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USAID Sustainable Forests and Coasts

STRATEGYC FORESTRY PLAN

USAID COSTAS Y BOSQUES SOSTENIBLES

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ACRONYMS

CBD	Convention on Biological Diversity
FAO	Food and Agriculture Organization
FECCHE	Federación de Centros Chachi de Esmeraldas
FONAG	National Water Fund
FSC	Forest Stewardship Council
FUNDEPIM	Fundación de desarrollo de la Pequeña Industria maderera de Pichincha
FY	Fiscal Year
GO	Governmental Organization
GOE	Government of Ecuador
GR Chachi	Gran Reserva Chachi
GTZ	German Technical Assistance
INDA	Ecuadorian Institute for Agricultural Development
KfW	German Reconstruction Credit Institute
LAC	Latin America and the Caribbean
MAE	Ecuadorian Ministry of Environment
NGO	Non-Governmental Organization
PEA	Programmatic Environmental Assessment
PN	National Park
PPP	Public Private Partnerships
RM	Marine Reserve
RPF	Fauna Production Reserve
SNAP	National System of Protected Areas
USAID/Ecuador	United States Agency for International Development in Ecuador

ABSTRACT

The Strategic Forestry Plan was prepared in response to a request by the USAID/Ecuador Environmental Team to further define project-specific opportunities for forestry activities under the USAID Sustainable Forests and Coasts project. The Plan is consistent with the Project´s approved annual work plan and identifies opportunities that could be considered within the broader Project context depending on the availability of financial resources.

A group of Forestry Specialists (Chief of Party, Claudio Saito, Chemonics Forestry Expert John Nittler, and the Project´s Forestry and Non-Timber Product Specialist from subcontractor Rainforest Alliance, Christian Teran) provided information for the Plan following a series of site visits from October 25 to 31, 2009 and from January 18 to 22, 2010. In order to prepare the plan site visits and meetings took place in Quito, Esmeraldas, the Gran Reserva (GR) Chachi (including visits to the Pinchot Institute's field activities), coastal watersheds corresponding to the Reserva Marina (RM) Galera San Francisco, and the Ayampe River watershed. The visits aimed at meeting with key forestry sector stakeholders to gather insights, experiences, and lessons learned for developing the plan. Mr. Nittler and Mr. Terán prepared a trip report and presented findings to the USAID Environmental team after Deputy Chief of Party, Arnaldo Rodríguez, consolidated and finalized the Strategic Forestry Plan.

Background

The overall goal of the USAID Sustainable Forests and Coasts Project is biodiversity conservation and is therefore also the starting point and overall objective of the Strategic Forestry Plan. During start up, the Project, together with USAID and the Ministry of Environment (MAE) selected six geographic work areas[1] for Project activities based upon their importance to biodiversity conservation. These areas contain varying levels of forest. Opportunities exist for promoting sustainable forestry, protection, and restoration via activities that can help to minimize threats to deforestation and increase biodiversity conservation. To this end, in preparation of the Strategic Forestry Plan, the forestry specialized evaluated the forestry sector in each site and selected three sites for developing forestry sector strategies, as detailed below.

The coastal region of Ecuador is made up of many different ecosystems and microhabitats, with the high levels of biodiversity, but the remaining forest continues to be under tremendous threat of land conversion for agriculture expansion, cattle production, and over-exploitation of economically-valuable timber species.

The Government of Ecuador (GOE) has committed to conserve forests and biodiversity and has launched several programs aimed at conserving forests. The most important (for the project's objectives) is Programa Socio Bosque, which uses a payment for conservation framework. Others include ProForestal, which was created

[1] (1) Gran Reserva Chachi; (2) Reserva Marina Galera San Francisco and its watersheads (Galera, Bunche and San Francisco); (3) Muisne watershed, (4) Ayampe River watershed –including the Machalilla National Park-, (5) Reserva Ecológica (RE) Manglares Churute –and related mangrove concessions, and (6) Reserva de Producción Faunística (RPF) Manglares el Salado.

to promote reforestation, and the newly developed mechanism called Socio Manejo that contributes to the conservation and adequate management of forest resources. These efforts provide a framework for the GOE on environmental and forest policy. Unfortunately, the ongoing *modes operandi* for extracting wood from natural forests potentially threatens the gains that could be made through such innovative programs and international positions.

USAID lessons learned in other regions (Reserva de la Biosfera Maya and Bolivia) have shown that forest conservation is far more efficient when a sustainable use is allowed, wherein the human groups can obtain direct benefits from the forest (like timber or mangrove concessions), hence fostering social mechanism of control, than strict conservation schemes, based on external control systems like the Forest Stewardship Council (FSC)2. Certification has been promoted to enhance forest management in countries where governance capacities are insufficient to adequately manage natural resources and enforce pertinent regulations, given that certification relies largely on non-governmental organizations and private businesses. In Ecuador, only 21,300 ha (less than 0.2% of forests) 3 were FSC certified under two existing permits (Ebeling y Yasué, 2008), and there were also no further Chain of Custody certificates among processing companies.

Strategic Forestry Plan Summary

The Plan defines forestry and conservation activities in the following three project areas selected for forestry activities: (1) GR Chachi; (2) Galera, Bunche and San Francisco River watersheds (all related to the RM Galera San Francisco) in the province of Esmeraldas; and the (3) Ayampe River watershed in the province of Manabí. These three areas (out of the six project areas) were selected based on the specific types and levels of remaining forests in each area, and the importance of those forests for biodiversity conservation.

The Plan summarizes the following four main causes limiting forest management in Ecuador that foster deforestation:

(1) Fragmented ownership pattern of forest resources, a situation that causes value chains to be complex, opportunistic and hard to control, since logging in small lands is unpredictable. This factor also limits the access of timber to high-value end markets because there is no regular flow of timber, transportation costs are high, and there is a lack of technical sawing. This situation provides opportunities for middle-men living in or around the forested areas, who buy illegal wood from small land owners.

(2) Lack of control and illegal markets. There is no effective enforcement of forestry laws in Ecuador. The National Forestry Agency is severely under-funded. As mentioned before, forest conservation is far more efficient when a sustainable use is allowed, than strict external control systems.

[2] FSC is a certification system that provides internationally recognized standard-setting, trademark assurance and accreditation services to companies, organizations, and communities interested in responsible forestry

[3] Compared to almost 4% of Bolivia's forest cover and 22% of the area for which legal harvesting permits exist

(3) Unclear land tenure: lack of ownership, unclear land borders, and land tenure within protected areas or private land tenure within Indigenous lands all favors deforestation: land owners and squatters alike systematically cut forested areas in order to prove ownership while limiting access to Programa Socio Bosque and ProForestal.

(4) Lack of private or community ownership on underground resources: even setting aside a natural forest for conservation and management is no guarantee to its preservation, because rights to underground resources (oil and minerals) belong to the GOE, which has the authority to concession to third parties, reducing the incentives for forest conservation.

In developing the Project´s Strategic Forestry Plan there are two reasons to keep the importance of biodiversity conservation at the forefront. First, and foremost, **sustainable forest management, protection, and restoration activities will** help to reduce threats on critical ecosystems. Second, **working with the stakeholders in the selected areas will allow for sustainable changes in attitudes related to natural resource management.** To achieve sustainable use of Ecuador's forests, it is crucial that the private sector be involved with value chain development in areas conducive to natural forest management, plantations, and agro-forestry systems. **The overarching strategy for commercial forestry activities in the USAID Sustainable Forests and Coasts Project will be based upon engaging the private sector and serving as an honest broker between the private sector and resource holders**.

Unlike many previous efforts, the Project's direct role in implementing commercial forestry will be limited to gathering, analyzing, and disseminating information; building awareness; identifying public and private partnerships (PPP) opportunities along value chains; and providing strategic technical assistance and training inputs to overcome major obstacles. Project funding will not be used directly to produce forest management plans, plant trees with commercial value, or other direct-investment interventions. To confront these challenges the USAID Sustainable Forests and Coasts project will apply the principles of adaptive management in order to adapt and learn, and ultimately make **adjustments to its implementation strategy if needed**.

The Project´s Strategic Forestry Plan presents five strategic pillars for forest management and conservation designed to reduce threats to biodiversity and improve the overall enabling environment of sustainable forestry while recognizing that some activities may go beyond the Project´s original objectives and resources. The five strategic pillars are as follows:

- **Strategy 1: Conserve natural forests with high importance to biodiversity,** mainly within the GR Chachi, the Ayampe River watershed and the remnants of natural forest in the coastal watersheds of the RM Galera San Francisco.
- **Strategy 2: Strengthen forestry value chains in natural production forests,** with the area of the highest potential being the GR Chachi and perhaps small pockets in the Ayampe River Watershed.
- **Strategy 3: Restore degraded forests to foster biodiversity conservation**, in the coastal watersheds related to the RM Galera San Francisco, which is the

area with the largest extent of degraded forest/lands, and much of the upper reaches of the Ayampe River watershed.

- **Strategy 4: Develop Plantations and Agro-forestry Schemes.** Areas where there is the most potential and need for these interventions are in the RM Galera San Francisco watersheds and the Ayampe River watershed.
- **Strategy 5: Forestry policy**

Overall activities include the development of Environmental Management Plans and the implementation of corresponding activities; land titling, access to Socio Bosque and Proforestal, reforestation of native species, strengthening of non-timber forest product (NTFP) value chains (including tagua nuts, kapok and bamboo), exploring opportunities for commercial plantations (replacing pasture or monocultures), using native species like balsa (*Ochroma piramydale*), laurel (*Cordia allidora*), and amarillo (*Centrolobium sp.*); generating alliances for conservation and promoting social-based systems for control, surveillance and monitoring. Additional potential activities include technical support to the GOE (particularly to the MAE and Ministry of Agriculture, Livestock, Aquaculture and Fisheries –MAGAP), at the policy level.

Strategic Forestry Plan

SECTION 1: SUMMMARY OF FORESTS AND FORESTRY MANAGEMENT IN ECUADOR

Ecuador is one of the countries with the highest levels of biodiversity in the world, including a large number of vascular plants, with over 16,000 species (Valencia et al. 2000).

The coastal region of Ecuador is made up of many different ecosystems and microhabitats due to orographic formations such as the low-lying mountain ranges (maximum elevation about 800 m) of Mache-Chindul, Cojimíes, Jama, Chongón-Colonche and Churute, the extensive Guayas and Esmeraldas watersheds, and the Andean foothills. The natural vegetation formations of the northern coast are primarily humid evergreen forests, humid semi-deciduous forests and mangroves of Esmeraldas Province. The humid forests of Esmeraldas and some areas of Manabí comprise the southernmost limit of Chocó-Manabí-Tumbes bioregion, which contains a high number of endemic species. The remaining forest continues to be under tremendous threat of land conversion for agriculture expansion, cattle production, and over-exploitation of economically-valuable timber species. The only remaining large tract of intact forest in this region is within the Awá and Chachi territories and is under pressure by African palm cultivation and logging companies. The southern coast has remnant patches of dry forests, from Puyango at the Loja-El Oro Provincial limit to Machalilla National Park, which forms part of the Chongón-Colonche coastal range. These dry forests are now extremely fragmented and limited in area (Kernan & Stern, 2006).

The table bellow depicts the percentage of remaining forest (in 1996, no recent data available) compared with the original coverage (Kernan & Stern, 2006). Over the entire Ecuadorian coastal plain, Sierra (1999) calculated an average of 31.6% of natural vegetation remaining ca. 1996, including forest and non-forest cover; the lowland evergreen forests had been the most heavily converted with only 18.3% of its original area still remaining (see table below):

Coastal region: Original vegetation cover and percentage remaining

Ecoregion / natural formation	original land cover (ha)	% remaining by 1996
Mangrove	269,900 ha.	52.9%
Mangrove (small species)	8,242 ha.	94.2%
Lowland flooded evergreen forest	2,313 ha.	92.1%
Lowland evergreen forest	3,171,000 ha.	18.3%
Foothill evergreen forest	1,141,727 ha.	36.8%
Coastal range foothill evergreen forest	404,263 ha.	39.6%
Coastal range low montane evergreen forest	15,714 ha.	67.4%
Coastal range low montane cloud forest	62,293 ha.	54.9%
Lowland semi-deciduous forest	644,217 ha.	23.3%
Foothill deciduous forest	524,131 ha.	42.1%

Lowland deciduous forest	1,298,138 ha.	31.1%
Foothill deciduous forest	63,399 ha.	65.4%
Savanna	233,782 ha.	71.3%
Lowland dry scrub	363,872 ha.	68.4%
Lowland herbaceous vegetation	20,716 ha.	46.9%
Total	**8,223,707**	**31.6%**

A key reason for the destruction of the forests is the lack of economic incentives for legal and sustainable forest management. Impoverished, marginalized forest communities are especially affected. They feel forced to sell their timber to middlemen or timber processors at low prices given financial pressures and their lack of marketing skills. Communities are dependent on the proceeds of timber sales because they are frequently their main source of income. As a rule, timber buyers capitalize on this dependency and dictate prices that barely cover harvesting costs. (GTZ, 2009)

In Ecuador, high-quality and rare hardwood species, such as chanúl (*Humiriastrum procerum*) found in the Esmeraldas Province, are generally processed into solid timber using a wasteful production process. Logs are harvested in areas close to rivers or roads for the plywood industry and cants or boards (*cuartones o tablas*) are crudely sawn by chainsaws for other products and in more remote areas. This latter technology is estimated to leave 50-65% of the useable wood in the forest and produces low quality products that cause similar losses in secondary processing, consequently valuable resources are squandered. The lack of technology and innovative expertise is hampering the Ecuadorian timber trade's efforts to raise productivity and is limiting its competitiveness on the international stage. A transfer of knowledge to make timber processing more efficient, to improve production processes and to tap into additional value potential by marketing timber for export is necessary from a business point of view and desirable from a development policy standpoint. (GTZ, 2009)

Timber companies should play a key role in the implementation of sustainable forest management in order to secure their long-term production, however their local timber providers often do not comply with the most basic legal forest management framework, much less with principles of sustainable forest management. Currently, in Ecuador there are five large forestry companies producing plywood[4], which have been working since the 1970s. Plywood timber companies began their raw material extraction activities mainly in the province of Esmeraldas where forests have a high volume of peeling timber, which is preferred due to its performance and fiber length.

Today, however, companies are having serious problems in obtaining raw materials as a result of the forests having suffered from depletion and poorly planned extraction. As a result companies are going longer distances, further into the forests and this is increasing their operating costs. In Ecuador, small to mid-size timber companies[5] are characterized by using only a very limited number of species for a limited product mix and a specific market niche. Most of them buy from suppliers and very few have ties to the forest resource for which they depend upon. Forest owners often sell

[4] **ENDESA, BOTROSA, CODESA, Plywood Ecuatoriana and Arboriente**
[5] Like **Grupo Carrusel, Colineal, Artempo, Industrial Ríos, IMAIA.**

standing timber to logging crews who contract chain saw operators and truckers to haul the wood to the market, counting on services from others along the chain. Many products are also off sold by intermediaries along the value chain. This in part fuels the "legalization" of wood along the value chain as sales are usually made in relatively small lots and often randomly (roadside sales or a truck showing up to the mill with little previous notice or commitment).

The GOE has initiated programs demonstrating a commitment to forest and biodiversity conservation. Under the new constitution, legal rights are awards to natural resources and the GOE is promoting mechanisms to compensate conservation and has launched programs aimed at conserving forests. The first is Programa Socio Bosque, a payment for conservation framework started 2008 and led by the MAE. Proforestal, a reforestation initiative implemented by the Ecuadorian Ministry for Livestock, Aquaculture and Fisheries (MAGAP) was created in April 2008. A new mechanism is Socio Manejo, aims at contributing conservation and sustainable forestry management, providing incentives for sustainable forest management in order to comply with legal forestry framework.

Programa Socio Bosque is a public initiative, where small to large land owners (mainly communities but also private owners), under a 20-year agreement, can set aside natural forests and receive a yearly payment. The program offers six categories of incentives depending on the number of hectares as shown in the following table:

Category	Range of Hectares		Payment (US$ per Ha./year)
1	1	50	US$ 30
2	51	100	US$ 20
3	101	500	US$ 10
4	501	5,000	US$ 5
5	5,001	10,000	US$ 2
6	Over 10,000		US$ 0.50

In 2009 USAID Sustainable Forests and Coasts signed a memorandum of understanding with Socio Bosque. This incentive has been widely promoted by the Project in the GR Chachi, the watersheds related to the RM Galera San Francisco and Ayampe.

Socio Bosque works under the "strict protection" concept, meaning owners are not allowed to do any productive management of the forest. Under this scheme, Socio Bosque relies on a monitoring and control system, which is a very difficult task under Socio Bosque's current budget.

USAID´s lessons learned in other regions (Reserva de la Biosfera Maya and Bolivia) have shown that forest conservation is far more efficient when a sustainable use is allowed, wherein the human groups can obtain direct benefits from the forest (like timber or mangrove concessions), hence fostering social mechanism of control, than strict conservation schemes, based on external control systems like the FSC.

ProForestal. By executive decree, in 2008 the Ecuadorian President transferred responsibilities related to forestry and reforestation initiatives from the MAE to the MAGAP in order to foster developing commercial timber plantations. At the same time, he created a Forestry Promotion and Development Unit (ProForestal), as a public entity attached to MAGAP, with administrative and financial autonomy.

ProForestal´s main objective is implementing the National Forest and Reforestation Plan, which is made of the following three components: (1) plantations for protection and conservation of forests; (2) social/agro-forestry and (3) industrial and commercial plantations. It´s overall goal for the next 20 years is to plant or reforest one million hectares.

Socio Manejo. The MAE is currently designing a new initiative called Socio Manejo to promote sustainable forest management and incentives for working towards voluntary certification, with the objective of decreasing deforestation and illegal logging.

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SECTION 2: SUMMARY OF SUSTAINABLE FOREST CERTIFICATION IN ECUADOR

During the last decade, sustainable forest certification has gained momentum as a market-based conservation strategy in tropical forest countries. Certification has been promoted to enhance forest management in countries where governance capacities are insufficient to adequately manage natural resources and enforce pertinent regulations, given that certification relies largely on non-governmental organizations and private businesses. However, at present there are few tropical countries with large areas of certified forests likely to achieve widespread success. In a study conducted in 2008 by Ebeling y Yasué, key framework conditions that influence the costs and benefits for companies to switch from conventional to certified forestry operations were identified. For instance, Bolivia (were Chemonics implemented the BOLFOR project with USAID funding)[6] has a much greater relative area under certified forest management than Ecuador and also significantly more certified producers. The difference in the (relative) success of certification between both countries is particularly notable because Bolivia is a poorer country with more widespread corruption, and is landlocked with less access to export routes. Despite these factors, several characteristics of the Bolivian forest industry contribute to lower additional costs of certified forest management compared to Ecuador. Bolivia has stronger government enforcement of forestry regulations, which increases the cost of illegal logging, management units are larger, and vertical integration in the process chain from timber extraction to markets is higher. Moreover, forestry laws in Bolivia are highly compatible with certification requirements, and the government provides significant tax benefits to certified producers. Results from this study suggest that certification can have some degree of success even in countries where governments have limited governance capacity. However, the economic incentives for certification do not only arise from favorable market conditions. Certification is likely to be more successful where governments enforce forestry laws, provide financial incentives for certified forestry, and provide land tenure security, and where large-scale and vertically integrated forestry operations are commercially feasible.

In Ecuador, only 21,300 ha -0.2% of forests-[7] were Forestry Stewardship Council (FSC) certified under two existing permits (Ebeling y Yasué, 2008), and there were also no further Chain of Custody certificates among processing companies. The larger of the two certified entities does not produce timber for international markets and consists mainly of plantations (rather than natural forests) that were established as part of a carbon sequestration project by a Dutch organization. The second certificate in Ecuador is for a small (1,300 ha) plantation located within a patchwork of plots on land belonging to an agro-industrial firm (Ebeling yYasué, 2008).

There have been several attempts by NGOs and development agencies in Ecuador to implement certified forest management in community projects; however, these have mostly been unsuccessful. By 2008 Capuli, an indigenous community in northwest Esmeraldas, obtained certification in September of 2008, but subsequently lost its

[6] Another success story has been USAID's BIOFOR project in the Maya Biosphere Reserve

[7] Compared to almost 4% of Bolivia's forest cover and 22% of the area for which legal harvesting permit existed

certification status in 2009. An industrial operation involving 8,000 ha of plantations (Pitzará river in northwest Esmeraldas, operated by Endesa Botrosa), obtained and has maintained forest certification since 2006. No additional timber companies have shown any serious interest in pursuing FSC certification (Ebeling y Yasué, 2008). The following table depicts the main characteristics –and limitations- of the forestry sector of Ecuador, compared to Bolivia:

Variables	Indicators	Results for Ecuador		Results for Bolivia	
Success of certification	– Certified forest area (absolute number and share of total forest cover) – Number of Forest Management (FM) and Chain-of-Custody (CoC) certificates	Low	– 21,300 ha (all plantation) – 2 FM/CoC certificates – 0 additional CoC certificates – 0.2% of total forest cover	High	– 1.9 million ha (all natural) – 16 FM/CoC certificates – 10–23 additional CoC – 4% of total forest cover, 22% of FM area – 60% of timber exports
A) Factors increasing the relative benefits of certified forestry					
Size of eco-sensitive markets	– Large export share of country's total timber production (both certified and conventional forest products) – High proportion of exports sold to EU and North America	Low	– Export share unknown (50%?) – 2% EU, 38% North America (52% Latin America)	High	– Export share c. 50% – 27% EU, 51% North America (10% Latin America)
Government support for certification	– Official government support for certification – Preferential treatment of certified producers, e.g. tax benefits	Low	– Officially supportive – No effective support	High	– Strong official support – Effective tax measures
NGO and ODA support for certification	– Support by NGOs and Official Development Assistance agencies for certification initiatives, companies, and projects	Low	– Isolated projects only	High	– Coordinated efforts, especially at critical time – Supported favourable legal structure, capacity building, pilot projects
B) Factors lowering the relative costs of certified forestry					
Forest legislation and policy	– High compatibility of forestry laws with FSC certification – High predictability of future forest legislations and policy	Medium	– Intermediate compatibility with FSC criteria – Highly predictable weak enforcement	High	– High (but variable) compatibility with FSC – Very transparent regulation and control
Quality of law enforcement	– Little corruption in controlling agency – Sufficient and secure funding of enforcing agencies – Sufficient number of staff and control posts to monitor legality of timber harvested and transported	Low	– Pervasive corruption – Insufficient funding – Ineffective control system – 4 control posts, no mobile units – Illegal logging widespread	Medium	– Very low corruption – Insufficient funding – Strong controlling agency, effective control system for formalized large industry (about half of production) – 5 control posts, 16 mobile units

Variables	Indicators	Results for Ecuador		Results for Bolivia	
					– Illegal logging substantial and increasing outside formalized industry
Security of land tenure	– Existence of clear land titles or usage rights for most timber harvest areas – Low prevalence of squatting by farmers or illegal logging by third parties	Low-Medium	– Formal legal security for most FM areas (widespread corruption in land titling) – Squatting and illegal logging widespread	Medium	– Formal legal security for FM areas – Occasional squatting and illegal logging
Industry structure	– Mainly large forest land tenure units or usage rights for most producers (industry, community etc.) – Small number of intermediaries in production chain (low vertical integration)	Low	– <50 ha on average – Very few vertically integrated companies, normally several intermediaries	Low-High	– Highly variable – Concessions >60,000 ha, certified areas w119,000 ha – Majority of FM area managed by vertically integrated firms
C) Information availability					
Information availability	– Knowledge of producers about eco-sensitive markets – Knowledge of different actors regarding principles, costs and benefits of certification	Low (–High)	– Variable, low among governments, only high among NGO, ODA, and some companies	(Low–) High	– Variable, high among NGO, ODA, government, and most companies

Table 1: Variables and indicators addressed during interviews in Ecuador and Bolivia to evaluate the success of forest certification and identify important framework conditions hypothesized to increase the relative economic benefits or lower the costs of certified forest production -columns 1 and 2- ((Ebeling y Yasué, 2008).

SECTION 3: LIMITATIONS TO FOREST MANAGEMENT AND COMMERCIAL LOGGING AND CAUSES OF DEFORESTATION IN ECUADOR

This section analyses the four main direct and indirect causes limiting forest management in Ecuador while generating deforestation.

2.1 Fragmented ownership pattern of the forest resource

High population densities and high historical deforestation in Ecuador mean that few connected large forest areas remain for sustainable forest management. Much of the nation's natural forests are held by small (up to 50 hectares) to mid size (from 50-500 hectares) land owners. Larger areas are occupied by indigenous populations (several without road access) or fall within national parks and protected areas. With small land ownership, a long term, sustainable forest management is practically impossible, since rotating harvesting over long periods of time (typically 20-30 years are needed to allow natural restoration) cannot be done while generating economic benefits. Minimal areas for sustainable harvesting in tropical areas with valuable timber are around 5,000 ha (Saito, *com pers*, 2010). This causes small land owners to live off of the forest's natural capital without allowing regeneration.

This situation cause value chains to be complex, opportunistic and hard to control, since logging in small lands is unpredictable. This factor also limits the access of timber to high-value end markets because there is no regular flow of timber, transportation costs are high, and there is a lack of technical sawing. This situation provides opportunities for middle-men living in or around the forested areas, who buy illegal wood from small land owners. Expecting small land owners to work together by adding small properties to a relatively large forest area has been shown to be unviable –except by few success cases in Bolivia (Saito, *com pers*, 2010). This is mainly because of forest fragmentation, diverse forest composition within properties, and strong individualism.

2.2 Lack of control and illegal markets

There is generally no effective enforcement of forestry laws in Ecuador. Harvesting and transport permits – in theory two integral components of Ecuador's system to track legal timber – are commonly sold illegally and reused, in spite of the efforts of the GoE to improve the controls.

Currently -at the national level- there are eleven control points, six professional forestry field auditors, and 42 roadside auditors and only three mobile patrol units with twelve environmental police accompanying them (Pozo, *com pers*, 2010). There are also insufficient personnel to ensure that harvest plans are followed, the validity of timber transport permits are checked, or the legality of timber arriving at processing plants is assessed. In practice, most logging is carried out illegally and usually involves several levels of intermediaries (Ebeling y Yasué, 2008).

The large amount of illegal wood harvested in the sector threatens the integrity of markets and undermines legal compliance and sustainable forest management.

As highlighted in other sections, USAID lessons learned in other regions (Reserva de la Biosfera Maya and Bolivia) have shown that forest conservation is far more efficient when a sustainable use is allowed, wherein the human groups can obtain direct benefits from the forest (like timber or mangrove concessions), hence fostering social mechanism of control, than strict external control systems.

2.3 Unclear land tenure

Despite efforts to formalize and streamline the land-titling process, land tenure and timber harvesting rights are unsecure in Ecuador. Although formal land titles exist for most managed forests in Ecuador, legal titles are often contested and multiple titles for the same land are not uncommon. In addition, assistance by police forces against illegal squatting and logging by third parties is difficult to obtain.

Lack of ownership, unclear land borders, and land tenure within protected areas or private land tenure within indigenous lands all favor deforestation: land owners and squatters alike systematically cut forested areas in order to prove ownership by showing authorities that the land is actually managed and has become “productive”.

Gaining access to a land title is a long and costly process, and the Instituto Nacional de Desarrollo Agrario (INDA) has been unable to streamline the process due to technical and budget limitations.

Unclear land tenure also limits access to Socio Bosque and ProForestal, two major GoE initiatives to foster conservation, reforestation and sustainable forest plantations.

2.4 Lack of private or community ownership on underground resources

Even setting aside a natural forest for conservation and management is no guarantee to its preservation. Rights to underground resources (oil and minerals) belong to the GoE, which has the authority to concession to third parties. This policy reduces the incentives for forest conservation, since oil or mineral exploitation comes along with seismic lines and access roads. Colonists tend to follow right after (not even strong measures have avoided colonization and deforestation along roads serving oil fields or mines in Ecuador).

SECTION 3: PROJECT STRATEGIC PILLARS FOR FOREST CONSERVATION AND MANAGEMENT IN SELECT PROJECT AREAS

There are two reasons to keep the importance of biodiversity conservation in the forefront of the project's forestry plan. First, and foremost, **sustainable forest management, protection, and restoration activities will** help to reduce threats on critical ecosystems. Second, **generating incentives to stakeholders in the selected areas will allow for sustainable changes in attitudes related to natural resource management.**

Major challenges include breaking from traditional and informal value chains and trying to formalize others while competing in a market that is largely driven by illegal logging. Unfortunately, this is an unlikely task to be accomplished with the current resources of the project.

The Project's opportunities include engaging private sector companies that are conscious about the source of their raw materials, as well as being able to compete in international markets that demand legal or certified wood, but also engaging the public sector. In March 2010, COP, Claudio Saito, COTR, Rocío Cedeño, and USAID Economic Development, Growth & Environment (EDGE) Director, Bernai Velarde met with Ms. Marcela Aguiñaga (Minister of Environment), and discussed the possibility to create a market for legal or certified wood, by requiring that GOE wood procurement come from sustainably managed natural forests. This meeting opens a window of opportunities for the Project, MAE and the GoE. Further conversations will be held to promote, consolidate and implement this initiative.

The overarching strategy for commercial forestry activities on the USAID Sustainable Forests and Coasts Project will be based upon engaging the private sector and serving as an honest broker between the private sector and resource holders. As an honest broker, the project will reduce information and transaction costs along forest resource value chains. It will also build confidence between the different links of the value chain, reducing perceived risks in investing and partnering along the chain.

Unlike many previous efforts, the Project's direct role in implementing commercial forestry will be limited to: gathering, analyzing, and disseminating information; building awareness; identifying opportunities for public and private partnerships (PPP) along value chains; providing strategic technical assistance to the public sector and providing training inputs to overcome major obstacles. Project funding will not be used directly to produce forest management plans, plant trees with commercial value, or other direct-investment interventions.

To confront these challenges the USAID Sustainable Forests and Coasts project will apply the principles of adaptive management in order to adapt and learn, and ultimately make **adjustments to our implementation strategy if needed**.

There are five strategies for forest management and conservation on the USAID Sustainable Forest and Coasts project. The activities of this plan are designed to reduce threats to biodiversity, improve the overall enabling environment of

sustainable forestry while recognizing that some activities may fall outside the purposes and resources of the project.

3.1 Strategy 1: conserve natural forests with high importance to biodiversity

Natural forests with a biodiversity value are natural forests from which wood products cannot or should not be harvested. They provide valuable biodiversity; act as carbon sinks and provide watershed conservation services. They can also be valuable sources of non timber forest products if their extraction is compatible with the forest's conservation.

Within the **GR Chachi**, large areas fall under this category and the Project will promote its protection by **1) defining and protecting areas given their intrinsic value to biodiversity conservation –through *Planes de Ordenamiento Ambiental* (Environmental Land Use Plans);** and **2) providing ongoing support to areas already receiving incentives from Socio Bosque while promoting the inclusion of new areas into this program.**

Key actions: GR Chachi

1. Create at least two Environmental Land Use Plans (Hoja Blanca and Capulí in FY10, covering 15,000 hectares), to define areas appropriate for conservation, enrichment, or logging; and develop an action plan for subsequent years of the Project**.**
2. Support Socio Bosque to set aside at least 15,000 hectares under conservation, by preparing documentation needed to access Socio Bosque and supporting the development and implementation of a monitoring system, as well as investment plans for the funding received by Socio Bosque.

In the **watersheds of the RM Galera San Francisco** (34,259 hectares) only fragments of the original forest remain; with only one relatively important patch still intact of 2,930 ha. (Freire, *com pers*, 2010) These remains are seriously threatened by land conversion, cattle ranching in particular**. Using Environmental Land Use Plans, USAID Sustainable Forests and Coasts will define areas containing critical ecosystems (including those protecting water sources) to generate strategies for conservation, including systems of control, reforestation and inclusion in Socio Bosque** An important activity is land titling, which will allow landowners to secure their lands and apply to Programa Socio Bosque incentives.

Although the Project has been promoting Programa Socio Bosque in the field and providing technical assistance for accessing its incentives, several obstacles (mainly coming from the rigid conservation scheme of the Program) have been found, as discussed in previous sections. If requested, the Project will offer support to Programa Socio Bosque in changing the scheme to a more flexible one, where landowners can sustainably manage the forest, generation incentives for its conservation.

Although oriented to conserve the forest, **the Project will also explore the use (and sustainable management) of non timber products, like tagua nuts.**

Key actions: watersheds of the RM Galera San Francisco

1. Undertake an Environmental Land Use Plans in the 3 watersheds, with the goal to define areas appropriate to conservation while guiding actions in the following years of the Project**.**
2. Support forest conservation by preparing documentation and meeting prerequisites needed to access Socio Bosque incentives.
3. Provide technical assistance for land titling
4. As part of the overall Project development of alliances and watershed management strategy, mount a campaign to increase awareness about the need to protect the watershed and/or for voluntary payments for conservation.
5. Provide training to increase awareness of the importance of biodiversity conservation though Field Schools.
6. Protect forests water sources that provide resources for consumption.
7. Promote tagua palm forest management
8. Develop and establish forest control and surveillance systems

In the **Ayampe watershed** (61,256 hectares), significant areas of natural forests exist which are critical for biodiversity conservation, although they are also threatened by land use conversion (in particular in the upper parts of the watershed, areas belonging to the Municipality of Jipijapa). A large portion (30%) of the watershed belongs to Machalilla National Park, where the Project will focus most of its efforts in promoting conservation.

While selective logging has obviously and reportedly taken place along the roads, the forest of the watershed is composed of few valuable wood species and their extraction is constrained by a very broken and steep topography. In the upper reaches of the watershed, forests become more humid and more stunted in their growth due to the altitude. This is perhaps the most important part of the watershed for conserving water resources, but also the most intervened. A mosaic of deforestation tops the upper parts of the watershed because of expanding agricultural and land grabbing.

As in the watersheds related to the RM Galera San Francisco, **the Project will base its activities on Environmental Land Use Plans**. Upon the findings of this assessment, the Project will promote the protection of these forests, by generating incentives through Socio Bosque while promoting the commerce (under sustainable management) of non timber products, mainly kapok trees, tagua palms and bamboo.

Key actions: GR Ayampe watershed

1. Prepare an Environmental Land Use Plan for the watershed, which identify critical habitats for biodiversity and the major threats to their conservation and define an action plan to protect them.
2. Support forest conservation by preparing documentation and meeting prerequisites needed to access Socio Bosque incentives.
3. Provide technical assistance for land titling

4. Mount a campaign to increase awareness about the need to protect the watershed and/or for voluntary payments for conservation, using eco tourism as a mechanism.
5. Promote sustainable management of tagua palm and kapok forests and facilitate market linkages and increasing sales of NTFPs. Using a market based approach, the project will also explore other NTFPs (bromeliads, orchids, bamboo, etc) that could provide a meaningful income to local community members that otherwise may harvest wood from natural protected areas. Assure that any NTFP identified can be sustainably harvested through appropriate studies funded by the Project's grants program.
6. Identify value chain linkages from the market to the forest for NTFP, again serving as an honest broker by providing information, reducing the transaction costs and building confidence along the value chain.
7. Provide training on topics related to integrated watershed management.
8. Establish alliances with local governments as well as the central government, while focusing on the protection of the Machalilla National Park.
9. Form regional alliances among municipalities to expand forest coverage for conservation.

3.2 Strategy 2: Strengthen forestry value chains in natural production forests

Natural production forests are naturally occurring forests from which wood products can be sustainably harvested. Some have been selectively harvested but still retain enough biomass and species mix to maintain their integrity as natural forests under sustainable management.

T**he area with the greatest potential for natural production forests fall within the GR Chachi**, and perhaps in small pockets in the Ayampe watershed, but a more careful analysis (currently underway as a component of the Environmental Land Use Plan) is needed before promoting sustainable wood harvesting. **Very few opportunities for forest management and commercial logging in natural forests remain in the watersheds related to the RE Galera San Francisco, because only small and fragmented pieces of the forest remain.** As mentioned in the previous section, in the Galera San Francisco and Ayampe watersheds, the Project's objectives are focused on conserving the remains of natural forests, setting aside areas for conservation under Programa Socio Bosque, and by generating incentives for conservation through the sustainable management and trade of non-timber forest products (with emphasis on tagua nuts and kapok). Additional reports on non-timber value chains have been analyzed in depth by Rain Forest Alliance and Conservación y Desarrollo in 2009 and will not be covered in this report.

In the GR Chachi, USAID Sustainable Forests and Coasts looks more closely at **value chains anchored by small to mid-sized wood production companies** given that these are the more likely partners in the Project conservation areas. **Larger wood product companies are primarily in the plywood/particle board industries and are not likely partners**. One larger industry (Durini) attempted to work in the GR Chachi with little success in the recent past. Endesa Botrosa has signed a contract

with Gualpí at the beginning of 2010 which disrupted relationships between Centros, FECCHE and supporting NGO's and development agencies.

In the GR Chachi, efforts were made by GTZ and the mid-size firm ArtParquet to place 800 hectares under sustainable and certified management. The area was indeed certified by GFA/FSC, but within a year the certification was withdrawn for non-compliance. Other areas in the reserve are also subject to logging as individuals and communities enter into sales agreements with intermediaries who then contract logging crews to extract the wood. At the time of writing this report (April 2010), there is a mutual interest on part of ArtParquet and the communities to explore other relationships, especially renting the 2,000 ha forest block, to return to sustainable forest management in at least one area and possibly an additional 2,000 ha. GTZ is interested in working with them on restarting the certification on the initial block and equally interested in coordinating expanded assistance with the Project to other areas. The other areas being logged in the GR Chachi have in part been internally divided into individual parcels and serve as the "caja chica" (petty cash) for the typical Chachi family for large medical, school, or other expenses.

In spite of the much published success of the partnership between Capulí and ArtParquet, the community expressed their disappointment. In 2009 ArtParquet bought just $24,000 in hardwoods (Terán, *pers com.*), which is difficult to transport on the river, while informal buyers continue buying timber from families in the Centro.

USAID Sustainable Forests and Coasts will implement activities related with commercial forest management only if there are stable political conditions (within FECCHE and the Centros –in Capulí y Hoja Blanca in particular-) that can ensure the implementation of long-term relationships with small firms, ensuring a commercial sustainable forest management. Sustainable Forests and Coasts' actions in the GR Chachi (and other areas if appropriate) will be based upon **engaging the private sector and serving as an honest broker between the private sector and resource holders**. As an honest broker, the project will reduce information and transaction costs along forest resource value chains. It will also build confidence between the different links of the value chain, reducing perceived risks in investing and partnering along the chain.

Key actions: GR Chachi

1. Although initially proposed to strength the relationship between Capulí and ArtParquet, the project finds it prudent to hold off on this activity because there are other organizations working on the same activity (namely GTZ), there is a lack of clear goals for long term relationships between ArtParquet and Capulí, and illegal logging and trade is promoted by families with individual land titles in Capulí, as well as the potential for significant (and unforeseen) changes in the political structure of FECCHE in March 2010.
2. If conditions are favorable and provide a long-term framework for actions, the Project, in coordination with FECHHE, Centros, GTZ and other stakeholders, will analyze the possibility to engage specific mid-size anchor companies and work with them to consolidate their sources and value chains, starting in FY11. This should involve as many traditional actors (chain saw operators,

truckers, etc) as possible in order to try to reduce the number of illegal operators in the areas. Potential stakeholders are ArtParquet, FUNDEPIM and other timber companies.
3. Provide technical assistance to the Chachi centers and businesses applying social responsibility principles for the implementation of sustainable forestry management.

Key actions: GR Ayampe watershed

1. Potential for natural production forests will be evaluated through the FY10 Environmental Land Use Plan before promoting wood harvesting. In the event wood harvesting is an option, actions will be guided by the "honest broker framework" of the project.

3.3 Strategy 3: Restoration of degraded forests and Agro-forestry schemes to foster biodiversity conservation

Restoration of degraded forests to foster biodiversity conservation is the recovery of degraded forests that have lost their overall integrity as natural forests and are unlikely to recoup this status unless substantial silvicultural interventions are applied.

Degraded forests are areas suitable for enrichment planting, reforestation, agro-forestry systems (integrated farms), and conversion to agriculture. As they exist now they provide little in terms of conservation value or economic opportunity for local communities and residents. The degradation stems from inappropriate land uses perpetuated by the local need for economic income.

The watersheds related to the RM Galera San Francisco is the Project conservation area with the largest extent of degraded forest/lands, with much of the upper reaches of the Ayampe River watershed also falling into this category. Based on the findings of the Environmental Land Use Plans, the Project will define areas suitable for activities leading to the restoration of degraded natural forests.

Key actions for the RM Galera San Francisco and Ayampe River watersheds

1. Current activities (FY10) include the reforestation of critically degraded ecosystems in the watersheds related to the RM Galera San Francisco and in the Ayampe River watershed.
2. Undertake reforestation projects through forest stakeholder participation.
3. Implement a network of plant nurseries.
4. Diversify and apply agro-forestry concepts in integrated farms.

3.4 Strategy 4: Develop Plantations and Agro-Forestry Schemes

There are currently few plantations identified in the Project conservation areas despite their potential economic and conservation value of degraded areas that could be reforested for commercial purposes.

Areas where there is the most potential and need for these interventions are in the RM Galera San Francisco watersheds and the Ayampe River watershed.

Key actions: Coastal Watersheds of the RM Galera San Francisco and Ayampe River watershed

1. **Develop PPP-type arrangements between the different stakeholders to leverage funding to undertake reforestation of these areas. One model that has worked in other countries is for private companies to establish plantations on individual private lands**, through a contract that commits the landowner to sell the timber to the company who financed the plantation. This can work well especially on mid-size land holdings. The Project will also seek similar arrangements, leveraging resources from the Proforestal program as much as possible to facilitate PPP development. A potential initiative that the project could support is forest plantations with fast growing species, such as balsa (*Ochroma pyramidale*), which has its first harvest after five years, allowing communities and businesses to receive a relatively quick benefit. In addition, balsa is a species that can easily adapt to the climatic conditions of the both the Ayampe and Galera San Francisco watersheds. To date, the Municipality of Muisne and ProForestal have expressed interest in promoting and funding Balsa plantations.

2. To increase biodiversity conservation value the Project will promote forest plantations that have a mix of species (either interspersed or planted in small blocks), ideally with a large amount of native species, and assure that plantations are established respecting environmental services (e.g. to the extent possible, leave or establish riparian strips in native species with abundant sources of food for wildlife, etc.)

3.5 Strategy 5: Forestry Policy

Resolving challenges related to illegal logging and forestry policy is an important national level issue and important to Project activities. Due to the resources needed to make a significant impact at the national level, the Project will be limited in its ability to fully engage in revamping the national policy and corresponding laws and regulations.

Prior to submitting this document (April 2010), the MAE Minister and Vice Minister requested technical assistance from the Project for improving the country´s forestry policy. This technical assistance could range from reorganizing the Dirección Nacional Forestal, reviewing and making recommendations for the new Forestry Law, promoting responsible markets and/or forest certification, to promoting incentives for forest conservation through sustainable forest management. This represents a major opportunity for the Project to influence the forestry sector at the national level, but before making any programmatic decisions to do so, the scope of such technical assistance needs to be further defined. For this reason meetings are being held with

the Sub-Secretaría de Capital Natural and the Dirección Nacional Forestal. Following these meetings, the Project will work with the MAE to define a feasible scope for Project support, which will be an important contribution given the potentially high impact of policy level work.

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