replace closed deals, and producers, buyers and investors will develop cooperative institutions. Intermediary organizations will attract investors by ‘bundling’ projects within a country or region to market carbon offsets, biodiversity credits or watershed services.

Many market schemes require the organization, training and management of large numbers of people to develop management standards, assign values to credits, provide technical assistance to design interventions, negotiate contracts, and monitor and verify compliance. Technical specialists and land users need to work jointly to define the appropriate ‘commodity’ that reflects

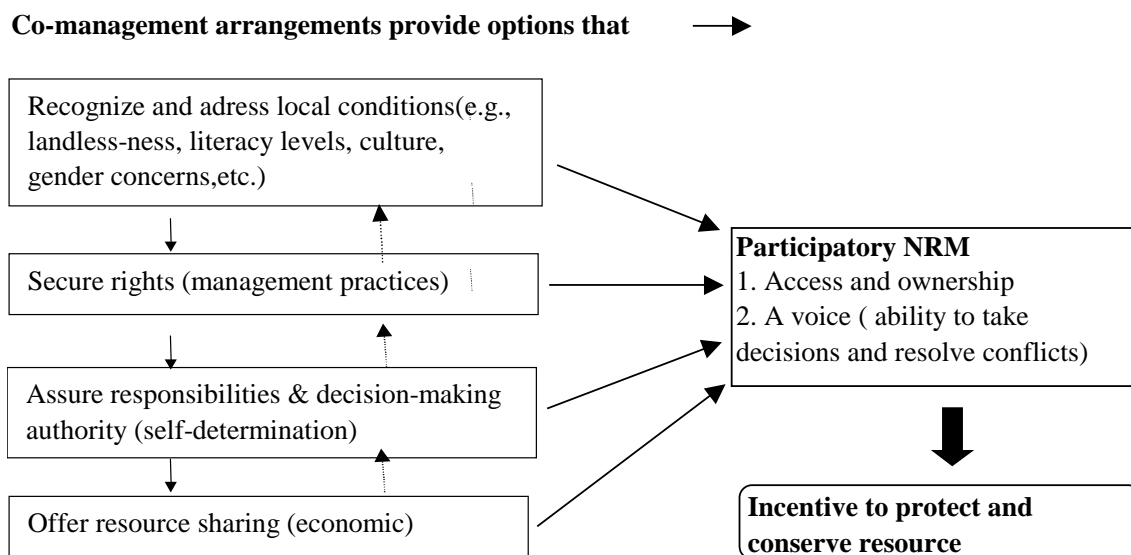
clear, verifiable links between forest management and ecosystem service output, and develop alternative performance standards where there is an imperfect understanding of ecosystem functions.

Cap-and-trade programs, and private PES involving numerous buyers and sellers, require master registries for the jurisdiction in which obligations and credits are recorded. Secondary markets for such credits may be established in security exchanges. In many cases, existing institutions, such as financial services, legal services and other business support services can acquire the specific knowledge and skills to work in ecosystem service markets.

3.3. Experiences from Other Pro-poor Natural Resource Management Models

Other pro-poor models for natural resource management including community forestry models and joint or co-management models with government and local participation have also provided important lessons to be considered in CRES governance. Participants in the Asia workshop invested considerable time to the lessons learned from joint forest management, community forestry and biodiversity co-management models for the development of CRES institutions. There are many lessons in terms of sensitivity to the social issues, rules of the game, and underlying economic conditions, including benefit sharing, that impact transaction cost for the community to collectively take up resource management and conservation activities (Figure 2). In this regards, rules need to be sensitive to fact that rights over natural resources are often held by multiple individuals and institutions (households, communities, the state), and that compensation systems and institutional roles will be multi-layered.

Figure 2: Building blocks of co-management for pro-poor CRES



Co-management and self-initiated community forestry arrangements have developed a set of autonomous institutions to regulate use of the resources, resolve conflicts, guide negotiations and decision-making, and balance priorities and interests of multiple stakeholders. In the design of CRES, enforcement mechanisms grounded in local institutions can provide greater certainty to the community regarding their roles, and decision-making authority can be more formally-brokered but build upon the successful models of self-initiated systems.

The social issues addressed by co-management arrangements include cultural preferences, traditional forms of organization and land-use practices, and power relationships, including gender and landedness – all affecting community capacity and their interest in ecosystem management activities. The rules of the game assign different roles and responsibilities to the concerned parties, including resource user groups, intermediaries like government and non-government organisations, and private sector. These rules also ensure that the community has autonomy in decision-making. Co-management arrangements can reduce the transaction costs for communities where government participation secures their tenure or access rights. This is where the issue of equity comes in as an important consideration in a pro-poor CRES strategy. The sense of satisfaction among local communities taking up ecosystem management activities in turn dictates the legitimacy and acceptability of the initiative and will determine the success of the co-management effort (see Table 4).

Table 4: Incentives for Community Participation in NRM Activities

Conditions for co-management	Incentives	Nature of the incentive in	
		Externally-induced initiatives	Community-led initiatives
1. Livelihood concerns	Access to and use of resources – e.g. in case of forests, access to produce such as fuelwood, fodder, timber and NTFPs	Guaranteed/fixed access driven by a minimum threshold resource condition	<ul style="list-style-type: none"> ▪ High dependence ▪ Access balanced with community perceived conservation need
2. Intrinsic values (e.g., the case study on ‘Sacred Groves’ from the Asia Workshop)	Perceptions attached towards the resource	Low value attached by community	High value attached by community
3. Property Rights (e.g., the case study on ‘Kintengela Wildlife Leases’ from Africa Workshop)	Control and usufruct rights over the resource	Elaborate sharing arrangements on statutory foundations	Sharing arrangements based on customary foundations
4. Enforcement mechanisms	Authority to enforce contracts	Prescriptive	Community embedded rationalization
5. Collective decision-making (Negotiating power within the user group and between user group & others)	A voice in the resource management	Formal and brokered	Informal and based on ‘accommodation’

Lessons from these models relevant to CRES include: (a) institutional development is a long-term process; (b) returns are highly variable depending on the resource and market conditions, even for similar products (ecotourism, NTFPs); (c) shared learning by like-minded user groups is effective for institution-building; (d) private sector actors are less common and engage only where returns are relatively high or where interested in socially responsible markets; (e) community enterprises, like those in Mexico and Guatemala, have sought their own, direct market links, despite the danger of lower prices and difficult market access for fear that private sector actors will take advantage of them; (f) governments have been weak in providing technical assistance, information or in enforcing contracts; (g) NGOs have a mixed record of support—sometimes being instrumental in Community Based Natural Resource Management (CBNRM) growth, sometimes taking control from communities and playing broker roles for which they are unprepared.

Incentives can be intangible benefits that communities or stewards value as well as income, investment or monetary rewards. Property rights constitute an important incentive mechanism in co-management arrangements, providing the local user group with control and use rights over the resource. In induced arrangements these could involve sharing arrangements that are based on formal agreements, contracts or statutory provisions. In community self-initiatives the property rights are principally based on customary norms of the resource users whose value would be dependent on strength of the local institutions, legal recognition of the customary

norms and goodwill of intermediaries (both the government and non-governmental institutions involved).

4. Governance, Legal and Political Economy Frameworks for PES

As CRES develops on a larger scale, a key question is whether the institutional features key to pro-poor outcomes (described above) will scale up as well. This will be determined by the evolution of broader governance and legal frameworks, which are in turn determined by political economy developments related to both CRES and the overall role and power of the poor. The realities of policy reform, tenure regimes and the status of reforms, the relative quality of governance (e.g. just administration, transport courts, informed lawyers) and patterns of decentralization differ across continents, and within regions and within countries. In the priority countries for IDRC, there is a wide range of governance conditions. These elements are the macro context which is critical to understand when analyzing the organizational and institutional development and governance conditions under which Compensation for Ecosystem Services are taking place. Where the ecosystem services identified are considered to have high value, or where these can be offered at a significant landscape scale, most interest and effort is expected to be placed in building governance and other institutions.

Environmental governance¹⁰ impacts the flow of benefits from the nature to those involved in conserving ecosystem and the resultant compensations rendered for the ecosystem services. The governance process could involve – (i) ‘Layered institutions’ (Dietz, et al. 2003) with ‘multi-scalar approaches’ (Swallow. 2005) to establish linkages between the community, the local and higher levels of governments, and non-government organizations, according to organization’s comparative advantage; and (ii) processes and mechanisms to create concurrence of priorities between the local and higher levels of governance.

4.1. Legal Frameworks for CRES

Governments play a key role in establishing and revising the legislative framework that defines the institutional arrangements, responsibilities, requirements, contract, recourse, and mechanisms for resolving conflicts or disputes. Effective governance is a key element of a healthy market (just administration, transparent judicial systems, informed judges, capacity for enforcement). While there are many individual cases of CRES operating without a formal legal framework (indeed, some NGOs have found CRES particularly effective in places with weak legal presence), there are real risks over time that rights over services and payments could be challenged. Moreover, the scaling up of CRES to operate with significant impacts for either ecosystem service provision or local benefits will require clear legal frameworks to draw in the necessary investment and participation.

Functions of legislative frameworks in establishing CRES. The legislative and policy framework underlying institutions for pro-poor and equitable CRES need to have minimum of legislation in place which establishes:

¹⁰ ‘Environment governance’ is used here to refer to policies, as well as the institutionalized arrangements (state agencies and the civil society groups, both in the public and private sphere) for formulation, development, and implementation of measures to govern the environment.

- the rights of the seller or actor being compensated (environmental steward) to engage in an agreement or contract; and
- the rights of the buyer to expect and receive the ecosystem services entailed, including the enforcement and conflict resolution mechanisms in the case of dispute or non-compliance,
- public financial and support instruments that enable poor resource managers to participate in markets that require information, capacity, capital or ability to assume risk; and, lastly
- the role of governments in monitoring the progress of CRES and its pro-poor impact, responding as needed to potential negative impacts.

Governments have an important role in ensuring that the CRES models within the national framework are equitable and preserve property and access rights, and citizen's rights to pursue cultural or traditional practices around land and resource management, within the overall standards established for CRES.

Governance roles of stakeholders. The organization of stakeholders linked to the use and provision of ecosystem services is a key factor for good environment governance and successful CES (King, et al. 2003; Perrot-Maitre and Davis. 2001). The critical aspects of governance that play out in CES are at two levels. First, the broader enabling governance conditions like the policies and laws that protect the rights of the poor, the role of government departments and devolution of authority to local institutions including local government bodies (e.g., the Panchayati Raj Institutions in India) and the administrative arms of government bodies (e.g., the Village Forest Committees constituted in India under the country's Joint Forest Management Program). Private companies may alternatively provide direct linkages between themselves and the service providers with minimal government input, as observed in many cases (for e.g., the hydroelectric utility companies in Costa Rica) where compensations/payments were made for the ecosystem services.

Studies also point out that most successful CES approaches are those where the producers of services have become organized into structured units that are identifiable, be it formal (induced strategies) or informal associations (community self-initiatives), and are /could be represented by intermediaries like a local non-government organization which help in the negotiation and implementation process (Perrot-Maitre and P.Davis. 2001).

Government oversight. Oversight roles are inherently complex and tricky for most developing countries—many of these countries are starting from an extremely inadequate legal and institutional framework and are already disfavored by potential buyers and investors. CRES is attractive from a pro-poor development perspective in a number of countries and situations precisely because the command and control rules and regulations have not been effective and/or the governance systems are not in place.

Sectoral legislation for land, water, and forest regulation. Few developing countries have well established tenure rights for land, forests and water or the land administration and registration systems that guarantee rights over time, particularly the transfer inter-generationally or recognition of rights of women or junior household members. For collective assets, systems may be weak in recognizing rights of all members of the community or internal governance structures. Some countries have established tradable water rights in law (Mexico, Ecuador), enabling creative CRES arrangements in watershed catchments or in peri-urban areas. There are ongoing debates in countries like Chile where indigenous peoples are asking for changes in formal law to recognize their customary rights to water, which would change the nature of CRES for this particular ecosystem service.

Water and forest regulations include minimum standards for watershed management in areas of large construction, energy generation, including hydropower, and for compensatory land restoration, management or reforestation activities. The water and forest laws generally include articles related to activities undertaken by private individuals or investors, contracts with resident landowners and communities for restoration and protection activities, and the creation of special funds for investment in local farmer or community land, forest and water management and protection. Because the government–private and private transactions are generally new and at a pilot level, there are limited legal mechanisms for assessing values and defining the roles of intermediaries. Sectoral laws and legislation regarding special funds both generally identify the range of potential buyers and sellers in biodiversity, carbon and water service markets and the legitimacy of transactions between buyers and sellers. There is limited legislation addressing financial mechanisms.

Linkage to environmental and social standards and legislation. Most legal environmental standards and regulations related to resource access and use have been put in place prior to the emergence of CRES or the devolution of authority to local actors and recognition of indigenous peoples and community land and forest rights. There is often therefore a remnant of inappropriate laws and regulations for minimum standards of extraction and use, for transport of products to market, and providing a basis for compensation in the case of state set-asides. Many of these regulations require simplification or modification to a ‘smart regulation framework’ which focuses on a more differentiated set of actors operating at different scales and with different levels of environmental impact.

This is particularly an issue with multiple-use forestry, where current standards do not incorporate subsistence or cultural use, non-timber product extraction, or accommodate phasing of smallholder or community enterprises which operate with a very different timeframe for accessing capital or for technical skill building. In the extractive reserves in the Amazon, for instance, traditional indicators of sustainable offtake or harvesting, can conflict with regulations, inhibiting models that are ideal for pro-poor CRES. Regulations can require the use of expensive intermediaries to monitor or prepare documentation, not appropriate for the emerging CRES, particularly as costs for the pro-poor.

Social standards are in place as a corollary of environmental impact assessment and social safeguard legislation related to extractive activities or large-scale energy or construction projects, and include regulations on resettlement and compensation for livelihoods and land or resources, health standards, and employment of local people in economic activities. Compensation systems can include investments in alternative livelihood activities or payments for foregone income. Legal requirements for beneficiaries on use and financing of ecosystem services can provide incentives for them to become buyers.

Contract law governing transactions. What complicates putting in place a pro-poor legal framework for CRES is the multi-sectoral nature of the institutional arrangements. A comprehensive legal framework is needed for markets for CRES to emerge and thrive, including sectoral legislation related to the resource(s) in question, as well as complementary legislation on contracts, appeals, standards, governance, and tenure and property rights. Sellers of services or recipients of compensation or rewards need the legal or recognized *de facto* legitimacy to enter into contractual arrangements which respect their ownership or bundled rights over the land, forest, water or other resources, and which enable them to maintain desired land or resources uses that generate the services and enable their own livelihoods, lifestyles and income strategies.

CRES can create a political incentive to recognize smallholder or community tenure, and endorse customary or local institutional arrangements for decision-making and benefit-sharing, depending on the legal underpinnings and the extent to which there is a legal pluralism recognizing customary systems.

Beyond the sector specific legislation, effective CRES requires a review and actualization of taxation policies as these affect smallholders and collective or cooperative arrangements. Existing government agricultural or plantation subsidies can raise the cost of alternative land and forest uses and discourage positive CRES arrangements. Also important is contract law regarding private and private–public partnerships, the legal basis for appeal in the case of non-compliance, and the efficiency and equity of the judicial system. In many countries, the inefficiency of the courts requires the establishment of extra-legal mechanisms for appeal and negotiation.

There may also be a need for explicit legislation extending protections for buyers and sellers from malfeasance of intermediaries to the specific PES-related services.

Legislation governing smallholder and farmer organization. Laws of association are also in flux. New legislation has emerged for municipal and local government authority over land and resource use and ability to enter into private–public contracts, as well as legislation governing community associations, federations, and not-for profit institutions or cooperatives. Central and West African countries adopting a community forestry model of local forest management have been frozen by the lack of legal flexibility on associations of community members. Groups have been forced to organize themselves in artificial structures to enter into contracts – reducing future viability, limiting social capital formation, and raising costs of the arrangements.

Tenure rights. Many countries face an overlapping jurisdiction of land and forest agencies, leading to active conflict over tenure and tenure reform for indigenous peoples' territories, subsoil rights and non-renewable resource extraction, land allocation for agriculture, protected areas declaration, and forests. Communities in many countries are actively seeking recognition of tenure rights to forests, and in conflict with state authority. Many frameworks of environmental and forest regulations are under revision from colonial models and post-independence models of heavy command and control and state ownership. The regulatory frameworks that therefore underlie potential standards for eligible land use practices or information requirements of compliance create barriers to small scale resource management and the entry into markets for other products and services, as well as limiting the cost-effective development of markets for ecosystem services.

The issues around tenure rights and resource access and use rights are often poorly understood by agencies and actors promoting/implementing CRES, with the result that CRES may evolve in parallel or in conflict with on-going social movements seeking greater tenure over resources (layering CRES over questioned joint forest management, freezing land use in areas with multiple land claims). There is a rising conflict over sub-soil resources rights and indigenous peoples and rural communities, which potentially undermines pro-poor CRES and creates substantial risk for investors in biodiversity offsets or plantations or forest/land restoration to store carbon.

Governing bodies can establish non-market mechanisms, such as land-use zoning, environmental regulations, conditionality on resource management planning or extraction practices, or taxes, to encourage conservation behaviour. In lieu of these, governments can support forest management by communities or indigenous peoples, by recognizing resource tenure and use rights or entering into agreements for co-management of resources. The growing

recognition of indigenous and community forest tenure rights and transfer of administrative responsibilities to local communities and governments is one response to a recognition that such rights create a strong incentive in many situations for conservation and local development. Depending upon the productivity of the resource base, tenure and use rights can mitigate the need for other non-market or market instruments, or provide a positive organizational structure for establishing CRES through public payments or contracts with private buyers.

Dispute resolution/mediation. Dispute resolution and mechanisms for enforcing contracts are important in developed as well as developing countries. As in any private or private–public contracts, legal recourse must be an option, judicial authorities need to be informed of the laws and procedures for CRES, and contract rules sufficiently flexible over time and fail to respond to changing circumstances or new information. Part of the strength of dispute and negotiation mechanisms result from a transparent and adequate flow of information to the distinct parties, so that everyone knows the rules, and shares an understanding of constraints for setting up and complying with contracts. Democratic access to information is an important element that is often missing in countries or societies with poor governance.

Legal information is often not available with the result that NGOs, government agencies, and other technical advisors to smallholders and communities lack knowledge of the existing framework, and, either fail to approve specific arrangements or pressure sellers to conform to a limited set of models. It is important that successful models of policy and regulatory reform, plural legal frameworks, or extra-legal mechanisms be studied and lessons disseminated.

CRES as a catalyst for legislative reform. Experimentation with CRES through public payment schemes or donor financed pilot models is a key means by which governments are developing aspects of legislation that recognizes CRES and tries to create an enabling environment for the evolution of markets for CRES. CRES can be a mechanism to create incentives to implement laws on land tenure and resource management and use rights that have not been effectively implemented through command and control or tax incentives, and to encourage new actors, like private sector buyers to engage. CRES has been built into water and forest law in a number of countries, particularly in Latin America, and in separate legislation for the creation of special funds for CRES.

CRES markets can create a strong incentive for reform of these barriers – a positive impact – or end up favoring only the elites who can bribe authorities, break the rules, or afford the higher transaction costs.

4.2. Political Economy of CRES

Political debates over ecosystem governance during the next decades in different regions and internationally will shape markets and market institutions. In some settings, there is strong reluctance to ‘commoditize’ ecosystem services, which are perceived to be valuable for non-monetary, cultural values, i.e. in the Indian subcontinent and in indigenous peoples’ territories in Latin America. This view is certainly valid, but in our perception does not exclude some forms of CRES. There are also varying degrees of misunderstanding and inexperience with the overall context within which CRES is currently developing, evolving and being pursued, and misinterpretations of interests underlying the strong movement to provide economic value and compensations and rewards for ecosystem services.

Systems of Compensation and Rewards for Ecosystem Services (CRES) have only developed on a significant scale over the past 15 years. They are being embarked on as a choice by actors who use them as an instrument of ecosystem management and conservation, often seeking economic development co-benefits. What is important to recognize is that CRES is only one of many instruments that can provide incentives or mechanisms to generate ecosystem services, and many requisites are needed in a location for it to be the ‘right’ choice, especially from the perspective of positive outcomes for poor populations.

CRES almost always exists, and in fact should exist, alongside other non-market and legal practices and policies. Most existing CRES related to land and resource use are still ‘one-off’ deals that were negotiated by specific buyers and sellers and supported by organizations whose primary experience and expertise were not in CRES. If CRES are to develop on an ecologically and economically significant scale, the full range of private, public and civic institutions identified in Section I of this paper will need to be established and evolve to meet and adapt to market needs. The development of CRES as institutions for creating incentives for conservation will be shaped by the political economy of those societies, and the negotiating positions of ecosystem conservators and beneficiaries. Proactive efforts will be needed for those institutions and legal frameworks to evolve in ways that engage and meet the specific needs of low-income ecosystem service providers and users.

The political economy for CRES can be considered at three levels:

- the decision to use CRES, rather than other instruments for incentivizing ecosystem stewardship;
- the legal framework through which CRES are established; and
- formal and informal processes and institutions for implementing CRES.

The decision to choose CRES. Table 5 at the end of this section describes the diverse instruments available to policymakers concerned with the reliable provision and protecting of ecosystem services. Clearly, while sustainability implies intergenerational fairness by approaching the earth as a trust to be enjoyed and passed on to future generations for their use¹¹, it also prescribes an improvement in the distribution of income and a reduction in the degree of vulnerability to economic crisis by lessening the destruction of local environment through policies that together with promoting conservation activities also aim to alleviate poverty. There are a number of studies today that underscore the conservation and poverty link, and emphasize that environmental management cannot be treated separately from other development concerns as environment quality matters to the poor¹². Countries, thus, need to exercise better stewardship over the land, the forests, the wildlife and other ecological resources within their boundaries, and pursue economic development without degrading the environment. Implied in and driving this strategy to protect and conserve environment are the following issues (Dolzer and Thesing, 2000)

- The Earth’s physical and biological systems provide humans with essential goods and services;
- Action taken to meet human needs have local and macro consequences;

¹¹ The reference here is to the idea of ‘sustainable development’ used by the Brundtland Commission in its report ‘Our Common Future’.

¹² For a succinct review, see: Duraiappah, A. (2004). *Exploring the Links: Human Wellbeing, Poverty and Ecosystem Services (United Nations Environment Program 2004)*. Winnipeg, Manitoba: Published by International Institute for Sustainable Development (IISD) for the UNEP.; and, WRI, UNDP, UNEP, and World Bank. (2005). *World Resources 2005: The Wealth of the Poor-Managing Ecosystems to Fight Poverty*. Washington D.C.: World Resources Institute (WRI).

- Population size, consumption levels and choice of technologies underlie all environmental problems; and
- All people affect the environment and vice versa, but the rich have a disproportionately higher impact and the poor tend to be most vulnerable to the effects of environmental degradation.

The emerging discourse on the need for compensating resource managers – (i) for the services they provide through various natural resource¹³ management (NRM) activities aimed at conserving their ecosystem¹⁴; and (ii) for the ecosystem services¹⁵ derived from the resource they are conserving – needs to be viewed in this context. Literature on the links between environment, conservation and poverty, advances CRES as an important investment in resource management that could help to alleviate poverty by capturing part of the benefits derived from ecosystem services and channeling them to the resource managers while also acting as an incentive for their continued service aimed at conserving local renewable resource (Pagiola, et al. 2005; Pagiola, et al. 2002; Zbinden and Lee. 2005).

The decision to choose CRES is often motivated by a perceived failure of conventional instruments, where private landowners will not or cannot invest in ecosystem conservation without external financing. There are a number of constraints from failure of conventional instruments that have been identified in the UNFF 2000 and the World Business Council for Sustainable Development Forest Investment Forum as impeding sustainable investment, including political instability in countries providing raw materials, illegal logging and forest-related corruption, lack of enforcement of contracts and uncertain legal processes, inconsistent guidelines or lack of consensus on environmental assessment procedures and safeguard policies, high conservation value forests (HCVFs), uncertain tenure rights and insecurity of those rights, limited technical and financial assistance to small producers and enterprises, and unbalanced subsidies for commercial plantations relative to natural forests.

In many countries and regions, however, tenure reforms have been very limited and have not provided adequate tenure security, or rights to use the resources to enable the desired management systems to evolve. This makes it extremely difficult to build the needed institutions, unless interest in CRES becomes a catalyst to address tenure issues.

It is not often that a regulatory system is discarded and replaced by market institutions and transactions. It can be expected that the reform of current systems with high proportion of public sector participation, regulation and oversight will be incremental, and complicated, especially from the perspective of those politically and economically less organized, or the 'weaker' participants. Flexibility should be incorporated into institutions and governance structures from the beginning, such that needed modifications to adjust and incorporate needs of poor suppliers are possible.

The comparative benefits and shortcomings of the different mechanisms depend upon the political governance and resource characteristics of specific regions and settings. Underlying the

¹³ The reference is specifically to renewable natural resources.

¹⁴ The Millennium Ecosystem Assessment (2003) defines ecosystems as a dynamic complex of plant, animal micro-organism and the non-living environment as well as humans interacting as a functional unit.

¹⁵ The Millennium Ecosystem Assessment (2003) defines ecosystem services as the benefits that people obtain from the ecosystem, which could include provisioning services like food and water, regulating services that include benefits obtained from regulating ecosystem processes such as water regulation and forest regulations, supporting services that are necessary for the production of other ecosystem services like soil formation and nutrient cycling, and cultural services that are non-material benefits obtained from ecosystems.

choice of market and non-market instruments is a broader political negotiation about who should bear the costs of ecosystem conservation, as simplistically illustrated in Table 5. With most conventional approaches, the general taxpayer bears most of the costs, and this greatly restricts the level of financing for conservation overall, because of competing claims on tax revenues. These occur where beneficiaries of ecosystem services are politically powerful and can compel resource owners to comply (either by transferring their lands to the public estate or controlling their management). They also are found where the opportunity cost of using land for economic purposes is relatively low, and where landowner rights are weak.

Where landholders are very powerful, or are clearly unable to finance the necessary level of ecosystem investment, or where governance is low, regulatory approaches may be difficult to implement. Cap-and-trade systems were originally developed as a more flexible approach to regulation, enabling polluting industries to find the least-cost approach to compliance. Direct public payments reflect a political situation where landowners can demand that ‘beneficiaries pay’ or where taxpayers and their leaders determine that only through payments can landowner behavior be adequately influenced.

Political influences on the design of CRES frameworks. Political negotiations also determine the basic framework within which CRES operate. While this is true for most product and service markets, the ‘public goods’ nature of ecosystem services, the loss for some actors of access to ‘free’ ecosystem services, and lack of precedents may lead to greater politicization. Even if markets can be created for some of the regulating, cultural and supporting services, supporting mechanisms need to be created to ensure that the poor are not marginalized and/or excluded from, (a) the use of the services themselves and of the related resource base; and (b) financial benefits received from the sale of or payment for these services. Legal frameworks lay out what types of public and private payments are permitted, who can participate, how revenues must be allocated, how agreements can be structured and enforced, and what types of oversight and public consultation are required. In the case of cap-and-trade systems, they determine who is ‘grandfathered’ in the allocation of credits. They also determine what types of actors are eligible to provide financing, advisory services, brokerage, etc., and may define public reporting requirements. All of these elements may make it more or less difficult for low-income resource stewards to benefit from CRES.

Despite the common characterization of markets as ‘apolitical’, in fact most markets have historically been shaped significantly by the institutional frameworks put in place. As discussed in the section on legal framework above, for CRES, this includes *legislative rules on what land and resources uses are acceptable and who can have land and resource access and under what institutional arrangements; who can legally own, buy, manage and sell ecosystem services; rules to protect the public’s interest in ecosystem service transactions among private actors; and rules established by government entities at different levels to govern public payments to private ecosystem stewards.* In the case of regulated ‘cap-and-trade’ markets, governments actually create the markets by inducing commercial demand for ecosystem services, and their allocation of initial credits and requirements for trading determine the ultimate social distribution of costs and benefits.

Political influences on the implementation of CRES. Once CRES frameworks are established, and even if they are established in a way that is nominally pro-poor, implementation may vary greatly, depending upon the capacity and strength of institutions to support their participation, and their own institutional strength, or lack thereof. Particularly important *is the rule of law and the evolution of mechanisms for dispute resolution and enforcement of contracts.* This becomes particularly challenging in countries with poor governance. There is no reason, a priori, to

imagine that public institutions will lead to more equitable results than private ones, as this depends on political economy factors, and in many Less Developed Countries (LDCs) inefficiencies in resource use are notable. Where public institutions do not provide the needed balances, then creative blends of alternative institutional mechanisms, including public-private cooperative interactions are needed, or CRES will not succeed.

Table 5. Policy Instruments promoting Ecosystem Services

Policy Instrument	Examples	Who Bears Cost?	Threats For Poor Landholders	Opportunities For Poor Landholders
NON-MARKET BASED				
1. Direct Public Management of Resources	<ul style="list-style-type: none"> National parks Watershed protection forests Public construction of fish channels around dams Windbreaks grown in Nicaragua to protect cities from cotton pesticide pollution 	<ul style="list-style-type: none"> General taxpayers Previous landowners 	<ul style="list-style-type: none"> Protected areas displace local people who may have been equal or better stewards of the resource and better met their livelihood and well-being goals Public actors may lack capacity, finances or legitimacy to establish and maintain management 	<ul style="list-style-type: none"> State commitment to protection of areas not attractive to generate markets for ES
2. Land/Resource Zoning & Management Regulations	<ul style="list-style-type: none"> Brazilian rule limiting forest clearing on farms in the Amazon Maryland rules on waste treatment from poultry farms Regulations limiting cultivation to defined distance from waterways Rules limiting farming activities in Biosphere Reserves 	<ul style="list-style-type: none"> Private landowners Polluting industries Taxpayers (for administration) 	<ul style="list-style-type: none"> State can define 'sustainable management to exclude traditional systems or innovations of the poor Zoning of protected areas can displace community managers who may have been more viable and sustainable in the long run Heavy pressure from colonists can lead zoned areas to be converted 	<ul style="list-style-type: none"> Building on societal values and norms to establish land use rules and internalizing environmental costs within production costs Generating fiscal resources for management Co-management with poor farmers to provide them more strategies
3. Taxes and subsidies	<ul style="list-style-type: none"> Provision of subsidized tree seedlings Tax incentives for private protected areas Tax breaks for conservation management 	<ul style="list-style-type: none"> General taxpayers Interagency budget allocation impacts 	<ul style="list-style-type: none"> Can create preference for big investors and large landowners Can establish or consolidate private tenure over contested resources 	<ul style="list-style-type: none"> Smallholders least likely to take advantage of programs unless organized to scale
4. Technical Assistance to Resource Stewards	<ul style="list-style-type: none"> Training of private foresters in sustainable forest management Extension programs for farmers on conservation tillage 	<ul style="list-style-type: none"> General taxpayers 	<ul style="list-style-type: none"> Doesn't secure tenure if stewards have limited recognized rights Tends not to reach extreme poor 	<ul style="list-style-type: none"> Stepping point for institutional linkages Can mobilize resources for stewards

Policy Instrument	Examples	Who Bears Cost?	Threats For Poor Landholders	Opportunities For Poor Landholders
COMPENSATION and REWARD for ES				
5. Public Payments to Landowners	<ul style="list-style-type: none"> • Paid permanent conservation easements on critical wildlife habitat • U.S. Wetlands Reserve Program, Conservation Reserve Program • New York City payments to landowners in upper watershed for conservation 	<ul style="list-style-type: none"> • General taxpayers • Beneficiary taxpayers 	<ul style="list-style-type: none"> • Unclear what landuses are acceptable • Tends not to have a cultural dimension or recognize traditional practice • 	Limited data on many case studies regarding participation by poor
6. Open Trading Under a Regulatory Cap	<ul style="list-style-type: none"> • Carbon emissions trading where carbon-emitting enterprises buy emission offsets from farmers to enhance farm C storage • Tradable development rights for biodiversity, under development in Brazil 	<ul style="list-style-type: none"> • Regulated industries 	<ul style="list-style-type: none"> • Transaction costs are high and may require assuming risks that farmers cannot take • Markets likely to be limited to high value resources • organization may limit farmer decision-making and power • May set unfair precedents 	<ul style="list-style-type: none"> • Support mechanisms provide sources of funds and technical advice for poor farmers or producers
7. Private Payments for Ecosystem Services (Business Case)	<ul style="list-style-type: none"> • Evian company payment to landowners around bottled water sources • Eco-tourism operators pay to maintain landscape beauty or coral reefs • Downstream communities pay upstream communities to keep livestock out of water supply 	<ul style="list-style-type: none"> • Private beneficiaries of ecosystem services 	<ul style="list-style-type: none"> • Private institutions may not have pro-poor interests • Communities do not have organization to offer ES • Intermediaries may not be effective or may take over profit stream (ecotourism) • May limit rightful claims to land and resources (e.g. Zimbabwe) 	<ul style="list-style-type: none"> • Many creative informal cases exist, i.e. Mexico and India, but not documented • Mixed record on ecotourism and requires more analysis of positive and negative cases – where social capital is strong, more likely to benefit
8. Product Market Premiums	<ul style="list-style-type: none"> • Eco-labeling/branding ('salmon-safe') • Certification (FSC, 'conservation farming', 'organic') 	<ul style="list-style-type: none"> • Consumers 	<ul style="list-style-type: none"> • High transaction costs and poor may not have desire or ability to deliver to market—poor may be better off not in this market • Often not culturally sensitive 	<ul style="list-style-type: none"> • Validates land uses of the poor and demonstrates conservation achievements • Support for capacity building on business and technical skills

5. Conclusions and Recommendations for Priority Action and Research

5.1. Conclusions about Pro-poor Institution-building

- (a) Where CRES allows flexibility and autonomy in creating a deal, there is more opportunity for pro-poor design. Some CRES types where institutional structures are defined at a global scale, such as the Clean Development Mechanism (CDM) for the Carbon market, may limit the opportunity for local deal making. The opportunity for local conditions to define the frameworks that are established is critical. In addition, it is not advisable to borrow frameworks that operate in other settings without redesigning them in participation with local stakeholders. Similarly, the supporting institutional structures and norms that surround CRES need to arise from local realities.

The parties concerned need to be aware that market driven deals will generally not have the same degree of flexibility as those involving governments or government subsidizing of some of the costs. The market will look for the lowest cost, less transaction and risk-laden action. Early adopters or early deal makers may later find that their private investor has moved on to 'greener' territory, and therefore governments and NGOs should play an awareness raising role to be sure that false hopes are not raised, and contract enforcement is upheld. If there is an additional incentive for government to have poor sellers in the marketplace—i.e. other stewards are less effective or welfare state is more expensive, the government should provide the complementary support or subsidies so that poor sellers can compete in the market place, or seek alternatives.

- (b) Political economy developments can result in harm to the poor. CRES can create winners since it develops financial incentives which are attractive to multiple parties. Thus, the stake to impact the design of regulations is large. Parties interested in pro-poor outcomes must beware that those who promote CRES are sometimes in fact circumventing power dynamics. CRES therefore needs strengthened rules and a reform process that parallels the power dynamics. In addition, CRES is being applied in areas as a means to solve problems of dysfunctional regulations. Government has an important role to play in monitoring evolution of the market and CRES, modifying legal and regulatory frameworks, strengthening judicial systems, and intervening when other actors foster inequities. Since lack of governance was a key reason CRES became so attractive, caution is needed in ensuring the development of pro-poor CRES outcomes.
- (c) Providing greater tenure security to rural farmers or pastoralists, coastal or forest dependent peoples and communities is a first step to ensure environmentally positive action, and *sine qua non* condition for CRES to operate. Tenure security is location, historically, and politically variable, yet an important element of CRES systems and transactions given the flux in state, community, and private ownership and control of land resources, and given the changing product market opportunities. Ensuring PES is the appropriate tool to use given local conditions is critical, as compares to the suite of environmental and community development tools.
- (d) There are already a wide range of institutional models of CRES that can benefit the poor. Some that are being applied to CRES and others that could be adapted for pro-poor outcomes. The successful models that have been applied include features such as: building upon and strengthening existing institutions of the poor, allowing flexibility in

land use options and in the timeframe for adoption and adaptation of land use, simplification of monitoring and reporting to fit local capacity, and orientation and training of intermediary organizations who serve as brokers to the poor and help them to aggregate supply. Institutional development is a long-term process, lessons on using culturally appropriate arrangements for organization and transactions, local capacity building for technical skills and increased political influence, and ensuring adequate and regular income flows from natural resource management programs or co-management of biodiversity areas can be applied to CRES. Intermediaries often have a poor understanding of the technical options and the demands of the marketplace, or the elements of a successful transaction, or can wrest control from the buyers and sellers.

- (e) Build in adequate monitoring of outcomes, so that unanticipated consequences of private deals can be addressed early on through better institutional support or modification of the rules—e.g. private deals which dramatically increase the value of land or land uses can push farmers off their land if the transaction costs of the deal are too high or attract speculators who can displace farmers whose tenure is not secure or encourage them to sell their land and move.

5.2. Recommended Priority Actions

In order to facilitate some of the key changes and prompt the evolution of pro-poor models of CRES, some critical areas of work can be taken on, or support provided for existing institutions focused on this work.

- (a) Promote the development of clear property rights where CRES demonstrates potential from the perspective of both buyers and sellers. In countries that have recognized markets or payments for ES in their legislation, support the development of related legal instruments and judicial processes governing contracts and their enforcement, as well as mechanisms to negotiate or adjudicate conflicts.
- (b) The development of platforms for CRES to assume a participatory negotiation process is critical; both at the macro policy level, and within negotiating terms of individual CRES deals. Giving strength and capacities in the negotiations process to pro-poor parties can result from focused efforts to develop How-to materials, policy making platforms which are inclusive of stakeholders and other capacity building activities. There are various groups already focused on these actions in less developed countries. Additional investment and subsidy is needed to include the poor and marginal groups like women and ethnic minorities.
- (c) Transactions costs have to be lowered, taking into consideration economic factors driving land use patterns. Measures are needed to cover short-term costs faced by the poor to engage in these transactions and to manage risks. Information and capacity building is key, particularly to build efficient local institutions that can participate in CRES without heightening transactions costs. CRES deals are creating precedents that shape the evolution of arrangements which have important implications for the poor. As such, it is important to invest time and effort to encouraging the promotion of CRES deals and projects in circumstances that are favorable to the poor, in order to advance the learning and shape the use of this tool. In fact, the window of opportunity is short for transforming ecosystem services from deals relying on trust and project or location

specific underpinnings to creating and establishing the needed legal, scientific and regulatory frameworks for the transactions to stand alone. Many of these evolving markets, particularly the global forest carbon market, are still small and very fragile. Thus, strong concerted efforts to ensure a robust set of 'lean' institutions that can guarantee needs of buyers and sellers, and society as a whole are critical to produce in the coming years.

Within this effort, it is critical that pro-poor CRES be based on robust and rigorous methodologies for ensuring the delivery of the ecosystem service in question. If buyers can not be assured that the service they are paying for is consistently delivered, deals will not be maintained, and the opportunity to gain income from land management practices via CRES will be wasted. Methods to provide support to the development of key baseline data, mapping of services, and other efforts to reduce transactions costs for the CRES system, can help in this regard.

- (d) Build on institutions with a track record of working with pro-poor parties and who understand the needs of this sector. Developing skills in CRES for these parties is more appropriate than new parties entering the space. In some cases, communities and indigenous peoples have sought their own, direct links to markets and CRES, even lowering benefits, to keep their autonomy vis-à-vis NGOs and private actors with whom they have a negative history. Their institutions need to be directly strengthened in these cases rather than increase intermediation. At the same time, investment in institutional innovation is critical to ensure that the CRES system, projects and programs evolve with an underlying consideration of pro-poor concerns. One way to do this is to support the critical role of sharing of information that targets the poor, being already played by existing groups like the Katoomba Group and the Community Portal of the Ecosystem Marketplace, REDFORESTAL and its member horizontal networks of communities and their associations, and many locally based partner institutions.
- (e) Frameworks need to be designed to encourage a flexible and significant role for characteristics of the local conditions. Mechanisms to provide alternative sources of income where the land use is not adequate to expect payments from CRES to support the seller are also important. CRES should not be considered the silver bullet that resolves all local needs.

5.3. Recommended Further Research

1. Understand what has been the enabling or limiting role of government and external institutions in situations where voluntary private deals are emerging independent of the government (water tanks and upland pastoralists in India, watershed residents and urban city dwellers in boroughs in D.F., Mexico)?
2. Document case studies more systematically, including the real costs and benefits of the various institutional models that arise throughout the value chain, so that other actors can make design decisions based on better information. Ensure the widespread dissemination of information and lessons about how to reduce actual costs.

3. Analyze the lessons from building upon existing institutions of the poor and in developing local capacity which is sensitive to cultural values, empowerment of marginal actors, and respectful of traditional land use and practices.
4. Define what can be learned from other specialists about how to best handle conflict and compliance problems with contracts? Until now have conflicts been dealt with in private arrangements, or in public courts, or in customary courts? (Refer to irrigation and groundwater rights deals, lawyers on contracts for concessions, licensing, specialists on forest concessions, easements, etc.)
5. Under what conditions does the role of local government in providing support to buyers and sellers – (information about opportunities, more realistic regulatory frameworks, political space for local voices) operate more or less desirably as compared to extension services or NGOs or CBO's?
6. Role of intermediaries for CRES (e.g. e-choupal in India is investment by Agrobusiness to gain value from commodity purchasing and increase its own sales share – it paid for itself and required no intermediary) When is this the case and when is a 'broker' (association, private firm, NGO, government agency) needed instead?
7. Rather than research on specific institutional choices (NGOs, CBOs, private companies, government watershed authorities, and research institutions), look at the function that needs to be played, what it consists of, and then see how specific types of institutions have been effective or ineffective in those roles. Analyze models of accountability to local sellers and beneficiaries.
8. Can CRES be expected to follow the normal track of development in markets and financial transactions? Will government, private parties, informal and formal actors operate differently in CRES?
9. How can international conventions (CBD, CDM, UNFCCC, WTO, ITTO) play a stronger role in promoting pro-poor CRES through their definition of principles and rules?
10. Support development of methodologies that are under development to learn how CRES for multiple services can be effectively bundled to reduce transaction costs and increase benefit streams— for example, where water, biodiversity, recreation, carbon is sold, or ecolabelling of multiple products occurs simultaneously.
11. Analyze models for transferring skills and knowledge to the local level. How is it best to incorporate learning? How can local beneficiaries, farmers and communities be brought into the monitoring process, so that they can maximize the opportunities, and so that their organizational arrangements are incorporated the CRES models?

References

- Chomitz, K. M., Brenes, E., & Constantino, L. 1998. Financing environmental services: The Costa Rican experience and its implications. *Science of the Total Environment*, 240, 157–169
- Dietz, T., Ostrom, E., and Stern, P. 2003. The Struggle to Govern the Commons. *Science*. Volume 302: 1907-1912.
- Dolzer, R., and Thesing, J. Eds. 2000. *Protecting our Environment*. Sankt Augustin: Konrad-Adenauer-Stiftung.
- Duraiappah, A. 2004. *Exploring the Links: Human Well-being, Poverty and Ecosystem Services (United Nations Environment Program 2004)*. Winnipeg, Manitoba: Published by International Institute for Sustainable Development (IISD) for the UNEP.
- Forest Trends. 2005. UNDP/GEF Project document: Institutionalizing payments for ecosystem services. A Forest Trends Proposal to UNDP/GEF. Washington, D.C.: Forest Trends and Ecoagriculture Partners.
- Ghimire, K. and Pimbert, M. 1997. *Social Change and Conservation*. London: Earthscan.
- Gibson, C.C., Williams, J.T. and Ostrom, E. 2005. Local Enforcement and Better Forests. *World Development*. 33(2): 273-284.
- Gjertsen, H. and Barrett, C. 2004. Context-dependent Biodiversity Conservation Management Regimes: Theory and Simulations. *Land Economics*. 80(3): 323-341.
- Hartmann, J. and Petersen, L. 2005. 'Marketing' environmental services: lessons learned in German Development Co-operation. In L. Merino, and J. Robson (Eds.), *Managing the commons: Payment for environmental services*. 20-33. México: Consejo Civil Mexicano para la Silvicultura Sostenible A.C.
- IIED. 2004. Developing Markets for Watershed Protection Services and Improved Livelihoods, *Implementation Phase Planning Workshop Report*. London: International Institute for Environment and Development (IIED) www.iied.org/forestry/research/projects/water.html.
- Katoomba Group's Ecosystem Marketplace. 2006. *Conservation economy backgrounder*. <www.ecosystemmarketplace.com> Accessed June 16, 2006.
- Katoomba Group's Ecosystem Marketplace. 2006. *A Tale of Two Continents. Ecosystem Services in Latin America and East and Southern Africa*. <www.ecosystemmarketplace.com> Accessed June 16, 2006.
- King, N., Letsaolo, A. and Rapholo, B. 2003. Developing Markets for Watershed Protection Services and Improved Livelihoods: A Diagnostic for South Africa, *Discussion Paper*. Pretoria/London: CSIR/IIED
- Landell-Mills, N. 2002. Marketing Forest Environmental Services-Who Benefits?, *Gatekeeper Series No.104*. London: International Institute for Environment and Development.
- Millennium Ecosystem Assessment. 2003. *Ecosystems and Human Well-being: A Framework for Assessment*. Washington D.C.: Island Press.
- Molnar, A, Scherr, SJ, Khare, A. Community Stewardship of Biodiversity Chapter 15 in Scherr SJ and McNeely JA, eds. 2007. *Farming with Nature: The Science and Practice of Ecoagriculture*. Island Press: Washington, DC.
- Pagiola, S., Arcenas, A and Platais, G. 2005. Can Payments for Environmental Services Help to Reduce Poverty? An Exploration of the Issues and the Evidence to Date from Latin America. *World Development*. Volume 33(No.2): 237-253.
- Pagiola, S., Bishop, J and Landell-Mills, N. Eds. 2002. *Selling Forest Environmental Services: Market-based Mechanisms for Conservation and Development*. London, UK: Earthscan.
- Perrot-Maitre, D. and Davis. P. 2001. *Case-studies of Markets and Innovative Financial Mechanisms for Water Services from Forests*. Washington DC: Forests Trends.
- Rosa H, Kandel S and Dimas L. 2003. Compensation for Environmental Services and Rural Communities: Lessons from the Americas and Key Issues for Strengthening Community Strategies (San Salvador: PRISMA).
- Scherr, S.J., Bennett, M.T. and Loughney, M. 2006. *Lessons Learned from International Experience with Payments for Ecosystem Services: Issues for Future PES Development in China*. Washington, DC: Forest Trends and Ecoagriculture Partners.
- Scherr, S.J., Milder, J.M.C., Lipper, L. and Zurek, M. 2007. Payments for Ecosystem Services: Potential Contributions to Smallholder Agriculture in Developing Countries. Ecoagriculture Discussion Paper No. 4. Washington, DC: Ecoagriculture Partners and FAO. Draft.

- Scherr, S.J et al. 2007. *How important will different types of CRES be in shaping poverty & ecosystem services across Africa, Asia & Latin America over the next two decades?* CES Scoping Study Issue Paper no. 5. ICRAF Working Paper no. 40. Nairobi: World Agroforestry Centre.
- Scherr S.J., Bracer B. and Borges B. 2007 forthcoming. "Reducing Poverty through PES: Potentials and Priorities" *Forest Trends*. □ □
- Smith, J. and Scherr. S.J. 2002. *Forest carbon and local livelihoods: Assessment of opportunities and policy recommendations*. Occasional Paper No. 37. Bogor, Indonesia: Center for International Forestry Research and Forest Trends.
- Smith, J and SJ Scherr.2003. Capturing the Value of Forest Carbon for Local Livelihoods. *World Development*, Vol. 31. No. 12, pp 2143 -2160.
- Swallow, B. 2005. Potential for Poverty Reduction Strategies to Address Community Priorities: Case Study of Kenya. *World Development*. Volume 33(No.2): 301-321.
- Swallow B, Kallesoe M, Iftikhar U, van Noordwijk M, Bracer C, Scherr S, Raju KV, Poats S, Duraiappah A, Ochieng B, Mallee H and Rumley R. 2007a. *Compensation and Rewards for Environmental Services in the Developing World: Framing Pan-Tropical Analysis and Comparison*. ICRAF Working Paper no. 32. Nairobi: World Agroforestry Centre.
- Swallow B, Leimona B, Yatich T, Velarde SJ and Puttaswamaiah S. 2007b. *The Conditions for Effective Mechanisms of Compensation and Rewards for Environmental Services*: CES Scoping Study, Issue Paper no.3. ICRAF Working Paper no. 38. Nairobi, Kenya: World Agroforestry Centre.
- Vallejo, S. 2006 unpublished. Legislative frameworks for CRES in Latin America. Prepared for the Latin America Regional Workshop for this global Scoping Study.
- Van Noordwijk, M. et.al. 2007. *Criteria and indication for Environmental Service compensation and reward mechanisms: realistic, voluntary, conditional and pro-poor*: CES Scoping Study Issue Paper no. 2. ICRAF Working Paper no. 37. Nairobi: World Agroforestry Centre.
- Wade, R. 1988. *Village Republics: Economic Conditions for Collective Action in South India*. Cambridge: Cambridge University Press.
- WRI, UNDP, UNEP, and World Bank. 2005. *World Resources 2005: The Wealth of the Poor-Managing Ecosystems to Fight Poverty*. Washington D.C.: World Resources Institute(WRI).
- Zbinden, S. and Lee, D. 2005. Paying for Environmental Services: An Analysis of Participation in Costa Rica's PSA Program. *World Development*. Volume 33(No.2): 255-272.

ANNEX A. Institutional Stepwise Process of Developing CRES Agreements¹⁶

Step 1: Assessing Institutional and Technical Capacity

Context is everything. Before contemplating whether or not to design and implement a CRES scheme, it is important to understand the context in which CRES will take place. Laws, practices and institutions should support these new transactions.

▪ Assess existence of enabling laws and policies
▪ Review land tenure and property rights in a prospective CRES deal region
▪ Examine existing rules for market trading
▪ Map available CRES-support services and institutions

Step 2: Identifying Ecosystem Services and Potential Deals

To develop a PES project, technical experts, producers and buyers must agree on the actions required by the seller and the benefits derived via these actions by the buyer. It can sometimes be useful to better understand the biophysical linkages between land uses and ecosystem service benefits, though this is not always necessary. It depends, essentially, on what the buyers are willing to buy and what the sellers are willing to sell. In later steps, certification and monitoring methods are explained as ways to check progress on the sellers' provision of the service.

A lack of reliable and detailed information on land uses and ecosystem services is often the 'Achilles heel' of payment schemes. People seldom part with their money unless they are confident that they will receive equal value in return. Uncertainty about the delivery of the ecosystem service may also drive down the price. Therefore, the ability to assess and measure ecosystem services from the outset can be extremely important. It is also important to refer to regional environmental planning documents (such as Biodiversity Action Plans and national/regional climate change strategies) to understand the context for your project.

The main steps to carry out, which will require interaction with various different institutions and organizations, include:

▪ Assess environmental characteristics and define the ecosystem service
▪ Assess marketable financial value and sustainability
▪ Verify local institutional capacity and select support service providers
▪ Identify Buyers
▪ Identify Sellers

Step 3: Structuring Agreements

CRES agreements should clearly lay out:

¹⁶ This Annex follows the outline of steps in the manual by the International Katoomba Group: "Getting Started with PES: An Introductory Primer to Making PES Agreements", forthcoming 2007, and online at www.katoombagroup.org.

- who is responsible for what actions,
- what ecosystem service results are expected, and how they will be demonstrated
- who will receive what amount of money in a specified time frame.

The process of structuring agreements is time-consuming. Consulting with external experts and advisors can be useful to ensure that the agreements are entered into knowledgeably on all sides, particularly given that CRES transactions often take place over long periods of time (20-40 years) based on the service and the contract agreement. These extended time periods mean that business plans must include provisions for the expected transfer of management over time. Overall, management that is planned from the outset to adapt to the results of monitoring and periodic verification will help to ensure that a successful agreement can continue to be carried out.

For prospective sellers, it is very important to understand the implications if they fail to meet the terms of the agreement, either due to their own inaction or due to unanticipated events beyond their control (such as a forest fires moving through an area planted for carbon sequestration). All responses to potential risks must be clear and discussed with buyers.

▪ Design basic management and business plan
▪ Reduce Transaction Costs
▪ Select Suitable Payment Mechanisms
▪ Select Contract Type and Terms of Finance

Step 4: Implementing PES Transactions and Payments

After an agreement is made, one can begin to implement the CRES deal. During this stage, the CRES project must not only be managed effectively but also consistently monitored and evaluated for service delivery and adequate distribution of benefits. Third party verification (and in some cases certification) may also be required to ensure that the project is meeting its objectives, depending on the buyers' preferences. The ability to continue monitoring outcomes and reporting results to show progress over time is imperative.

It is seldom mentioned that this last set of steps is iterative, but it is critical to note that the project is continually managed for often extended periods of time (20-40 years) based on the service and the contract agreement. Management that is planned from the outset to adapt to the results of monitoring and periodic verification will help to ensure that a successful agreement can continue to be carried out over the duration of the agreement.

▪ Finalize PES management plan and initiate activities
▪ Verify service delivery and benefits
▪ Monitor and evaluate the project

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34. Asia Regional Workshop on Compensation for Ecosystems Services. A component of the global scoping study on compensation for ecosystem services.
35. African Regional Workshop on Compensation for Ecosystem Services (CES).
36. Exploring the inter-linkages among and between Compensation and Rewards for Ecosystem Services (CRES) and human well-being: CES Scoping Study Issue Paper no. 1.
37. Criteria and indicators for environmental service compensation and reward mechanisms: realistic, voluntary, conditional and pro-poor: CES Scoping Study Issue Paper no. 2.
38. The conditions for effective mechanisms of Compensation and Rewards for Environmental Services (CRES): CES Scoping Study Issue Paper no. 3.
- 39.** Organization and governance for fostering pro-poor Compensation for Environmental Services: CES Scoping Study Issue Paper no. 4.
- 40.** How important will different types of Compensation and Reward Mechanisms be in shaping poverty & ecosystem services across Africa, Asia & Latin America over the next two decades? CES Scoping Study Issue Paper no. 5.

Who we are

The World Agroforestry Centre is the international leader in the science and practice of integrating 'working trees' on small farms and in rural landscapes. We have invigorated the ancient practice of growing trees on farms, using innovative science for development to transform lives and landscapes.

Our vision

Our Vision is an 'Agroforestry Transformation' in the developing world resulting in a massive increase in the use of working trees on working landscapes by smallholder rural households that helps ensure security in food, nutrition, income, health, shelter and energy and a regenerated environment.

Our mission

Our mission is to advance the science and practice of agroforestry to help realize an 'Agroforestry Transformation' throughout the developing world.

