



The Socio Bosque Program for rainforest and páramo conservation, Ecuador

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Short title: The Socio Bosque Program

Key Message: The Socio Bosque Program is a state-funded, nation-wide program which provides financial incentive to participating forest landowners in exchange conservation of native forests and other types of native vegetation. The program's objectives include both ecosystem conservation and poverty alleviation goals on lands that belong to local and indigenous communities and individual households.

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Ecosystem services: Biodiversity, carbon storage and hydrological services

Method for assessing ecosystem services: Mapping and calculation

Policy or economic instrument: Economic instrument – financial incentives

Continent and country: South America, Ecuador

1. What was the problem?

Ecuador has been identified as one of 17 most ecologically diverse countries in the world (WCMC 2000, Mittermeier et al., 2004). The country has a total surface of 283,560 km², of which between 113,076 to 122,620 km² is native forest (Ministry of the Environment, Ecuador (MAE), 2012a). These native forests include primary as well as regenerated secondary forests. About 68,000 km² of these forests are privately and collectively owned. The deforestation rate is one of the highest in South America with an annual rate of 890 km² between 1990-2000 and 776 km² between 2000-2008 (Mosandl et al., 2008, MAE, 2012a).

The Ecuadorian national policy framework has a strong mandate to slow the rate of deforestation. The Ministry of Environment found it important to develop a national conservation program that would have the double objective of forests conservation and poverty alleviation (MAE, 2012b). The Socio Bosque Program (SBP) was developed as one part of a larger group of conservation measures.

The project also arose based on the success of some local experiences, such as the Gran Reserva Chachi, led by Conservation International and formal GTZ (German Technical Cooperation, now renamed to German International Cooperation - GIZ), located in the province of Esmeraldas, where conservation agreements have been

implemented in exchange for financial incentives (GTZ 2010, de Koning et al., 2011). Another example is the municipality of Pimampiro, where agreements were established between local authorities and landowners with rights to areas of importance for water resources, to ensure the conservation of these areas (Wunder and Alban, 2008).

2. Which ecosystem services were examined and how?

In 2008, with the objective of diminishing the national rate of deforestation, the Ecuadorian government set up a payment scheme to incentivize forest conservation among individual and communal forest landowners. Although in the past the scheme did not specifically target certain regions there does exist a model of geographic prioritization that can be implemented depending on the number of participants and the availability of funding. Prioritization was performed through spatial targeting based on a ranking system, using three main criteria: (1) deforestation threat; (2) importance for ecosystem services provision: carbon storage, water cycle regulation, and habitat for biodiversity; (3) poverty levels. The threat of deforestation was prioritized based on the areas proximity to roads and waterways. The metric for the threat of deforestation was adjusted by using a three-dimensional model which included topography as a limiting factor. Carbon storage was prioritized based on the adaptation of studies conducted by FAO and IPCC which geographically estimated the comparative sequestration of carbon among national ecosystems. To prioritize water regulation, catchment areas were classified according to their importance in providing water to lower basins. Importance for biodiversity was defined based on the relative percentage of ecosystems represented in national protected areas. Points are given to each ecosystem service and level of poverty. Areas with the highest number of points are ranked as having the highest priority. The SBP sees the provision of these ecosystem services as a secondary output of the incentives for the more general goal of nature conservation. In part to comply with Article 74 of the 2008 constitution, that provides only the state the authority to appropriate, produce, deliver and regulate ecosystem services (MAE 2012b).



Figure 1: Participant of Socio Bosque in the community of Campo Cocha, Napo. Photo: Brighton, A.



Figure 2: Sign indicating Socio Bosque area: Raes, L.

Forests must provide at least two of three ecosystem services. The SBP defines "forests" as any plant formation consisting of native species, which result from the

natural process of ecological succession. This definition excludes commercial forest plantations. Secondary forests are allowed to enter the program if they have been in a state of regeneration for over 20 years and have not been actively managed (MEA, 2012c). Initially protected areas were excluded from the program, but in a later phase it was decided that families or communities that have legal land titles from before the date of protected area creation can also participate (de Koning et al., 2011).

Originally, the SBP only focused on forest ecosystems. From 2009 onwards, it also included páramo grassland ecosystems (MAE, 2010). Páramo are native Andean high-altitude grasslands, crucial for regulation of freshwater flows (Hofstede 1997, Mena et al. 2001). In Ecuador, intact páramo ecosystems comprise nearly 5% of the national territory of which approximately 40% lies within protected areas (Ortiz and Mena 2002). Prioritization for inclusion of páramo in the SBP is based on the area's level of threat, the provision of ecosystem services and levels of poverty. The ecosystem services included are hydrological services (identified by parameters such as: seasonal distribution, total rainfall and water demand by users), carbon storage, biodiversity refuge and connectivity (MAE, 2012c).

The priority maps are rarely used as many areas in the SBP are in low priority regions. However, since 2010, the maps have been used to analyze the applications when there exist budget constraints to help with the selection of areas. If a property is not located in a priority area, the application has to wait for nomination in a subsequent period. The application gets analyzed for inclusion in the initiative if there are resources available.

3. How does the mechanism work?

The SBP consists of the transfer of a direct monetary incentive per hectare to individual and communal landowners. They contractually commit to the conservation and protection of native forests and/or páramos for a period of 20 years (MAE, 2012b).

Participation in the SBP is voluntary. Participants must be identified as belonging to at least one of the following legal categories: natural persons, legally constituted communes, indigenous nationalities, cooperatives and associations (MAE, 2012b). An official property title is a prerequisite for participation. However, in the case of indigenous communities also an "ancestry certificate" or a management agreement between the Ministry of the Environment and the community may be used. Another requisite is a topographical survey of the property. For areas smaller than 50 ha the program may finance the survey totally or partially based on the socio-economic conditions of the participant(s) (MAE, 2012c).

The beneficiaries are required to protect and conserve the area as outlined by the contract. These requirements include the prohibition of: (1) logging, (2) changing the existing land-use, (3) burning, (4) activities which disturb the natural behavior or threaten the territories capacity to harbor biodiversity, alter hydrological conditions or reduce carbon storage, and (5) commercial or sport hunting and fishing activities in the SBP area; as well as reporting to the Ministry of the Environment title transfers of the land benefiting from the incentive, preventing fires in areas under conservation and reporting changes to the vegetation cover within five days to the Ministry of the Environment and other authorities (MAE, 2011).

From 2008 until October 2011, the incentive scale applied by the SBP was uniform and did not differentiate between individual and communal landowners. However, the scale was changed significantly and now differentiates between type of land-ownership and ecosystem under conservation (Krause and Loft, 2013). For the first 50 ha of conservation area enrolled, the incentive is US\$ 30/ha/year for individuals who own more than 20 ha of land. From ha 51 to 100 ha, the incentive decreases to US\$ 20/ha/year and decreases further for additional ha (table 1). For individuals with less than 20 ha of land the payment is US\$ 60/ha. Each SBP participant can freely decide how many hectares of forest or páramo ecosystem to enter in the program (MAE, 2012c).

Table 1: Incentive Scale Socio Bosque Program

Individuals with more than 20 ha in their overall land title			Individuals with less than 20 ha in their overall land title			Communities and associations for forests		Communities and associations for páramo			
Range of ha		Amount (US\$)	Range of ha		Amount (US\$)	Range of ha		Amount (US\$)	Range of ha		Amount (US\$)
1	50	30.00	1	20	60.00	1	100	35.00	1	50	60.00
51	100	20.00				101	500	22.00	51	100	40.00
101	500	10.00				501	1,800	13.00	101	900	20.00
501	5,000	5.00				1,801	5,000	6.00	901	3,000	10.00
5,001	10,000	2.00				5,001	10,000	3.00	3,001	10,000	4.00
> 10,001		0.50				> 10,001		0.70	> 10,001		1.00

Source: Ministry of the Environment, 2012c

The majority of funding for the program comes from Ecuadorian state resources. Additionally, as of 2012, the German Development Bank (KfW) provides funding within a framework of cooperation between Germany and Ecuador (MAE, 2012b). In addition NGOs such as Conservation International (CI) through its Conservation Stewards Program have been supporting the program (CDKN Global, 2012). Recently the company General Motors Omnibus BB signed a cooperation agreement with the SBP for the conservation of 10,000 ha through an annual payment of US\$ 230,000 during five years (MAE, 2014).

One of the aims of the SBP is that it should have direct and verifiable benefits for poverty alleviation and local development. A specific instrument was designed to guide and follow this process, called social investment plans. Each SBP applicant is required to complete a form outlining how the applicant(s) are planning to use the monetary incentive. The applicants have the flexibility to use the incentive according to their needs and preferences but are guided among different categories of investment (de Koning et al., 2011).

The Ministry of Environment monitors compliance of the SBP conventions and has the right to make on-site inspections at any time. Through the SBP the Ministry of Environment has generated a geo-database of the conservation areas. It can check compliance through satellite imagery and aerial photography. At the same time the idea is that participants are actively involved in the continuous monitoring of the conservation areas. Workshops are being held to educate participants about forest monitoring techniques. In addition, every two years participants have to provide a legal declaration of compliance with the program's requisites. To monitor the socio-economic impact of the program an analysis of the social investment plans is carried out. These are combined with field visits to evaluate the investments (MAE, 2011).

In case of fulfillment with the agreement, transfers are made twice a year, in May and October (MAE, 2012b). The incentives will be suspended in case of non-compliance. Moreover, the agreement can be terminated indefinitely when there is major non-compliance with the conservation agreement (MAE, 2012c). If the participant decides to exit the program before the end of the agreement and without any breach of the obligations, the environmental authority can establish a (partial) reimbursement to the Ministry of Environment of the incentive transferred so far (MAE, 2012c).

4. What was achieved?

The program has experienced substantial growth since its initiation in 2008. As of June 2013 1,123,410.96 ha have been conserved through 2,052 individual and 147 communal agreements (table 2).

Table 2: Results of the SBP until June 2013

year	Individual Agreements		Collective Agreements		Total	
	Number of contracts	Hectares	Number of contracts	Hectares	Number of contracts	Hectares
2008	40	107.31	21	168,765.33	61	168,872.64
2009	325	3,555.8	21	196,446.79	346	200,002.60
2010	525	13,837.97	20	167,606.87	545	181,444.85
2011	544	23,502.14	26	199,734.76	570	223,236.90
2012	419	30,573.79	45	247,282.05	464	277,855.84
2013	199	71,998.11	10	802,148.25	209	71,998.11
Total	2,052	143,575.14	147	979,835.81	2185	1,123,410.96
Incentive in 2013: US\$ 3,042,414.76			US\$ 5,224,704.30		US\$ 8,267,119.06	
Total allocated incentive since 2008: US\$ 22,922,602.16						

Source: <http://sociobosque.ambiente.gob.ec/>

5. Lessons learned

As of 2014, the Ecuadorian government has allocated the majority of the programs financial resources. Currently, the government is working to obtain additional financing in order to ensure the long term support. The overall financial sustainability strategy of the program includes issuing SBP Certificates, international cooperation, off-setting, and possible REDD mechanisms (MAE, 2012c).

In terms of equity, one of the aims of the program was to allow poorer households to participate in the program. In the beginning the payment system provided US\$ 30/ha to landowners for up to 50 ha of forestland enrolled. To allow smaller farmers with forestland to participate, the incentives were increased to US\$ 60/ha for private landholders with less than 20 ha of land overall, not just forest (MAE, 2012b). Incentives for participating communities were also increased. An additional US\$ 5/ha was provided to communities who enroll less than 100 ha. Krause and Loft (2013) found that while the change in the structure of the incentives made substantial improvements in the equitability of the SBP, additional changes should be made to design contracts based on the number of beneficiaries per contract and poverty indexes.

The majority of the costs of participating in the program are incurred by the participants (Raes et al., 2013). One of these costs was an annual legal declaration,

which participants had to obtain to comply with the programs requirements. This declaration in front of a notary now has to be done only every two years, decreasing the costs for the participants (MAE, 2012c).

At this point in time the authors are unaware of any published scientific research estimating the environmental effectiveness of the program, such as additionally or leakage of the contracts. In the early stages of designing the SBP, these technical aspects were intentionally set aside with the purpose of quickly implementing the program (CDKN Global, 2012). This area of evaluation would provide an important step in moving forward with the program.

For further information: <http://sociobosque.ambiente.gob.ec/>

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