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The Implications of Local Governance for REDD+:

A Case Study from the Ecuadorian Amazon

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Abstract[1]

Recognising the critical role of forests in addressing Climate Change, a proposal being negotiated under the United Nations Framework Convention on Climate Change (UNFCCC) is the "Reducing Emissions from Deforestation and Forest Degradation" mechanism, or REDD+. REDD+ aims to mitigate greenhouse gas emissions by providing economic incentives to developing countries and local forest inhabitants to conserve, manage or enhance their forests. REDD+ will require the active participation of communities for the conservation of communally owned forests on their land. In this context, the quality of local governance of common property becomes increasingly relevant. Nonetheless, not all communities have developed institutions for effective collective management of forest resources, and thus some communities are more effective than others at managing these resources sustainably under changing conditions. In turn, weak local governance structures may severely hamper achieving REDD+ goals.

Using the "Programa SocioBosque" (SocioBosque) national incentive based conservation programme in Ecuador as a case study, the objective of this paper is twofold; firstly, to assess whether the local institutions guiding the participation of Amazonian communities in SocioBosque reflect robust self-organization, and secondly, to evaluate the implications of local organization on meeting REDD+ environmental and social goals. The research addresses this objective through fieldwork collecting empirical data from four Amazonian communities participating in SocioBosque. SocioBosque makes a suitable case study to address this objective since it is designed within similar parameters of the REDD+ framework, over 90% of contracts are communal, and SocioBosque aims to become a certified REDD+ programme eligible for international funding. Methodologically, the thesis author applies aspects of the Theory of Common Pool Resource (CPR) management supported by concepts from New Institutional Economics (NIE). Specific attention is paid to institutions that regulate the flow and distribution of information, participation in decision-making, as well as local revenue distribution and community governance.

This research finds that communal governance structures related *specifically to* SocioBosque in these Amazonian communities are largely not reflecting the characteristics of robust self-organization conducive to sustainable management of communal forests. Furthermore, findings suggest that weak local governance may exacerbate difficulties in securing social safeguards for REDD+. The author concludes that more explicit attention to the role that local institutions have in effectively managing common pool resources is required in the preparation phases of REDD+. Furthermore, external rules to counter weak local governance in REDD+ projects not informed by commons and institutional lessons risk being incoherent with local institutions.

Keywords: REDD+; Governance; Communities; Institutions; Safeguards

[1] Questions or comments about this thesis are welcomed by the author at awcollen@gmail.com

Executive Summary

Recognising the critical role of forests in addressing Climate Change, a proposal being negotiated under the United Nations Framework Convention on Climate Change (UNFCCC) is the "Reducing Emissions from Deforestation and Forest Degradation" mechanism, or REDD+. REDD+ aims to mitigate greenhouse gas emissions by providing economic incentives to developing countries and local forest inhabitants to conserve, manage or enhance their forests. Despite expected positive outcomes, there is concern on how to effectively engage local communities participating in REDD+. UNFCCC texts attempt to address this by including safeguards for the full and effective participation of indigenous people and local communities. However, establishing operational frameworks at the national level that achieve these outcomes remains an important if not vital challenge with few clear answers.

REDD+ will require the active participation of communities for the conservation of communally owned forests on their land. In this context, the quality of local governance of common property becomes increasingly relevant. Nonetheless, not all communities have developed effective institutions for collective action for forest management, and therefore some are more effective than others at managing these resources sustainably. In turn, weak local governance structures may severely hamper achieving REDD+ environmental and social goals.

Using the "Programa SocioBosque" (SocioBosque) national incentive based conservation programme in Ecuador as a case study, the objective of this thesis is twofold; firstly, to assess whether the local institutions guiding the participation of Amazonian communities in SocioBosque reflect robust self-organization, and secondly, to evaluate the implications of local organization on meeting REDD+ environmental and social goals. The thesis is directed by the following questions related to the role of governance in local communities for REDD+: 1) Do the present governance structures guiding the participation of communities in SocioBosque reflect robust levels of self-organization? 2) What implications does local governance have on meeting REDD+ environmental and social objectives?

The thesis addresses its objective by generating local empirical data concerning local governance institutions using a structured survey with four Amazonian communities participating in SocioBosque. To facilitate the analysis, the author employs the theory of Common Pool Resource (CPR) management as described by Ostrom (1990), supported by New Institutional Economics (NIE). The results of the analysis are applied to a basic framework of the relevant UN-REDD Social Criteria and Principles

This research finds that communities have well-developed organizational institutions for traditional issues, but that communal governance structures *specifically related to* SocioBosque in these Amazonian communities is largely not reflecting the robust self-organization characteristics conducive to sustainable management of communal forests. Specific areas where local governance exhibits weaknesses are in inequitable distribution of costs and benefits, weak institutions for effective collective action, vague monitoring and enforcement, and poor conflict management.

Furthermore, findings suggest that weak local governance has important implications for securing social safeguards for REDD+. These include exacerbating difficulties in ensuring 1) equitable and transparent income distribution, 2) the full and effective participation as well as informed consent of local stakeholders, and 3) enhanced political and social wellbeing.

This research concludes that more explicit attention to the role that local institutions have in effectively managing common pool resources is required in the preparation phases of REDD+. Furthermore, external rules to counter weak local governance in REDD+ projects not informed by commons and institutional lessons risk being incoherent with local institutions.

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Abbreviations

COP – Conference of the Parties to the United Nations Framework Convention on Climate Change

CPR – Common Pool Resources

ERs – Emissions Reductions

ESs – Environmental Services

GHG – Greenhouse gases.

IPCC – Intergovernmental Panel on Climate Change

JFM – Joint Forest Management

MRV – Monitoring Reporting and Verification

NTFP – Non-timber forest products

PES – Payments for Ecosystem Services

PSB – Programa SocioBosque

REDD – Reducing Emissions from Deforestation and Forest Degradation

REDD+ – Reducing Emissions from Deforestation and Forest Degradation, Conservation, and Sustainable Management of forests and Enhancement of forest carbon stocks

UNFCCC – The United Nations Framework Convention on Climate Change

1 Introduction

1.1 Background

Emissions from land use change, primarily tropical deforestation and degradation contribute around 17% of all greenhouse gas emissions globally, making deforestation and land-use change the second largest contributor to climate change (IPCC., 2007). Consequently, reducing deforestation has an important role to play in any initiative to combat climate change (Parker, Mitchell, Trivedi, Mardas, & Sosis, 2009) and policy-makers have progressively prioritised reducing deforestation as a critical measure to mitigate climate change. One proposed solution being negotiated at the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) is the "Reducing Emissions from Deforestation and Forest Degradation" mechanism, or REDD. There is as yet no formal mechanism for REDD with international recognition. However, REDD has been one of the few negotiating points with consistent progress during COP negotiations. The outcome at COP 16 in Cancun in 2010 is that REDD is to be included as a post 2012 Kyoto protocol climate change mitigation mechanism and steps outlining preparation have been established (UNFCCC, 2010).

The rationale behind REDD is that richer countries, historically responsible for climate change, provide economic incentives to developing countries and forest dependent communities to prevent deforestation and forest degradation and consequently mitigate climate change (CIFOR, 2009; IIED, 2010). The original economic reasoning was that reducing deforestation would be a cost effective climate change mitigation measure when compared with other more technical abatement options, like solar and wind energy, carbon capture and storage, etc. (Olsen & Bishop, 2009). As such, REDD is originally a mechanism that has environmental objectives. However, as negotiations have progressed, REDD has progressively been put forward as a "win-win" scheme that can generate not only rapid emissions reductions at a relatively low cost, but also improve welfare conditions for traditionally poor forest inhabitants. According to these objectives REDD aims to address some of the most pressing issues of our time, including climate change, poverty, and biodiversity loss. The growing consensus over the applicability of REDD as a climate change mechanism[2] means that it is likely that relatively vast amounts of finance will be channelled from richer countries to poorer nations over the next 10 -15 years for conservation and poverty alleviation[3].

As REDD negotiations have progressed, the list of activities that qualify for REDD has expanded. REDD initially only referred to reducing "deforestation", and then later expanded to include forest "degradation". Going one step further, the Bali Action Plan states that "deforestation and forest degradation, the conservation of, and sustainable management of forests and enhancement of forest carbon stocks" are also to be included (UNFCCC., 2007). This inclusion led to the addition of the "+", and the birth of "REDD+". This more inclusive approach to REDD design accepts that there are a variety of forest conservation strategies that can contribute to mitigating climate change and address poverty (Cortez & Stephen, 2009). In Cancun, negotiations made significant progress on some important outstanding issues (CarbonPositive., 2010.; WRI., 2010.) and established a broad framework for REDD+

[2] In contrast to the lack of political agreement in other areas of COP discussions

[3] The Eliasch Review (2008), estimates that between 17 – 33 billion USD p/year would be needed to halve global emissions from deforestation.

(-/CP.16, 2010). The Cancun agreement provides some guidance for developing countries in terms of preparation for REDD, known as REDD+ "readiness", and outlines a three phased approach as in Table 1 (-/CP.16, 2010:11,12).

Table 1: Phased approach agreed upon in Cancun for REDD+ preparation

Phase	Actions to be undertaken by countries aiming to participate in REDD+
Phase 1.	The development of national strategies or action plans and capacity building.
Phase 2.	The implementation of national policies, measures and strategies or action plans that could involve REDD pilot projects.
Phase 3.	Evolution of REDD projects into measured, reported and verified results based actions, and the mobilisation of funds from developed countries, with financing mechanisms yet to be decided.

Since conditions vary from country to country it is understood that there is no REDD+ blueprint, so emission reduction strategies should "be in accordance with national circumstances and respective capabilities" (-/CP.16, 2010, p. 11). Nevertheless there are certain core elements that each country needs to pay attention to as they develop national REDD+ strategies or action plans. These include the development of accurate carbon baselines against which emissions reductions will be measured, and countries rewarded. To ensure credibility, countries need to establish credible monitoring, reporting and verification (MRV) strategies, and emissions reductions need to be validated by a recognised third party verifier. Once verified, REDD+ project developers can sell their emissions reductions (ER's). ER's can either be sold on a carbon market, to a private buyer through a voluntary agreement, or through finance from a fund, made up of contributions by donor countries and institutions. The finalization of how a REDD+ financing mechanism would work is still to be finalised and will be an important negotiating point in COP 17 in Durban, in 2011. Alongside these more technical issues to ensure positive environmental outcomes, there is also explicit emphasis on REDD+ generating livelihood improvements. In this respect, Cancun negotiations have produced a set of social safeguards, or provisions that countries developing REDD+ projects should adhere to, to "prevent and mitigate undue harm to the environment and people at the earliest possible planning stage" (UN, 2010, p. 1). Social safeguards are provisions to ensure that institutional policy and procedure incorporates sustainable development, addresses direct and indirect impacts to communities and, identifies, evaluates, minimizes, and mitigates adverse social impacts (Hite, 2010).

Ecuador has made its intentions clear that it plans to become part of a global REDD+ climate change mechanism, and is developing a national REDD+ strategy in anticipation of REDD+ funds becoming available. Several characteristics make Ecuador a good candidate to participate in REDD+. Firstly, around 50% of the country's land area is covered by forest, mainly Amazon tropical forest (Bertzky et al., 2010; Sierra, 1999), and Ecuador has comparatively high levels of deforestation, equating to around 1.7% per year of forest cover being deforested between 2000 and 2005 (FAO., 2009). The current Ecuadorian government has identified poverty as a cause of deforestation, and deforestation in turn as perpetuating poverty; consequently reducing deforestation has been targeted as a national priority (SENPLADES., 2008).

An important component of the national REDD+ strategy is a pilot incentive-based conservation programme, called "Programa Socio Bosque" (SocioBosque) already underway. SocioBosque is designed along similar principles to REDD+, and has been paying individuals and communities to conserve important eco-systems[4] on their land since May 2009. SocioBosque aims to preserve around 3, 600 000 hectares of native forest[5] and improve the lives of around 1 million people in mostly marginalised rural areas (MAE., 2009). The programme has grown rapidly since creation in November 2008. As of October 2010, the programme had enrolled over 500,000 hectares of forested land, with the number of beneficiaries being approximately 60,000 people (de Kooning et al., 2011). These figures indicate the successful mobilisation of public funds towards incentivising land-owners to conserve their forests, as well as relatively high levels of interest by land-owners in participating in SocioBosque. Of relevance for this thesis is that SocioBosque is an important precursor in the development of the national Ecuadorian REDD+ strategy (Bertzky, et al., 2010).

REDD+ is a dynamic challenge that offers potentially substantial benefits for countries like Ecuador, but is also characterized by uncertainties and risks (Parker, et al., 2009). Nothing like REDD+ has been attempted on the scale at which it is proposed and each element in REDD+ implementation implies complexities. Developing credible carbon baselines, carbon MRV, building local capacity, technology transfer between multiple actors, and developing viable financing mechanisms are some technical issues that present challenges for REDD+.

An equally important challenge to an effective REDD+ mechanism and programmes like SocioBosque, and more the focus of this thesis, is ensuring effective participation of local communities – the people who in the end will be ultimately responsible for conserving the forests that these programmes target. Large parts of the tropical forests that REDD+ aims to protect are inhabited by indigenous and other local populations (Sunderlin, Hatcher, & Liddle, 2008), and traditional indigenous territories coincide with areas that encompass 80% of the world's biodiversity (Sobrevila, 2008, p. xii). In Ecuador, the situation is similar with around 7 million hectares, or 65% of forests under indigenous ownership (Palacios, 2005). The territories belonging to indigenous peoples groups in Ecuador represent more than half of the country's biomass and over 80% of the biomass carbon in the Ecuadorian Amazon region (Bertzky, et al., 2010, p. 12). In SocioBosque so far, 96% of the population receiving payment from this incentive-based conservation programme are under communal contract (Krause, 2010, p. 32). That is to say that at its most local, REDD+ "like" initiatives like SocioBosque will depend largely on local people to manage forest resources sustainably (Cronkleton, Bray, & Medina, 2011). However, it is not yet clear how REDD+ will function on the ground or ensure the effective participation of local communities (Cronkleton, et al., 2011).

Recognizing these concerns, the abovementioned mechanisms to address social impacts - social safeguards- have been at the forefront of negotiations at the last two COP negotiations. Draft texts from Cancun make explicit that REDD+ policy and approaches shall "be implemented in the context of sustainable development and reduc[e] poverty", "respect the knowledge and rights of indigenous peoples and members of local communities",… "address land tenure issues, forest governance issues, and gender considerations",… and call for the "full and effective participation[6] of relevant stakeholders, inter alia, indigenous peoples and

[4] Specifically indigenous forests and high altitude grasslands

[5] These refer to forest with indigenous species that are the result of natural succession, include old growth forests and regenerated secondary forests

local communities…" (-/CP.16, 2010, p. 12, 25). Most critics recognise that for REDD+ to achieve its goals, indigenous and local communities need to be active participants in the process (Cronkleton, et al., 2011; FAO, 2011; ITTO, 2010)

1.2 Problem definition

REDD+ and SocioBosque require the active participation of communities to achieve the effective conservation of the communally owned forests on their land. In this regard, it has been shown that communities with high levels of collective action and local enforcement manage their forests more sustainably than communities that don't (Chhatre & Agrawal, 2008; Ostrom, 1999). Thus the quality of local forest governance becomes increasingly relevant to these programmes. Importantly, not all communities have developed effective collective action for forest management, and therefore some of them are more effective than others at managing their forests sustainably (Ambika & Ganesh, 2006; Chhatre & Agrawal, 2008). The management of communal natural resources, including forests, presents considerable coordination challenges, and is usually an "uncertain and complex undertaking" (Ostrom, 1990, p. 33).

One important condition found to be critical in fostering sustainable management of communally owned resources are secure property rights (Lawlor, Weinthal, & Olander, 2010). Nevertheless, successful collective action is not guaranteed by the devolution of property rights to indigenous communities. For instance, Cronkleton et al (2011) describe how indigenous communities in Brazil and Bolivia have had relative success in winning recognition of their property rights (as in Ecuador) but in many cases these communities have had difficulties developing local territorial governance institutions that link effectively with external actors[7]. Consequently, "governance vacuums" have developed where local institutions are not empowered but rather replaced by regional management bodies that are distant from local forest users. Additionally, decentralisation of forest management to local communities may bring certain risks, including potential conflicts over these new rights and lack of transparency (Bouda, Tiveau, & Ouedraogo, 2011).

In this regard, Ecuador may face considerable challenges with a history of weak national forest sector governance, and many rural communities that lack the organizational experience in regulating interactions with outside institutions (Reed, 2011). This is relevant for SocioBosque as the programme implies new community conservation responsibilities to external stakeholders and generates new community income that requires equitable internal management. Initial investigations suggest that challenges with local governance in communities participating in SocioBosque have already been encountered; including problems with communication, inequitable participation within participating communities (IRG, 2010; Rojas, Minango, Galarza, Gallardo, & Rojas, 2011), difficulties with SocioBosque income distribution (Pachamama, 2010; Rojas, et al., 2011), and lack of transparency (Pachamama, 2010). In turn, weak local governance structures may severely hamper the effectiveness of implemented social safeguards.

1.3 Objective and research questions

To the author's knowledge, there has been no empirical research investigating the characteristics of local governance of forest resources in Ecuador linked to REDD+, or the potential implications of local governance on activities like SocioBosque or REDD+. Thus, in addressing the above problem, the objective of this thesis is twofold; firstly, to assess whether the local institutions guiding the participation of Amazonian communities in SocioBosque

7 This investigation refers to the Bolivia (TCO model) and Brazil (RESEX model).

reflect robust self-organization, and secondly, to evaluate the implications of local organization on meeting REDD+ environmental goals and social safeguards.

In order to address the objective, the thesis is directed by the following questions related to the role of governance in local communities for REDD+:

- Do the present governance structures guiding the participation of communities in SocioBosque reflect robust levels of self-organization? How or how not?

- What implications does local governance have on meeting REDD+ environmental objectives and social safeguards?

By addressing the problem in this manner, the author aims to generate knowledge that will help more clearly frame the still relatively general concern regarding local governance in REDD+, and provide insights for policy and decision-makers into the relevance of local governance on REDD+ objectives.

1.4 Scope

The geographic scope of the thesis is the country of Ecuador in South America. Fieldwork was undertaken in the two Ecuadorian provinces of Napo and Succumbios located on the eastern side of Ecuador in the Andean Amazon basin. Thus, findings are limited to Ecuadorian Amazon conditions, but may be relevant for incentive-based conservation schemes in other parts of the Amazon that share similar characteristics.

Given the multidisciplinary and global nature of REDD+ it would be difficult to analyse all elements of REDD+ in one paper. To generate reliable and replicable results, this thesis limits itself to assessing the implications of local governance for a potential REDD+ mechanism by means of a case study investigation of the national incentive-based conservation scheme in Ecuador – Programa Socio Bosque (SocioBosque). This thesis looks at the role of local stakeholders by assessing local governance institutions related to community participation in SocioBosque, how this influences the impact that SocioBosque has on communities and community members, as well as the implications for REDD+ objectives. Although SocioBosque is not yet a REDD+ programme, given the similarity in nature regarding the role of local communities, the results of this thesis are applicable to both SocioBosque and REDD+.

In terms of property institutions, I limit myself to evaluating how communities manage their property rights *internally*, and do not look specifically at the legal aspects of national land tenure policies or reform for communities. According to Ecuadorian law, communities are allowed to own territory, and the communities that participated in this research all have legally recognised land titles. The thesis focus is on how communities organise themselves to manage this common right internally.

This thesis does not look specifically at the more technical aspects of REDD+. For instance, issues that concern the quantifiable environmental impact and cost efficiency of REDD+ greenhouse gas emissions reductions, including the development of accurate carbon baselines, targeting, the establishment of credible monitoring, reporting and verification (MRV) systems all fall beyond the scope of this paper. There is clearly room for investigation into issues of whether (or which) SocioBosque participants actually generate additional carbon emissions reductions, whether the pricing scheme in place covers local opportunity costs, etc., but are not dealt with this paper.

Furthermore, this thesis does not analyse the public goods nature of ecosystem services that may be provided by forest conservation. Public goods are characterised as non-rival, meaning that the consumption of one good does not reduce the amount available for others, and as non-excludable, meaning that no-one can be stopped from using them (E. Corbera, Soberanis, & Brown, 2008). Clean air is a clear example of a public good. The fact that public goods generated from forestry, for instance -reduced carbon dioxide in the atmosphere- provide a public benefit for all adds a new level of complexity to proposals such as REDD+ because it implies difficulty in deciding who should be paying for these benefits. Attempting to incorporate such an analysis alongside the excludable and subtractable characteristics of common-pool resources would be too ambitious a task for this thesis.

In terms of finance, I do not investigate international carbon financing for REDD+ or pricing for carbon emissions reductions, or whether finance will come from a global fund, some sort of market mechanism, or a combination of both.

1.4 Target audience

The target audience of this thesis are those actors and institutions involved in the design and development of REDD+, or REDD+ like projects and policy.

1.5 Thesis outline

The structure of the thesis is as follows: The next section, section two, outlines the research methodology employed. Section three presents conceptual considerations for a better understanding of institutions and institutional development and their relevance to the analytical framework. Section four presents specific details of the case study, and section five progresses into the research findings. Section six develops the analysis of the research results against the analytical framework, and this is followed by conclusions in section seven, and finally section eight presents some brief policy recommendations on addressing local governance in these schemes.

2 Research Methodology

The thesis addresses its objective by means of a case study generating empirical data from four Amazonian communities participating in SocioBosque. SocioBosque is in itself not a REDD+ project but works along similar principles, furthermore, experiences from SocioBosque are an important element of the Ecuadorian REDD+ strategy development, and REDD+ funds may be an important element for the financial sustainability of SocioBosque. This and the high proportion of indigenous contracts in SocioBosque make the programme a suitable case study for the thesis objective and questions.

Method for Data analysis

Data gathered from field-work with four communities is used to assess the "robust-ness" of community governance related to participation in SocioBosque and then to assess the potential implications of local governance on REDD+ objectives. This is undertaken on two levels of analysis:

Firstly, the thesis employs the theory of Common-Pool Resource (CPR) management as described by Ostrom (1990). Traditional theory has been pessimistic about property that can't be allocated to private or state ownership, predicting most famously in Hardin's "The Tragedy of the Commons" (1968) that overharvesting is an inevitable result as each individual tries to maximise their utility in unregulated competition with others who also have access to the resource. In contrast to this, Ostrom has shown that *under the rights conditions* communities do manage CPR's sustainably. Through extensive research, Ostrom identified eight "design principles" that characterise long-standing and robust CPR management systems (1990). To address the thesis objective the author applies the first seven of Ostrom's design principles as a framework for analysis of governance conditions in the four communities participating in this research[8]. This analysis is supported by the broader conceptual aspects of New Institutional Economics (NIE), and section 3 goes into more detail regarding the conceptual underpinnings of the theory of common-pool resource management and NIE. Table 2 contains the primary analytical framework this thesis employs including seven of Ostrom's design principles, what they mean, and how they relate to analysis of local institutions in SocioBosque.

[8] The eighth principle, nested enterprises, is for more complex CPR systems, like federated systems and is thus not used for analysis in this thesis.

Table 2: Analytical Framework - Design principles that characterise long-standing and self-organizing common pool resource management systems.

Ostrom's Design Principles	What it means	Applicability to forest resource systems and SocioBosque in particular
1. Clearly defined boundaries for users and resource system	The individuals who have rights to benefit from the CPR must be clearly defined, as must the boundaries of the CPR system itself.	- Is official membership within participating communities well defined? - Is the area of forest that is registered for conservation in the SocioBosque contract well defined by community members?
2. Proportional equivalence between benefits and costs as well as conservation rules and local conditions.	a) The distribution of costs and benefits of CPR management is fair. b) Conservation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions.	- Are those community members that feel restricted by the SocioBosque forest conservation rules also those who perceive benefits? - Are the operational rules that govern management of the conservation area appropriate for tropical forest ecosystems as well as for traditional Amazonian community social norms and conditions?
3. Collective-choice arrangements	Most individuals affected by the operational rules can participate in making and modifying these rules.	- Do the majority of individuals participate in and are knowledgeable about decisions related to SocioBosque rights and obligations. - Do most individuals agree with the operational rules?
4. Active monitoring	Monitors, who actively audit CPR conditions and user behaviour, are accountable to the users or are the users.	- Have communities voluntarily appointed monitors selected from within community ranks that actively monitor the SocioBosque conservation area and regularly report back in community assemblies?
5. Graduated sanctions	Users who violate operational rules are likely to be given graduated sanctions by other users, by officials accountable to these users, or by both.	- Have communities voluntarily established and enforce a set of graduated sanctions to ensure compliance with SocioBosque rules that are well known to individual users?
6. Conflict resolution mechanisms	Users and their officials have rapid access to low cost local arenas to resolve conflicts among users or between users and officials.	- Has participation in SocioBosque led to conflicts? - Have these conflicts been solved rapidly and with low cost?
7. Minimal recognition of rights to organise	The rights of users to develop their own institutions are not challenged by external governmental authorities	- Does national legislation recognise forest community's right to develop their own forest management institutions? - Do local communities have an active role over rule making process? - Does SocioBosque recognise and respect local institutions?

Adapted from Ostrom (1990)

Secondly, to evaluate the implications of local governance on REDD+ social objectives, the findings of the first level of analysis are applied to a simple summary framework of relevant social safeguards. For this analysis, the thesis makes use of an analytical framework composed of two main sets of safeguards and social impact criteria *that specifically impact on or are impacted by local community governance,* thus this is not an exhaustive list of the safeguards under negotiation. The first column includes safeguards agreed to in COP negotiations in Cancun in 2010 (-/CP.16, 2010). However, COP safeguards provide only "broad guidance and a framework for safeguarding and enhancing the multiple benefits of REDD+" (UN-REDD, 2011, p. 2). Individual countries still need to develop national approaches for safeguarding social benefits. Responding to this, the UN-REDD programme has been active in supporting countries developing REDD+ strategies to develop a more detailed set of safeguards; the "UN-REDD Social and Environmental Principles and Criteria" to enhance multiple benefits and reduce risks from REDD+. Continuous work is being done to develop and refine the UN-REDD Social and Environmental Principles and Criteria, which are coherent with and draw from the Cancun safeguards (UN-REDD, 2011). Ecuador is formally part of the UN-REDD Social safeguard development process. Thus the second column of Table 3 presents the UN-REDD Social Principles and Criteria alongside the COP safeguards.

The analysis used in this thesis to evaluate the impact of local governance on social safeguards refers to the second column (the UN-REDD Principles and Criteria) as they are more developed, and are a key input into the development of national social safeguards in the Ecuadorian REDD+ strategy (UN-REDD, 2011). It is important to mention that SocioBosque itself is not yet formally committed to these safeguards as SocioBosque is a nationally initiated project and not a REDD+ project yet. However, SocioBosque is an important element of the Ecuadorian REDD+ strategy, and therefore it is useful to apply these safeguards hypothetically.

Table 3: Framework for analysis of the implications of local governance on REDD+ social safeguards

UNFCCC social safeguards - Decision1/CP.16 UNFCCC	UN-REDD Social Principles and Criteria
(a) Respect for the knowledge and rights of indigenous peoples and members of local communities by taking into account relevant international obligations, national circumstances and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples;	**Principle 2 – Respect and protect stakeholder rights**
	Criterion 4 – Promote and enhance gender equality and women's empowerment
	Criterion 5 – Seek free, prior and informed consent of indigenous peoples and other forest dependent communities
	Criterion 6 – Avoid involuntary resettlement as a result of REDD+
	Criterion 7 – Respect and protect cultural heritage and traditional knowledge
(d) The full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities.	**Principle 1 – Comply with standards of democratic governance**
	Criterion 3 – Ensure the full and effective participation of relevant stakeholders in policy design and implementation, with special attention to the most vulnerable and marginalized groups
	Principle 3 – Promote and enhance sustainable livelihoods
	Criterion 8 – Ensure equitable and transparent benefit distribution among relevant stakeholders
	Criterion 9 – Respect and enhance economic, social and political well-being

Adapted from COP 16 outcome (-/CP.16, 2010; MAE., 2011a), and the UN-REDD Social and Environmental Principles and Criteria (UN-REDD, 2011)

Method for Data collection

Literature review

A desk based literature review was undertaken covering the following relevant themes; firstly, the proposed REDD+ climate change mitigation mechanism including the background and justification for REDD+, the mechanism's history in UNFCCC negotiations, REDD+ "readiness" pilots and case studies, academic analysis and criticism, the Payment for Environmental Services (PES) conservation framework, and a specific focus was placed on the role of local and indigenous communities in REDD+. Additionally, literature available on SocioBosque was covered. This included programme background and justification, legal, financial and institutional framework, formal programme documents, academic analysis and criticism. Literature concerning other national incentive-based conservation programmes, notably, but not limited to Mexico, Brazil, and Bolivia were reviewed, with a focus on the institutional aspects. In terms of the analytical framework, extensive reading on NIE, management of the commons, adaptive co-management and multi-scale governance was completed.

Fieldwork

The principal source of data from fieldwork was gathered by means of a structured survey with four Amazonian communities participating in SocioBosque. This survey data provided the primary source of information for analysis in this thesis.

Communities Interviewed

The abovementioned survey was undertaken with individual members from communities participating in SocioBosque. Data was collected between June and July 2011 from four Amazonian communal contract members (n = 94) participating in SocioBosque (See table 3). Data collection was undertaken by the author, a fellow researcher[9], and we were aided by a local indigenous contact and a female interviewer to aid in the collection of data from women. Three of the communities are located in the province of Napo (Central Ecuadorian Amazon) and one in Succumbios (Northern Ecuadorian Amazon). The first three of the four SocioBosque communal contracts are with single "villages", which is to say an individual village with its own legal land title, and local administrative decision-making structure. The fourth communal contract member interviewed is a "federation", consisting of 17 villages all voluntarily within a single global land title under the federation's name. In this case, although each individual village has its own administrative structure, the federation of 17 villages has legal political status as a unified federation and is overseen by a central administrative government elected by the 17 villages. This central administrative body signed the SocioBosque contract and represents the 17 villages in legal representation of the community when dealing with SocioBosque.

Community and community member names are anonymous in this thesis. There are several reasons therefore; Given that certain sections of the survey enquire about potentially sensitive information, such as community income management and leadership performance, interviewees were assured that all information would be anonymous. Additionally, since communities that do not comply with their financial management responsibilities according to SocioBosque contract terms may be liable to have payment withheld; income management information is particularly sensitive. By not disclosing names, the author hoped to improve chances of being given permission to work with the communities and secondly to put

[9] Torsten Krause, PhD (C) at LUCID, Lund University, with whom the raw data collected from this fieldwork is shared.

interviewees at ease during the interview process. The objective was that community members should feel comfortable in providing complete and truthful answers to the author who was not a familiar face in the community. Thus, for the purposes of this thesis, I refer to the three individual community contracts as A, B, & C and to the "federation" community contract as D. Quotations presented by community members are also listed simply as "member from "X" community" and names are not disclosed.

Table 4: Communities interviewed for data collection

Community	Size of conservation area in ha	Date of Joining SocioBosque	# people	# families	Incentive per year in US$
(A)	1,283.50	Dec, 2008	621	90	10,417.50
(B)	2,380.00	Aug, 2009	280	54	15,900.00
(C)	2,000.00	Dec, 2008	450	193	14,000.00
(D)	11,000.00	Aug, 2009	5,000	1,500	39,500.00

Three criteria were applied in the selection of communities. Firstly, although SocioBosque includes contracts with both individual land owners and communal land owners, only communal contract members were targeted as is self-explanatory given the topic of this thesis. SocioBosque includes contracts with communities residing in a wide variety of ecosystems, however, since this thesis evaluates SocioBosque as a potential REDD+ project, only communities in the Amazonian tropical rain forest were targeted, as currently it is only forests that will qualify for REDD+ funds. Additionally, this investigation targeted communal contract members that had been participating in SocioBosque for at least one and a half years. The motivation for this criterion was to source information from communities that have already had a realistic opportunity to perceive and evaluate the impacts of participating in SocioBosque. An additional factor that influenced the selection of communities interviewed was accessibility. Some communities participating in SocioBosque are only accessible by air, and to keep costs within budget, this investigation sought our communities that were accessible by road.

Community contact and data collection from communities was undertaken in two phases. An initial meeting with community leaders, or in a community assembly, was arranged to present the objectives of the research and ask permission to speak to community members on an individual basis on a future date that suited the community. During this meeting, community members had the chance to ask questions about the investigation and discuss what date would be most suitable for the researcher to return to do the interview. Fortunately, the first four communities approached were all willing to participate in the research, and return visits within a week of first contact were arranged to undertake surveys.

Once data tabulation had been completed, a follow up communication was required for communities A, B and D. In total, the data collection portion of this research was undertaken in five weeks, including both community surveys and interviews with other stakeholders and organizations in Quito and Tena.

Community Survey

The objective of the survey was to generate a clear picture in a relatively short period of time of the level of organization within Amazonian communities relating to SocioBosque rights and responsibilities and of the institutions that were guiding community participation in the programme.

The survey is divided into the following sections: General demographic and socio-economic conditions and indicators; Local institutions for traditional community governance; Perceptions, knowledge of and opinions of SocioBosque; Institutions relating to the communal management of the SocioBosque conservation area, including knowledge and maintenance of the conservation area, conservation rules and rule-making, monitoring, compliance, and conflict resolution; Benefits from SocioBosque, and institutions guiding community distribution of income accruing from participating in SocioBosque, and costs or limitations imposed by participating in SocioBosque[10].

Limitations

Time is a principal limitation to this research since developing an intimate understanding of the formal and informal institutions that govern community behaviour is a process that becomes more refined with time and with spaces for informal interaction with community members. These institutions can have several subtle layers that govern day to day behaviour and individual perceptions which may be difficult to capture in a formal survey. Thus the author expects some degree of difference between *de jure* and *de facto* forest and income management in the answers to survey questions by certain interviewees. That is to say that although certain respondents may reply to questions according to *de jure,* or according to formal community decisions that have been taken in assemblies, in practice, or *de facto*, reality may be different in some cases. It is conceivable to expect that since a community made a rule in assembly, for example, that "nobody may hunt in a certain area", an individual interviewee may automatically respond that "everybody follows this rule", when in reality, simply making the rule does not mean that everybody follows the rule. The same goes for communal income distribution, etc. Ideally, the researcher would spend days, or weeks in more intimate and varied interaction with community members to slowly but surely piece together exactly how things work. In the case of this research, this was not possible, and a trade-off between time spent in one community, and generating a broader sample size from several communities needed to be made. To address this limitation, survey questions were designed to cross-check each other to be able to evaluate the validity of answers. For instance, question 3.7 asks how SocioBosque conservation rules were made. If an individual replies "in general assembly" (which may be a *de jure* answer) I attempt to check the validity of this answer in a follow up question that enquires "what are the rules?" Thus we see if *de facto* understanding of the rules is coherent with a decision taken in general assembly. This is then followed with a question evaluating the individual's perception of whether the rules are respected, which requires the interviewee to go beyond assembly decisions and reflect on what their personal perception is. With a well-designed survey, and a fair sample size, the researcher can piece together a fairly coherent picture of "reality" in the community in a relatively short time.

A second limitation to the results of this survey is language and education levels of some of the respondents. The language used in the survey, Spanish, is the second language of most of the interviewees. Furthermore, in many cases, the level of education of interviewees is fairly low, with around half of the interviewees not going beyond primary school. In order to limit language and understanding barriers, questions were kept as simple as possible, using language

[10] See appendix 1 for the complete survey

that the researcher was familiar with from several years working with Amazonian communities. Importantly, the survey team de-briefed after each day's data collection (especially after the first few days) to identify questions that were not being understood clearly to make necessary adjustments early on. For example, in attempting to get an understanding of whether interviewees were satisfied with their participation in communal income management decisions, after the first day the author adjusted the initial question which was designed as follows, but was found to be complicated by many interviewees:

Table 5: Example question from community survey

4.6 ¿What best describes decisions in the community regarding the use of income from SocioBosque income?	Correct / False
(a) I am informed and participate actively in the decision-making process.	☐ / ☐
(b) Leaders make proposals, but I have the right to change them.	☐ / ☐
(c) I am informed of what is happening but I have little right or opportunity to change these decisions.	☐ / ☐
(d) Every now and then leaders inform us of what is happening but I have little right or opportunity to change these decisions.	☐ / ☐
(e) Decisions are taken without my participation and without informing me.	☐ / ☐

The second version, below, may not have been as detailed, but resulted in much more spontaneous and thus reliable answers:

4.6.1. How much do you participate in the decision-making process about income from SocioBosque?

A lot / Not much / Not at all

4.6.2. How much information have you received about the income from SocioBosque?

A lot / Not much / None at all

As a supplement to the data gathered directly from these communities, several semi-structured face-to-face interviews and discussions with government institutions, NGO's, and private organizations either part of, connected to, or with expert opinion on SocioBosque, or REDD+ were undertaken (Appendix 1). These interviews were undertaken in the cities of Quito and Tena, Ecuador. Data gathered from these sources provided the thesis author with an important more global perspective, but are not subject to specific analysis in the thesis.

3 Conceptual considerations

The theory of common-pool resource management developed by Ostrom (1990) shows how groups of people cooperate voluntarily to manage a common resource sustainably over time. This is consequently an alternative to public or private ownership dealt with in traditional economic theories. As such, analysis of these common-pool arrangements falls within a broader conceptual framework known as New Institutional Economics (NIE). These perspectives provide the backbone to the analysis of community institutions undertaken in this thesis. To understand how these arrangements relate to this analysis, it is helpful to look at these ideas more closely in this section.

New Institutional Economics (NIE)

Much of economic analysis up until the mid-1970's had been dominated by models that predict how consumers and producers will behave under the assumptions of perfect competition (Hoff, 2001). According to these neo-classical models, the market allocates resources to the most efficient outcome by aligning customers and producers through supply and demand. Despite the usefulness of these models for transactions involving goods and services in more developed urban settings, in an increasing number of situations, neo-classical models and the market are showing to not incorporate fully the factors that govern transactions in reality (Hoff, 2001; Williamson, 1981). This is especially true in rural situations that are characterised by uncertainty, lack of trust, imperfect information, and costly transacting. In economic situations or academic analysis where it is difficult to make accurate assumptions about what is influencing behaviour on the ground, an alternative approach is needed to understand how actors make economic decisions. According to Ostrom (1990) , in situations where it is extremely difficult to make reasonable economic assumptions an attempt should be made to explain the *institutional conditions*[11] rather than apply a model to them. In rural isolated locations like those found in the Amazon, this can be a more appropriate analytical approach than applying a traditional neo-classical model.

Institutions and institutional change

North (1990) has been particularly influential in addressing the importance of institutional arrangements in economic development, describing how institutional change shapes the way society evolves over time and is the key to understanding historical change. In NIE institutions refer to the formal and informal "rules of the game" that govern human behaviour and interaction (North, 1990). Formal rules refer to hierarchical laws and policies, such as national laws, the national constitution, international treaties and conventions. Informal rules refer to social customs and conventions which have developed over time, are usually deeply embedded in a culture and thus difficult to change, but which have a profound influence on the way people behave. North highlights that it is important to differentiate between institutions and organizations, such as companies, government bodies and community groups; which North refers to as the "players in the game." Players abide by the rules and may at times try to change the rules, but these players are organizations, and the rules they play by are the institutions. Similarly, North highlights that it is necessary to distinguish between the institutional environment; the formal and informal rules that govern production, exchange and distribution within a society, and the institutional arrangements; specific arrangements, for example; a contract, or some compliance mechanism, devised between parties that govern the manner in which parties interact within the institutional environment.

[11] Italics added by this author

North's model of personal exchange within the community setting helps us to better understand why traditional, rural societies, which traditionally relied on social pressures and proximity to enforce contracts, have difficulties adjusting rapidly to impersonal, high volume exchange practices. This is specifically relevant in developing countries and rural communities where there is increasing pressure to expand exchange relationships to improve wellbeing. However, substantial challenges exist for such societies to develop new institutions that effectively regulate individual behaviour to suit changing conditions at the speed at which they may be required. As rural communities expand exchange activities beyond their borders, the more impersonal and complex become the trading links, and so too transaction costs, or the cost of participating in a market, become higher. To facilitate extended trade, more sophisticated institutions that make information available, protect property rights, and establish mechanisms to enforce contracts need to be established. North (1990, p. 83) argues that "this process of institutional change is overwhelmingly an incremental one". Informal institutions such as norms and culture, and codes of ethics evolve over time in a society and are often more pervasive than formal rules (Behera & Engel, 2005).

Additionally, changing institutions is not only a case of economics but also of political economy. If the institutional environment rewards rent-seeking opportunities to those with most power, then the result may not be socially efficient, and less influential groups may not benefit. NIE is more aware of these failings in the institutional matrix and is concerned with how good governance and the effective management of information can lead to the creation of appropriate institutions of exchange.

Analytical Framework: Theory of Common Pool Resource (CPR) management

In natural resource systems where private property is difficult to enforce, then the institutional arrangements between and within groups using the resource become important for the long-term sustainability of said resource. In such cases an alternative to private property, like state or communal ownership may more feasible (Ostrom, 1990). These resource systems, known as common-pool resource systems, include systems like the ocean, the air, rivers, irrigation systems, and forests, amongst others, and are characterised by excludability and subtractability. Here, excludability refers to the difficulty of excluding other actors from entering or extracting from the resource, whereas subtractability means that one person's extracting resources from the resource pool means that there is less available for other users.

Traditional theory has been pessimistic about property that can't be allocated to private or state ownership, predicting most famously in Hardin's "Tragedy of the Commons" (1968) that overharvesting is the inevitable result. In the last few decades, however, a substantial body of empirical evidence has challenged that assumption, and instead has shown that users of CPRs can self-govern themselves collectively to manage common-pool resources sustainably (Baland & Platteau, 1996; Ostrom, 1990). In fact, research is showing that problems with forest management often occur when external actors impose rules upon forest users and local self-organization is not recognised (Ostrom, 1999). Ostrom, a leading scholar in the field of CPR management, identified eight "design principles" that characterise long-standing and robust CPR management systems (Ostrom, 1990, 2008). Ostrom found that *under the right conditions*, communities do manage CPRs sustainably. In essence, Ostrom (1999) argues that these CPR systems are more likely to be subject to degradation or overharvest when those involved have not established an effective governance regime to regulate resource management.

At this point it is necessary to define further some of the concepts that are important for coordinated action for common-pool resources. This research takes Ostrom's (2008, p. 6) definition of a self-governed system as one "where actors, who are major users of the forest, are involved over time in making and adapting rules within collective choice arenas regarding the inclusion or exclusion of participants, appropriation strategies, obligations of participants, monitoring and sanctioning and conflict resolution". This thesis may use the terms "self-govern" and "self-organise" interchangeably. The previous definition includes several other terms that need defining; for this thesis "governance" refers to any effort to coordinate human action towards goals (Stoker, 1998). The governance of CPRs benefits from coordination between people and groups, or collective action. The thesis employs Marshall's definition (1998 in; Meinzen-Dick, 2004) for "collective action" as action taken by a group (either directly or on its behalf through an organization) in pursuit of members' perceived shared interests." For Ostrom, a design principle is "an essential element or condition that helps to account for the success of [community] institutions in sustaining the CPRs and gaining the compliance of generation after generation of appropriators to the rules they use." (Ostrom, 1990). From this definition comes this thesis' understanding of "sustainability"; since reducing carbon emissions to mitigate climate change requires very long-term commitments for reductions in deforestation, a sustainable reduction in deforestation can be assumed to be one that is at least passed from generation to generation. And finally, Ostrom refers to "robustness" in complex systems as "adaptability to disturbances: the maintenance of some desired system characteristics despite fluctuation in the behaviour of its component parts or its environment" (Ostrom, 1990, p. 90).

A summary of the design principles used in this thesis' framework as described by Ostrom (1990; 1999; 2008) follow:

Clearly defined boundaries: In this principle, clear boundaries are established on two levels; firstly, for the resource users who have property rights over the resource system, or the right to benefit from the resource system. These rules define who has the right to enter, harvest, manage and potentially exclude others. If these rules are not well defined, then strangers who discover a valuable resource may begin to exploit it. This is a crucial step in securing property rights.

Secondly, a group of users who have decided to cooperate need to define clearly the CPR system that is being managed. This communicates clearly to users where they can go and where they can't go and what areas need to be conserved, as well as communicating to those who are not part of the group where they cannot go. This first principle goes a long way to developing trust and reciprocity, as it defines who is in, and who is out, and thus with whom to cooperate, and the resource system under question.

Congruence between costs and benefits and local conditions: The second principle is that the rules that are being used to govern the resource system allocate outputs, or benefits, proportional to the inputs, or costs incurred. This principle is directly related to equity and fairness. If users feel that the rules do not allocate benefits proportional to costs, then the rules will lose legitimacy and it is less likely that most users will continue to follow the rules and the rules that govern the system will not be sustained. A second part of this principle is that CPR rules should be well aligned with the social conditions and norms of the area, since if rules are not congruent with local conditions then they risk not being accepted or sustained over time.

Collective choice arrangements: The third principle is that those that are affected by the resource management rules are also those that make and modify the rules that govern the resource system. Users who follow this principle are likely to design rules that are suitable to local

conditions and considered fair by those affected. This principle also helps to ensure that principle two is met, since if only a few people are making the rules, then it is more likely that benefits will also accrue to those few who make the rules.

Monitoring: Monitors actively audit the resource conditions, and are accountable to users, or are the users themselves. For common-pool resource systems it is not sufficient to simply design rules. These rules still need to be monitored to make sure that all users are following the rules. Communities who manage CPRs sustainably assign monitors from within the group and these monitors report back regularly to the group.

Graduated sanctions: Communities that have developed rules to manage CPRs sustainably over the long-term have developed a set of sanctions that are applied according to the seriousness of the non-compliance, or graduated sanctions. That is to say that the sanctions that are applied start off lightly and increase in severity according to the seriousness of the non-conformance as determined by the community, or the number of infractions.

Conflict resolution mechanisms: The sixth principle is that there are rapid, low cost arenas to deal with conflicts among users or between users and officials. These arenas need to be easy to understand to be effective. Simple, local mechanisms to air and solve conflicts rapidly can maintain trust amongst users.

Minimal recognition of right to organise: The rights of users to develop their own institutions are not challenged by external authorities. When external authorities presume that only they can make authoritative rules, then sustaining a self-organized regime is very difficult.

The relevance of NIE & CPR theory to forests

Within NIE, the author finds Ostrom's CPR theory to be specifically relevant for analysis of local CPR management institutions for communities participating in SocioBosque. Firstly, conditions in tropical forests make meeting the assumptions of perfect competition difficult; the communities are often very isolated and in rural conditions that lack technological infrastructure making communication and access difficult. A lack of information generates unpredictability, which increases transaction costs and reduces conditions for trust. Many of these communities have also had limited experience with activities of exchange with external actors for communal services. Thus, the formal and informal institutions that influence behaviour are important to better understand such conditions. This thesis specifically aims to evaluate the levels of internal organization for CPR's found in the case communities. In trying to understand the elements that govern individual and collective behaviour and decision-making in these situations, Ostrom recommends a basic strategy that identifies those aspects of the institutional setting that:

> "are likely to affect the determination of who is to be involved in a situation, the actions they can take, and the costs of those actions, the outcomes that can be achieved, how actions are linked to outcomes, what information is to be available, how much control individuals can exercise, and what payoffs are to be assigned to particular combinations of actions and outcomes." (Ostrom, 1990, p. 55)

Secondly, the areas of forest that the four case study communities have identified for conservation under the SocioBosque contract fall into the category of common property. They are areas of forest that are within the legal community land title, but are not divided between families – these conservation areas are owned by the community as a whole. Furthermore, since these areas are also large, there are certain challenges to managing these areas, for instance, there may be difficulties in restricting others from entering the

conservation area (excludability), and it may be difficult to coordinate activities, like monitoring and sanctioning to enforce rules. Therefore, in assessing how communities are coordinating efforts to manage these common pool resources, Ostrom's framework is very applicable.

In-depth research on institutions that can effectively mediate environmental service (ES) provision by means of economic incentives has only started to emerge (E. Corbera, et al., 2008). Nevertheless, the relevance of such an approach can be observed in an increasing number of studies applying an institutional lens to REDD+ and Payment for Environmental Services (PES) schemes around forest management. For instance Behera and Engel (2005) apply an institutional approach to analysing Joint Forest Management (JFM) in India applying the four levels of institutional analysis of Williamson (2000). The authors justify their institutional approach as suitable to identify the complex and manifold influences that joint forest management are subject to. In an analysis of the development of a market-based mechanism for forest carbon in Mexico, in comparison with a state run carbon forestry programme, Corbera and Brown (2007) apply an institutional lens and argue that such international institutions will be influenced by organizational capacity on other levels and by the interaction with other formal and informal institutions. Corbera, Soberanis and Brown (2008) look at the institutional dimensions of Mexico's Programme of Payments for Carbon, Biodiversity and Agro-forestry Services (PSA-CABSA) and highlight the importance of programme design, performance and interplay and capacity issues for holistic Payments for Ecosystem Services projects, and that continuous institutional adaptation is critical in such arenas. The authors continue that institutional interplay is likely the least researched area in PES until now. Vatn (2010) extends a broad institutional analysis of PES and argues that despite PES being proposed as a market-based mechanism, they depend rather fundamentally on state and/or community engagement, and thus require a reconfiguration of market-state-community interactions, and that the solution to such a complexity may be well-functioning hierarchies and/or communities. These examples highlight the diverse manner in which an institutional approach may be applied to generate insights into the challenges and ways forward for such complex inter-institutional mechanisms. Regarding SocioBosque and REDD+ development in Ecuador, there has, as yet been no research explicitly applying an institutional framework to these activities. The author also did not encounter recent literature on REDD+ or PES specifically assessing local governance institutions by means of empirical data.

Thus the author of the thesis regards an institutional approach as necessary and applicable for a practical analysis of internal governance conditions in rural Amazonian communities where little can be assumed.

Having described how an institutional approach can be useful to understanding PES schemes related to forestry, it is also necessary to look specifically at the applicability of Ostrom's "design principles" to common-pool forest management. Although Ostrom's CPR management principles were more extensively developed with resource pools that can be managed according to the number of resource units that can be harvested sustainably, like fishing quotas from fisheries, water quotas from irrigation systems, and timber quotas from forest management systems, the theory also holds in the case of forest ecosystems that provide ecosystem services, like watershed protection, carbon sequestration and biodiversity (like, SocioBosque), since they are closely tied to the sustainability of the forest stock (Ostrom, 1999). Overall,

"Forest resources share attributes with many other resource systems that make difficult their governance and management in a sustainable, efficient and equitable manner." (Ostrom, 1999, p. 291)

Following is a brief review of results from previous research applying the design principles to forestry.

Some researchers argue that the design principles may need to be expanded to more fully encompass the complexities of forest management, including factors like pressures from growing populations and the market, diverse interests, and increasing external relationships, Notably, Morrow and Watts-Hull (1996) suggest an expansion of the principles for forest management, and Agrawal (2002) argues that not enough attention has been given to external factors, including the effects of markets, technology, states and population pressures. Despite these potential limitations on the design principles in forestry situations there is general agreement that the principles are broadly relevant for forestry (Ambika & Ganesh, 2006). If anything, there is some argument for the principles to be expanded upon, rather than replaced (Ambika & Ganesh, 2006; Morrow & Watts-Hull, 1996). The purpose of this thesis, unlike the research described above, is not to test the relevance or completeness of the principles. The SocioBosque programme is less than three years old, and given the scope of this thesis it would require much more in-depth research to establish links between local institutional robustness and forest density. Rather this research applies the principles as a base set of already tested and proven principles that reflect, at least an important degree of self-governance robustness to manage common-pool resources sustainably. Ostrom herself does not claim that the principles are a blue-print and admits that potential adjustments, or expansions for the eight principles may in some cases be in order (Ostrom, 2008). Finally, despite a broad array of potential approaches to institutional analysis, Ostrom's principles are focused on the *internal* governance institutions or on relationships within the local context (Agrawal, 2002), and this is the specific focus of this thesis.

4 Case study: "Programa SocioBosque"

The national context

Ecuador is a relatively small and extremely bio-diverse country situated on the North-West coast of South America directly on the equatorial line, sharing borders with Peru in the South and East, Colombia in the North, and the Pacific Ocean in the West,. It has a population of around 14 million people, and is divided into coastal (West), Andean (Central) and Amazonian (East) geographical regions.

Ecuador experiences many of the institutional and governance challenges listed earlier that make addressing deforestation difficult. Thirty-three percent of the Ecuadorian population live below the poverty line (Indexmundi, 2011), and Ecuador's inequality of wealth as measured by the Gini coefficient is 0.44 (EarthTrends, 2003). Since 1996, Ecuador has had seven presidents which reflects a recent past of political instability. In a global annual study of perceptions of corruption, Transparency International gives Ecuador 2.5 out of a possible 10 points (TransparencyInternational, 2010). Nevertheless, since 2007, Ecuador has been in a period of relative political stability, with the leftist government of Rafael Correa enjoying high levels of support for policies that attempt to address imbalances of power and wealth in a society that has suffered from traditional inequalities.

Around 50% of the country's land area is covered by forest, mainly Amazonian tropical forest (Bertzky, et al., 2010). Ecuador has comparatively high levels of deforestation, equating to around 1.7% between 2000 and 2005 (FAO., 2009). The main drivers of deforestation are small scale agricultural expansion, cattle ranching, and petroleum exploitation which is often followed by colonization due to easier access from roads (Mena, 2006). According to the First National Communication from Ecuador at the UNFCCC, CO2 emissions from the forestry sector in 1990 were around 45 million tons. This represented 69% of the country's total emissions (MAE., 2000). According to initial work being undertaken by the Ministry of Environment, around 1.63 gigatonnes of carbon is stored in biomass in Ecuador, the majority of which is in Amazon tropical forests and the foothills of the Andes (Bertzky, et al., 2010). These figures show that reducing deforestation in the Ecuadorian Amazon could have an important impact on the countries efforts to mitigate climate change.

Legal and operative framework for reducing deforestation

The new Ecuadorian constitution, completed in 2008, aims to promote a new approach to citizen "wellbeing", which is in harmony with nature, and the government has identified reducing deforestation as a national priority (SENPLADES., 2008). This political will is backed up by a constitutional and legislative framework, in which over the last few years Ecuador has put into place a series of legal arrangements and national policies to generate conditions to reduce deforestation. Article 14 of the constitution recognises that every person has the right to a healthy environment (SENPLADES., 2008). Additionally, the Constitution includes mandates to mitigate climate change (Art. 414) as well as regulate environmental services (Art. 74) (Constitucion., 2008). On the international policy front, Ecuador has ratified the UN framework convention on climate change with pledges to reduce emissions of GHG from deforestation. In line with this Ecuador's environmental policy establishes the promotion of adaptation measures and climate change mitigation as priorities.

In turn, the Ministry of Environment is in the process of developing and implementing a national "Forest Governance Model". This model which is an integral part of Ecuador's preparation for REDD+ aims to promote the sustainable use and conservation of the country's forests. An objective of this model is to put into place measures to comply with the

national mandate to reduce deforestation by 30% by 2013 (SENPLADES., 2008). The forest governance model consists of five strategic focus areas, including, 1) to improve forestry management and control, 2) strengthen the system of incentives for sustainable management and conservation of forests, 3) information, 4) to promote reforestation, and 5) investigation, capacity building and diffusion.

In response to the formal recognition of REDD+ as a climate change mitigation mechanism, Ecuador is in its REDD+ "readiness" phase (MAE, 2011). The Ministry of Environment, through the undersecretary of Climate Change is in turn responsible for developing a national REDD+ strategy that forms a core part of the countries sustainable forest management and Ecuador's main response to climate change. In October 2009, Ecuador became a formal part of the UN-REDD programme as an observer country, and in March 2011, Ecuador progressed from being an observer country to being a beneficiary country, along with twelve other countries working with UN-REDD in the "readiness" phase (MAE., 2011c). SocioBosque is one of the key elements in Ecuador's REDD+ strategy as it is already functioning and paying land owners to conserve their forests. See figure 2 for the placement of SocioBosque within the national REDD+ strategy.

In compliance with REDD+ agreements in Cancun in 2010, the Ecuadorian REDD+ strategy development has initiated a process to ensure the delivery of social benefits through the implementation of REDD+ projects in Ecuador. The primary activity in this area is Ecuador's participation with the Climate, Community and Biodiversity Alliance (CCBA) and Care International to develop social and environmental standards for REDD+ in Ecuador. For this, a process of consultation was carried out in Ecuador with members of civil society and indigenous organisations (Carrion, 2009). These standards are not yet applicable to SocioBosque.

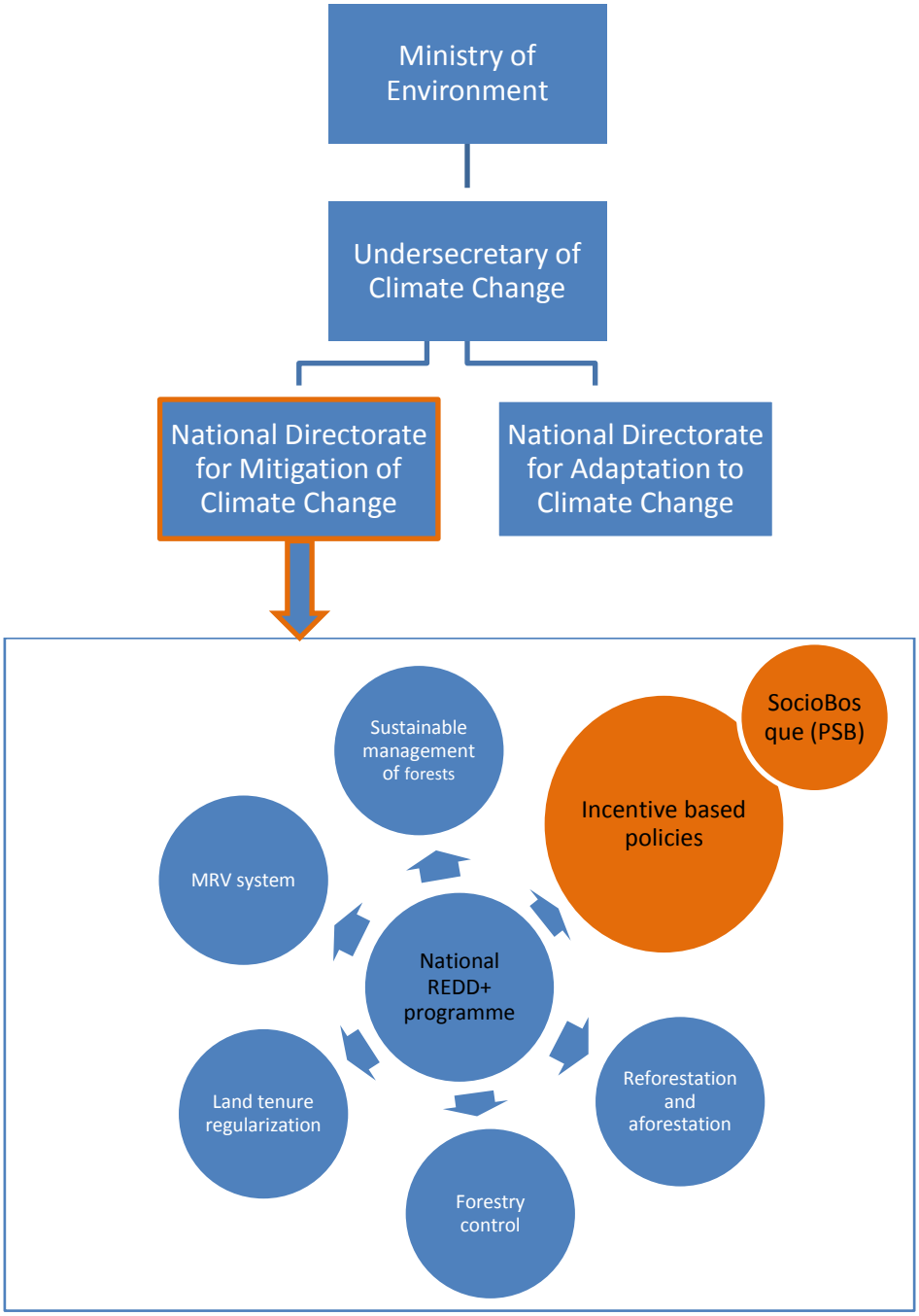

Figure 1: National structure for REDD+ planning, and placement of SocioBosque

Adapted from MAE (2011)

"SocioBosque": Ecuador's pilot incentive programme

"SocioBosque" is a state financed incentive-based conservation programme to help reduce deforestation in Ecuador. Landowners participating in SocioBosque sign a contract, binding for 20 years, agreeing to conserve the native forests on their land in return for a fixed financial incentive.

SocioBosque has its roots in the national constitution by contributing to the "National Development Plan" which recognises that poverty induces rural populations to degrade forest as a survival strategy, and that this in the long-term aggravates the problem (MAE., 2011b). Thus as part of the new government's objective to develop a new model of wellbeing for its citizens, reducing deforestation has been targeted as a national priority.

SocioBosque was initiated in 2008 with the following objectives: 1) to reduce the high rates of deforestation and in so doing preserve the countries ecological wealth, 2) to help mitigate climate change by reducing emissions from deforestation and 3) to improve the wellbeing of those rural populations dwelling in important environmental service providing eco-systems (MAE. 2011).

SocioBosque's goal is to conserve 3 600 000 hectares of native vegetation within seven years with the participation of 500 000 to 1.5 million people who can benefit economically from SocioBosque (MAE., 2008). The programme has grown quickly and as of October 2010, SocioBosque had enrolled over 500,000 hectares of forested land, with the number of beneficiaries being approximately 60,000 people (de Kooning, et al., 2011). The allocation of relatively large sums of public money to incentives for conservation over the medium term is an important indicator that the current government is taking its environmental credentials seriously, and the rapid expansion of the programme shows that there is a fairly high level of interest in participating in the programme by indigenous populations.

Spatial datasets are used to categorise SocioBosque regions into three priority areas, targeted according to the following criteria; 1) The level of threat from deforestation, 2) the eco-system services provided – including biodiversity, hydrological services, and carbon storage, 3) the level of poverty of the region's inhabitants. From SocioBosque's objectives and targeting it can be inferred that the programme is a PES-like scheme that aims to address both environmental and development objectives simultaneously.

SocioBosque contracts are signed either with individual landowners or with communities who own land communally. Although geographical areas are spatially targeted according to three criteria, the incentive structure is weighted only according to land area, with smallest plots being paid the most per hectare, as below. The remainder of this description will pay more specific attention to communal contracts.

Table 6: Incentive structure of SocioBosque in US$ per hectare.

Category	Limits (hectares)		Price (US$ p/h, p/year
1	1 to	50	30,00
2	51 to	100	20,00
3	101 to	500	10,00
4	501 to	5000	5,00
5	5 001 to	10 000	2,00
6	10 000 upward		0,5

Adapted from: MAE, 2009

Payment to participating landowners is made in equal parts twice a year, in May and October, via a bank transfer to the recipient's account. In the case of communities, the transfer is made either to the community bank account, if one has been opened, or to the bank account of the legal representative of the community. In either case, a legal community representative is responsible for collecting the SocioBosque income on behalf of the community.

To be eligible to participate in SocioBosque, applicants must be in possession of a legal land title and should ideally be situated within the priority areas, preferably, priority areas one or two, although this requirement is not always strictly adhered to. Upon application, a programme officer visits and inspects the land being presented for consideration for SocioBosque[12], and a decision is made to formalise a contract or not with the landowner.

The SocioBosque contract is fairly specific about land use responsibilities for areas put under conservation and other responsibilities for communities participating in the programme. In summary though, communities who designate a piece of land for conservation in SocioBosque cannot convert the designated conservation area to other uses, burn the conservation area or cut down trees for any purpose. Communities may extract non-timber forest products as well as undertake subsistence hunting. The idea is not to limit traditional subsistence activities, but to ensure that the forest maintains its original character as well as its ecological functions.

An additional condition for payment is that SocioBosque applicants need to present an "investment plan". An investment plan is essentially a budget proposal that SocioBosque participants need to draw up before receiving SocioBosque money which details how the expected income from SocioBosque will be spent. The motivation for this is to prevent the misuse of public funds and an attempt to achieve a more equitable distribution of funds with long term benefits in communal settings (Krause, 2010). There is also a clause that requires the effective implementation of investment plans, and recipients should report twice a year on the progress of the investment plans.

[12] Participants usually include only a portion of their land in SocioBosque, and maintain a certain part of their land for other activities, like agriculture, or hunting.

In terms of monitoring, reporting and verification (MRV) of conservation obligations, the main instrument for compliance is a yearly sworn declaration by recipients that the area under contract is still in the state that it was in when the contract was signed. Without this legal declaration, payments for the following year will not be made. Additionally, inspections by project officers can be undertaken randomly to verify declarations and inspect the condition of the forest. Furthermore, remote satellite sensing can be used to detect possible deforestation, although it is not clear what capacity the state authorities have to do so at this stage.

Should recipients not comply with the conditions in the contract, the state has the right to terminate the contract. Termination of the contract by the recipient prior to complying with the 20 year term requires that recipients pay back a portion of the funds received, corresponding to how soon after signing they terminate the contract. The state, however, has the right to terminate the contract without reason and with no liability.

At present the programme and all costs are being funded by the government and has cost around US$8 million so far, however, in the long-term and as the programme continues to grow it is estimated that the programme will require around US$50 million a year and external funding will need to be secured. One objective is that at least a portion of the SocioBosque participants will also qualify as REDD+ projects, and SocioBosque will develop into an internationally certified REDD+ project capable of sourcing international funding under this mechanism. However, at present REDD+ is only applicable for forests, so there are some SocioBosque participants, like those in the Andean highland region that will not qualify for REDD+, and those most likely to be eligible are from the Amazon region.

Although Ecuador is currently developing REDD+ social impact standards and indicators with the CCBA, monitoring of the SocioBosque socio-economic impacts is currently undertaken using only the community investment plans as indicators (de Kooning, et al., 2011). Thus SocioBosque refers to the investment plans drawn up by communities as a direct reflection of the benefits realised by the income. According to the investment plans, 31% of SocioBosque income is being spent on agricultural activities, around 20% is being spent in conservation activities, another 19% of housing needs, and other areas include health, education and community savings (de Kooning, et al., 2011). For SocioBosque, the investment plan instrument is a key factor in achieving social benefits (Carrion, 2009). As mentioned in the introduction, however, initial investigations undertaken independently and by SocioBosque itself have hinted that actual spending of income in some cases is not in accordance with investment plans, and problems with transparency and accountability have been identified. In direct response to this challenge, SocioBosque has recruited a team of field technicians who are responsible for supporting communities in the elaboration of their investment plans, as well as to encourage financial reporting by community leaders in community assemblies. Field technicians attempt to maintain regular contact with their assigned communities, giving priority to communities that are showing to have difficulties in complying with their responsibilities. Regular reporting is maintained by field technicians in an effort to identify potential problems and conflicts early on and to provide input for programme development.

At this stage, to what extent SocioBosque is achieving its goals depends on the perspective that one looks at it from. For the Ecuadorian government and their implementation partners, the mobilisation of public funds, a fairly straightforward design structure and the rapid inclusion of over half a million hectares in a little more than two years are important indicators of success (de Kooning, et al., 2011). Officials claim that this makes Ecuador a pioneer in achieving social and environmental results on the ground in terms of addressing poverty and

climate change simultaneously (Carrion, 2009). However, there are several vocal critics of REDD+ and SocioBosque. A number of important indigenous representative groups in Ecuador and Latin America have reacted negatively to SocioBosque and REDD+. The Confenderation of Indigenous Nationalities of Ecuador (CONAIE) formally rejected SocioBosque and REDD+ in a letter addressed to Ban Ki Moon, the secretary General of the United Nations (CONAIE, 2011) citing a lack of indigenous participation. In a similar manner, the Confederation of Indigenous Nationalities of the Ecuadorian Amazon (CONFENIAE) made a formal statement in 2009 rejecting all negotiations regarding REDD+ and SocioBosque that had not gained grass roots approval (CONFENIAE, 2009). Furthermore, the Confederation of Indigenous Organizations from the Amazonian Basin (COICA) has called for an "Indigenous REDD" rejecting a market based "commoditisation" of indigenous forests (COICA, 2011). Given this resistance, some critics argue that if the government does not find ways to heal rifts with these important representative organizations then SocioBosque will struggle to achieve its objectives (Reed, 2011). Others are more vociferous in their criticism, arguing that REDD+ and SocioBosque are "neo-liberalisation of conservation" and are not compatible with the indigenous "suma kawasay"; an indigenous term loosely translated as "good life" (Seiwald, 2011). Some NGOs in Ecuador are vocally opposed to SocioBosque and lobby indigenous groups to reject the programme arguing that it will undermine the indigenous territorial rights that indigenous groups have struggled to have recognised over the last few decades (AccionEcologica, 2011).

SocioBosque continues to attract the interest of communities with the economic incentive for conservation; however the above reflects that there are still issues that threaten the programme's legitimacy amongst important stakeholders.

5 Research findings

This section presents, primarily, the results of the survey conducted in the four communities that participated in this study, as well as findings relating to SocioBosque programme administration and management of community relations. First, I present general demographic details of the communities and individuals interviewed, followed by socio-economic conditions. The next set of results looks at *traditional* internal governance institutions; including 1) traditional decision-making and governance structures, 2) traditional communal land management, and 3) traditional conservation norms and practices. Following traditional governance, I present results for community governance institutions *related to their participation in the SocioBosque* programme. This section is divided into 1) institutions guiding management of the SocioBosque conservation area, 2) the internal costs and limitations perceived from community participation in SocioBosque, 3) SocioBosque benefits and income distribution, and finally, 4) conflicts surrounding participation in SocioBosque and conflict management.

Survey demographics

Fieldwork with four communities (n = 94) was undertaken. The distribution of interviews amongst the communities is reflected in table 5. The highest number of interviews – 34, were completed with federation D (three villages of the 17 were interviewed), and the least number were completed in community C – 17. A mean of 23, 5 interviews per community was completed. 62% of interviewees are men, and 38% are women, and the mean age of interviewees is 37, 4 years old.

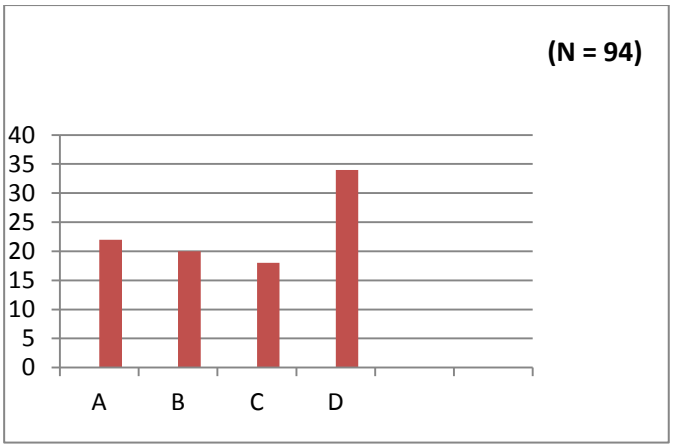

Figure 2: Number of interviews per community

General socio-economic conditions

Regarding the level of education, of the 94 people interviewed, 4% had completed university, 49% had either completed high school, or part of high school, 41% had completed primary school, or part of primary school, and 5% did not have any educational background. The average size of households interviewed was 7.0 members. The large majority of interviewees make a living off small-scale agriculture, with only 22% of interviewees having some form of paid salary work. The most common paid jobs are either as a community teacher, working for a nearby company, or having some sort of small shop. The overall average monthly income for a household is around $150 a month. However, the average income for those families who are not earning a paid salary, around 78% of the people interviewed, is discernably less at

around $83 a month, earned mainly from surplus production from small scale agricultural being sold on the market.[13]

Traditional governance and land management norms

Not taking into account aspects of SocioBosque, the following are the results reflecting traditional community governance and land management norms.

i. Traditional community governance structures

In all the communities interviewed, the formal community governance structure is similar. Decisions that affect the community are discussed and decided upon in community assemblies which most residents attend. Assembly decisions are made according to a democratic majority vote. A community president and supporting council are democratically elected from within the community membership every 1-3 years, depending on the community. The president and council have a broad mandate to manage community administrative affairs and represent the community in dealings with external organizations and individuals. In such dealings it is the responsibility of the president and council to execute community decisions according to (usually) pre-determined outcomes from the assembly. It is the responsibility of community leaders to report back on administrative proceedings to communities in assembly. In essence, the community leadership are expected to act on behalf of the community and in the community's best interest. All the communities interviewed have a set of formal by-laws which are essentially the rules that regulate the functioning of the community.

Community membership is contained in a membership list. The members are the owners of the community. In the communities interviewed there are important segments of the population who are not members. Although exact numbers were not available, in some cases this was significant; in A, C, and D it was estimated by community members that around 30% of residents are not members. They reside on community property, but do not participate in community decisions, attend assemblies or have a recognised right to potential benefits, financial or otherwise that the community may derive from SocioBosque. For individuals who migrate into the community area, membership can be applied for after a certain time in the community, and is usually subject to the individual's character and personal conduct in the community and is subject to a decision in the assembly.

ii. Traditional land management

All four communities have legally recognised land titles. Under Ecuadorian law, property legally owned by a community is inalienable (cannot be transferred), indefeasible (cannot be annulled, voided, or undone), and indivisible (cannot be split up) (MAE., 2011d). The title is thus in the name of the community and as such the land belongs to the registered community members collectively.

In terms of internal property right arrangements, in all the communities interviewed, basic land management plans have been agreed upon that allocate specific sections of land to member families. In general, community members have the right to an area of land which they can manage according to their needs and this is respected by the community, although not legally recognised, since community owned property is indivisible. This allows members to make their land productive, meet basic needs and take advantage of the market if they so wish. The size of the area allocated to each family depends on community norms and conditions, but also varied within communities depending on factors like the number of years a family has

[13] The figure of $83 p/month is derived from those interviewees who responded clearly to the question. There were 10 interviewees who either did not repond, did not know, or the question was not asked.

been in the community, or member seniority. For example, in community C, members were divided into three levels according to their seniority in the community. Founding members each had forty hectares, second generation members had 20 hectares and third generation members had the right to 10 hectares each. Within this sample, the average family area size ranged from 13 ha (community B) to 30 ha (communities C and D).

Regarding how families put their land to use; almost all families dedicate a section of their land to agriculture (an average of about a third of household land), another section may be in recuperation between crops, and the remainder is usually land which retains its original cover as either primary or secondary forest. As children move into adulthood, they may either be allocated a piece of land once they become community members, usually at the age of 18, or they may inherit a piece of land from their parents, or other ancestors. In some cases, there are time lapses between when a young adult turns 18, receives a piece of land and becomes a registered community member. This decision is not automatic though and a formal decision still needs to be taken at the community assembly to include a young adults name on the membership list.

The above shows that in these communities there is a division of decision-making authority between the family and community level. Families manage their own affairs in terms of the management of their assigned piece of land, any construction on their territory and other internal family affairs. Issues that impact the community as a whole are managed at the community level, through assemblies, often with leaders being responsible for implementation. For instance, assigning land to new members, communal project management (for example the construction of a school or water facility, community training), selecting and evaluating leaders, creating new external alliances, and revising and adjusting by-laws are all issues that are undertaken at the community decision-making level.

iii. Traditional Conservation practices

All four communities have a piece of land that is not assigned to individual families and that retains its original forest cover. Before signing the contract to participate in SocioBosque, communities A, B, and D had already allocated a section of their territory to conservation, hereafter referred to as ancestral reserves. Although community C did not appear to have an ancestral reserve as such, one community elder did say that his community was already protecting the forest before SocioBosque was signed. Although the survey does not specifically enquire about traditional conservation practices, from discussions with community members, the author learned that the general internal agreement for management of ancestral reserves is that they should not be allocated to families as private property so that they are not exploited for intensive agricultural purposes or other extractive activities. However, it appears that differing degrees of low level subsistence resource extraction is usually permitted in the ancestral reserves. For example in C, it is permitted to hunt, but not to fish in the conservation area, and if a family needs cash for something important, for example, school fees, a tree may be felled according to community by-laws, but more intensive timber felling is not allowed. In B, dwellings may not be constructed in the conservation area, but lower intensity crops like plantain and yucca may be planted both here and in A. In all communities, external parties, or other communities are not supposed to enter conservation areas and extract resources or sow crops. However, in some cases there were problems keeping external parties out, for instance in B and in D.

Thus, in many cases some form of traditional conservation ethic and conservation area norms were in place before SocioBosque. However, in conversations with community members more sophisticated land management regulations for the traditional conservation areas, such as regular monitoring, systematic clearing of conservation area limits, or strict sanctioning for

non-compliance were usually not evident. Only community B had undertaken a zoning, and formally established a community conservation area, which was defined as "untouchable", meaning it had to be left exactly as it was. In most cases, enforcement of rules for conservation areas was quite flexible, or not enforced. For instance, in A there were several families already living in the traditional conservation area that had to be reallocated by the community when signing with SocioBosque. In all the communities, to differing degrees, rapidly growing populations are putting pressure on communities to expand agricultural areas.

The attitude by community members towards conservation, of at least some of the community territory, is positive in all the communities interviewed. Many community members stated that having primary forest that is not "destroyed" is important for our children and for our future. For example, community A had a specific vested interest in preserving their ancestral reserve as it contained the source and watershed for the spring providing the community's water supply.

Community Governance Institutions: Participation in SocioBosque

Having presented an overview of traditional community governance and land management structures, I now look at how community governance has adapted to and is regulating local participation within the terms of the SocioBosque contract. The following section presents results relating to the internal institutional aspects that influence the concrete and perceived impact that participating in SocioBosque has on community members and on the community as a whole. Results in this section also discuss individual opinion towards the programme and finally individual behaviour.

iv. SocioBosque Conservation area management

Almost all interviewees from all communities knew that their community is participating in SocioBosque. Around 80% respond that the decision to participate in the SocioBosque programme was taken in general assembly, and around 62% participated in the decision.

The level of knowledge that individuals have regarding more detailed issues of participation in SocioBosque is significantly lower. Overall, only 17% of interviewees stated that they had been presented with or were familiar with the SocioBosque contract terms, and nearly 60% do not know the duration of the contract. Comparing communities, federation D shows lower levels of participation than the individual communities A, B and C. Nevertheless, in all four a clear minority of members were familiar with the contract terms, but in communities B and C, a small majority of members did know the contract duration, which is 20 years. General comments by community members indicate that in at least some cases, members do not really understand what SocioBosque is. For instance in an assembly that the author attended with SocioBosque field technicians discussing the programme in community A, one woman pleaded to know what SocioBosque was, "we don't know what it is really about." In C, one member claimed that "we don't know what SocioBosque is – only the leaders know."

Regarding the rules that govern the SocioBosque conservation area, 69% knew that there are rules for the conservation area, 15% say there aren't rules, and 13% do not know if there are rules. Of those interviewed 55% agree with the rules, 9% do not agree with the rules, and 27% are unable to say if they agree with the rules since they do not know them well. There was little notable variation of these figures between communities. However, in exceptions, in C, 94% know there are rules (but less than half agree with them), and in B, 80% know there are rules, and 80% agree with the rules.

There is a lack of unanimity regarding the exact nature of the rules for the SocioBosque conservation area. Of those who do agree that the SocioBosque conservation area has rules, 51% say that tree felling is not allowed, 34% say that hunting and fishing is not allowed, 18% say that the area needs to be left untouched, and 26%, although they know there are rules, they do not know what they are.

Table 7: Individual responses to questions about SocioBosque conservation area rules

Are there rules for the conservation area?		What are the rules?				
		Don't cut trees, or take plants of any kind	Don't cut trees, but can take NTFP's	No hunting or fishing	Leave the area as it is now	I don't really know the rules
Yes	69%	52%	0%	40%	17	24%
No	15%					
Don't know	13%					

Overall, around 50% of those interviewed agree that the conservation rules were made in assembly, and 39% do not know who made the conservation rules. It is interesting to note that those who do not know who made the rules are not predominantly women, but rather the ratio of men and women who do not know is similar to the ratio of overall people interviewed.

The next set of questions relates to compliance with conservation rules (Figure 3). Overall, only 36% of respondents believe that the conservation rules are *"always"* respected, 36% believe the rules are *"sometimes"* respected and 17% *"do not know"* if the rules are respected. In federation D, one community member expressed "those that live close to the conservation zone don't respect the conservation area – they lack resources and have to go in sometimes and fell trees." In community C, problems with compliance are not only experienced internally, as one member relayed how "people do not respect the rules and go in and hunt, as well as people from other communities too."

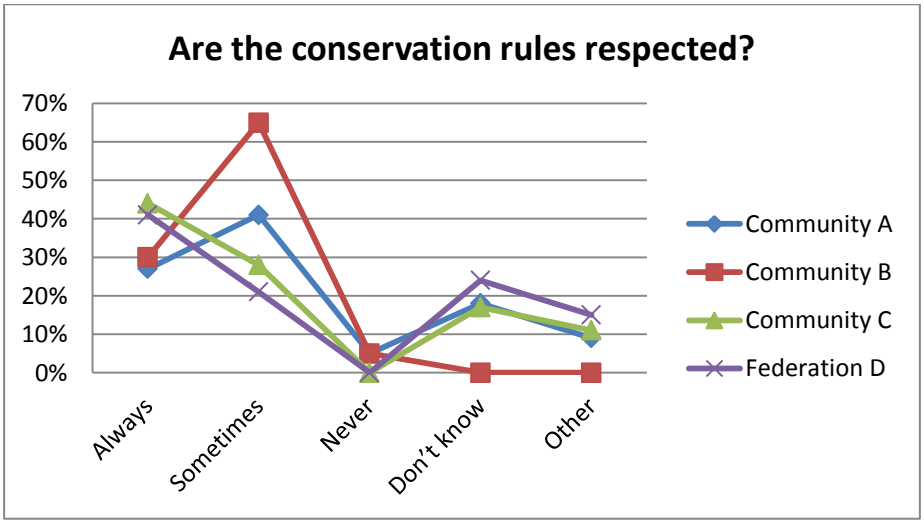

Figure 3: Level of compliance with conservation rules

The information gathered regarding if and how monitoring of the conservation area is undertaken in communities is detailed in Figure 4. In communities A, B, and D, individual responses are non-uniform. For community C although there was consensus that there are monitors, there was little uniformity regarding how many monitors there are. Overall there was little uniformity regarding if and how monitoring of the conservation area is undertaken.

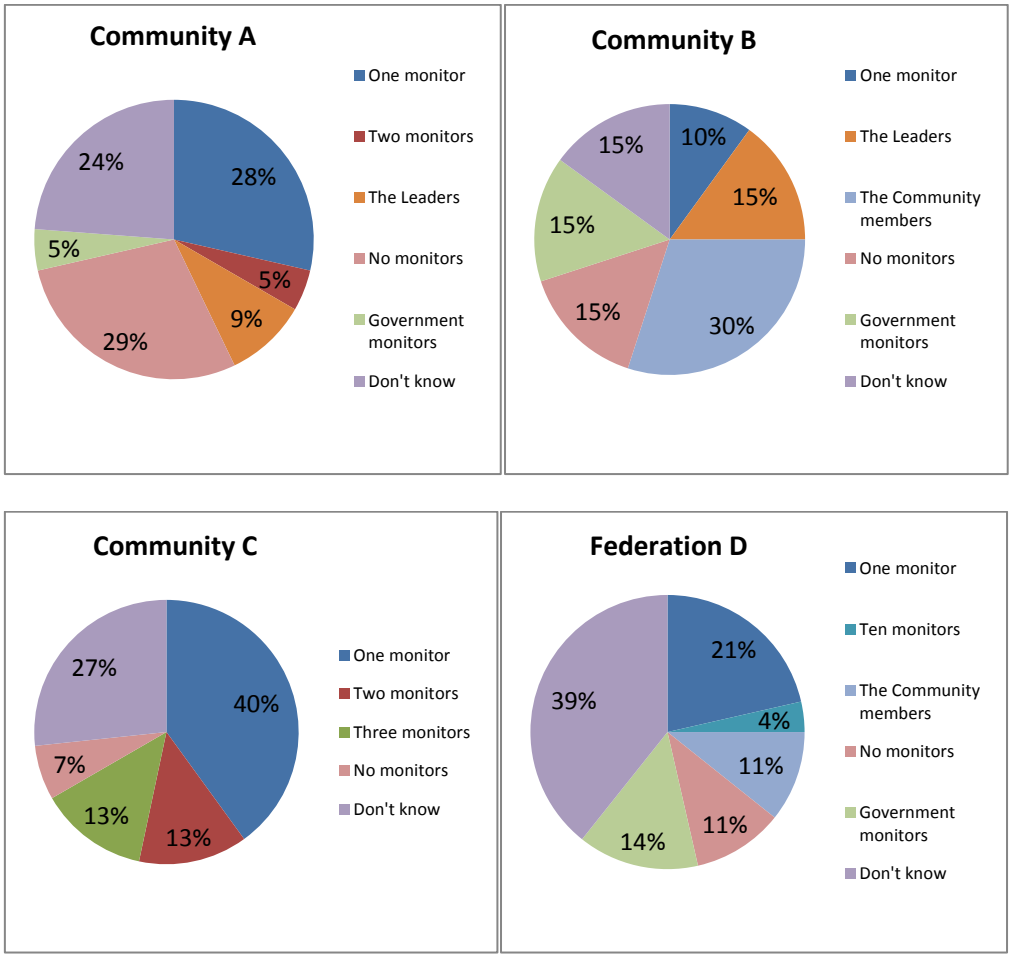

Figure 4: How is monitoring of the SocioBosque conservation area undertaken?

Information gathered from community members about methods for enforcing conservation area rules indicate that except for community B, the other three communities have not institutionalised a systematic method for sanctioning offenders. Both A, C and D have land management plans, but these do not include a set of internal regulations for the conservation area. This indicates that traditional conservation practices in these communities were quite informal. Additionally, in these communities there is no set of internal sanctions, graduated or otherwise to enforce SocioBosque rules. One member of community C states that "the monitors know that people are not respecting the conservation area and in one assembly they reported this; however no sanction has been handed out yet." Community B has organized themselves better in this regard and there is a community zoning plan that establishes three zones; one for personal, or intensive, use, one for lighter use permitting collection of NTFP's and fishing, and one "untouchable" zone. The regulation states that a first infraction means a warning in the assembly, a second infraction means traditional punishment by beatings with stinging nettle, and a third infraction results in temporary expulsion from the community. It is curious to note, however, that community B has the highest percentage of interviewees amongst the four communities who believe conservation area rules are only "sometimes" respected.

v. Restrictions perceived from participation in SocioBosque

SocioBosque pays communities an incentive to conserve an area of their forest. This agreement may mean that certain activities that community members were able to do in the past, are now restricted, and certain activities that may have been possibilities for the future are no longer viable. Investigating these potential restrictions, 46% of respondents state that SocioBosque does not limit their activities, and 45% say that SocioBosque does limit their activities in some manner[14]. The impact of dedicating an area to conservation on individual members varies. Two community level cases stand out; in community A, seven families who were residing in, or close to the conservation area had to relocate their houses and farming activities to another area to make way for SocioBosque. In federation D, in one of the 17 villages which was over a day's walk away from the conservation area 40% felt that SocioBosque imposed limits on their family. In another of federation D's 17 communities, into whose territory the conservation area fell (it was much closer to the conservation area), 60% of those interviewed felt that SocioBosque implied limits.

The most commonly cited limitations felt by individuals were on hunting and fishing activities, agricultural expansion, and limits on timber extraction, respectively. The restrictions that SocioBosque implies may sometimes place limits on basic needs; one member of community A expressed that "I don't agree with these SocioBosque rules, because they don't let us work there, and we need money for our children to go to school." A few members from community B propose that the SocioBosque conservation area be split in half – half for conservation and the other half for farming. The sentiment was also reflected by some in community C where one member summed up "more rules equals less freedom, less area to work." In federation D, one member claimed that "the communities close to the conservation area do not respect the rules; they lack financial resources, and have to go in and take out timber." Communities B and C have both dedicated a large portion of their land to SocioBosque - more than half of their total territory, so it is not surprising to see that there is a large segment of these communities that feel restricted by SocioBosque. In A and D, the portions dedicated are smaller – around 25%, but the perceived level of constraints is also significant. The reduced land area for farming activities was noted in all four communities and may become more notable as community populations grow. It has been calculated that the population in federation D will double in size in 20 years (Ortiz, Rodriguez, Sierra, & Chimbo, 2008), and federation D has a similar average family size as the other three communities interviewed.

When discussing limitations, or costs, it is also necessary to look at what benefits are being derived from incurring these costs.

vi. SocioBosque Incentives and Income management

Firstly, this section looks at the internal processes for community income management. Figure 5 indicates how individuals perceive the process for internal decision-making over SocioBosque income. It shows there is variance between, and within communities concerning the perceived manner that income management decisions are taken. Community B has the highest level of consensus with around 65% of interviewees stating that income management decisions are taken in assembly. Around 55% of interviewees in Community A state that income management decisions are taken in assembly. In communities C and D, there is divided opinion on this point, but in both, a larger percentage of interviewees claim that the leaders are making these decisions independently.

[14] In cases like this where the percentages do not add to 100, it is due to some interviewees either not responding, the question not being asked, or the interviewee not knowing the answer.

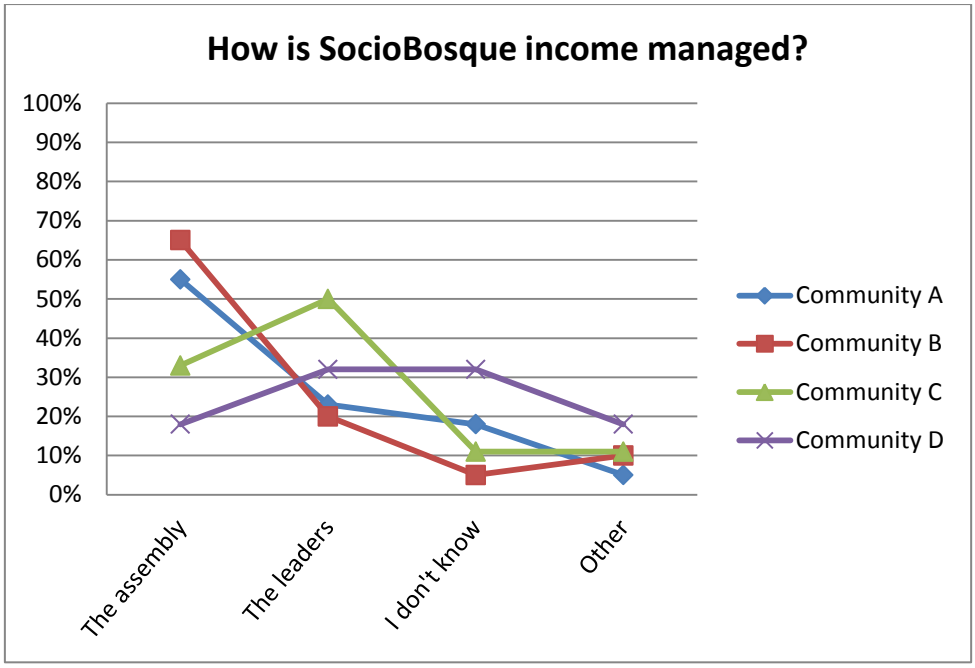

Figure 5: SocioBosque income management processes

The next part of this section looks at the levels of information and knowledge regarding community income management. Figure 6 indicates that, in all four communities, less than two-thirds of the interviewees knew, or had at least a rough idea how much the community was being paid annually for participating in SocioBosque. Even in community B, where the majority claim that income decisions are taken in assembly, there is a very high segment of the community who do not know how much money the community earns from SocioBosque.

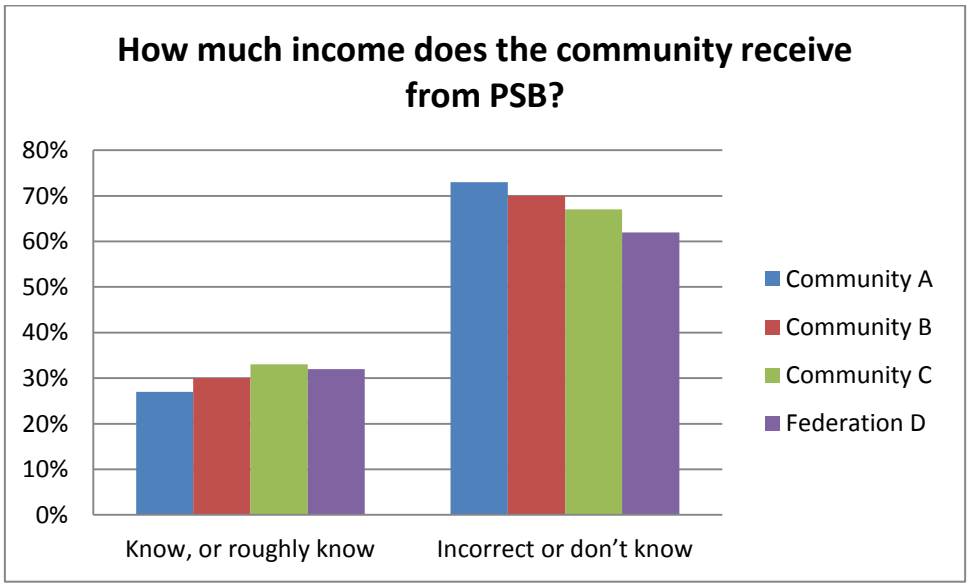

Figure 6: Individual knowledge on SocioBosque income values

In attempting to gauge the quality of community participation and information for SocioBosque income management, interviewees were provided with a choice of *whether they participated* "a lot", "not much", or "not at all" in decisions concerning how to use SocioBosque income. The most common reply from all four communities was "not much"; in total, nearly 60%, with 19% saying "a lot" and 18% saying "not at all".

In a similarly structured question about *how much information* interviewees received about SocioBosque community income, the spread of answers is similar to the previous question. The most common response in all communities was "not much"; with 53% of respondents overall, 24% said "none at all", and only 18% said that they received "a lot" of information regarding SocioBosque community income.

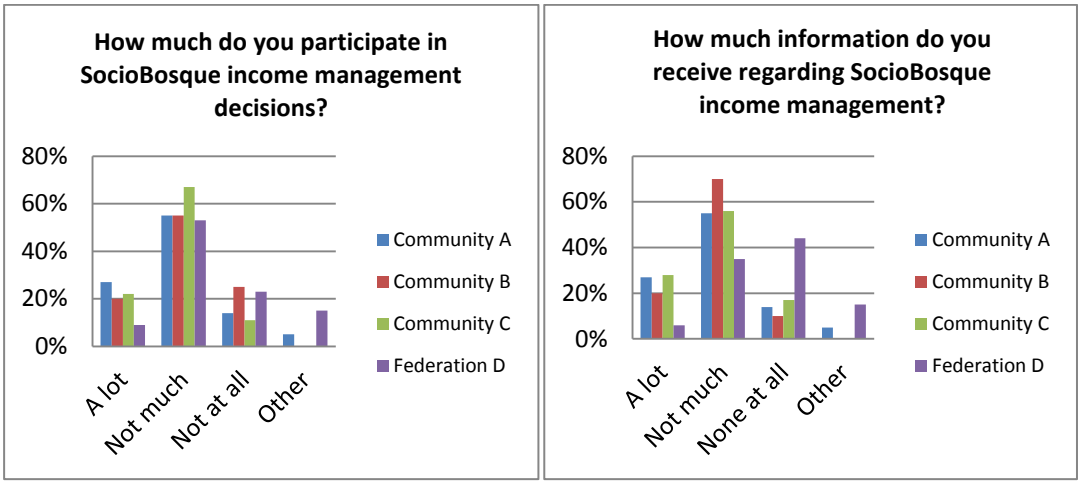

Figure 7: Quality of participation and information regarding income management

As already described, one of the formal requirements in the contract for communities participating in SocioBosque is to draw up and deliver an investment plan, or proposed budget for SocioBosque income. SocioBosque requires that the community investment plan be decided upon in a participatory manner and reflect community needs. Figure 8 details, firstly, interviewee knowledge about the community investment plan, and secondly whether interviewees participated in elaborating the investment plan. Overall, a majority of individuals have no knowledge of the investment plans, and did not participate in drawing up the investment plans and deciding upon which elements to include for spending of SocioBosque income. Comparing communities, there were a few small exceptions; in A, slightly more people knew what the investment plan was than those that didn't. However, in terms of participation, all communities had notably fewer members who had participated in investment plan design, than those that had participated.

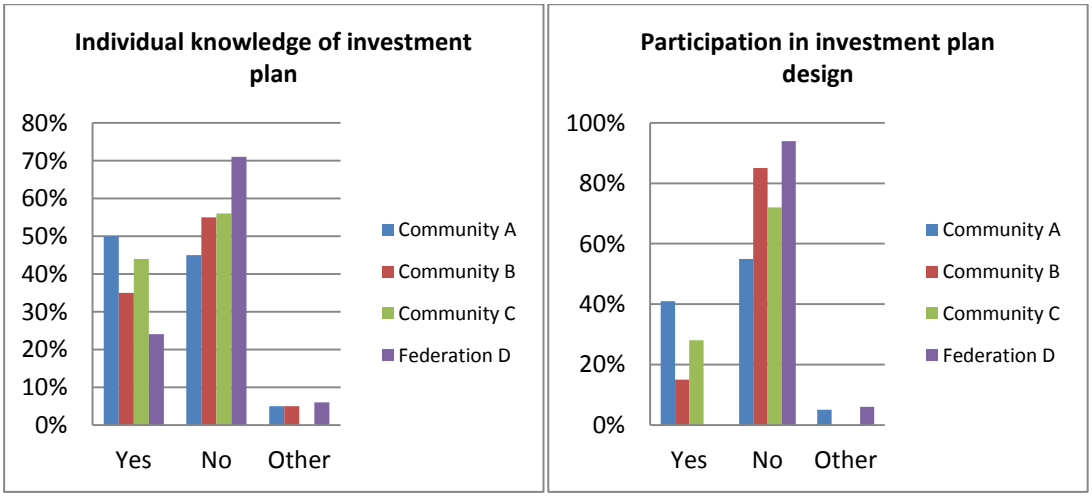

Figure 8: Knowledge of and participation in SocioBosque income investment plan

To be able to evaluate whether an economic inventive is (or may be) an effective motivator for communities to adjust land-use behaviour and prioritise conservation, it is important to assess the benefit that impacted community members perceive from payments made to the community. In terms of benefit at the community level, in two communities, A & B more than half of the interviewees perceive a benefit on the community level. In community C around half those interviewed perceive a benefit on the community level, and in federation D, most people do not perceive a benefit on the community level. Regarding potential benefits at the *family level*, there is a fairly even mix between those that do perceived and those that do not perceive a benefit (Figure 9). Looking at communities individually almost no interviewees from federation D have perceived a benefit. In A and B, slightly more individuals perceive a benefit on the family level, and in C, there is an even mix between those who do and those who don't perceive a benefit.

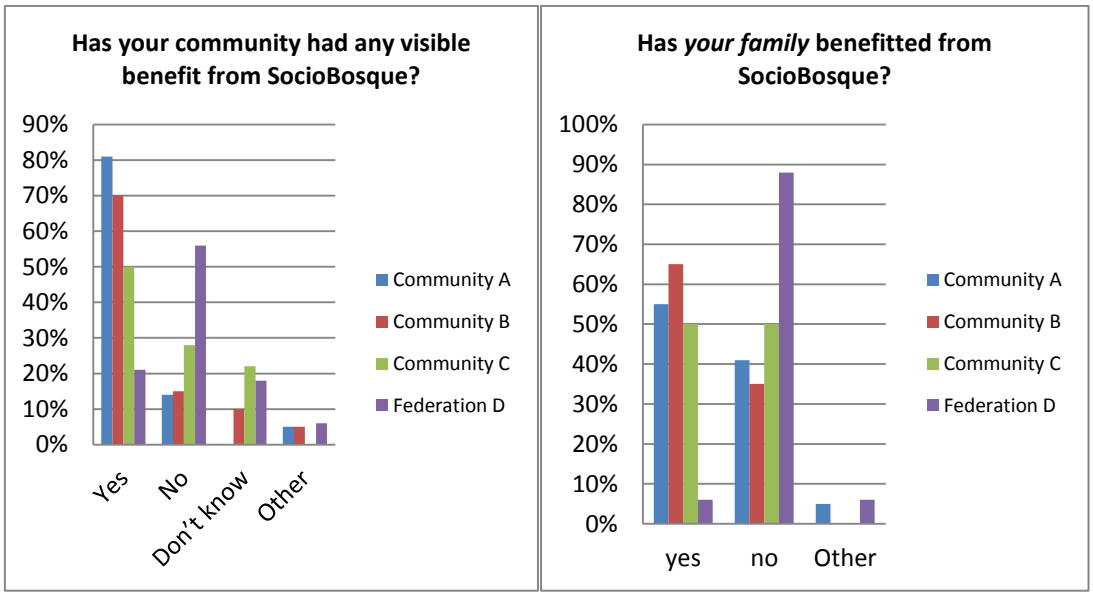

Figure 9: Perceived benefits on the community level and family level

vii. Real and potential conflicts

Participating in a new programme that requires changes in land-use behaviour by community members in return for a common payment may cause conflict. These could be caused by a variety of reasons, including differing opinions amongst members about rights and responsibilities, and the programme may have a varying impact on different community members, depending on their political and geographical position within the community. Table 8 shows that in all four communities there have been internal conflicts experienced related to participation in SocioBosque. The most common conflict, affecting all communities is around SocioBosque income management. There are other conflicts identified such as those related to restrictions on land use and non-adherence of conservation rules. In community A there have been notable internal territorial conflicts due to the removal of seven families from or near the conservation area to comply with SocioBosque regulations.

Table 8: Conflicts noted in relation to participation in SocioBosque

Noted conflicts related to SocioBosque within communities (x = No. of times noted)						
	Land use restriction	Income management	Territorial conflict	Non-adherence: conservation rules	Not enough income	Other
Community A	x	xxxxxxx	xxxxx		x	
Community B		xxx		xxx		x
Community C	x	xxxxx		x		
Federation D	x	xxxxxx	x	xx		

Although conflict may be a fairly common aspect of such projects as they develop and users adjust to the new conditions, it is also necessary to understand whether communities are addressing their conflicts and finding solutions to them.

In community A, the territorial conflict caused by the removal of families from the area designated to conservation for SocioBosque had not been resolved yet. According to one of the families impacted by this, the decision had caused a split in the community with the families who were impacted in the north, attempting to separate from the community. However since the land title is a community title, they have no individual legal right to the land. Poor income management in community A has not been solved yet either. For example, several interviewees responded that the community president had taken $1000 and has not paid it back yet. The community also has not found a mechanism for getting beneficiaries who receive credit from SocioBosque income to repay the money which caused discontent.

For community B, one conflict is with external communities who enter the conservation area and either extract timber, or pan for gold in the rivers. There have also been territorial conflicts caused due to certain families who worked within the conservation area being required to move away. Several community members said that people do not obey the conservation rules, and that there should be better monitoring of the forest because extraction continues. This has not been dealt with yet since, according to survey results, some community members continue to not respect the conservation area rules. It was also reported in community B that some feel there is no longer sufficient land to farm for young adults – with a few members of the community suggesting that the SocioBosque area should be cut in half – one half for conservation, and the other half for farming.. To address this, a decision was taken to allow these families to farm one 1 hectare of land in the SocioBosque conservation area.

In community C, there is significant confusion over the location of the SocioBosque conservation area, with several families believing that each family dedicates a portion of their personal land to conservation. This is not the case, however, and in the SocioBosque contract the conservation area is a single body of land not subdivided according to individual families. Initial, but apparently uncoordinated, efforts to monitor and oversee the SocioBosque conservation rules are causing conflict with some families who do not agree with the limits put on their activities. Infractions in the conservation area have been reported in the community assembly, but no sanction has been applied yet. Community C has experienced several income

management conflicts that have not been solved either. One revolves around the purchase of an automobile which was not included in the investment plan. Additionally when the proposal to participate in SocioBosque was presented to the community, the president reported to the community that the contract was for five years, not 20, one respondent complained that now the community wants to leave the programme but "SocioBosque won't let them out".

In federation D, since the association is made up of 17 villages, the main conflict is between some of the villages closest to the conservation area and the central governing body, which presides over federation decisions and administers income from SocioBosque. One of the closest communities to the conservation area has a strong sense of conservation, and had declared a large part of the SocioBosque conservation area as an ancestral reserve many years before SocioBosque. However since signing SocioBosque the community has not been paid any income. This complaint has been brought before the central government previously without being solved, and this community is now considering declaring the ancestral reserve open for agriculture and farming in the next general assembly, unless around $20,000 is paid to them. The other community interviewed in federation D had received a single payment of $500 from the central governing body. In accordance with a decision made in community assembly, this was handed over to the president of the woman's association in the community, but was captured by her husband, an ex-community president. This money has not been recuperated by the community.

6 Analysis

In this section the above results will be analysed against the analytical framework including the seven design principles that Ostrom identified as characteristic of rule-making configurations in communities that have managed common-pool resources sustainably over long periods of time. Where applicable, analysis of how the conditions of governance impact on effectively achieving social safeguards is included.

Clearly defined boundaries

Individuals who have rights to benefit from[15] *the CPR must be clearly defined, as must the boundaries of the CPR itself.*

In CPR management, as a first step to effective collective action, the boundaries of the resource system must be clear; if not, nobody knows what is being managed and for whom. In fact,

> "…for any [users] to have a minimal interest in coordinating patterns of appropriation and provision, some set of [users] must be able to exclude others from access and appropriation rights" (Ostrom, 1990)

All four communities, at least to an important degree, do meet with this principle. All the communities have membership lists that are registered and those included on the list then form part of the community that owns the community territory. These individuals are entitled to the benefits that being a member implies. Since some form of collective action would be beneficial for SocioBosque, clear membership should allow everybody to have a clear idea of who they are working with, who is allowed to receive benefits, who should not receive benefits, who should be involved in decision-making, and who should contribute to maintaining the CPR system intact for compliance with SocioBosque.

On the other hand, the high number of non-members living in these communities may present local governance challenges. These non-members are not entitled to benefits from SocioBosque or to a piece of land. Thus it is not unreasonable to predict that in order to meet basic needs these individuals may face stronger temptations to not respect the conservation area. For conclusive results, this would need to be investigated with further research though.

In terms of clearly defined boundaries of the resource system, in B, the majority of community members do know where the conservation area is as well as its rough size, and thus meet the design principle. There is less certainty in the other three communities whether this principle is satisfied. In A, around half the interviewees know the rough size of the conservation area. In C, there was a substantial lack of coherence as to where the SocioBosque conservation area is and how large it is. In federation D, there was a general idea of where the conservation area is, but there was a significant lack of clarity on what the size of the conservation area is. For these three communities, this makes conditions for collective action to keep outsiders out of the conservation area difficult, since there is a lack of clarity regarding where its exact borders are.

Thus we can say that the four communities do meet the first part of the design principle regarding clear boundaries for users, but there is significant doubt in two of the four

[15] In Ostrom's original definition, she refers to users as those who have the right to "withdraw resource units". In the case of PSB, the right is not to withdraw resource units, but rather to benefit from the income earned from conservation of the CPR.

communities that the second part of this principle is met concerning clear boundaries for the SocioBosque conservation area.

The author does not find that this specific principle of CPR governance impacts directly on the REDD+ social safeguards.

Proportional equivalence between costs and benefits

Appropriation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions and to provision rules requiring labour, material and money

The second design principle is made up of two elements; 1) that those who bear the costs of conservation should also be those receive the benefits, and 2) that conservation rules should be well-tailored to local conditions and reflect the specific attributes of the particular resource.

1) Those that bear the costs of conservation should also be those that receive the benefits

In contrast to some other CPR systems that require continuous effort to maintain resource stocks, communities conserving forests for SocioBosque do not have to spend significant amounts of energy on maintaining the present state of the forest conservation area. Thus the main cost for community members is the cost of foregoing the right to dedicate the land to some other productive use, or the "opportunity cost". Since all community members are prohibited from working in the conservation area, participating in SocioBosque implies limits for all community members, but probably to varying degrees. For instance, those who have their family land close to the conservation area would feel land restrictions more rapidly and severely than those who are far away since they would hit limits to agricultural expansion more quickly. Other factors that may influence perceived limitations are family size and income levels. Families who have larger families and also depend on agricultural activities for a major part of their income may feel restrictions more acutely than those who have paid jobs to supplement income from agriculture. This shows that although SocioBosque implies limits for all community members, it is probable that certain individuals and families experience these limits more acutely than others.

Referring to survey results, almost exactly half of those interviewed do feel restricted by their communities participation in SocioBosque -46 out of 94-. Of the 46 interviewees who do feel limited by participation in SocioBosque, 22 (48%) also perceive a benefit, while 23 (50%) do not feel that SocioBosque has benefited them on the family level. These figures show that half of those that feel costs imposed by the SocioBosque programme are not being compensated therefore, which is a significant number. In the long-term, if some community members incur low costs but receive ample benefits, and vice versa, this is likely to lead to frustration among certain community members, who will then be less willing to respect conservation rules since they are unfair. As Ostrom puts it:

> "An individual's choice or behaviour will depend on how the individual learns about, views and weights the benefits and costs of actions and their perceived linkages to outcomes that also involve a mixture of costs and benefits" (Ostrom, 1990, p. 33)

Further concrete examples of inequitable distribution of costs and benefits are seen in federation D where the village that bears most of the costs from participating in SocioBosque (due to over 2000 hectares of their land being included in the SocioBosque contract) has received no financial benefit yet whatsoever. In an explicit reference to congruence between costs and benefits, one member expressed that "If those communities that have not been conserving their territory like our village has want to be paid then they should re-forest or put

some other effort in to deserve the income." In contrast, the other village interviewed in this federation, although much further away from the conservation area and thus incurring less opportunity costs has at least received one payment of $500 from the central government.

In another case in community A, the seven families that were required to relocate because their houses were in the area the community had decided to dedicate to SocioBosque did not receive any additional benefit. This exemplifies a lack of congruence between inputs required and benefits received, and does not meet design principle two characterising effective management of common-property resources. Additionally, this case clashes with principle 2; criterion 6 of the UN-REDD social criteria which states that involuntary resettlement should be avoided. In this case, it was internal decision-making that led to involuntary resettlement, probably of less politically influential or younger families.

The unequal distribution of costs and benefits in both income distribution and geo-physical impacts provides field evidence to suggest that local elites and internal power structures in communities that lack effective governance may have an important influence over the impact that REDD+ programmes generate.

2) Appropriation and provision (conservation and benefit management) rules reflect the specific attributes of the particular resource and are well-tailored to local conditions

There are two ways of looking at whether the conservation and income management rules are appropriate for local conditions. To look favourably on SocioBosque, the conservation rules in the contract appear to be reasonable, not limiting subsistence activities that do not change land use cover. The income management rules give a certain degree of freedom to communities to decide how they want to spend the income, but require a pre-agreed upon investment plan, and spending to be coordinated in accordance with the investment plan. However, there are arguments that question whether these rules are appropriate to local conditions. Most importantly, the rules included in the SocioBosque contract were designed without the active participation of the participating communities, and do not differentiate between different eco-systems or different social conditions. Thus, it is difficult to tell if they are appropriate for local conditions.

In a study by Morrow & Watts (1996) of the Yanesha Forestry Cooperative in Peru, the authors argue that rules that do not take careful consideration of local customs and norms are likely to have less success. In fact, donor [or, in this case, state] initiated projects always run the risk of devising solutions that may not be suitable to local conditions. The Yanesha experience is of special relevance to the SocioBosque project as it also involved external actors with interests in sustainable management of local level CPRs. The interaction among actors in Yanesha led to multiple layers of rules which caused confusion for both external actors, and more especially for local communities.

In the case of SocioBosque three of the four communities interviewed for this research already had a set of rudimentary conservation norms which were developed internally without external influence. The more detailed and externally designed SocioBosque contract rules were developed and introduced without the active participation of those needing to respect them and consequently, the local knowledge of and ownership over these new rules is poor. Thus, instead of strengthening conservation institutions already in place, SocioBosque has introduced a second layer of rules that may not be appropriate to local conditions, or have been introduced in a manner that does not lead to local ownership. This bears similarities with the Yanesha case in that newly introduced rules that are not considering already established

internal rules, or do not build on internal rules, may result in confusion for communities regarding the nature of SocioBosque.

Consequently, the current rule making and implementation process in SocioBosque may not meet Principle 2; Criterion 7 of the UN-REDD Social Criteria in those cases where the pre-existing rudimentary conservation norms, a form of "traditional knowledge" have not been actively acknowledged. The kind of traditional knowledge referred to here is particularly valuable because it reflects already established land management and decision-making institutions geared to conservation, although they may be difficult to identify for external actors or just considered as of an informal nature. These traditional institutions may still lack the rigour needed to comply with requirements for active participation in payment for environmental services (PES) schemes that pay conditional incentives, like REDD+, but they do lay an important platform; whereas the introduction of a set of new external regulations that may be incoherent with local norms risks generating conflict.

Collective choice arrangements

Most individuals affected by the operational rules can participate in making and modifying the operational rules.

Ostrom succinctly summarises why this principle is important for successful CPR institutions:

> "CPR institutions that use this principle are better able to tailor their rules to local circumstances, because the individuals who directly interact with one another and with the physical world can modify the rules over time so as to better fit the specific characteristics of their setting." (Ostrom, 1990)

Overall, participation on several important rule-making issues is significantly low. Around one third of interviewees did not participate in the decision to join SocioBosque. In all communities, there has been very low dissemination and deliberation over the exact terms of the contract which detail community rights and responsibilities. Additionally, very few interviewees know the length of commitment that the community has made by signing with SocioBosque.

A lack of active participation is also shown in the lack of consensus regarding what the rules are for the conservation area in SocioBosque. A probable reason for the lack of consensus is that only a little more than half of those interviewed say that conservation rules were decided in community assembly and only around half agree with these rules. This may also explain why around 40% of interviewees believe conservation rules are only "sometimes" respected. This is extremely relevant within CPR theory as compliance with rules by users is usually dependant on others following the rules. If one deviates, then others will immediately deviate (Ostrom, 1990, p. 93). A high proportion of users believing that the rules are not being respected means that collective compliance will be difficult to achieve.

The quality of participation in terms of income management is also poor; in all five communities, the majority of interviewees feel that they are receiving "not much" information about SocioBosque income management, and are not participating much in income management processes either. The same applies to the community investment plan with a majority of participants in all communities not participating in the elaboration of this budget activity detailing how SocioBosque income is to be spent. Quality of participation is relevant since the design principle states that individuals affected should be able to make and modify the rules, so that rules and decisions taken are best suited to local conditions. If the quality of information and participation is low, then it is more difficult for users to make modifications

that actually improve the rules. Thus overall, the rule making norms concerning participation in these communities does not comply with design principle three.

Whether communities have effective mechanisms to ensure collective choice arrangements with broad participation has several important implications for securing REDD+ social safeguards. Most obviously regarding principle 1; criterion 3 which calls for the "full and effective" participation in policy design and implementation in REDD+ projects. This analysis does not suggest that full and effective participation is exclusively dependant on local governance as external actors have significant influence on the policy level; however, it does argue that ensuring full and effective participation is heavily influenced by local institutions. Without robust institutions fostering effective participation, key factors such as conservation area management and income management are unlikely to be well managed. This suggests that ensuring active participation may not be a simple case of "considering the rights and needs of the indigenous peoples" which still places communities in the role of passive recipients whose rights need to be protected by external parties A shift may be needed from this opinion of indigenous people as recipients of rights to one where they are active role-players in ensuring their own rights and participation. Understanding participation in this manner makes communities the primary actors in this process, rather than being subjects who need to have their participation protected, or provided for them. However, a paradigm shift of this nature also goes hand in hand with more decision-making autonomy for local populations and respect for the results of such active participation, which may require more flexibility on the part of the government.

Finally, collective decision-making institutions at the local level influence principle 2, criterion 5 of the UN-REDD social safeguards which calls for "free, prior and informed" consent from local stakeholders. Extremely low levels of local knowledge concerning the responsibilities that SocioBosque implies for communities, contract duration, and income paid to communities from SocioBosque suggest that communities made the decision to participate in SocioBosque without being "informed". An uninformed population may create conditions for conflict at later stages as SocioBosque contract terms are more strictly enforced.

Monitoring

Monitors, who actively audit CPR conditions and user behaviour, are accountable to the users or are the users.

Ostrom (1990) finds that in CPR situations, an individual deciding to follow the rules or not is strongly dependent on whether they believe others are following the rules. A case of "if my neighbour is not following the conservation rules, why should I?" So it is important for community members to have reliable and regular information that informs them of whether people are following the rules.

In all four communities due to a wide variation in perceptions about monitoring practices, it is impossible to determine with certainty if and how monitoring is undertaken in any of the communities. In communities where monitoring is undertaken actively and feedback provided to community members on a regular basis, it can be expected that there be at least majority agreement concerning how many monitors there are, how much they get paid, and how regularly monitoring is done. The lack of uniform results over how the conservation area in SocioBosque is monitored in all four communities conclusively points to a lack of systematic and active monitoring practices, as well as a lack of regular reporting back to community assemblies.

An additional indicator that there is not active and regular monitoring and reporting within these communities are the discrepancies in opinions regarding whether the conservation rules

are being respected. Data shows that general assemblies are attended by a large majority of members (~75%), and had there been regular reporting and discussion on monitoring of conservation areas, then a more consistent opinion on whether the rules are being respected could be expected.

This analysis shows that in all four communities there is not active and regular monitoring that is regularly accountable to the users. The author does not find a direct impact from this governance principle on REDD+ safeguards.

Sanctions or penalties for non-compliance

Users who violate operational rules are likely to be given graduated sanctions (depending on the seriousness and context of the offense) by other users, by officials accountable to these users, or by both.

Common pool theory argues that having rules for common property does not mean that members will automatically follow them, hence the need for enforcement of those rules to dissuade non-compliance among other members. Thus the next condition that characterises communities with long-standing common property management institutions is a system of sanctions that is applied carefully and in accordance with the severity of the infraction.

In all the communities there are problems with either members, or external parties, or both, not respecting the conservation areas. Even in community B, the only community where a land zoning plan and set of regulations has been internally designed, two-thirds of those interviewed in this community responded that people only "sometimes" respected the conservation rules. This either indicates to these rules being inappropriate, which would go against Ostrom's third principle, or a more likely explanation since in this community the rules were designed internally, is that these regulations are not enforced rigorously. The other three communities are not actively and systematically enforcing the conservation rules contained in the SocioBosque contract.

Without a set of sanctions that are systematically applied, there is little motivation for those tempted to break the rules to think twice about it. If others see non-compliers breaking the rules and not being sanctioned, then there is little incentive for them to follow the rules either and the CPR management system has little chance of success.

The author does not find a direct impact from this governance principle on REDD+ safeguards.

Conflict resolution mechanisms

Users and their officials have rapid access to low cost local arenas to resolve conflicts among users or between users and officials.

Despite the presence of a sanctioning mechanism that aims to keep community members following the rules, there are likely to still be conflicts that arise from this system. In fact, these conflicts -if effectively dealt with- are an important part of the development process of an effective CPR institution. If individuals are expected to follow a set of rules governing a CPR, then there needs to be some mechanism for discussing and resolving what constitutes as a disputed infraction (Ostrom, 1990). To date the conflicts identified; poor income management, territorial conflicts and non-compliance with conservation rules have not been remedied quickly in any of the four communities, and so these communities do not meet with the sixth design principle. Not finding a solution to conflicts quickly fosters resentment and reduces the conditions for trust, which are essential for collective action. The SocioBosque

contract does include a clause for conflict resolution, but its terms are basic stating only that the parties to this contract resolve to solve conflicts directly, and in the case of not being able to do so, then the case will be dealt with by means of arbitration by the state mediator. This is also not applicable to internal conflicts.

The vital role of appropriate conflict resolution mechanisms given the nature of income management complexities in these communities is better illustrated by the following comparison:

The incentive that SocioBosque pays to these communities is essentially what makes this common-pool resource economically productive for these communities (if users follow the rules and don't extract resources illegally)[16]. It is this that makes forestry management for environmental services or public goods provision different from other common pool resources, like an irrigation system or a fishery, where resource units are harvested by individuals for personal benefit[17]. In contrast, in a system where a community is conserving an ecosystem to help mitigate climate change, then the tangible benefit of sustainably managing that forest is, to a large part not from resource unit appropriation, but rather from the income paid to the community for not appropriating.

The principles of common property theory still apply, but now there is additional weight that needs to be placed on effective and equitable income distribution mechanisms (unless income is paid to each family individually, which is usually not the case as it would be more costly to do so). Since this is common property owned and administered by the community as a whole, payments are made to the community. In community investment plans, income is allocated to communal needs rather than cash in hand for families. It is not individual members who administer their "quota" and derive benefit from this, but rather the benefit needs to be managed collectively for the benefit of the community. In communities like these where CPR income management is not a traditional activity, developing effective mechanisms to manage income and deal with conflict, which is almost inevitable, will be a case of gradual institutional development through learning.

Managing conflicts effectively is an important element of local governance to ensure principle 3, criterion 9 of UN-REDD safeguards, which is to "respect and enhance economic, social and political wellbeing." SocioBosque has led to several new conflicts in all four communities. These conflicts have not been effectively managed, and it is likely that this does not foster improved social well-being on the local level. As increasing external actors develop interest in the value of the forests housed on indigenous lands, the potential for conflict increases, and communities who are able to effectively manage conflict will better ensure social safeguards.

Minimal recognition of right to organise

The rights of users to develop their own institutions is not challenged by external governmental authorities

In Ecuador, the national constitution recognises and guarantees the collective rights of indigenous communities, including communal property rights as well as the right to participate

[16] Not considering non-economic benefits from conservation, like maintaining a watershed, preserving pristine forest for community member's children, and other intrinsic value.

[17] For example, in a fishery, if a user catches a quantity of fish within his quota, he then sells his catch on the market for the price he chooses, and a similar principle applies for an irrigation system.

in the use, administration and conservation of natural resources found on their territories (Constitucion., 2008) The Constitution furthermore, guarantees the right of indigenous people to conserve and practice their management practices for biodiversity and of their natural surroundings. Finally, the constitution protects and guarantees the collective right of indigenous peoples to conserve and develop their own form of co-existence and social organization (Constitucion., 2008). From a legal point of view, there is clearly recognition of local institutions by governmental authorities, and this complies with Ostrom's seventh principle.

Another perspective is provided by the analysis of how SocioBosque administration is being undertaken and whether the rights of local communities to self-organise are respected in these processes:

Problems of participation, transparency and income management at the local level have been identified by SocioBosque as challenges to programme goals. They are perceived by SocioBosque administration as a lack of local organizational capacity (probably rightly so). In particular, SocioBosque has identified poor income management as a severe weakness in communities. This recognition has led to measures such as a large team of field technicians, increased efforts to meet with communities to extract spending reports, fixed formats for designing budgets and providing reports, and increased efforts to get communities to set dates to meet and to ensure that investment plans have been designed with the full participation of community members. These measures may make sense on one level, but the author argues that they are reactive and are primarily driven by external demands for effective investment of public funds, rather than an internal process driven by community members, who are the appropriate stakeholders to be demanding accountability from their leaders. These unilateral measures by SocioBosque may not necessarily facilitate local institutional development based on traditional norms. Despite the attempt to get income distributed equitably these measures are not informed by a clear understanding of grass roots institutional and governance development. Furthermore, the solutions proposed by SocioBosque, as listed above may be more suitable for addressing problems that are encountered in standard project development, rather than complex human arenas like indigenous communities grappling with new relationships that require changes in their land-use behaviour. In these cases informal institutions that are difficult to perceive for outsiders play an important role and cannot be undermined by static solutions like fixed budgeting procedures applied across communities. These informal institutions do not change immediately in reaction to changes in formal rules. Tensions between changed formal rules and persisting informal institutions have implications for overall socio-economic outcomes (North, 1990, in Behera and Engel, 2005).

The SocioBosque contract is a 20 year contract, and if weaknesses in local governance have been identified, then an institutional approach argues that it is through internally developed rules and norms decided upon as community members deliberate together and learn over time that give local common-pool resource management the best possibility of being sustainable in the long-term. SocioBosque actions risk being perceived as more policing, rather than support. These rules may be seen as being enforced, and the risk is that communities do not take ownership over them with the result that they do not become institutionalised. As an ex-president of community B stated; "It is the communities who need to make the rules, not SocioBosque. They should be careful when demanding income reports from us."

Developing legislation that supports strong governance and benefit sharing mechanisms is a considerable challenge (Cronkleton, et al., 2011). Nevertheless, innovative designs are being developed. For instance the Philippines REDD+ strategy makes explicit recognition of the challenges that faulty institutional arrangements have caused in the past. The strategy is

explicit in its recognition that "democratic and participatory governance…and both new and strengthened institutional arrangements will be essential to creating and operationalizing REDD+ policies." The strategy proposes "broad consultations and meaningful engagement" for multi-level participation, and the complexity of communal benefit sharing is recognised as a component that requires research (RECOFTC & IIED, 2011). In Ecuador, aside from a now prevalent rhetoric that "active participation" from local actors is important there is very little more detail on how to go about strengthening local governance in communities managing forest resources in either the SocioBosque operation manual or the newly designed Forest Governance Model. The UN-REDD Social Criteria and Principles being developed are an important step, but these too have little to say on local governance, indicating that the policy debate surrounding local actors may be stagnating around the concept of "participation", and the role of local governance has not been carefully considered yet.

As for collective choice arrangements, this design principle is important in maintaining respect for traditional knowledge that is highlighted by principle 2, criterion 7 of the UN-REDD social criteria.

7 Conclusions

The conclusions of the present research will be presented in three sections: a) regarding the present governance structures guiding the participation of communities in SocioBosque and if they reflect robust levels of self-organization, b) regarding the implications of local governance institutions on meeting environmental objectives and on the true effectiveness of social safeguards, and c) final remarks.

a) Do the present governance structures guiding the participation of communities in SocioBosque reflect robust levels of self-organization?

The analysis above leads to conclude that, overall, the present governance structures guiding the participation of the four communities interviewed do not reflect robust levels of self-organization shown to be conducive to sustainable CPR management. Table 9 indicates that with the exception of principle 1(a), the communities either only partially, or don't meet the other design principles applied in the analysis.

Table 9: Do the communities meet with Ostrom's design principles (1990)?

Ostrom's Design Principles (1990)			**Do communities interviewed meet with the design principle? (x = number of communities)**		
			Yes	**Partially**	**No**
1.	Clearly defined boundaries for users and resource system	a) For users	XXXX		
		b) For the resource system	X	X	XX
2.	Proportional equivalence between benefits and costs as well as appropriation rules and local conditions.	a) Equivalence between costs and benefits			XXXX
		b) Equivalence between rules and local conditions		Partially – related to outside actors	
3.	Collective-choice arrangements	For rule making			XXXX
		For income management			XXXX
4.	Active monitoring				XXXX
5.	Graduated sanctions			X	XXX
6.	Conflict resolution mechanisms				XXXX
7.	Minimal recognition of rights to organise			Partially – related to outside actors	

This is not to say that these communities are unorganised. All the communities do have basic democratic governance institutions and land management plans in place that are governed by a set of by-laws and a formal decision-making mechanism that involves the majority of members. These governance institutions have evolved to manage traditional community issues in a collective manner. However, this research suggests that these traditional institutions are

not yet effectively dealing with more sophisticated CPR dilemmas that require communities to a) be accountable to both local and external stakeholders, b) design, implement and enforce more rigorous conservation management rules collectively, and c) distribute common pool income from conservation equitably. New Institutional Economics recognises that the process of institutional development is an incremental one, and so it may take time for these communities to develop institutions appropriate for the new requirements that participation in SocioBosque implies. However, certain tensions are shown to be arising between changed formal rules and persisting informal institutions and this will have implications for overall outcomes of the programme as institutions develop.

b) What are the implications of local governance structures on meeting environmental objectives and on the true effectiveness of social safeguards?

The author concludes that local governance institutions may be a critical factor in achieving positive environmental outcomes in programmes like SocioBosque. For instance, if communities participating in REDD+ do not organise themselves in a manner that generates tangible benefits for individuals from conservation, then global environmental outcomes, like reduced carbon emissions, may not be sustainable. If communities are unable to align the costs and benefits of conservation, then these programmes may lose their appeal. Individuals who see no tangible benefit over time from conserving large parts of their territory may be tempted to expand agricultural frontiers that ensure a more reliable income. Other factors like growing populations, reduced farm land, and market pressures will heighten pressures to turn to alternative land use. A key ingredient to securing equitable cost and benefit distribution is linked to effective collective action, or participation. Appropriate collective action arrangements also influence whether conservation rules will be appropriate, respected and enforced over time. If local organisation in this area is deficient, then conflicts may arise which could jeopardise the legitimacy of conservation programmes if not quickly resolved at the local level. This combination of factors will all eventually influence on conservation goals as it is these communities that essentially have the responsibility for conserving the forest they inhabit. The author argues that it is local communities that need to develop their own rules, within the parameters offered by SocioBosque, for conservation to be a viable activity in these forests. External coercion will not only be expensive as time goes by, but investigations have shown that is also unlikely to be effective.

Furthermore, the author concludes that local governance is a critical factor in assuring that several important REDD+ social safeguards are effective. Particular aspects of local governance have been found to be vital:

First, ensuring the "full and effective participation" of local communities is directly linked to whether communities have effective internal mechanisms to ensure collective choice arrangements that actively involve the majority of community members impacted by REDD+ like programmes. This research does not suggest that full and effective participation is exclusively dependant on local governance, as external actors have a significant influence; however, it does show that ensuring full and effective participation is partly dependent on local actors institutionalising collective decision-making. This suggests that fostering appropriate project conditions for communities to ensure their own full and effective participation may be crucial to secure this safeguard. Paying lip service to "participation" by including indigenous representatives in meetings in urban settings and holding trainings or workshops does not equate to meaningful participation.

Second, robust collective decision-making platforms also play an important role in assuring "informed consent" is achieved in REDD+ project development. Despite these communities

participating in SocioBosque for more than a year and a half, this research shows that weak local institutions, to some degree, keep local participants uninformed about the programme and its potential impact on their lives.

Third, local institutions that can rapidly manage conflicts arising from CPR management are important in ensuring that projects like REDD+ enhance the social and political wellbeing in a community. Conflict that is not rapidly dealt with in a community setting may lead to political divisions and reduce conditions for social wellbeing. REDD+ will bring new actors into contact with rural communities and requires behavioural changes which increases the potential for conflict. Communities that are able to organise themselves to effectively manage conflict will contribute to REDD+ ensuring positive social impact on local inhabitants.

Fourth, transparent and equitable income distribution as well as avoidance of forced resettlement -both important social safeguards for REDD+- can be jeopardized by: i) lack of organizational capacity at the local level to counter potential local power inequalities, and ii) lack of effective participation.

Fifth, weak local institutions in communities that share an agreement with an external party to conserve forests may lead to external stakeholders instinctively designing and attempting to implement reactive solutions in an attempt to protect their interests. Such acts, although well intentioned, may be inappropriate for rural community conditions. Furthermore, they may impinge on the REDD+ social safeguard that requires a respect for traditional knowledge. The traditional experience with informal forest conservation that communities, like those interviewed have is an important form of traditional knowledge, or social capital. These traditional forest norms may not be rigorous or explicitly visible to outsiders, but they are locally understood and thus should be built upon rather than built over. New rules which are not coherent with local norms may be interpreted as external and will face significant challenges in being accepted, and may risk weakening social safeguards.

c) Final remarks

A changing institutional environment requires new institutional arrangements, or "tools". REDD+ is a new institutional arrangement that aims to address global environmental concerns, but often requires a change in behaviour from participating indigenous communities inhabiting forests. Developing new institutions in rural community settings that generate cohesion between global conservation goals with local priorities is an extremely complex undertaking. The author argues that the institutional arrangements that are being incorporated into the local institutional environment in response to undeveloped local institutions, despite good intentions, risk being perceived by local communities as of an external nature, and consequently facing difficulty in becoming part of the local institutional matrix. Extensive research on CPR systems shows that importing rules in these situations seldom brings fruitful results. Instead of building upon a latent local respect for conservation and basic organizational structures, these new arrangements that protect accountability to external stakeholders risk confusing the institutional matrix with two sets of incongruent institutions, and potentially becoming seen as intrusive and bothersome by community members. Where some form of community forestry exists, as it does in these four communities, SocioBosque and REDD+ must align the implementation of projects with these principles.

Based on the abovementioned points, this research concludes that more explicit attention to the less obvious role that existing local institutions has in ensuring REDD+ conservation goals and social safeguards is needed. This should be informed by an understanding of institutional and commons science.

8 Recommendations

This final section aims to provide some reflections for REDD+ and SocioBosque policy and decision makers on the challenges of multi-level, inter-institutional relationships, and some broad policy recommendations from concepts that that have shown to be helpful in managing these complex relationships better.

Addressing governance challenges has no blueprint for success. However, the author reiterates that research shows that it is governance *that starts from the ground up* that improves the integration of conservation and development for initiatives like SocioBosque and REDD+ (Berkes, 2007; Chhatre & Agrawal, 2008; Dietz, Ostrom, & Stern, 2003; DoEPhilippines, 2011; Murphree, 1991; Ostrom, 1990). As one elder of Federation D remarked "it should be for the basic needs of the people, and it should be with rules made by the people."

Additionally, community based conservation needs to start assessing the clear necessity for managing the commons at multiple levels (Ostrom, 1999). The environmental challenges the planet faces are unlikely to be solved with governance levels working in isolation. The author concurs with Berkes (2007, p.15188) who argues that such systems necessitate rethinking conservation and incorporating "a complexity perspective, the ability to deal with multiple objectives, use of partnerships and deliberative processes and learning from commons research."

It is necessary to connect government level management and traditional management systems, understanding it as a learning and adaptation process under complex socio-ecological circumstances (Berkes, 2007). Therefore, where some form of community forestry exists, as it does in the four communities interviewed, decision-makers should make efforts to align the implementation of the project with these principles. The assumption should be that difficulties are part of the game, the answers need to be looked for and can be found more easily working in multi-level teams, and the mistakes need to be learned from in a systematic manner. It is worth noting that better results can be achieved in the long-term through linkages and networks across levels that develop system resilience (Armitage, 2008).

On a more practical level, there may be governance lessons to be learned from other Latin-American countries working with community forestry. For instance, Cronkleton et al (2011) describes how explicit recognition of the need to improve community governance in Mexico has been an important factor of success for communities in their dealings with each other, their authorities and all external actors.

SocioBosque has already taken steps in the right direction with field technicians making regular contact with communities, a strong support base to quickly address challenges, and willingness to adapt. This can be complemented with an institutional approach and focus on learning and understanding the process of incremental local rule development and community ownership over decisions. The result of this approach would be the development of local social capital that sets its own rules to address local needs and holds leaders accountable to the people – a self-organizing system. This kind of community partner would make achieving SocioBosque goals easier over time.

Finally, the author wants to express that it is critical for policy-makers who may pay attention to Ostrom's principles to understand that they *are not* meant to be a checklist of what to pursue when developing CPR projects. They are principles that characterise the rule-making institutions of communities that have organised themselves to manage CPRs effectively. This

is in essence what such rule making systems look like once communities have gone through the long trial and error process of designing their own rules to manage CPR's sustainably.

The author hopes that the present research contributes to understanding that *the process rather than the result* is what may be important to build robust governance mechanisms that help local communities make the most of the development and conservation opportunities in the context of climate change.

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Appendix

Appendix 1 – Community Survey

Encuesta Comunitaria:
Satisfacción con el Programa SocioBosque

ENCUESTADOR

Nombres y Apellidos:……...

Fecha de la encuesta: ……/……/……

DECLARACIÓN SOBRE EL CONSENTIMIENTO INFORMADO (*LEER ANTES DE EMPEZAR!):*

1. Propuesta de la entrevista:
    a. Somos de la Universidad de Lund en Suecia
    b. Aprender más sobre el funcionamiento de SocioBosque en las comunidades
    c. Aprender sobre los beneficios, dificultades y cambios que proviene del SocioBosque
    d. Con fin de poder identificar posibles áreas donde el programa podría mejorarse. *(por tal razón es importante que las respuestas reflejan la realidad)*
2. La encuesta tiene seis partes y demorará más o menos 40 minutos
3. No está obligado a responder a cualquier pregunta que le incomode
4. Toda la información es confidencial y anónima.
5. Puede terminar la entrevista en cualquier momento que desee
6. Puede pedir una aclaración sobre cualquier pregunta en cualquier momento de la entrevista
7. Si no sabia esta bien, es una respuesta valida

Comunidad: ……...
Sexo: Hombre / Mujer

0. INFORMACIÓN DE LA PERSONA ENTREVISTADA

Descripción de la persona y lugar:
…….…….....

Edad: …….

Nivel de Educación: ……

Empleo: nil / describe……

Usted es socio registrado de la comunidad? Sí/No

0.1.¿Cuántas personas viven en su hogar? ……

0.2.¿Cuantas hectáreas tiene su finca?.....

1) Bosque primario..... 2) Bosque secundario.....

3) Chakra o pasto.....

0.3.¿Cuántas hectáreas de bosque limpiaste en el último año? …….

1. Comprensión de la Función de la Organización Comunitaria

Asambleas **Comunitarias**

1.1. ¿Cómo se toma decisiones en la comunidad?

……

1.2. ¿Cuándo fue la última asamblea comunitaria?.....

1.3. ¿Participo usted en esa asamblea? **Si** / **No**

1.4. ¿Cuándo está programado la próxima asamblea? ……

1.5. ¿Cuántas personas asistieron la última asamblea comunitaria que asistió? (*leer las opciones*)

- ☐ Toda la comunidad
- ☐ La mayoría de la comunidad
- ☐ La mitad de la comunidad
- ☐ Menos que la mitad de la comunidad

1.6. ¿Cómo se elige al presidente y consejo de la comunidad? (*pregunta abierta*)

- ☐ Nombramiento (Votación Directa)
- ☐ Votación por manos (por consenso)
- ☐ Votación secreta
- ☐ No se
- ☐ Otra manera (Especificar)……

1.7. ¿Cada cuando se elige un nuevo presidente?

……..

1.8. ¿Usted tiene los siguientes derechos? (*leer las opciones*)

	Sí	No	No sé	
(a)	☐	☐	☐	Ser elegido
(b)	☐	☐	☐	Participar en decisiones sobre el uso del dinero de la comunidad
(c)	☐	☐	☐	Recibir informes sobre cómo se gasta el dinero de la comunidad
(d)	☐	☐	☐	Sacar dirigentes incapaces o corruptos de su puesto

(e) ☐ ☐ ☐ Reformar el estatuto

2. Comprensión de la función del Programa SocioBosque

2.1. ¿Qué significa el Programa SocioBosque para usted?
……
……
…….

2.2. ¿Su comunidad está participando en SocioBosque? **Si / No / No se**

2.3. ¿Por cuánto tiempo ya está participando?
……

2.4. ¿Cómo se tomó la decisión de participar en SocioBosque? *(leer las opciones)*

□ Hubo una asamblea en la comunidad, y decidió toda la comunidad juntos
□ El presidente y el consejo decidieron, y nos informaron en asamblea
□ No sé
□ Otro ……

2.5. ¿Usted participo en esa decisión? **Si / No**

2.6. ¿Por cuales beneficios decidieron la comunidad participar en SocioBosque? (*pregunta abierta*)

Razones posibles

□ Los incentives/el dinero

□ Derechos territoriales más seguros

□ Conservación de bosque

□ Acceso a otros programas del gobierno

□ Otro

□ No sé

2.6.1. Cual de esos beneficios es la mas importante?

2.8. ¿Usted conoce los terminos del convenio con el Programa SocioBosque? **Si / No**

2.9. ¿Si si, cuales son las obligaciones de la comunidad en el convenio con SocioBosque? *(leer opciones)*

Conservar el bosque - **Si / No** Reforestar el bosque - **Si / No**
Elaborar un plan de inversiones - **Si / No** No hacer cacería o pesca - **Si / No**
Rendir cuentas a SocioBosque - **Si / No** No se puede entrar en la area - **Si / No**
Otro ……

2.10. ¿Por cuantos años es la duración del contrato con SocioBosque?
……..

3. Ajustes al manejo de territorio para el SocioBosque

3.1. ¿La comunidad ha dedicado una zona de conservación para SocioBosque? **Si / No / No se**

3.1.1. ¿Dónde se ubica la zona de conservación para SocioBosque?
……..……
……

3.2. ¿Cómo se tomó la decisión de dedicar esa zona a la conservación? (*leer las opciones*)

□ Hubo una asamblea en la comunidad, y decidieron toda la comunidad juntos
□ El presidente y el consejo decidieron, y nos informaron en asamblea
□ No sé cómo se decidió dedicar esa zona
□ Otra manera
……

3.3. ¿Usted está de acuerdo con la zona que se eligió? **Si / No / No se**
3.3.1. ¿Si no -
Porque?**.....**

3.4. ¿Cuántas hectáreas es la zona bajo conservación para SocioBosque?
……..

3.5. ¿Por qué eligieron esa área? *(pregunta abierta)*

□ Esa zona no se necesita para la cacería, chakra, o recolección de materiales
□ Nadie va a esa zona por el acceso difícil
□ Esa zona tiene muy buen bosque para la conservación
□ Es una Reserva ancestral
□ Es una zona dedicado al turismo
□ No sé porque se eligió esa zona
Otra ……..

3.6. ¿Su comunidad tiene un plan de manejo para todo el territorio? **Si / No / No sé**

3.7. ¿La comunidad tiene reglas de manejo para la zona bajo contrato con SocioBosque?
Si / No / No se

3.8. ¿Si, si - Cuáles son las reglas? *(pregunta abierta)*

□ No se puede cortar árboles, palma ni plantas de cualquier tipo
□ No se puede cortar árboles, pero se puede sacar palma, frutas, etc.
□ Está prohibido la cacería, y las pesca
□ Se tiene que dejar esa zona como es actualmente
□ No sé muy bien las reglas exactas
□ Otro
……
…

3.9. ¿Cómo se tomó la decisión sobre las reglas? *(pregunta abierta)*

□ Hubo una asamblea en la comunidad, y decidieron toda la comunidad juntos
□ El presidente y el consejo decidieron, y nos informaron en asamblea
□ Los líderes de la asociación decidieron en otra comunidad
□ No sé muy bien cómo se decidió sobre las reglas

3.10. ¿Usted está de acuerdo con las reglas**?** **Si / No / No sé**

¿**Si no** - por qué**?.....**

3.11. ¿Cuál de los siguientes es más correcto: *(leer las opciones)*

□ La gente <u>siempre</u> respeta la zona de conservación de SocioBosque
□ La gente <u>a veces</u> respeta la zona de conservación de SocioBosque
□ La gente <u>nunca</u> respeta la zona de conservación de SocioBosque
□ Yo <u>no sé</u> si la gente respeta la zona de conservación de SocioBosque

3.12. ¿Cómo se hace el monitoreo del área de conservación de SocioBosque?
……
……

3.13. ¿Participar en SocioBosque pone algunas limitaciones sobre las actividades de su familia**?**

Si / No / No sé

3.13.1. ¿Cuáles?
……
……

3.14. ¿La comunidad ha tenido algún conflicto interno sobre el Programa SocioBosque?

Si / No / No se

3.14.1. ¿Si si, cuáles, y como se resolvieron?
**……
…..**

3.15. Responde "si" o "no"

3.15.1. SocioBosque pone las reglas y la comunidad tiene que cumplir si quiere recibir el dinero.

Si / No / No se

3.15.2. La comunidad tiene derecho a cambiar las reglas del convenio con SocioBosque.

Si / No / No se

3.10. ¿Usted está de acuerdo con las reglas**?** **Si / No / No sé**

¿**Si no** - por qué**?.....**

4. Distribución de ingresos y costos

4.1. ¿Cuánto ingreso mensual tiene su hogar en efectivo?.....

4.2. ¿De cuáles actividades viene el ingreso de su hogar? *(pregunta abierta, actividad y monto)*

1) Café
2) Cacao
3) Maíz
4) Madera
5) Productos forestales no maderables
6) Trabajo pagado
7) Naranjilla
8) Otro ……

4.3. ¿Cuánto dinero recibe la comunidad al año por participar en SocioBosque?

□ $.....
□ No sé.

4.4 ¿En su comunidad que es el proceso para manejar los ingresos del SocioBosque? *(pregunta abierta – marcar la respuesta)*

□ Cada familia recibe una parte igual de los ingresos
□ La comunidad decide en asamblea como gastar el dinero con la participación de todos los socios
□ El presidente y el consejo deciden, y nos informan después
□ No sé.

4.5. ¿En que se ha gastado el dinero de SocioBosque hasta ahora?

1.	$	4.	$
2.	$	5.	$
3.	$	6.	$

4.6.1. Cuanto participo usted en las decisiones sobre los ingresos de programa SocioBosque?

Mucho / Poco / Nada

4.6.2. Cuanta informacion ha recibido usted sobre los ingresos de programa SocioBosque?

Mucho / Poco / Nada

4.7. ¿Usted sabe que existe un plan de inversiones de SocioBosque? **Si / No**

4.8. ¿Si si, usted participo en decidir los elementos para incluir en el Plan de Inversiones**?**

Si / No

4.9. ¿Qué gastos están incluidos en el plan de inversión de su comunidad?
.....
.....
.....

4.10. ¿Su familia ha recibido algún beneficio de participar en SocioBosque? **Si / No**

4.10.1. ¿Si si, cuál?
……

4.10.2. Si recibio un credito, en que lo gasto?
.....

4.11. ¿En su opinión la comunidad ha tenido algún beneficio visible por participar en SocioBosque?

Si / No / No se

4.11.1. ¿Si si, que?

……

4.12. ¿En su opinión, para cuales cosas necesita la comunidad dinero? (*Pregunta abierta, escribe la repuestas)*