



Benefit-sharing experience in national scale conservation incentives programs in Ecuador and Peru

NOTA TECNICA

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Abstract

Since the introduction of the ecosystem service concept, many studies and international research projects have attempted to measure and quantify the importance of ecosystem goods and services for people. Nowadays, it is safe to claim that ecosystems, through their natural processes and functions, provide services that are essential for human well-being. However, in industrialized societies people often forget how intricately our daily lives depend on natural ecosystems and the goods and services they provide. Nevertheless, in many parts of the world, people's dependence on the services supplied by nature is more pronounced and direct.

In the past years, an increasing number of policies and mechanisms have been devised in order to slow or reverse the incessant degradation and destruction of ecosystems worldwide. The objective is to ensure the continuous provision of services that are of uttermost importance for people. For instance, Direct Cash Transfers (DCT) or Payments for Environmental Services (PES) make it possible to finance environmental protection or reward the delivery of specific, desirable ecosystem services, such as carbon sequestration or biodiversity habitat in another country. As an example, we can find the implementation of PES schemes in many parts of the world. Such schemes can be either local or global in their scope. A few countries, like Peru and Ecuador, have established national programs to reward and promote both ecosystems protection and provision of service bundles from private and collectively owned lands. Nonetheless, globally, there is an increasing scramble for securing the provision of ecosystem services from lands owned, managed, or used by local and

Introduction

indigenous people, with adverse effects and issues related to the local impacts of this new form of natural resources appropriation.

The inflow of financial rewards and incentives into local communities in exchange for the protection of ecosystems and the provision of ecosystem services can lead to adverse impacts, which are often neither well understood nor studied. For example, the establishment and implementation of new restrictions and controls, as a consequence of these new conservation efforts, bears costs for some while the benefits accrue to others. Hence, before implementing programs like these, it is important to pose the question regarding how to share the benefits of conservation or ecosystem service payments. Which groups benefit from these new financial flows? How are the benefits managed? What are the institutional frameworks that guide benefit-sharing? To what extent does it lead to an appropriation of ecosystem services by others? This paper analyses these questions with a regional focus on Ecuador and Peru, where national incentive programs have been implemented and are running for a few years already.

Keywords: Financial incentives, Benefit-sharing, Ecuador, Peru, Land ownership.

Scientists, and more recently, also policymakers and private actors, such as multinational companies, increasingly use the concept of ecosystem services - ES (Fisher et al. 2009). Ehrlich and Ehrlich first coined this concept in 1981 for largely pedagogical purposes by highlighting that ecosystems serve humans (Ehrlich and Ehrlich 1981, Ehrlich and Mooney 1983, Peterson et al. 2010). From there onwards, numerous studies assessed, measured, quantified and valued ecosystem services around the world (Seppelt et al. 2011). Nevertheless, despite the increased understanding that humans depend on ecosystem services, they are in decline globally, where land-use change is a major reason (MEA 2005, Foley et al. 2007). New attempts to better protect native ecosystems and its services are increasingly sought after and next to traditional command and control mechanisms, a range of programs, anchored in voluntary or market-based approaches, have emerged and are being implemented around the world (Bryan 2013, Vatn 2014).

Many ecosystem services projects focus on forests, because they provide a large number of ecosystem services, such as carbon storage and sequestration, hydrological services and habitat for biodiversity, among others. Therefore, and due to the major impact of deforestation and forest degradation on greenhouse gas emissions (van der Werf et al. 2009, Lawrence and Vandecar 2015) and biodiversity loss (Brooks et al. 2002), forest protection receives increasing attention globally. Furthermore, forest loss also triggers a range of more regional and local effects, such as soil erosion (Southgate and Whitaker 1992, Pimentel 2006) changes in local climatic patterns, and hydrological cycles (Bonan 2008, Malhi et al. 2008). While human influence threatens all types of forests, particularly tropical forests that are under increasing pressure and human dominance (Lewis et al. 2015), the Amazon remains as the largest contingent rainforest area worldwide spanning nine countries in South America. Yet, despite many forest conservation initiatives, the Amazon is undergoing a rapid transformation because industrial agriculture, new mining and hydropower projects, as well as other large-scale infrastructure projects are gaining ground (Malhi et al. 2008, Nepstad et al. 2011, Finer et al. 2015).

Forest conservation, in practice, often translates as the integration of the ecosystem service concept into environmental protection and social development programs. Some of these programs target forest conservation and improved forest management in order to maintain forest carbon, while other programs address agricultural land use with the aim to maintain or increase biodiversity through better land use practices and higher yields on already existing agricultural lands. Independently of how they are packaged, ecosystem services are nowadays a fundamental part of environmental policies and conservation programs in many countries (Kellermann et al. 2007, Daily and Matson 2008, Pagiola 2008, Turpie et al. 2008).

Many policies and programs that aim to maintain and protect ecosystem services are grounded on market-based approaches and include incentives, subsidies and compensation payments, which are increasingly used to change landowners or land-users behavior towards better management or conservation (Pirard 2012, Pirard and Lapeyre 2014). However, applying an economic rationality in the attempt to further conservation goals is controversial. It has also been criticized for their adverse social impacts, the potential of undermining intrinsic pro-environmental behavior, and the commodification of nature (Corbera et al. 2007a, Corbera et al. 2007b, Kosoy and Corbera 2010, Gómez-Baggethun and Ruiz-Pérez 2011, Luck et al. 2012, Muradian et al. 2013). A particular critique concerns the distributional effects and equity of these payments in return for conservation by certain actors and agents. This certainly demands more scrutiny, since their long-term effectiveness risks to be offset or counteracted if the distribution is considered to be unjust or unfair by the receivers of these payments.

Distributional and equity effects are key in forest conservation programs, as forest cover and poverty are often positively correlated. However, among policymakers, there has been a push to promote market-based approaches for forest conservation, such as PES and Reducing Emissions from Deforestation and Forest Degradation (REDD+) for both environmental protection and poverty alleviation in forest areas (Landell-Mills and Porras 2002, Angelsen and Wunder 2003, Pfaff et al. 2007, Pokorny et al. 2013). Benefits from these types of programs do not always take the form of direct payments. They

can also be non-monetary, leading to better forest governance, addressing and securing land tenure or strengthening law enforcement (Gregersen et al. 2010). A common distinction made is the vertical benefit-sharing between national and local stakeholders, and horizontal benefit-sharing, between and within communities, households, and other local stakeholders (Lindhjem et al. 2010). In this paper, we focus on the distribution of Direct Cash Transfers (DCTs), i.e., monetary benefits, in two national conservation programs in Ecuador and Peru.

Forest governance through monetary incentives

Disincentive-based policies have been the traditional backbone in common environmental policies to face deforestation. However, in the past the impacts of those disincentive-based policies have been weak in the Amazon (Börner and Wunder 2008), although with significant variations between countries (Assunção et al. 2013). More recently, since the dawn of the REDD+ debate in international climate policy, incentive-based forest conservation policies have gained momentum due to their perceived effectiveness and because they are a more socially acceptable alternative to purely disincentive-based conservation policies. Compared to command and control regulation, monetary incentives can complement household incomes instead of restricting people in their behavior. Therefore, they are considered an alternative to coercive or prescriptive laws (Pirard 2012) in seeking to achieve environmental outcomes (Jack et al. 2008).

Since the turn of the century, Environmental Conditional Cash Transfer programs (ECCTs) have been increasingly implemented (Landell-Mills and Porras 2002). They are based on theories about behavioral change in rational individuals (Tietenberg 1990, Pirard 2012), with the aim to foster behavioral changes through monetary incentives (Bowles 2008, Gneezy et al. 2011). They date back to the experience of some Latin American countries with Conditional Cash Transfer programs (CCT programs) as their core strategies to fight poverty and address other social objectives, such as child health or education (Persson and Alpizar 2013). The condition of ECCTs is, however, the environment protection and the maintenance and provision of certain ecosystem services. ECCTs arose from the background of social CCTs, but could also be classified as broader PES conceptualizations, were a well-defined ecosystem service is bought in a market-based intervention. Examples of those broader conceptualizations define PES as “new institutions designed to enhance or change natural resource managers’ behavior in relation to ecosystem management through the provision of economic incentives” (Corbera et al. 2009: 745). It is also defined as “a transfer of resources 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” (Muradian et al. 2010: 1205).

In Latin America, ECCTs have been among the most commonly implemented mechanisms during the past decade. They do not only have the potential to improve natural resources conservation, but also to contribute towards poverty reduction. Promoting more environmentally sustainable and productive projects, improving community organization, fostering investments in community infrastructure, empowering traditionally marginalized groups and enhancing the capacity of rural populations to handle the resources that come from external financing providers are just some of the ways to reach this.

Benefit-sharing and equity

There are many different views about what equity is and how it can be defined (Konow 2001), which are beyond the scope of this paper. However, the perspective we assume regards equity as the “distribution of socioeconomic factors and goods in a society according to an agreed set of principles or criteria, which often includes principles such as desert and need.” (Corbera et al. 2007a: 589). We focus on distributive equity, which refers to the allocation of outcomes and their impacts on different stakeholders in terms of costs, risks, and benefits (Proctor et al. 2008, Pascual et al. 2010, McDermott et al. 2012). Luttrell et al. 2013 list different dimension of distributive equity under a number of principles that can be traced back to different rules-based theories related to distributive justice. These include: (i) the “merit-based” principle that distribution should be proportional to contribution; (ii) the “needs-based” principle that distribution should be according to need; (iii) the “egalitarian” principle of equal distribution; and (iv) the “libertarian” principle that distribution should be according to property rights (Pascual et al. 2010, McDermott et al. 2012, Luttrell et al. 2013). We will apply these principles in the discussion and subsequently draw our conclusion.

Aims and objectives

A few Latin American countries, such as Mexico and Costa Rica, have started to implement programs that provide financial benefits to forest owners in return for their commitment to conservation (McAfee and Shapiro 2010, Montagnini and Finney 2010). Ecuador and Peru have both implemented national scale conservation programs to decrease deforestation, support rural development and alleviate poverty, by providing payments to landowners. The majority of landowners have collective titles, such as indigenous communities. However, new sources of income from conservation already lead, or are likely to lead, to both positive and adverse impacts. Yet, the impacts on local

The Socio Bosque Program in Ecuador

Ecuador has one of the highest deforestation rates in South America, partly driven by weak law enforcement, lack of control, and the advancement of oil concessions and mining into remaining intact forest areas, particularly in the Amazon (Mosandl et al. 2008, MAE 2011). Although Ecuador has designated approximately 67% of its forest area for protective functions (Blaser et al., 2011; FAO, 2011), deforestation and illegal logging outside and inside of protected areas continue (Finer et al. 2008, Mejia and Pacheco 2013, Finer et al. 2015). The National Development Plan of Ecuador (Span.: Plan del Buen Vivir) highlights the problems of environmental degradation in a political document. Furthermore, it identifies the need to reduce deforestation (by 30% by 2013), cut the national ecological footprint, reduce poverty, protect biodiversity and water resources, and integrate climate change adaptation and mitigation measures into future policies (SENPLADES, 2009).

In 2008, the Ecuadorian government, with the support of Conservation International and the German Development Cooperation launched the Socio Bosque Program (SBP). Socio Bosque is supposed to help meeting the goals of the national development plan and respond to the prospects and expectation of a future REDD+ mechanism in Ecuador. In 2011, Socio Bosque was included in Ecuador's National REDD+ program as part of the incentive-based policies that complement the broader REDD+ policies of forest control or the sustainable management of forests (Chiu and Carrion 2011). SBP targets private and collective landowners (e.g., indigenous communities), who possess legal land titles. The amount of incentives depends on the number of hectares and decreases with the size of an area. They differentiate in two ways. First, whether the conservation agreement is with a private landowner or a community. Second for communities, the incentives varies depending on the type of ecosystem, i.e., Páramo or forest (MAE 2012). For example, an individual landowner with less than 20 hectares receives 60 USD/ha regardless the type of ecosystem protected, while landowners who own up to 50 hectares receive 30 USD/ha. For communities, who include up to 100 hectares of forest areas, receive 35 USD/ha.

institutions and land management in the end are all too often neither well understood nor studied. Thus, before implementing programs like these, it is of uttermost importance to investigate horizontal and vertical benefit-sharing. Which groups among and within communities benefit from these new financial flows? How are the benefits managed and used? What are the institutional frameworks that guide benefit-sharing? And last but not least, to what extent does it lead to an appropriation of ecosystem services by others?

Methods

We reviewed official documents and ministerial agreements establishing the Ecuadorian Socio Bosque Program (SBP) and the Peruvian National Forest Conservation Program for Climate Change Mitigation (PNCB, as in Spanish).

Furthermore, we collected supporting information from published scientific papers, credible reports and other grey literature. We obtained data regarding the use of incentives in the SBP from the Ecuadorian Ministry of the Environment. Due to the national Socio Bosque scope in Ecuador as a national conservation program covering also non-rainforest areas, we focus our results and discussion on the Ecuadorian Amazon region and particularly the indigenous communities taking part in the SBP.

For the Peruvian PNCB, we obtained data from the German Development Cooperation (GIZ), which is actively working as technical advisors for the Peruvian Ministry of the Environment (MINAM) in the development, consolidation and decentralization of an incentive mechanism for conservation of community forests.

The Programa Bosques in Peru

Peru has a substantially larger forest area than Ecuador and a lower rate of deforestation. Nevertheless, deforestation is an increasing problem. Just in the Peruvian Amazon, an estimated 147,000 hectares were lost in 2013 alone (Málaga Durán et al. 2014). Apart from the social and environmental impacts, deforestation is a major source of greenhouse gas emissions (GHG) and constitutes almost 50% of Peru's CO₂ emissions (UNFCCC 2010).

In 2010, the Peruvian Ministry of the Environment (MINAM) established the National Forest Conservation Program for Climate Change Mitigation (PNCB as in Spanish) through Supreme Decree. The program is a voluntary national commitment to conserve up to 54 million hectares of forest through incentives agreements with subnational governments, ECCTs with native communities, as well as other potential mechanisms such as REDD+. The PNCB provides a potential basis for disbursing funds to households, communities, and governments to preserve forests and their associated ecosystem services.

Within the PNCB, around 10 million hectares of tropical forests under native community ownership in the Peruvian Amazon (up to 1000 communities) are targeted through the provision of DCTs of 10 Nuevos Soles per hectare (approximately 3 USD) a year. Cash transfers are not differentiated and solely based on numbers of hectares, which communities decide to conserve voluntarily. Agreements in the PNCB are established for five years; a possibility for renewal is yet not established. This represents a participatory alliance between the Peruvian State and the communities who agree to conserve parts of their forests in exchange for direct economic incentives. The underlying idea is that participating communities invest in more sustainable livelihood systems and thus reduce deforestation and forest degradation, maintaining carbon stocks for climate change mitigation.

As of 2015, 56 communities, made up of almost 4000 families, in eight of the 17 departments constituting the Peruvian Amazon region receive DCTs under the PNCB. Almost 522,000 hectares of tropical

Communally owned Páramo areas up to 50 hectares receive 60 USD/ha (for more information on the SBP incentive scale and a discussion of its effects, see Krause and Loft, 2013). In order to target particularly vulnerable and threatened ecosystems with a high conservation risk, a priority map was established. Among such ecosystems, we can find tropical rainforests in the Amazon and the coastal regions, as well as cloud forests and Páramo (MAE, 2012). Nonetheless, this map is rarely used in the course of implementing contracts or signing up new participants.

Incentives are transferred biannually to the participant's bank account over a 20-years period contract, after which the contract may be renewed. If a contract is breached, payments will be stopped, and if repeated, the landowner risks to be excluded from the program. In addition, a certain share of the payments already received shall return to the Ministry of the Environment (MAE 2012).

Socio Bosque simultaneously addresses several social and environmental objectives: primarily a deforestation reduction, poverty alleviation, and development in rural areas. As secondary goals, we can find biodiversity protection, provision of hydrological services, and carbon sequestration and storage (MAE, 2008). When Socio Bosque was implemented, it embodied grand ambitions, including 3.6 million hectares under conservation (equal to 12.7% - 14% of the country's total area) and reaching up to 1 million beneficiaries (equal to 6.8% of the whole population). As of December 2014, Socio Bosque had over 173,233 beneficiaries and had enrolled over 1.4 million hectares of land nationwide. Approximately 95% of all program beneficiaries are from communal contracts and over 85% of all land included in Socio Bosque is collectively owned. Over 80% (1.2 million ha) of the conservation areas are covered by tropical rainforests (PSB 2015).

forests are currently under conservation and the participating communities receive nearly 5,220,000 (*) Nuevos Soles for their conservation stewardship.

Targeting is done in two phases. First, the priority areas are targeted based on the forests surface, deforestation rates and poverty incidence rates. Second, communities within the selected provinces are targeted based on the forests surface, percentage of conserved forests, and closeness to access routes to the community. The main conditions of the ECCTs within PNCB are the conservation of certain forest areas within a community's territory and the presentation, approval and timely compliance with the investment plan.

	ECUADOR	PERU
		
Who can take part	Private landowners, indigenous communities and farmers associations with recognized land titles.	Native communities with recognized land titles.
Extent of the program	All continental Ecuador (excluding Galapagos).	17 departments in the Amazon region of Peru.
Ecosystems targeted	Native ecosystems (Páramo and forests), secondary forests that have been regrowing since 1990.	Tropical forests (rainforests and tropical dry forests).
Current area included (in ha)	1,434,062 hectares nationwide. 1,169,033 hectares in the Amazon region (79%).	522,042 hectares.
Amount disbursed	10,001,899 USD (in 2014, nationwide). 5,333,526 USD (only Amazon region).	5,220,425.10 Nuevos Soles (approx. 1,678,523 USD) in 2015.
Number of families	34,973 (nationwide). 7,646 (Amazon).	Approx. 4,000 in 56 communities.
Control mechanisms	Investment plans are evaluated and the use of the incentives needs to be accounted for. Remote sensing using satellites and, occasionally, in-situ verification is carried out. Education and support of communal forest rangers is being implemented for in-situ monitoring.	Investment plans are evaluated regarding the compliance. Forest monitoring is based on a periodic evaluation of median and high-resolution satellite images of community conservation areas. Communal forest rangers are being trained for in-situ monitoring.
Restrictions to land use	Yes – complete conservation, no extraction of timber or conversion of land to other uses, subsistence hunting is allowed.	Yes – extraction of timber is possible with forest management plans, conversion of land to other uses is not permitted, subsistence hunting is allowed.

	ECUADOR	PERU
Economic rationale	Protection of natural habitats and natural capital, potential for carbon markets and REDD+.	Reducing deforestation to mitigate climate change and prevent the loss of carbon storage. Potential to tap into carbon markets and REDD+.
Conditionality	Participants need to conserve the vegetation cover of those areas on their territory that are part of the conversation agreements with Socio Bosque. Moreover, communities need to present and comply with their investment plans and provide statements about 1) use of money as for the indicated use, and 2) about unchanged vegetation cover.	Conservation of forests on community lands that are part of the conservation agreements. Furthermore, communities need to present, approve and comply with their investment plans. If the investment plan is not complied with, payments are suspended.
Payment Mechanism	Direct payments twice a year to beneficiaries' bank accounts.	Direct payments once a year to a community's bank account at National Bank.
Financing	Mostly government financed. Additional financial support from German Bank for Reconstruction (KfW) and non-financial support (technical consulting) from German International Cooperation (GIZ) and Conservation International.	Exclusively government financed with non-financial support (technical consulting) from German International Cooperation (GIZ).
Targeting	Initial geographical targeting to protect areas of concern / greater risk of ecosystem degradation and poverty indices. Potential target areas identified by the use of criteria based on environmental and socioeconomic indicators; yet, these were not followed in practice.	Two phase targeting stipulated – 1) the priority provinces are targeted based on the forests surface, deforestation rates and poverty incidence rates. 2) Communities, within the selected provinces, are targeted based on the forests surface, deforestation rates and, if available, socioeconomic data regarding the communities.

TABLE 1: OVERVIEW OF THE TWO PROGRAMS, NUMBERS ARE FROM 2014 IF NOT OTHERWISE INDICATED; (ADAPTED FROM LOFT ET AL. 2015; ROSA DA CONCEIÇÃO ET AL. 2015)

(*) 1.532.500 US DOLAR

Results and discussion

Ownership of forests and forest ecosystem services

In the closely related debate on benefit-sharing in REDD+ programs, one assumption is based on the libertarian theory that benefits generated should go to those actors who hold legal rights to them, such as the landowner (Peskett and Brodnig 2011, Luttrell et al. 2012). Land ownership matters, because tenure categories are significantly associated with changes in deforestation (White and Martin 2002, Sunderlin et al. 2008, Ricketts et al. 2010, Van Dam 2011). In the past decades, many native and indigenous communities have been able to obtain legal titles for large tracts of forest under government ownership, primarily in Latin America (MAE 2012, PSB 2013, MINAM 2014). Overall, secure tenure for local and indigenous communities is a cornerstone of a more equitable benefit-sharing of revenues from collectively owned forest resources, such as non-timber forest products, or ecosystem services such as carbon storage.

Forest Ownership (in million hectares and % of total)	Ecuador (as of 2012)	Latin America (as of 2013)	Peru (as of 2013)
Lands owned by communities and indigenous groups	6.83 (63.2%)	182.17 (29.1%) + (43.58 (7.0%) designated for indigenous peoples and communities)	15.6 (21.3%) (3.53 (4.8%) designated for indigenous peoples and communities)
Private lands owned by individuals and firms	0.04 (0.4%)	107.11 (17.1%)	1.95 (2.7%)
Public lands administered by the government	3.94 (36.4%)	294.15 (46.9%)	52.14 (71.2%)
TOTAL	10.81	627.01	73.22

TABLE 2 - FOREST TENURE COMPARISON FOR ECUADOR, PERU AND LATIN AMERICA; (RIGHTS AND RESOURCES INITIATIVE, 2012)

In the SBP, only individual and collectively owned lands with statutory land title are eligible. Although a large share of Ecuador’s forestlands are already under communal ownership (see Table 2) land tenure remains a challenge (Chíu and Carrion, 2011, Bucheli and Mena, 2010). In the past years, the SBP has been actively working on legalizing land tenure where possible.

In Peru, only native communities with land titles are eligible to take part in the direct cash transfer initiative of the PNCB. However, the majority of forestland in Peru is still under public administration, in sharp contrast to Ecuador. Although communities and indigenous groups own over 20% of Peru’s forestland, some estimations claim that around 26 million hectares are without clear land tenure. Coincidentally, these areas also count with the highest deforestation rates (Paino Zavala 2014). In both Ecuador and Peru, people and communities without land titles or where land tenure is unresolved, cannot participate. This may increase local inequities (Leimona et al. 2009) as it favors those who were more successful in obtaining land titles over the past years.

Apart from land tenure as an important factor for determining rights to benefits, specific regulations for ecosystem services exist, such as the question about ownership of carbon rights (Peskett and Brodnig 2011, Karsenty et al. 2014). The SBP in Ecuador has been established within a political environment that has undergone major transformations in the last decade, none the least in terms of environmental governance and the legal frameworks that guide the implementation of environmental policies and programs for the protection of ecosystem services (Rosa da Conceição et al. 2015). For example, the Ecuadorian Constitution from 2008 states in article 74 that the marketization and management of ecosystem services are responsibility of the State: “Environmental services shall not be subject to appropriation; their production, delivery, use and development shall be regulated by the State.” Therefore, any selling or marketing of ecosystem services by individual or collective landowners would not be allowed and thus, the term incentives instead of payment is used, in line with the constitution. Article 71 of the constitution exemplifies this: “The State shall give incentives to natural persons and legal entities and to communities to protect nature and to promote respect for all the elements comprising an ecosystem.” (República del Ecuador, 2008).

The National Forest Conservation Program situates in a legal framework where the ownership of ecosystem services has been addressed by recent changes in the legal framework of Peru. As

previously mentioned, only native communities with legal land titles are able to access and partake in the PNCB. With the legal title over forestland, these communities in theory also gain carbon rights, which they can use in a voluntary carbon market. Nevertheless, individual smallholder farmers or migrants from other parts of the country, who do not have land rights by virtue of membership in a native community, do not meet the requirements needed to obtain carbon rights (MINAM 2014).

With the enactment of the PES Law (Span.: Ley de Mecanismos de Retribución por Servicios Ecosistémicos, MRSE) in 2014, the Peruvian Congress further clarified ownership of ecosystem services, considering them a national heritage. However, the law recognizes contractual freedom for the providers of ecosystem services, namely private or public actors, and may include both formal and informal right holders. Yet, the Ministry of the Environment must assess and approve any proposed project or mechanism (Che Piu and Menton 2014). Under the new PES Law, MINAM may be empowered to allocate specific carbon rights to rights holders, identified as users and owners of land for “alternative uses”, and titleholders who have been granted title on the basis of conducting “sustainable use” activities, and actors operating in national parks (Loft et al. 2015, Wieland Fernandini and Sousa 2015).

Who are the beneficiaries?

In both the Peruvian and the Ecuadorian program, beneficiaries were identified based on three criteria. First, a beneficiary must have the legal right to the land – the legal right rationale related to the libertarian theory. Second, a beneficiary must be a conservation steward – the stewardship rationale related to the egalitarian theory, because they have preserved the forest or parts of it on their land (otherwise they would not be able to participate in the program). And third, a beneficiary should be poor – the pro-poor rationale related to the needs-based theory. However, the pro-poor rationale

is only met to a lesser degree in both programs, particularly in the Ecuadorian SBP, where landowners who have sufficient lands and lower opportunity costs are more likely to participate (Mohebalian and Aguilar in press, Bremer et al. 2014). In a conceptual paper, Wunder (2008) highlights potential situations in which the poor are left out of PES programs. He states that participation in PES programs is determined by owning enough “environmentally strategic land”, trusting the purchaser, having sufficient capacity to meet program monitoring/production requirements, and having a low enough opportunity cost to make payments attractive. Because both programs do not take into account opportunity costs nor avoided deforestation, the additionality in reducing deforestation in the SBP and the PNCB needs to be questioned.

The Peruvian PNCB is modeled after the Ecuadorian Socio Bosque Program, and therefore, shares a few commonalities. However, a number of divergences exist concerning the beneficiaries. While in Ecuador, anyone who is a legal landowner can participate, provided that the ecosystem on the land is deemed worth protecting, in Peru only native communities on whose lands there are remaining tropical forests can do so. As aforementioned, land tenure is a major criterion that determines whether a person or legal entity can partake in the conservation incentive programs. Yet, the land tenure situation in Ecuador and Peru is not always very clear. For example in Peru, there are numerous conflicts and illegal occupations of lands in the Peruvian Amazon due to internal migration of poor people from the coast and Andes to the Amazon. These migrants are a major driver of forest clearings to sustain their families and earn a living (Bucheli and Mena 2010, Cordero 2012). However, because they neither have recognized legal land tenure nor are part of a community, they are not able to benefit under the current format and design of the PNCB.

Comparably, evidence from the Ecuadorian SBP shows that land titling is the main factor limiting participation. For instance, the current design of the SBP rules curtail the participation of many mestizo property owners in the Paute region of Ecuador, who, according to a study by Schloegel (2012) in some cases have no title, and in others, purchased their land *ad corpus* without an accompanying property map, making these properties non-compliant with Socio Bosque standards. This results in the fact that those with government-awarded land titles, principally indigenous groups, are the program’s primary beneficiaries (Schloegel 2012). This is a positive outcome

on one hand, since indigenous people in Ecuador, and particularly in the Amazon, are among the poorest and most affected by persistent inequalities (Mideros 2012). Nevertheless, despite the relatively large share of indigenous communities participating in Socio Bosque and the exclusive participation of communities in PNCB, paying closer attention to the distribution of benefits within communities is essential to understand local dynamics and potential adverse effects.

Conservation incentives – What are they used for?

Even if communities have a legal right to forests and forest resources, internal hierarchies or elite capture by powerful groups, can undermine equitable benefit-sharing (Loft et al. 2015). When DCTs for conserving a collectively owned resource are introduced, it is necessary to investigate how the funds are used. Both the Ecuadorian and Peruvian programs require that participating communities elaborate an investment plan stipulating incentive spending.

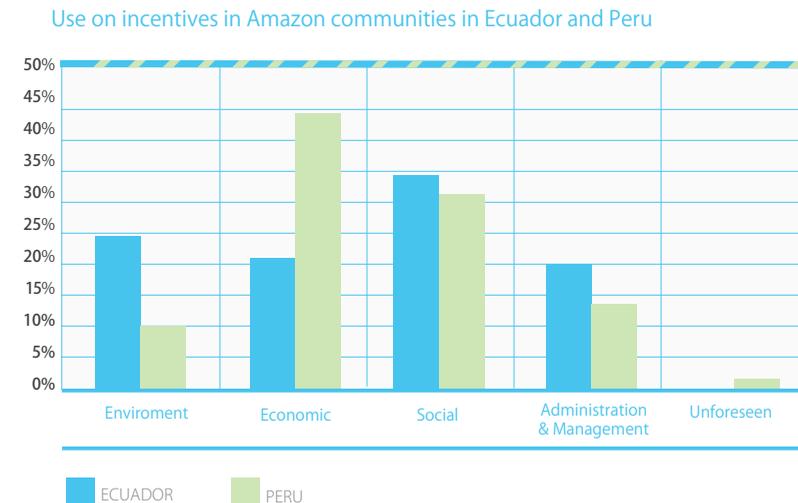


FIGURE 1 - INCENTIVE USE IN INDIGENOUS COMMUNITIES THAT PARTICIPATE IN THE CONSERVATION PROGRAMS IN ECUADOR (N=31 COMMUNITIES IN THE AMAZON REGION) AND PERU (N=55 COMMUNITIES).

Figure 1 shows a comparison of the incentive use in the Ecuadorian SBP and the Peruvian PNCB. The investment plans have four main spending categories: environmental expenses (costs for forest control, such as paying of forest rangers, etc.), economic / economic productive expenses (generally costs for sustainable forest resources management, such as costs for starting up new projects like ecotourism ventures, purchase of new or better quality seeds for crop production), social expenses (health and education, such as emergency funds for healthcare, support for elders, educational scholarships) and, expenses for administration and management (costs accruing to community leadership). The comparison shows that social expenses is the largest spending position in the Ecuadorian SBP, followed by environmental expenses. In Peru, on the other hand, economic-productive purposes is the largest spending category, followed by social expenses. The starkest difference between both programs is the share of incentive used for environmental and conservation purposes. While Amazon communities participating in the SBP in Ecuador designate almost 25% times of their incentives to that category, in the Peruvian PNCB this share is 10% substantially lower.

Incentive spending is regularly checked and communities need to be able to account for any spending. Thus, the investment plans are used as a tool for control and check-up by the program offices to ensure that the incentives communities receive are put to good use. In case a community has failed to submit an investment plan, or cannot account for the incentives spending, they risk of being suspended. In the Peruvian PNCB, a management committee from within the community is in charge of monitoring and managing the investment plans. Although 56 communities received incentives for the year 2015, an additional 11 communities that have signed agreements with the PNCB have not. These communities are currently suspended due to problems or irregularities with the implementation of their investment plans and conservation commitments. The suspension underlines that the distribution of incentives received by communities poses challenges that can result in internal conflicts, mismanagement and elite capture, undermining the desired goal of achieving socioeconomic development through forest conservation. However, one should not categorically discard these facts as a proof of the dysfunctionality of conservation incentives, since communities can also effectively strengthen their local institutions and governance structures by learning how to manage the incentives and comply with external regulations, provided they are being guided and supported in this process.

Direct cash transfers and benefit distribution

Both programs use DCTs to the beneficiary's bank account. Cash transfers are direct monetary benefits and have several advantages. First, they provide more discretion to the beneficiaries on the usage of the payment, as they have more information than the government upon their own needs. However, usage of the payments is controlled through the investment plans. Communities can therefore not freely decide about how to spend the funds according to their needs and desires. Second, cash transfers avoid the creation of secondary markets for transferred goods. And third, they have potentially lower transaction costs and more flexibility for eventual incentive level adjustments (Rodríguez et al. 2011). For example, the SBP has undergone a major adjustment in incentive levels three years into the program, which has resulted in a more equitable distribution overall, but still maintains some distributional inequities among regions and the different landowner categories. These inequities are largely based on the design and targeting of the program, and due to the historic inequalities in land titling (Krause and Loft 2013, Schloegel 2012).

Moreover, cash transfers are periodic and predictable. However, depending on the program they are delivered in variable time-spans. For example, once a year in the Peruvian PNCB and twice a year in the Ecuadorian SBP. The advantage of a predictable payment schedule is that it reduces income shocks and provides potential for savings and investments, being especially relevant in the Amazon region as many beneficiaries depend on fluctuating and seasonal incomes for their livelihoods (e.g., seasonally harvested crops such as coffee and cocoa, fishing, and other extractive activities). Nevertheless, intra-communal hierarchies and inequalities can undermine the program objectives, particularly when local institutions are not yet in the necessary state to handle larger inflows of DCTs (Krause et al. 2013).

Conclusion

Both the Ecuadorian SBP and the Peruvian PNCB use DCTs to achieve forest conservation on lands owned by native and indigenous communities. Both programs have managed to include fairly large areas of collectively owned lands under conservation agreements. Yet, land ownership is the main criterion for participation, not opportunity costs nor actual deforestation reduction. The focus on land ownership leaves out those areas where ownership is contested and the pressure exerted on the forest is higher.

Participating communities receive substantial amounts of financial resources that use for different purposes, but which must be in line with the communal investment plans. The use of communal investment plans is the main tool to control how communities use the money received. Nonetheless, it remains an open question whether the investment plans can reveal if the entire community, including marginalized groups, is able to benefit from these new resources.

The effect DCTs have on benefit distribution within the participating communities requires more scrutiny, as they are contextual and situated in different local realities with power structures, hierarchies and different abilities to make use of opportunities arising from programs like SBP or PNCB.

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