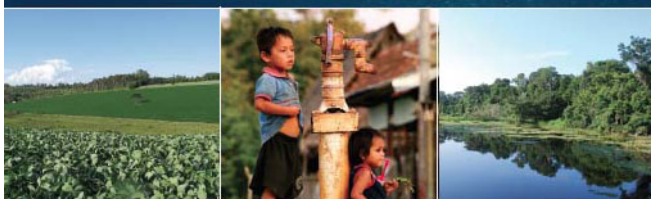


Edited by Bárbara A. Willaarts,
Alberto Garrido
and M. Ramón Llamas



Water for Food Security and Well-Being in Latin America and the Caribbean

Social and Environmental Implications
for a Globalized Economy



Earthscan Studies in
Water Resource Management

earthscan
from Routledge

Chapter 14

Legal framework and economic incentives for managing ecosystem services

To be cited as:

Willaarts, B.A., Fedorova, O., Arévalo, D., de la Mora, G., Echeverría, M., López-Gunn, E., Phumpiu-Chang, P. (2014), Legal framework and economic incentives for managing ecosystem services, In: Willaarts, B.A., Garrido, A., Llamas, M.R. (Eds.), *Water for Food and Wellbeing in Latin America and the Caribbean. Social and Environmental Implications for a Globalized Economy*. Routledge, Oxon and New York, pp. 365-384.

Book title

Water for Food and Wellbeing in Latin America and the Caribbean. Social and Environmental Implications for a Globalized Economy, Routledge, Oxon and New York, 432 pp.

Edited by: Bárbara A. Willaarts, Alberto Garrido and M.R. Llamas

Year: 2014

14

LEGAL FRAMEWORK AND ECONOMIC INCENTIVES FOR MANAGING ECOSYSTEM SERVICES

Authors:

Bárbara A. Willaarts, Water Observatory – Botín Foundation, and CEIGRAM, Technical University of Madrid, Spain
Olga Fedorova, CEIGRAM, Technical University of Madrid, Spain
Diego Arévalo Uribe, Water Management and Footprint. CTA – Centro de Ciencia y Tecnología de Antioquia, Colombia
Gabriela de la Mora, Instituto de Investigaciones Sociales, Monterrey, Mexico
Marta Echavarría, Fundadora y Directora de Ecodecisión, Colombia
Elena López-Gunn, I-Catalist, Complutense University of Madrid, and Water Observatory – Botín Foundation, Spain
Patricia Phumpiu Chang, Centro del Agua para América Latina y el Caribe – ITESM, Monterrey, Mexico

Contributors:

Marta Rica, Water Observatory – Botín Foundation, and Complutense University of Madrid, Spain.

Highlights

- Payment for Ecosystem Services (PES) are rapidly emerging in LAC as complementary conservation measures to classic command and control policies. The majority of the PES programmes being implemented so far are focused on protecting headwaters in order to ensure the provision of water related services for urban areas. Carbon and biodiversity markets are less developed yet.
- Water-related PES schemes tend to be set up within a well-defined geographical setting, i.e. the watershed, which makes relatively easier to identify service sellers and buyers. Carbon and biodiversity services deliver benefits on much broader scales (often global), making difficult the identification of those service 'buyers' that should pay for supporting ecosystem services.
- The existing PES schemes in LAC have arisen from specific social and political arrangements between public and private actors involved in conservation rather than through legal mechanisms that have fostered these schemes. Legal frameworks explicitly supporting PES or PES like schemes are emerging across many countries, particularly in Peru, Brazil, Colombia and Mexico.
- The great majority of the PES initiatives in LAC have been developed at a local scale. Nevertheless, the development of institutional and legal frameworks related to ecosystem services management occurs on at least two political-geographical scales: national and sub-national (provincial governments and municipalities).
- PES could benefit from a legal framework but it is not a requirement for implementation. However, stable and enforceable contractual law and clear and secure land tenure along with property rights are necessary conditions for successful implementation.

14.1 Introduction

Latin America and the Caribbean (LAC) region has an outstanding natural capital and contributes to the provision of multiple ecosystem services (ES) at a wide range of scales. ES are here understood as 'all those benefits, material and in-material provided by nature, which contribute to human wellbeing' (adapted from MA, 2005). They include productive services like food, drinking water, fibre or minerals, but also all those other benefits derived

from the well functioning of ecological processes (e.g. clean water, climate regulation, soil formation) and biodiversity conservation (e.g. eco-tourism, pollination, natural medicines).

The importance of LAC's natural capital is evidenced by the fact that this region holds approximately 70% of the world's vertebrates biodiversity (IUCN, 2013), 40% of the global aboveground carbon stocks (FAO, 2010a), 30% of total blue freshwater resources (FAO, 2013) and 13% of world heritage sites (UNESCO, 2013). Yet, the fast pace of development taking place in the region is generating a large pressure on LAC's natural capital, causing important environmental impacts and the loss of multiple ES, particularly regulating services (see Chapter 3). Two important factors explain current pressure on LAC's natural capital: 1) the prevailing economic model, which is natural resource use-intense and highly coupled yet; and 2) the large and often poorly urbanization process, which has large impacts on freshwater ecosystems and constitutes the most important driver of point water pollution. High commodity prices have stimulated the rapid growth of the primary sector in LAC (mostly of agriculture and mining), generating large negative environmental externalities (e.g. deforestation, diffuse pollution, soils degradation, etc.) and low interest in internalizing these costs to remain competitive, i.e. maintain its comparative advantage and support the prevailing *cheap* food policies. Similarly, urban growth encompasses a growing water demand to meet citizens needs, i.e. infrastructure development and water transfers, and yet investments in wastewater treatment plants are scarce, exacerbating the water pollution problem.

During the last decade different initiatives are emerging to incentivize the conservation and sound management of critical ES. Among all the different initiatives, economic incentives and payment for ecosystem services (PES) schemes are emerging as complementary strategies to traditional command and control environmental regulations, in an attempt to internalize the cost of non-market ES and deter its progressive degradation. Such schemes are also surfacing in those cases where no regulatory framework exists for managing natural resources but interest in preserving ES is significant (e.g. ensuring water quality to downstream urban citizens).

LAC is currently a leading region in the implementation of PES – particularly of water-related programmes – (Martín Ortega et al., 2012; Bennet et al., 2013), although the effectiveness of these programmes remains so far unclear, due to a variety of problems, including absence of baseline conditions, lack of clearly defined land tenure and property rights, and the financial un-sustainability, in many ongoing initiatives. Given the development path this region still has ahead, this chapter aims to review the success of ongoing PES schemes in LAC, as well as their institutional setting, to assess whether these instruments are useful and can foster a more green growth in this region and what would be the challenges ahead. Accordingly, Section 2 provides a fresh and up-to-date outlook on existing PES programs across LAC; Section 3 summarizes the legal and institutional setting in place for managing ES in the region; and lastly, section 4 analyses what are the main challenges and threats of PES schemes.

14.2 Economic incentives for managing water and land sustainably: payment for ecosystem services

As discussed in Chapter 13, economic mechanisms and incentives like PES, that pursue the integration of positive environmental externalities are increasingly being proposed as a promising approach for conserving ecosystem services. Mechanism such as PES are not intended to replace traditional command and control measures but to complement them by making them more acceptable (FAO, 2010b). In fact, PES incentives can support existing regulations, reducing the expected gain from non-compliance and even define opportunity costs for PES schemes (*ibid*). Also, when command and control regulations do not exist or are ineffective, PES might provide room for inclusive solutions that involve different stakeholders, as long as a stable contractual legal environment is in place (Grieg-Gran et al., 2006).

Yet, there is no overall agreement in the literature on what are PES schemes and what are not. Wunder (2007) has defined a set of criteria a PES scheme should fulfil to be distinguished from other incentive types: (1) a voluntary transaction in which (2) a well-defined environmental service (or land likely to in which a well-defined environmental service (or a land use likely to secure that service) (3) is 'bought' by a (minimum of one) buyer (4) from a (minimum of one) provider (5) if and only if the provider continuously secures the provision of the service (conditionality). Lately, however, there has been much debate over definitions when applied in practice, since many so-called PES schemes do not fulfil all the criteria set above. Other definitions providing a more encompassing approach to PES have been provided by Sommerville et al. (2009), who considers PES as an umbrella term where different schemes can be classified to '(1) transfer positive incentives to environmental service providers that are (2) conditional on the provision of the service, where successful implementation is based on a consideration of (1) additionality and (2) varying institutional contexts'. Muradian et al. (2010) propose a different conceptual framework, in which PES should not be limited to market transactions, but regarded as 'a transfer of resources (monetary or not) between social actors, which aims to create incentives to align individual and/or collective land use decisions with the social interest in the management of natural resources'. Such a framework would help PES schemes to not be rejected in a number of communities e.g. the indigenous Andean communities, which are highly sceptical on the monetarization of nature and ES, due to its public and collective prevailing nature (Wunder, 2006; FAO, 2010b).

Since there is yet not a clear consensus on what PES encompass, we have chosen to adopt a broad definition and generally refer to PES as 'any transaction, voluntary or regulated where there is a payment or exchange of credits (not necessarily monetary) between a buyer and seller that promotes some improvement of an ecosystem service' (adapted from Stanton et al., 2010). This implies that agreements such as 'reciprocal agreements', 'benefit sharing mechanisms', 'mitigation obligations' or 'offsets' are here included under the umbrella of PES or PES-like incentives.

LAC is today one of the frontrunners in the implementation of PES worldwide (Martin-Ortega et al., 2012). The reasons are diverse but probably influenced, among other factors,

by the large number of ongoing environmental problems, the importance of its vast natural capital and perhaps also the cultural values of LAC society towards nature. PES schemes in LAC took-off in the 1990s with Costa Rica taking the lead thanks to the development of the national PES programme *Pago por Servicios Ambientales* in 1997. Ongoing PES programmes in LAC can be classified into four main categories: water, biodiversity, carbon and marine programmes. Table 14.1 summarizes the main characteristics of ongoing water, carbon and biodiversity PES schemes. The countries supporting the largest and most diverse number of active PES programmes are Brazil, Mexico and Costa Rica. Ecuador is the country holding the largest number of active water-related PES. Among the different schemes, water-related PES are still the most popular initiatives (see Box 14.1) followed by carbon programmes. Biodiversity markets have not yet proved as popular in LAC. The underlying reasons for the success of water-related PES schemes could be partly attributed to the fact that these ecosystem services deliver their benefits within well-defined geographical settings (basin or a watershed), making it easier to identify service providers and beneficiaries, and facilitating the negotiation process. Conversely, actors engaged in carbon and biodiversity initiatives are harder to identify, since the benefits normally exceed the limits of a well-defined spatial unit (basin, country, continent), further complicating the negotiations and identification of services beneficiaries (and thus, buyers).

Table 14.1 Overview of PES and PES-like initiatives found across Latin America and the Caribbean

TARGET ES	PAYMENT/MARKET TYPE	FREQUENCY	NUMBER OF ACTIVE PROGRAMMES BY COUNTRY
WATER	Bilateral agreements (voluntary)	++	Bolivia (5) Brazil (4) Colombia (3) Costa Rica (2) Ecuador (10) Mexico (3) Peru (1)
	Beneficiaries-paid fund (~ trust funds)	+++	
	Water quality trading & offsets (regulatory)	+	
BIODIVERSITY	Cap and trade (mitigation & compensation)	+++	Argentina (1) Brazil (2) Colombia (1) Costa Rica (1) Mexico (1) Paraguay (2)
	Voluntary provisioning	+	
	Government-mediated payments (buyers of land to preserve an area)	+	
CARBON	Forestry based projects (REDD, afforestation, reforestation)	+++	Brazil Costa Rica Ecuador Peru *
	Renewable energy investments (wind, landfill, biomass)	++	Panama Mexico Nicaragua
	Investments in energy efficiency and fuel switch	++	

Source: own elaboration based on Bennett et al. (2013); Madsen et al. (2010) and Peters-Stanley and Hamilton (2012).

* No information was found on the number of carbon related programmes, rather on the amount of offset per country. In 2011 countries who achieved emission reductions through voluntary markets were: Brazil (>5 MtCO₂e/year) and to a lesser extent Peru, Ecuador, Panama, Nicaragua and Mexico (< 0.5 MtCO₂e/year).

Box 14.1 Watershed payment for ecosystem services in Latin America

Since the early 1990s various water-related PES schemes have been developed in Latin America (LA) to achieve win-win solutions that allow both finance conservation as well as stakeholder engagement at different levels. However, only a few of these PES schemes have so far been successful. Most have not managed to consolidate a common structure, with a lack a clear policy and institutional framework. Thus there are notable threats to this type of initiative, which prevent them from being successful.

Water-related PES programmes can be classified into: payments for watershed services (PWS), water quality trading (WQT) markets, and reciprocal or in-kind agreements (Stanton et al., 2010). Globally, between 2000 and 2008 the number of water related PES programmes had grown 500%, from fifty-one to almost 288¹ (Bennett et al., 2013). Among these 288 initiatives, the majority were PWS (75%) and the remaining (25%) were WQT. By 2011 the number of programmes had slightly dropped to 205. Some 60% of these programmes (128) are being developed in China and the US, whereas LA accounts for twenty-three active initiatives, the majority of which located in the Andean countries (Figure 14.1). Between 2008 and 2011 the number of water-related PES in LA declined (-22%). This variation, however, could be due to different factors like changes in the methodology used to record water-related PES schemes since 2008.

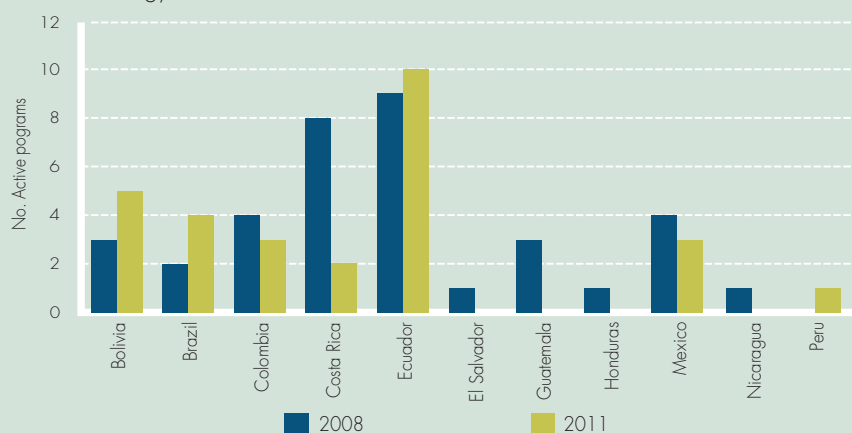


Figure 14.1 Watershed PES trends in the Latin America region. Source: based on Stanton et al. (2010) and Bennett et al. (2013)

Despite the negative overall trends, Peru, Bolivia, Brazil or Ecuador show an increase in water PES schemes. According to Bennett et al (2013), water PES in LAC are expected to grow in the years to come due to new water funds being created and increased funding for national programmes (e.g. in Mexico and Ecuador).

¹ The information available is very heterogeneous in quality and quantity which makes it difficult to establish trends on the current state of PES initiatives.

Regarding the nature of the PES schemes, voluntary programmes prevail in LAC, particularly among water and carbon initiatives, while biodiversity markets are for the most part regulatory based (cap and trade schemes). Examples of voluntary agreements of water-related PES schemes include the bilateral agreements where service buyers, e.g. drinking water companies and hydroelectric generators (public or private), pay upstream service sellers, e.g. landowners, within a watershed to improve their land use management practices to ensure service provision downstream i.e. sufficient water and/or of good quality (Table 14.2). Besides the monetary exchanges, in-kind payments, e.g. provision of agro-inputs, technical training or land tenure security are also frequent types of transactions. Monetary payments are frequently determined in two ways: either through the opportunity cost or by the estimation of willingness to pay. In some cases the price per hectare paid to landowners is estimated as an anti-poverty subsidy in order to provide a ‘fair’ income to poor communities.

Table 14.2 Main characteristics of water-related payments for ecosystem services programmes

WATER PES TYPES	PAYMENT MECHANISM	ACTIVITIES FUNDED	TRANSACTION TYPES	ACTORS INVOLVED
PUBLIC (GOVERNMENT)	Direct Subsidies	Improving land management activities (Best Agricultural Practices; Ecological restoration)	Monetary or in-kind payments (Agro-inputs, technical training, or tenure security)	<p>Buyers/Funders: Governments, NGOs, private companies</p> <p>Sellers/Beneficiaries: Land owners, informal stewards, government nature reserves, NGOs with title and management responsibility of protected areas</p> <p>Administrators: those establishing the specifics of the transaction and facilitating any negotiation between the buyers and sellers</p> <p>Intermediaries: facilitators of the transaction or implementation of the project</p> <p>Funders: Governments and donors (multilateral banks, NGOs, private interests) financing part of the project in addition to the buyers</p>
	Land Purchase			
	Transfer of development rights	Forest Management Practices (Afforestation/ Reforestation)		
PRIVATE (COMPANIES, NGOS)	Subsidies from private sources rights	Protection measures aiming at promoting economic activities alternative to those driving land degradation and deforestation.		
	Fees for watershed protection			

Source: own elaboration based on Stanton et al. (2010)

Other voluntary water-related PES schemes rapidly emerging in LAC are the ‘water trust funds’. Such water funds are normally created by different public and private partners, including agent donors, who create a long-term financial mechanism or a trust fund as defined by local financial regulations. The returns of this fund and sometimes some portion of the principal investment are directed towards watershed actions e.g. restoring degraded lands, adopting sustainable farming practices, reforestation and educating

children about sustainable water management (Bennett et al., 2013). This fund is managed by a stakeholder board also called 'administrators' who are different from the service buyers; they make joint decisions about best investments across the watershed. These types of water funds are currently the dominant form of active watershed PES schemes in LAC. In fact, a new public-private initiative, the so-called 'Latin American Water Funds Partnership', a joint initiative supported by the Nature Conservancy, the FEMSA Foundation, the Inter-American Development Bank (IDB) and the Global Environment Facility (GEF) has committed \$27 million to develop and spread water funds across LAC. The Partnership plans to support at least thirty-two funds in total, protecting more than 2.8 million hectares in the coming years.

Regarding carbon payments, they can be either regulated or voluntary. Regulated markets, specifically designed for developed countries or Annex I parties of the United Nations Framework Convention on Climate Change (UNFCCC), are bound to certain emission reduction targets. Options to meet this commitment include different mechanisms where the project-based Clean Development Mechanism (CDM) is among the most common. The project-based CDM refers mostly to projects funded by developed countries or companies which contribute to reducing emissions in developing countries and make progress towards sustainable development. In doing so, developed countries offset part of their emissions and at the same time promote low carbon economies in developing countries. Renewable energy projects (e.g. wind, biomass, and landfill) and forestry projects (afforestation and reforestation) are the most common initiatives currently active in LAC. Since LAC countries are non-Annex I, they are not bound to any emission reduction commitment and therefore carbon market initiatives are all voluntary. Voluntary markets include emission reduction projects like REDD (Reduced Emissions from Deforestation and Forest Degradation), a source of funds still under negotiation from which LAC countries could benefit by receiving compensation payments for maintaining forests and preventing deforestation. The designers of REDD hope to deliver additional sustainable development benefits beyond simple carbon sequestration, creating a triple 'win' for climate change mitigation, biodiversity conservation, and poverty alleviation (Johns, 2012). However, UNFCCC negotiations on REDD are ongoing and significant aspects of the final design remain unresolved (see Box 3.2, Chapter 3).

Payments specifically designed for biodiversity conservation are very limited in LAC. Biodiversity markets are normally established with the purpose of creating a payment that can help to protect or restore habitats and species. Principally there are three types: regulatory compliance, government-mediated payments, and voluntary provisioning. The prevalence of the regulatory type in LAC is probably related to the fact that biodiversity markets are not yet well developed. Such regulatory transactions occur in countries like Brazil or Paraguay, where companies and developers are enforced by the national law or by the constitution to mitigate and compensate the environmental impacts of their activities. For instance, the Brazilian Forestry Code (Codigo Florestal, enacted 1965) stipulated that landowners must keep a certain percentage of natural vegetation on their land. In those cases where deforestation and vegetation clearance will exceed the legal

quota, compliance with the law can still partly be met through off-site conservation, e.g. compensating other landowners within the same watershed to retain more than the minimum percentage of native vegetation cover. These Forest Code offsets have the potential to evolve into a formal bank, which is still under discussion at the state level. However, their success requires strict law enforcement to avoid uneven ecological compensations (e.g. destruction of a high-quality habitat by purchasing a low quality one). Some voluntary biodiversity markets also exist in LAC. For instance, government-mediated payments have, for a long time, been the most frequent mechanism to achieve conservation goals. Such types of payment involve governments and in some cases non-profit organizations purchasing land or creating payment programmes for biodiversity stewardship in those cases where there is public demand for biodiversity goods and services. Other voluntary markets include the Conservation Trust created in Paraguay where project developers can pay into a fund to compensate for damages as required by the Paraguayan Constitution. Emerging voluntary biodiversity PES schemes will include land markets for habitats of high biodiversity value, payments for biodiversity management, payments for private access to view a species or see its habitat, tradable rights and credits and biodiversity-conserving businesses (Bishop et al., 2008).

Overall, it is important to highlight that, while many of the PES schemes are focused on a single service, the number of programmes aimed at protecting or simultaneously restoring multiple ecosystem services is growing. These combined programmes are known as either 'bundle' or 'stacked' payments (Cooley and Olander, 2011). A bundle payment is a unique payment for the conservation or restoration of an area that simultaneously delivers multiple services (e.g. payments executed through the Costa Rica PES programme *Programa de Servicios Ambientales-PSA*). In this case, landowners receive a single payment for preserving or restoring the forest with the intention of ensuring the provision of multiple services such as carbon sequestration, biodiversity conservation, maintenance of the landscape aesthetic and the provision of hydrological services. Stacked PES programmes are separate payments sold by a landowner to different buyers with the intention of securing different services within the same area.

14.3 Enabling conditions for implementing incentives supporting ecosystem services

14.3.1 Constitutional recognition and existing laws on ES and PES

The social, economic and biophysical aspects of ecosystem services have received considerable attention in the past. However, little analysis exists on the legal and institutional setting and to what extent such frameworks support or hamper the flow of ecosystem services. In LAC, most constitutions recognize the right of people to enjoy a good quality environment and the duty of the state to preserve it, although in practice this has very

different conceptualizations. This recognition is due to two factors: first, to an increase in the standard of living conditions; and second, to the growing importance of post-material and ecological values in society, spurred by international summits such as Stockholm (1972), Rio (1992), Rio +10 (2002) and Rio +20 (2012). This environmental awareness links with deep, entrenched autochthonous concepts such as 'good living' (*buen vivir*). Globally, over 177 countries explicitly recognize a 'right to a clean environment' (Boyd, 2012), fifteen of which belong to LAC (see Figure 14.2). LAC as a region in fact leads both in the recognition of a right to a clean environment, guaranteeing the environment as an individual's right, and also recognizing nature in terms of rights, as is the case of Ecuador (Murcia, 2011). Yet the main criticism associated with environmental rights in LAC, and elsewhere, is the weaknesses of mechanisms that could enforce this protection, since these rights are not always fundamental rights (Olivares, 2010).

ES are not explicitly considered in any of the LAC constitutions except for Ecuador, which acknowledges in article 74 of its political constitution that '*ecosystem services will not be subject to appropriation; their production provision, use and exploitation shall be regulated by the state*'. The inclusion of ES conservation in the constitutions has a great potential to give legal standing to the value of nature and/or ecosystem services, thus creating an acquiescent regulatory frame for developing pro-conservation mechanisms. However, reality shows that explicitly recognizing ES can sometimes limit environmental conservation. In Ecuador, ownership and exploitation of ES is attributed to the government, which instead of supporting local PES schemes is working towards obtaining international financing for ES maintenance, which may undermine the establishment of locally funded PES schemes (Southgate and Wunder, 2009). The non-explicit consideration of ES in political constitutions might not pose a problem as long as it does not prevent the development of initiatives aimed at preserving and maintaining them (Greiber, 2009). As previously mentioned, PES schemes operate effectively when property rights and land tenure are defined and it is easy to sign PES contractual agreements by the different stakeholders (FAO, 2010b).

From this constitutional acknowledgement, different legal frameworks have been developed to protect LAC's natural capital, e.g. biodiversity, carbon, forests, water and protected areas (see Table 14.3). Yet, no country in LAC has passed a national law on the general regulation of ES nor on PES, although Brazil, Peru, Mexico and Colombia are pending approval of such legislation. Regional and sub-national regulations on PES have been yet established in Brazil and Mexico. As Table 14.3 shows, in most countries, ES management falls under the umbrella of a wide range of environmental laws, predominantly those of forestry and water resources. Within these different environmental laws, arrangements have been set up regarding specific regional PES programmes. For instance, in Costa Rica under the Forestry law 7575 the managing body of the national PES programme, FONAFIFO, was established; and in Mexico legal frameworks and government funding channels were set up from the outset of their respective PES programmes (PSAH and PSA-CABSA) (Hall, 2008).

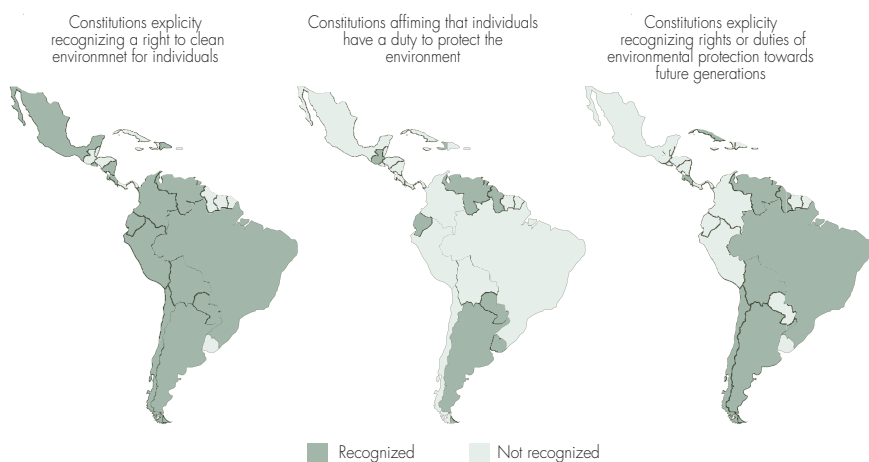


Figure 14.2 Constitutional recognition of the right to a clean environment in LA. *Source: own elaboration based on NCJM (2011) and RBA (2013)*

Most legal frameworks that refer to ES and PES foresee the creation of valuation instruments of natural resources according to their social and economic contribution and the ES these provide. Whether all these regulatory frameworks are effective or not in managing and preserving ES is hard to assess since, in many cases, no baseline exists to compare and analyse progress (See Table 14.4). Thus a more detailed assessment is needed, as well as determining to what extent such measures balance out other policies that hinder the sustainable management of ES.

Legislation at all levels – from local to national – can play an important role in the promotion and implementation of PES and PES-like schemes. Particularly, legislation is required for those PES programmes set out at a national level or those that have international financing in order to be implemented, such is the case of REDD+ programmes and cap-and-trade (Greiber, 2009). Given the limited amount of national PES programmes and associated legislation, in terms of numbers, the majority of PES schemes are local. However, this represents a good starting point since legislation improvements could benefit from practical experience, with local projects informing regional and national legislation which, in turn, provides greater legal certainty and a framework that enables, rather than restricts, regional and local initiatives.

Additionally where PES schemes are regulated, attention must be paid to its integration in the existing legal and institutional frameworks. In the case of public PES it is important not to make the process overly bureaucratic. In the case of private PES, these would benefit from specific legal frameworks that go beyond basic contract law. However, for both private or public PES schemes to be up-scaled, a robust legal framework is required to ensure both formal coherence and effectiveness.

Table 14.3 Legal frameworks supporting ecosystem services directly or indirectly

	COSTA RICA	PERU	BRAZIL	COLOMBIA	MEXICO	ARGENTINA
Sub-national Laws directly supporting PES			Esperito Santo: IN 9.864 PES Law Amazonas: Law On Climatic Change, Environmental Conservation And Sustainable Development* (Bolsa Floresta)** Payment For Ecosystem Services Law (Pending) Law 5.487/09,		Sustainable Development Of Forests Law, Morelos State** Sustainable Development Of Forests Law, Baja California State**	
NATIONAL	Pending	N° 2386/2007-cr Ecosystem Services Law (Drafted,2009) Pending General Environment Law, 28611. Law On Sustainable Use Of Natural Resources, 26821. Supreme Decree 012-2009MINAM, National environmental policy.	IN 6938 National Environmental Policy.	Draft National PES Strategy (pending)	National Development Plan 2013 – 2018*	
ENVIRONMENT	General Environment Law 735 Law On Soil Use, Management & Conservation 7779	General Environment Law, 28611. Law On Sustainable Use Of Natural Resources, 26821. Supreme Decree 012-2009MINAM, National environmental policy.	IN 6938 National Environmental Policy.	Climate Change Convention, Law 164/94	General law Of Ecological Equilibrium And Environmental Protection	Climate Change General Law
BIODIVERSITY	Biodiversity Law 7788 Conservation Of Wild Life Law 7317	Conservation And Sustainable Use Of Biological Biodiversity Law 26839. Law On Water Resources No. 29338 Law Decree On Water 17752	IN 6938 National Environmental Policy.	Law Decree 216 de2003, which determines the objectives, structure of Ministry of Environment, Housing and Land Development.	General Law On Wildlife	Protection And Conservation Of Wild Fauna Law 1981
WATER	Water Law 276	Law On Water Resources No. 29338 Natural Protected Areas Act 26834	Water Law IN 9433	Water Law 99/93	Federal law on Rights(ar/223)(National Programme for Hydrological Environmental Services [PSAH])** National Water Law	Federal Agreement On Water 2003
PROTECTED AREAS	Services Of Natural Parks 6084	Natural Protected Areas Act 26834	National Protected Areas System Law (9985/00)	Decrees: 1865/94 and 708/2001 establish the development of regional policies of environmental management		
FOREST	Forestry Law 7373 (FONOFFO)	Forestry And Wild Fauna Act 27308	Brazilian Forest Code IN4.771 Management Of Public Forests: Implementation Of Brazilian Forest Service, (Regional)	Decrece 900/97 Regulates Forestry Incentive Certificate	Development Law The Sustainable Rural Development Act Presidential Decree 4th-April2001 creating National Forest Commission (CONAFON)**	Forest Act No 13.273
OTHERS	Public Services Regulating Authority Act 7393 Income Tax Act No./7092	Substituto De Proyecto De ley 792,1,190, 1,667, 1,920, 1,999 Y 2,364 (Programa Bolsa Floresta).*	National Development Plan 152/94 & 1151/2007*	Tax legislation: Law 723/99, Decree 1996/999, Law/887/002, Decree 3172/2003	Agreement establishing the Rules of Operation for the granting of payments for the ecological services for the agroforestry systems for carbon sequestration, based on the demand from biodiversity and to stimulate the establishment and improvement of agroforestry systems (PSA-CABSA)**	

Source: own elaboration

*No direct mention/regulation of PES as such but recognizes ES and the need for their conservation and preservation thus creating the enabling conditions.

** Legislation creates organisms and/or financial mechanisms for specific national PES programmes (programme name and/or organization set up).

Table 14.4 Summary of the advantages and disadvantages of having legal regulation for ecosystem services payment schemes

ADVANTAGES	DISADVANTAGES
PES become <i>legitimate</i> policy instruments creating <i>legal certainty</i> which enhances PES effectiveness	Possible further fragmenting of environmental legislation
Scope of PES instruments clarified	May conflict with other legal frameworks
Can streamline the process of setting out a PES programme by decreasing bureaucracy and tax incentives	May hamper implementation through increased bureaucracy and discrimination of eligibility for other financial subsidies especially for smaller PES
Only way of creating and implementing a <i>national</i> PES scheme	

Source: Greiber (2009) and FAO (2010b)

14.3.2 Land tenure and property rights in LAC

For any PES scheme, secure land tenure and clearly defined property rights are crucial for their effective implementation (Dent and Kauffman, 2005; FAO, 2010b; Contreras-Hermosilla, 2011; Larson and Petkova, 2011; Montagnini and Finney, 2011). One of the key aspects of a PES scheme is to establish a transaction whereby the service seller contracts an obligation to either stop, maintain or undertake specific land use activities and in some cases even gain rights to trade the service such as in the case of carbon sequestration credits (Muradian et al., 2010). Thus the PES contractual agreement always requires that the tenure rights of all actors are clearly defined and recognized.

Land tenure as defined by the FAO (2002) is the 'relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land'. (For convenience, 'land' is used here to include other natural resources such as water and trees). Land tenure is an institution, i.e., rules invented by societies to regulate behaviour. Rules of tenure define how property rights to land are to be allocated within societies. They define how access is granted to rights to use, control, and transfer land, as well as associated responsibilities and restraints. In simple terms, land tenure systems determine who can use what resources for how long, and under what conditions.' Property rights on the other hand, define how the land (and all natural resources present on that territory) or property can be used, controlled and transferred.¹

¹ FAO's simplified representation of property rights includes:

- use rights: rights to use the land for grazing, growing subsistence crops, gathering minor forestry products, etc.
- control rights: rights to make decisions how the land should be used including deciding what crops should be planted, and to benefit financially from the sale of crops, etc.
- transfer rights: right to sell or mortgage the land, to convey the land to others through intra-community reallocations, to transmit the land to heirs through inheritance, and to reallocate use and control rights.

The current situation of land tenure and land rights recognition in LAC is very heterogeneous given the extension of the region; however, there are some characteristic trends that are common for the majority of countries. Land and tenure security are still incomplete, even though most countries have established property registries with cadastres,² in many countries less than 50% of their national territory is covered by the cadastre (Figure 14.3). It is important to note that there are very different idiosyncrasies between continental Latin American countries and the Caribbean islands regarding land tenure. The Caribbean is characterized by the prevalence of state-owned land, which is not legitimized by its citizens, who follow alternative collective forms of land tenure. While in continental Latin America land tenure institutions are more entrenched, both formally and customarily, tenure security is still not achieved as less than half of farmers have solid title deeds over their lands (ECLAC, FAO, IICA, 2012). All over LAC several programmes of land titling are under way, which would provide a more secure environment for the widespread implementation of PES programmes. However, past experience has shown that titling programmes may bring increased disputes. Therefore there is a need to differentiate between the problems of access and distribution of land among farmers, as well as the territorial claims of indigenous populations (ECLAC, FAO, IICA, 2012; Van Dam, 2011).

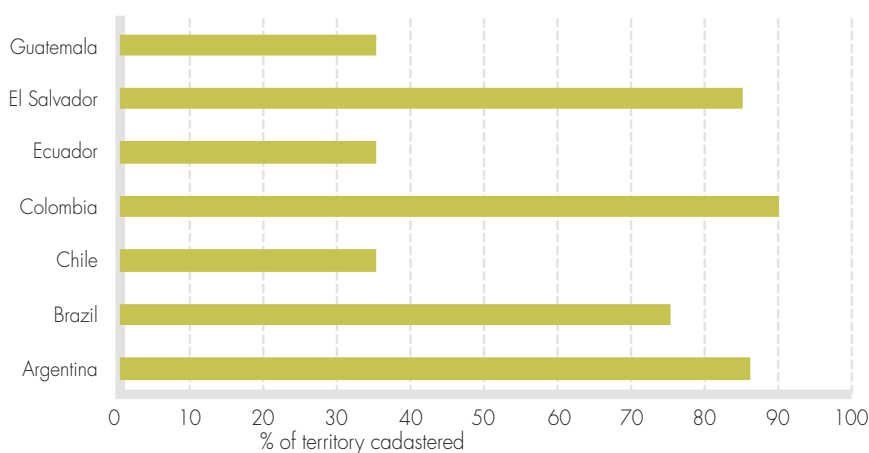


Figure 14.3 The percentage of national territory covered by cadastre survey. *Source: own elaboration based on data of CPCI (2011).*

To sum up, the lack of clearly defined land tenure systems and unsecure property rights undermines the possibility of effectively spreading the implementation of PES programmes across LAC regions for several reasons. First, identifying the legitimate users is complex:

² FAO (2002) defines a parcel-based land information system that includes a geometric description of land parcels, usually represented on a cadastral map. In some jurisdictions it is considered separate from, but linked to, the register of land rights and holders of those rights (land register), while in other jurisdictions the cadastre and land register are fully integrated.

in many LAC countries ES and natural resources are publicly owned and managed by the state, thus a contract cannot be signed unless the state enables the de facto users and communities to use and benefit from PES schemes. In cases of private ownership the de facto users of land are sometimes not legally recognized as either owners or tenants, and thus payments cannot be made to them since they cannot contract such obligations. In other cases de jure users are not capable or willing to allow usufruct users to sign contractual agreements. Unsettled disputes of land claims also impede the effective implementation of PES schemes. Furthermore, there have been cases, such as Costa Rica, where users that had benefited from land reform or other governmental subsidies were not eligible for PES programmes and the other way around, once a user became part of PES programmes they were then excluded from receiving other financial support (Grieg-Gran et al., 2005).

Second, users that do not have secure land tenure³ have no incentive to participate in PES schemes, or implement more sustainable land practices because they do not have any guarantee of obtaining the long-term benefits. Third, PES needs to be perceived as fair for the effective implementation of the programme. In order to achieve this, allocations need to be carried out carefully to not provide benefits to the large estate owners (*latifundios*) rather than those most in need. Such distribution would add an element of income redistribution and social equity to PES.

14.3.3 Institutional arrangements

There is no blueprint for an ideal institutional set up. Instead, institutions should be adjusted to national and local circumstances, in particular the prevailing governing structure. Overall the basic requirements for a PES scheme among private users, as stated in FAO (2010b), are:

- the absence of any legal provision that outlaws PES schemes
- basic contractual law: *'pacta sunt servanda'* (contracts need to be fulfilled)
- civil law to enforce contract rights in case of non-compliance.

Public PES schemes require more regulation, since a public entity needs to be created or enabled in order to implement the scheme. However, public institutions at all levels fulfil important PES-related functions. Local institutions connect PES to the reality on the ground, regional institutions help to overcome administrative boundaries and national institutions can introduce PES visions and coordinate related policies. Private institutions may complement public institutions in the development and implementation of PES schemes. They can bring more flexibility and independence, which are important external capacities, as well as additional financial resources.

³ FAO (2002) defines tenure security as: the certainty that a person's rights to land will be protected. People with insecure tenure face the risk that their rights to land will be threatened by competing claims, and even lost as a result of eviction. The attributes of security of tenure may change from context to context: investments that require a long time before benefits are realized require secure tenure for a commensurately long time.

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

As far as the management and administration of PES schemes are concerned, national institutions should perform only those activities which cannot be performed effectively at a more immediate or local level. Trust is fundamental to the long-term success and sustainability of PES programmes. Good governance – in particular public participation, transparency and access to information, as well as accountability and the rule of law – helps to build trust and is therefore key in the context of managing ES correctly.

14.4 Challenges and threats in PES implementation for LAC

Some key challenges regarding PES initiatives in LAC have been identified, particularly those related to water. These are four key challenges that can help explain why a large number of the initiatives, despite their potential, have had a low level of implementation.

First, *low stakeholder engagement and high dependence on foreign capital*. PES schemes are multi-stakeholder initiatives. One of the key added value is that PES are powerful tools for raising awareness and actively involving important stakeholders from different sectors of society (public sector, private sector, civil society). To ensure the uninterrupted provision of ecosystem services, funding conservation should be based on co-responsibility linked to risk management through the identification of specific threats and vulnerabilities. Most existing PES schemes in LAC are promoted by international institutions, using in many cases imported models that include foreign funding, which should in theory work as seed funding. However, this seed funding may finally create a dependency for local stakeholders and make the initiative unsustainable over time. If the institutional structure is weak and there is high dependency on external resources, financial sustainability could become uncertain. One of the conclusions of the latest Ecosystem Market Place report (Bennet et al., 2013) is the limited participation of the private sector in PES initiatives. Most initiatives so far have been promoted by NGOs or public sector entities, which may indicate the limited knowledge the private sector has about environmental risks.

Second, *lack of stability and clarity in the institutional and legal framework*. The prevailing sectorial approach to manage natural resources, the existence of weak public institutions and the unconsolidated regulatory framework, are some of the major constraints for a PES initiative to be effectively and efficiently integrated into water management in the region. In relation to the legislative framework: first, the lack of stability in the legislative, regulatory and institutional contexts make PES initiatives highly vulnerable due to their long implementation timelines (more than four to five years). Second, it is necessary to fulfil two basic conditions for the creation of a sustainable market scheme: a) define land property rights and b) establish trust between the supplier and the buyer of the environmental service

(the role of the intermediary). The lack of viable and sustainable land titling programmes is a problem which affects particularly native communities, attempting to respect their traditional rights over land. Third, the use of public funds in PES schemes is essential for the active involvement of the public sector. However, these have to be accompanied by means to charge fees, and use and manage public funds, facilitating involvement in PES schemes.

Third, *lack of government coordination of isolated, small and disjointed initiatives*. A large number of local initiatives started a few years ago and the few schemes that are still active demonstrate a lack of coordination between initiatives. Government involvement as a regulator and coordinator could facilitate this process, particularly given the widespread lack of regulatory frameworks for PES scheme implementation. At present there is some evidence of significant progress in the implementation of regulatory frameworks and national programmes, which allows for the coordination of existing isolated initiatives. This is the case in Peru where a bill-regulating environmental services is being discussed. The case of Colombia that has recently approved methodological guidelines for watershed payments,⁴ through which the government can create incentives to promote the investment in ecosystem services. Article 111 of the Colombian national environmental law (law 0953, published May 2013) establishes legal and institutional frameworks for purchasing strategic areas for water supplies. This purchase requires a minimum investment of 1% of municipal budgets in Colombia in order to establish hydrological PES.

Fourth, *vision of PES from a local, social and cultural perspective in the LAC region*. The PES approach raises a wide number of questions on the risks and opportunities posed by these schemes due to the ideological opposition to commoditizing nature or economic valuation of ES. The multiple values of water frameworks not only include the value of water for production, but also include water as a fundamental human right, water as the provider of ecological sustainability for the environment and biodiversity, water as the source of cultural sustenance of people and as a natural provider of social relations. This concept goes against the conceptualization of water as a tradable product involved in a market scheme, where ecosystem services can be bought and sold. In the Latin American region, particularly Bolivia and Ecuador, indigenous communities have been opposed to PES schemes based on the ancient Andean worldview of the relationship between people, earth and water. This situation has forced several ventures to change their names from 'payments' to 'compensation', so as to transform the relationships from a purely economic transaction. Landowners can receive cash, as well as in-kind payments, which can include income-generating activities as well as education and health benefits to communities.

To conclude, PES and PES-like mechanisms are only some of the possible solutions to the dichotomy of, on the one hand, increased production and consumption, and, on

4 'Methodological Guide for the Design and Implementation of Economic Incentive Payment for Environmental Services – PES'.

the other, the conservation and preservation of natural resources. Nevertheless, they are interesting instruments, combining environmental conservation and economic development, which is especially important for rural communities. The extent to which PES programmes can be financially sustainable in the long term and whether good practices and behaviour promoted by PES can become entrenched and adopted even after the programme has finished remains still unclear. One thing is for sure, any strategy aiming at preventing the degradation of LAC's natural capital, will require instruments (being PES just one among many other options) which can provide development alternatives for those who steward ecosystem services. And this will require as well the compromise of the international community since LAC's capital delivers benefits far beyond its borders.

References

- Bennett, G., Carroll, N., & Hamilton, K. (2013). *Charting New Waters: State of Watershed Payments*. Washington, DC, Forest Trends. [Online] Available from: www.ecosystemmarketplace.com/reports/sowp2012. [Accessed March, 2013].
- Bishop, J., Kapila, S., Hicks, F., Mitchell, P. & Vorhies, F. (2008). *Building Biodiversity Business*. Shell International Limited and the International Union for Conservation of Nature, London, and Gland, Switzerland. 164 pp.
- Boyd, D.R (2012). The Constitutional Right to a Healthy Environment. *Environment* [Online]. Issue July–August 2012. Available from: www.environmentmagazine.org/Archives/Back%20Issues/2012/July-August%202012/constitutional-rights-full.html [Accessed July, 2013]
- Cooley, D. & Olander, L. (2011). *Stacking ecosystem services payments: risks and solutions*. Duke Nicholas Institute for Environmental Policy Solutions, Washington, DC, Working Paper NII WP, 11-04.
- Contreras-Hermosilla, A. (2011). People, governance and forests—the stumbling blocks in forest governance reform in Latin America. *Forests*, 2(1): 168–199.
- CPCI (2011) Comité Permanente sobre el Catastro en Iberoamérica. *DATA CATASTRO* edición No.3 Abril. [Online] Available from: www.catastralatino.org/documentos/Datacatastro_edicion_3.pdf [Accessed August, 2013].
- Dent, D. & Kauffman, S. (2005). Green water credits. In: *Presentation at the FAO/Netherlands Conference on Water for Food and Ecosystems*, The Hague, Netherlands.
- ECLAC, FAO, IICA. (2012). Economic Commission for Latin America and the Caribbean, Food and Agriculture Organization & Instituto Interamericano de Cooperación para la Agricultura. *The Outlook for Agriculture and Rural Development in the Americas: A Perspective on Latin America and the Caribbean*. Santiago, Chile, FAO.
- FAO (2002). *Land Tenure and Rural Development*. Rome, FAO Land Tenure Studies.
- FAO (2010a). *Global Forest Resource Assessment. Main Report*. [Online] Available from: www.fao.org/docrep/013/i1757e/i1757e.pdf. [Accessed March, 2013].
- FAO (2010b). Payments for environmental services within the context of the Green Economy. In: *Stakeholder Consultation: From environmental externalities to remuneration of positive externalities in the Agricultural Food Sector*. Rome 27–28 September, FAO. [Online] Available from: www.fao.org/docrep/013/al922e/al922e00.pdf [Accessed August, 2013].

- FAO (2013). AQUASTAT database. [Online]. Available from: www.fao.org/nr/water/aquastat/main/index.stm [Accessed June, 2013].
- Greiber, T. (ed.). (2009). *Payments for Ecosystem Services: Legal and Institutional Approach*. Gland, Switzerland, IUCN. Report No. 78.
- Grieg-Gran, M., Porras, I. & Wunder, S. (2005). How can market mechanisms for forest environmental services help the poor? Preliminary lessons from Latin America. *World development*, 33(9): 1511–1527.
- Grieg-Gran, M., Noel S. & Porras, I. (2006). *Lessons learned from payments for environmental services*. Report 2006/05 (also issued as GWC Report 2), ISRIC – World Soil Information, Wageningen, Netherlands [Online] Available from: [www.isric.org/isric/webdocs/docs/GWC2_Lessons%20learned%20\(July%202006\).pdf](http://www.isric.org/isric/webdocs/docs/GWC2_Lessons%20learned%20(July%202006).pdf) [Accessed August, 2013].
- Hall, A. (2008). Paying for environmental services: the case of Brazilian Amazonia. *Journal of International Development*, 20(7): 965–981.
- IUCN (2013). International Union for Conservation of the Nature. *The IUCN Red List of Threatened Species*. Version 2013.1 [Online] Available from: www.iucnredlist.org. [Downloaded on March, 2013].
- Johns, B. (2012). *PES and REDD+: The Case of Costa Rica*. American University, U.N.-Mandated University for Peace. MSc Thesis.
- Larson, A. M. & Petkova, E. (2011). An introduction to forest governance, people and REDD+ in Latin America: obstacles and opportunities. *Forests*, 2(1): 86–111.
- MA (2005). Millennium Ecosystem Assessment. *Ecosystems and Human Well-being: Synthesis*. Washington, DC, Island Press.
- Madsen, B., Carroll, N. & Moore Brands, K. (2010). *State of Biodiversity Markets Report: Offset and Compensation Programs Worldwide*. [Online] Available from: www.ecosystemmarketplace.com/documents/acrobat/sbdmr.pdf [Accessed August, 2013].
- Martín-Ortega, J., Ojea, E. & Roux, C. (2012). *Payments for Water Ecosystem Services in Latin America: Evidence from Reported Experience*, Bilbao, Spain, Basque Centre for Climate Change (BC3). BC3 Working Paper Series No. 2012–14.
- Montagnini, F., & Finney, C. (2011). Payments for environmental services in Latin America as a tool for restoration and rural development. *Ambio*, 40 (3): 285–297.
- Muradian, R., Corbera, E., Pascual, U., Kosoy, N. & May, P. H. (2010). Reconciling theory and practice: An alternative conceptual framework for understanding payments for environmental services. *Ecological Economics*, 69 (6): 1202–1208.
- Murcia, D. (2011). El Sujeto Naturaleza: elementos para su comprensión, In: Acosta A. and Martínez E., (eds). *La Naturaleza con derechos: de la filosofía a la política*, Quito, Ediciones Abya Yala. pp. 287–316.
- NCJM (2011). Dutch Section of the International Commission of Jurists. *Human Rights and Environment*. Stakeholder input report for the Office of the High Commissioner of Human Rights. Available from: www.njcm.nl/site/uploads/download/433 [Accessed June, 2013].
- Olivares, A. (2010). El nuevo marco institucional ambiental en Chile. *Revista Catalana del Derecho Ambiental*, 1(1): 1–23.
- Peters-Stanley, M. & Hamilton, K. (2012). *Developing Dimension: State of the Voluntary Carbon Markets 2012*. Ecosystem Marketplace [Online] Available from: www.forest-trends.org/documents/files/doc_3164.pdf [Accessed June, 2013].

- RBA (20013). Rights-based Approach to Conservation. *The Human Right to a clean environment*. [Online] initiative supported by the Environmental Law Centre (ELC) of the International Union for the Conservation of Nature (IUCN). Available at: community.iucn.org/rba1/Pages/The%20Human%20Right%20to%20a%20clean%20environment.aspx [Accessed February, 2013].
- Sommerville, M. M., Jones, J. P. & Milner-Gulland, E. J. (2009). A revised conceptual framework for payments for environmental services. *Ecology and Society*, 14 (2): 34.
- Southgate, D. & Wunder, S. (2009). Paying for watershed services in Latin America: a review of current initiatives. *Journal of Sustainable Forestry*, 28(3–5): 497–524.
- Stanton, Y., Echavarría, M., Hamilton, K. & Ott, C. (2010). State of Watershed Payments: An Emerging Marketplace. *Ecosystem Marketplace*. [Online] Available from: www.foresttrends.org/documents/files/doc_2438.pdf [Accessed June, 2013].
- Van Dam, C. (2011). Indigenous territories and REDD in Latin America: Opportunity or threat?. *Forests*, 2 (1): 394–414.
- UNESCO (2013). United Nations Educational, Scientific and Cultural Organization. *World Heritage Sites and Biosphere Reserve Database* [Online] Available from: www.en.unesco.org/. [Accessed June, 2013].
- Wunder, S. (2006). Between purity and reality: taking stock of PES schemes in the Andes. *Ecosystem Market Place*, 1 (4), The Katoomba Group.
- Wunder, S. (2007). The efficiency of payments for environmental services in tropical conservation. *Conservation Biology*, 21(1): 48–58.