INTERNATIONAL TROPICAL TIMBER ORGANIZATION

ITTO

SMALL PROJECT DOCUMENT

TITLE:	INTEGRATING SUSTAINABLE LIVELIHOODS, ENVIRONMENTAL MORTGAGES, AND SCIENCE-BASED REFORESTATION FOR TANGIBLE FOREST CONSERVATION CHANGE IN THE ECUADORIAN CHOCÓ
SERIAL NUMBER:	RED SPD 055/11 Rev.4 (F)
COMMITTEE:	REFORESTATION AND FOREST MANAGEMENT
SUBMITTED BY:	GOVERNMENT OF ECUADOR
ORIGINAL LANGUAGE:	ENGLISH

SUMMARY

In one of Ecuador's two remaining Chocó forest expanses, we will pilot test a new economic incentives program aimed at permanently reversing deforestation by facilitating livelihood improvements that are intrinsically linked to environmental stewardship. Toward creating a viable economic alternative for the reserve's 50-some rural communities, we will revamp the current cacao market system. Required funding for achieving this aim will be run through the new "environmental mortgages" microfinance model, in which lines of credit are calculated against the conservation value of a community's surrounding *de facto* environmental assets. The rural poor typically have no access to globally perceived existence values (e.g. carbon offsets, biodiversity) of these assets—ironically often their most valuable. Tying the capital in a lending trust to that value creates incentives for sustainability, while providing the financial resources needed to climb out of poverty. We are requesting funding for the first two years of this initiative, focused on developing and implementing the environmental mortgages framework in three reserve communities where we have long-standing relationships. Year one will focus on necessary due diligence (socio-political analyses, asset monitoring/evaluation protocols, microfinance details, market development) and community organization. Year two we will pilot the program.

EXECUTING AGENCY	Fundación Equilibrio Azul, in collaboration with Pinchot Institute for Conservation and Advanced Conservation Strategies
DURATION	24 months
APPROXIMATE STARTING DATE	January 5, 2012

BUDGET AND PROPOSED SOURCES OF FINANCE:	**Source**	**Contribution in US$**
	ITTO	**149,922.36**
	Fundación Equilibrio Azul	48,000.00
	Pinchot Institute for Conservation	59,937.00
	Advanced Conservation Strategies	13,600.00
	TOTAL	**271,459.36**

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LIST OF ABBREVIATIONS AND ACRONYMS

ITTA	International Tropical Timber Agreement
ITTO	International Tropical Timber Organization
MFI	Microfinance Institution
NGO	Non-governmental Organization
PES	Payment for Ecosystem Services
REMACH	Reserva Ecológica Mache-Chindul (Mache-Chindul Ecological Reserve)
REDDES	Reducing Deforestation and Forest Degradation and Enhancing Environmental Services
SFM	Sustainable Forest Management
TPD	Thematic Programme Document

PROJECT CONTEXT

1.1 Origin

The proposed project was formulated in response to an understanding of the target area's sociopolitical landscape and deforestation drivers, gained during eight years of ecologically-based applied reforestation research in the Mache-Chindul Reserve (REMACH), Esmeraldas Province, Ecuador. The principal investigator of that research, then under the auspices of the Center for Tropical Research at University of California – Los Angeles, was Dr. Amy Rogers. Dr. Rogers is the individual that has been leading the proposed initiative forward since 2008 under the auspices of the Pinchot Institute for Conservation, via the creation of a new Institute program aimed at integrated conservation management within Mache-Chindul and three years of associated cross-disciplinary planning and analysis. It should be noted, however, that the fundamentals of the proposed initiative naturally evolved through a self-propelling, decade-long participatory process amongst dozens of stakeholders ranging from members of forest-dwelling communities to tropical forest ecologists to cacao entrepreneurs to conservation finance experts to the national director of Ecuador's forest sector.

1.2 Relevance

1.2.1 Conformity with ITTO's objectives and priorities

By linking tangible economic benefits for local inhabitants to standing old-growth rainforest and degraded tropical lands under reforestation, the proposed project directly addresses the REDDES Programme core problem as identified by the TPD: "*the inadequate capacity of ITTO producing member countries and their stakeholders to maintain and enhance environmental services of tropical forests by preventing and reducing deforestation and degradation*." For the area targeted in this proposal, an overhaul of the cacao market is the most efficient and sustainable means to long-term livelihood improvement for local inhabitants. However, this socioeconomic focus was selected with the singular aim of ensuring that the area's tropical forest resources—along with their associated environmental services and biodiversity—are conserved in the long-term. Key to the success of the environmental mortgages model is not what specific low-impact livelihood will be improved per se, but rather that the selected livelihood be grounded in pre-existing social and cultural conditions, with the potential to develop while forests are simultaneously conserved and restored.

Linking such livelihood improvement opportunities with incentives for environmental stewardship via a sustainable financial mechanism, such as microfinance, is innovative with respect to PES programs. Significantly, this approach promises to allow for the widespread participation of the rural poor—disproportionately important stakeholders (in terms of impact) that are typically excluded from access to compensation for environmental services. Further, because it is based on microfinance lending rather than direct payments, the environmental mortgage offers an economically sustainable solution to the creation of lasting incentives for forest conservation and restoration. The overwhelming majority of current PES programs are heavily subsidized and far from financially sustainable. Our proposed program will contribute to maintaining and enhancing forest environmental services in the tropics, a fundamental component of ITTO's current priorities. Project relevance to objectives outlined in the ITTA is described below, with those demonstrating specific contributions to SFM and the conservation of biodiversity italicized for clarity.

<u>Compliance with specific objectives outlined in Article 1 of the ITTA, 2006:</u>

(c) The project's livelihood improvement component combines the existing widespread cultivation of cacao (primary source of cash income for reserve inhabitants) with clearly defined steps toward a market system overhaul to create economically viable alternatives to deforestation. Further, the project's environmental mortgage microfinance-lending program provides communities with a self-sustaining means for the implementation of those steps. Cacao is a strategic commodity for forest conservation initiatives because there are multiple stages along the development path to directly marketing high-quality chocolate products internationally. Thus, the 'development ceiling' for community efforts takes at least a decade to reach.

(f) *The project's environmental mortgages microfinance component represents a new approach to "enhancing other forest values in timber producing tropical forests." Rather than attempting to define yet another ecosystem service market, environmental mortgages aims to transfer some of the globally-perceived existence values for previously defined PES and climate adaptation schemes directly into the hands of the forest-dwelling inhabitants that typically have no access to that capital. By providing them with a tangible means to access something other than extractive values alone, this model translates standing tropical forests into a perpetual source of available funding for environmentally friendly local livelihoods.*

(j) *The project's inclusion of areas under reforestation as calibrated extensions of a community's environmental assets under the environmental mortgages program provides local inhabitants with the long-term incentives that to date have been conspicuously absent for reverting alternative land uses to tropical forest. This model also importantly allows for the long overdue participation of local inhabitants that lack legal land tenure in a forest conservation incentives program, based on the reality of who has access to forest assets in remote areas of developing countries, where the population's poorest often settle out of economic necessity.*

(q) *With a revamped cacao market representing non-timber forest products and environmental mortgages representing the capitalization of environmental services, this project will serve as a widely publicized pilot test of the utility of these strategies in long-term sustainable forest management (SFM).*

(r) *This project represents one of Ecuador's first attempts at promoting sustainable livelihoods within the boundaries of a protected area rather than rigidly prohibiting economic activities therein. Because the environmental mortgages concept inextricably links livelihood improvements to forest conservation, this initiative provides a concrete means for communities to conserve their surrounding natural resources while simultaneously attending to the basic necessity of improved living standards.*

Compliance with specific objectives outlined in the 2008-2011 ITTO Action Plan:

Expected outcome 5: Tropical forest resource better secured

(d) *This project represents a pilot activity aimed at reducing deforestation and degradation by linking a tangible economic value to standing forests for local inhabitants, and at enhancing carbon sinks by providing a long-term incentive for the conversion of alternate land uses to forest habitat.*

(e) *Please see Article 1, Objective (q) above for an explanation of project compliance with this aim.*

(f) Please see Article 1, Objectives (c) and (r) above for an explanation of project compliance with this aim.

(g) *Please see Objective (d) in this section for an explanation of project compliance with this aim.*

Expected outcome 6: Tropical forest resource sustainably managed

(c) *By incentivizing the reversion of degraded tropical forest land (including secondary forest) to a mature tropical forest character, this project represents a new opportunity for the management of secondary tropical forests. The Pinchot Institute is concurrently conducting applied research aimed at developing reforestation methods that will accelerate the recovery of different successional forest levels; replicated pilot tests of these methods will be implemented (using other funding) in conjunction with the proposed project.*

Conformity with REDDES Thematic Programme Document (TPD) deliverables, Chapter 4, Table 1:

This program leverages affordable debt investment (i.e., the 'payment') to secure the long-term provision of ecosystem services. Under the environmental mortgages program, ecosystem services are collated as a comprehensive entity that could be referred to as the forest's 'existence value.' The state of each participating forested area (and by extension, the environmental services that it contains) is assessed each year via a science-based auditing program that uses quantifiable proxies (e.g., annual deforestation rate). The environmental mortgage tangibly and responsibly transfers access to that existence value (i.e., the PES market) into the hands of local inhabitants that determine the forest's fate. Most current PES schemes focus on annual or one-time payments for a given environmental service. This approach can create a risk of ephemeral incentives and consequent degradation of the targeted environmental service if payments are suspended. Based on loans, environmental mortgages are more financially sustainable. Further, loans are easier to explicitly link to livelihood improvement programs, ensuring that 'payments' contribute to self-sufficiency for local inhabitants. Finally, this 'indirect approach' to paying for environmental services can often more successfully navigate complex land tenure or national policy issues that may otherwise impede widespread implementation in tropical member producing countries.

By facilitating long-term livelihood improvements for forest-dwelling communities via the revamping of the region's current cacao market system, this project contributes directly to:

- Improved family income in communities directly involved in the PES initiatives
- Potential for income generation activities realized from forest-related environmental services and other outputs in Programme impact areas (i.e., cacao via environmental mortgages microfinance)

Via the pilot-level development and implementation of environmental mortgages microfinance-lending in three reserve communities, this project contributes directly to:

- Communities trained and assisted in development and implementation of PES mechanisms
- PES mechanisms developed or undergoing implementation at least in three countries covered by the Programme in the pilot phase
- Number of communities directly involved in PES mechanisms developed and/or undergoing implementation with support of the Programme
- Evidence of inclusion of views from various interested parties in forest management plans and payment for environmental services (i.e., community participation during the due diligence phase of project design)
- Trained human resources in implementation of…PES schemes (i.e., environmental trusts are embedded at a local or regional level and co-managed by communities and experienced microfinance institutions)
- Clear demonstration using biodiversity surveys or other ecosystem assessment tools to monitor changes in biological and physical characteristics of forests (i.e. for environmental mortgage annual "asset audits")

Measurable outcomes of the project's year two pilot phase will contribute directly to:

- Increase of the area under (actual) conservation in the tropical forests in Programme impact areas
- Increase in the area of restored/rehabilitated degraded forests in the Programme impact areas (i.e. by providing needed incentives for conversion to forest, allowing for concurrent reforestation projects)
- Reduced deforestation in the Programme impact area

Conformity with REDDES Monitoring Protocol (MP), including Means of Verification:

Results of the proposed project will contribute directly to the following specific MP target goals, ordered according to means of verification:

- 1/6 countries with a funded project and associated initiative report related to avoided deforestation, restoration, or conservation initiatives established to combat deforestation and degradation
- 3/30 communities minimum in which a 10% increase in income and increased participation of women is achieved, as evidenced by a report on pre- and post-project socio-economic levels.
- 1/3 countries presenting evidence of PES mechanisms that have been developed and implemented
- 1/3 demonstration projects on community involvement in avoided deforestation and degradation, development of environmental services, and restoration and rehabilitation of secondary and degraded forest areas, as evidenced by final project report, visit reports.
- 1/3 communities in 3 countries directly involved in PES mechanism, as per activity report.
- Participation in the international seminar on REDDES and PES.

1.2.2 Relevance to Ecuador's policies

The timing of this proposal coincides with a fundamental change in Ecuador's perspective on forestry, as evidenced by the December 2010 submission to the national congress of a proposal defining new laws in nearly all aspects of the forestry sector. Inspired by Article 275 of the newly revised Constitution of the Republic of Ecuador as well as the criteria adopted during the Rio Conference of 1992, these new forestry laws focus on a shift from rigid and coercive conservation measures to incentive-based "constructive and proactive" measures that generate socioeconomic improvements for the population. More specifically, the government's new approach to forestry is characterized by a strong focus on promoting the development and implementation of SFM, non-timber forest products, and PES nationally. This project proposes to combine microfinance-lending approaches with performance-based conservation payments as a means to facilitate the development of viable, low-impact livelihoods for forest-dwelling communities, and in doing so responds to each of Ecuador's newly defined forestry sector priorities.

1.3 Target area

1.3.1 Geographic location

In the northwest corner of Ecuador, Esmeraldas Province marks the southern limit of one of the most threatened and least known rainforest systems on earth: the Chocó Biogeographical Region. Spanning 100,000 km^2 of coastline up through Colombia to the border of Panama, these forests are typified by high biodiversity, extraordinary endemism, and rampant habitat loss. Moreover, since much of the Chocó's rich biodiversity overlaps with that of the Amazon, these Andean foothill forests are predicted to provide crucial climate refugia for species less adaptable to long-distance migration. Today, land conversion trends that began with government-sponsored colonization initiatives in 1964 have reduced the Ecuadorian Chocó to less than 4% of its original forest cover. What remains is largely contained within two sister reserves: the 204,000-hectare Cotacachi-Cayapas Ecological Reserve and the 121,000-hectare Mache-Chindul Ecological Reserve.

1.3.2 Socioeconomic and cultural contexts

Of the two reserves, Mache-Chindul is the more precarious due to its isolation from other forested areas and the presence of some 50 poverty-stricken communities within its borders. These communities lack all basic services, enjoy little governmental or institutional support, and have few options for livelihood improvement. Regional agriculture and timber markets are laden with intermediary brokers, ensuring a steady stream of poorly-paid raw materials from within the reserve. Mature or alternative markets are scarce to non-existent. Surrounded by old-growth rainforest, Mache-Chindul's inhabitants are unable to access any of the tremendous capital that the developed world associates with its existence (e.g. based on carbon sequestration, as a biodiversity storehouse, or climate adaptation values). Consequently, they are hacking away at their greatest asset for a pittance of its worth, one tree at a time.

When Mache-Chindul was declared a reserve in 1996, it is estimated that there were over 8,000 people living within its borders. Most communities at that time were at least third-generation residents, with the exception of Chachi indigenous (17% of the population) and Afro-ecuadorian (10-15% of the population) settlements, whose ancestral ties to the area go much further back. The reserve's management plan, completed in 2005, confers these inhabitants with the legal right to exist as communities but severely constrains their economic activities and prohibits individual land titles.

The vast majority of families in Mache-Chindul possess small-scale plantations of cacao that are now decades old. Most continue to grow 'Nacional,' a variety of cacao native to the Ecuadorian Amazon and arguably the world's finest. Interestingly, based on twenty years' worth of attempts, the Nacional variety is all but impossible to cultivate outside of Ecuador. Based on this limited availability and its renowned aromatic qualities, global demand is consistently high. Presumably recognizing the potential that this scenario creates for low-impact livelihoods, Mache-Chindul's management plan identifies organic cacao production as a priority for sustainable economic development.

1.3.3 Environmental context

Although clearly defined as illegal, the prohibition of deforestation within reserve boundaries is not reinforced. Local inhabitants are the primary force driving deforestation, as alternative income options (including cacao) are insufficient for their subsistence needs. Timber export is seasonal, constrained by the rainy season, and geographically limited to the few roads and river drainages that reach reserve boundaries. These logistics make the accurate monitoring of deforestation rates a feasible option, providing a first direct measure of community forest stewardship for the environmental mortgages program.

To further complicate this scenario, deforestation is only part of the equation in the rapid disappearance of rainforests. Fragmented and isolated forest tracts—like Mache-Chindul—undergo a self-perpetuating cycle of 'ecosystem decay' that continues long after the last chain-saw has been set down. Catalyzed by the loss of top predators, reductions in gene pool diversity, and outside-in 'edge effects,' this cycle poses a subtle and perhaps more complex threat to rainforest preservation than deforestation itself. Scientists now agree that there are only two measures capable of reversing this trend: the rejoining of isolated forest tracts via wildlife corridors, and the 'buffering' of forest perimeters with more forest habitat. Both will require the reconstruction of ecologically functional forest to work.

1.3.4 Climate change context

Tropical forests currently cover less than five percent of the Earth's land mass but store over 500 billion tons of carbon, more than all of the carbon now present in the atmosphere. Preventing the release of these carbon stores through rainforest conservation, and facilitating increased carbon sequestration through rainforest

reconstruction are the most cost-effective steps that can be taken to mitigate climate change. By sustainably incentivizing forest conservation and reforestation, this project will directly contribute to both goals. However, incentives alone do not reconstruct a rainforest. For nine years, the Pinchot Institute has been testing science-based reforestation methods[1] designed to guarantee the accelerated regeneration of functioning rainforests in the Chocó. Environmental mortgages will open a critical window for linking this technical knowledge to on-the-ground priorities[2] for reinstating forest connectivity in Mache-Chindul, as defined by the reserve's management plan.

1.4 Outcomes at project completion

Three Mache-Chindul communities comprised by approximately 920 individuals total will benefit directly from the proposed two-year pilot phase of the environmental mortgages program. To provide a preliminary indicator of variations in success caused by cultural influences, we are targeting one community each of mestizo colonist, Chachi indigenous, and ancestral Afro-ecuadorian ethnic groups in the reserve. Mache-Chindul's remaining 47 communities (approximately 6500 individuals total) will benefit indirectly from the successful completion of this pilot phase, as the intent is then to gradually upscale the program until comprehensive reserve coverage is achieved.

Socially, our overarching aim is to catalyze a paradigm shift in the way local inhabitants perceive standing old-growth rainforest; rather than representing meager and transitory economic benefits, that intact forests are viewed as a perpetual source of access to capital and the opportunities that it creates. Economically, the outputs of this project will provide solutions for two fundamental problem areas in the maintenance of a tropical forest resource base: 1) the critical need for a mechanism that transfers some of the globally-perceived conservation value inherent to tropical forests into the hands of local stakeholders, and 2) access to loan capital for the multitude of forest-dwelling inhabitants that lack legal land title, as a means to livelihood improvements and sustainable development. Environmentally, this initiative will generate self-sustaining incentive mechanisms for tropical forest conservation and the reforestation of degraded tropical lands. It does so by employing microfinance approaches to create an environmental lending trust that is available to rural communities for as long as forest resources are conserved and sustainably managed. Forest conservation and reforestation will be the direct products of this environmental lending program because available loan capital and associated terms are determined by the communities' environmental performance, which is audited on a regular basis.

As the aim of this project is to field-test and promote a new approach to conservation finance for intact natural resource areas inhabited by the rural poor in developing countries worldwide, deliberate and widespread use of media coverage will be employed throughout the project's duration.

PROJECT RATIONALE AND OBJECTIVES

2.1 Stakeholders analysis

As mentioned in the discussion of the proposal's origin, this initiative was gradually formulated through a largely self-propelling participatory process amongst stakeholders at all levels of involvement and over approximately ten years in total. As a result of this process, the proposed initiative has evolved through a substantive series of necessary modifications rather than remaining as a fixed or static concept throughout. Representing the original impetus for the need to develop this project as well as its primary beneficiaries, the local community members and cacao farmers of Mache-Chindul (largely one and the same) first identified their inability to secure legal land tenure, consequent lack of access to loan capital, and resulting shortage of livelihood options as key factors driving deforestation within the reserve. A handful of national and international NGOs (including Fundación Jatun Sacha, the Center for Tropical Research, Great Wilderness, and Conservation International) responded to these identified issues: communities were granted the legal right to exist within reserve boundaries via a first government-approved management plan (2006), and several basic measures were taken to facilitate cacao development needs (e.g. extension officer visits). However, the lack of both access to loan capital and livelihood options continued.

Several community members then engaged in dialogue with a diverse group of investigators based at the reserve's Bilsa Biological Station; these discussions continued on a fairly constant basis over a five-year

[1] Based on its pioneering approach and applied utility, this research was recently selected by an international audience of 900 leading scientists for the Bacardi Advances in Tropical Conservation Award.

[2] Funding to implement reforestation is being concurrently solicited from foundations supporting climate change research and sustainable forestry.

period. As a result, the critical need for removal of intermediary brokers from the cacao market chain was identified, with direct sales to international buyers becoming a development priority. Representative samples of the reserve's cacao were sent to potential buyers in Ecuador's capital (Yachana Gourmet) as well as the United States (Guittard Chocolate) with the goal of analyzing product quality in 2007. Results indicated a cacao of top-notch aromatic properties but with unacceptable levels of insect and mold infestation. Assistance with the interpretation of these findings led to a strong working relationship between Amy Rogers, now director of the Mache-Chindul Project at the Pinchot Institute for Conservation, and the founder of Kallari Association, a self-governed coalition of organic, fair-trade cacao producers comprised by nearly 1,000 indigenous families in the Ecuadorian Amazon. At that point, the need for community organization of cacao cooperatives aimed at standardizing drying and fermenting practices (to mitigate infestations) was identified, along with the presence of an insatiable and constant international demand for Ecuador's "Nacional" cacao—the variety found in Mache-Chindul.

Several other elemental risks in the facilitation of cacao as a reserve livelihood were identified shortly thereafter, stalling the implementation of cacao action steps. Specifically, the Pinchot Institute recognized that improving cacao as an alternative livelihood to deforestation not only failed to guarantee a decrease in tree felling, but also held the potential for becoming another deforestation driver. As a result, the Pinchot Institute embarked on an intensive analysis process of potential safeguard measures. This naturally led to a study of existing conservation finance mechanisms, and ultimately to a serendipitous conversation with Advanced Conservation Strategies, one of the founders of the environmental mortgages concept. The incorporation of environmental mortgages allowed for cacao development without the deforestation risk, while simultaneously providing a self-sustaining means for financing the work and tangible incentives for forest stewardship and the restoration of degraded areas. The final plan has been presented to the reserve's Director, a position falling under the umbrellas of both the provincial Ministry of the Environment branch and the National Directorate on Biodiversity and Protected Areas, and is supported in its entirety by the Director of Ecuador's National Forestry Directorate as the Official Contact Point for ITTO (please see attached proof of endorsement).

2.2 Problem analysis

In low-income nations, efforts to alleviate poverty often produce incentives to degrade the local environment, and efforts to protect the environment often fail to improve livelihoods. Current strategies for tropical forest conservation have struggled with this challenge. Now commonly implemented in developing nations, 'indirect approaches' to conservation promote alternative livelihoods that reduce the use of local natural resources, such as non-timber forest product marketing, sustainable agriculture, and eco-tourism. However, on-the-ground efforts during the past several decades have revealed that alternative livelihoods do not guarantee a concurrent decrease in environmental degradation; most often, these approaches have failed to protect biodiversity and ecosystems to the extent needed. Recently, incentive payment approaches have been advocated and explored as a more direct means to environmental protection, including payment for ecosystem services, restricted land easements, and performance-based payments for biodiversity. The last of these approaches, such as paying directly for number of forest hectares conserved in critical climate refugia, is the most direct and cost-effective way to protect an environmental asset.

Incentive payments, however, are not livelihoods, and do not take into account the development needs of local inhabitants. Rather, they are short-term payments (typically annual) that rely on a long-term funding stream, translating into a high-risk scenario for ephemeral incentives. Unless continued, these lump or one-time payments do not create sustainable incentives for the long-term protection of an environmental asset. Direct payment schemes can also be complicated by other factors, such as ethical issues due to economic differences between "buyer" and "seller" nations. In some cases, government policies can complicate or prohibit direct payment schemes. Lastly, these schemes often require legal land tenure for payments—a condition that does not coincide with the reality of natural resource expanses in most developing countries, where the poorest of the population settle out of economic necessity.

An alternative approach that circumvents each of these loopholes is the environmental mortgage—a strategy that uses debt as a finance mechanism, linking investments in low-impact livelihoods to direct payments for natural resource conservation. While microfinance schemes have made impressive headway in alleviating global poverty over the past two decades, rural areas have not been as successfully reached as urban areas. As a result, most forest-dependent communities in remote tropical areas with intact natural resources remain in persistent poverty, without economic alternatives to deforestation. In addition to specifically targeting these underrepresented groups, the environmental mortgage is the first model to effectively layer an environmental conservation component onto the microfinance approach. In doing so, environmental mortgages helps to

ensure that socioeconomic development does not accidently create another deforestation driver. Finally, the environmental mortgage incorporates two details critical to program viability: 1) with respect to financial sustainability, community environmental lending trusts are permanent, offering a perpetual incentive for forest conservation rather than one that is dependent on future funding streams, and 2) to allow for widespread participation in conservation incentive programs, this mechanism transfers forest values based on the PES concept to local inhabitants with very little red tape (e.g. land tenure requirements, national policy on state-owned ecosystem services).

In summary, the environmental mortgage model directly addresses the three causes identified by the REDDES Thematic Programme Document as leading to a reduced quality and quantity of forest environmental services in ITTO producing member countries: persistent poverty coupled with lack of alternative livelihoods, insecure land tenure and inadequate financing mechanisms for SFM or reforestation, and a fundamental disconnect between compensation for environmental services and the communities that maintain them. The direct products of this model are the prevention of tropical deforestation and reversal of tropical forest degradation, with both incentivized in a financially self-sustaining and immediately tangible manner.

2.3 Objectives

2.3.1 Development objective and impact indicators

To promote the development of an innovative approach to PES that inextricably links long-term, self-sustaining livelihood improvements for the rural poor to the conservation and restoration of surrounding tropical forests via the model's application to forest-dwelling communities in the Mache-Chindul Ecological Reserve, Ecuador.

Impact indicators are as follows:

- By 2013, deforestation rates in forests surrounding the three target communities have been reduced by at least 75%.
- By 2014, the three target communities have experienced at least a 5-fold increase in the prices that they are paid for unprocessed cacao.
- By 2015, the three target communities qualify for organic and fair-trade third party certification schemes.
- By 2016, the proportion of degraded lands under reforestation surrounding the three target communities has increased by at least 50%.
- By 2016, the three target communities have experienced at least a 50% increase in cacao crop yields.

2.3.2 Specific objective and outcome indicators

To clearly develop and successfully integrate the components of a first 'environmental mortgages' pilot program in three Mache-Chindul forest communities, generating a sustainable and viable approach to PES that ensures a concurrent reduction in tropical forest degradation and deforestation.

Outcome indicators are as follows:

- By 2014, at least 75% of each community's cacao farmers will participate in organized cooperatives.
- By 2014, each community's cacao cooperative will have engaged in at least two loans via the environmental mortgages microfinance-lending program.
- By 2014, each community's cacao cooperative will have completed at least one necessary step in the cacao market overhaul.
- By 2014, at least 50% of each community's surrounding forests will be designated as 'environmental assets' under participation in the environmental mortgages program.
- By 2014, at least 25% of the degraded lands surrounding the three target communities will be under reforestation as environmental asset 'extensions' of the environmental mortgages program.
- By 2014, the further capitalization of environmental trusts using carbon offsets funding (under the SocioBosque program) in designated environmental asset areas will be underway.

DESCRIPTION OF PROJECT INTERVENTIONS

3.1 Outputs

1) Comprehensive due diligence for the design of a successful environmental mortgages framework during the project's development phase (i.e., year 1). Outcome indicators: All framework components have been addressed and feasible approaches to each designed; The final framework effectively integrates cacao, microfinance, conservation payment, and reforestation measures; All previously identified problem areas have been resolved. Although there is some flexibility in the order of implementation with respect to design of individual framework components, the actual integration of these components for pilot implementation can only occur in a pre-defined order where achievement of each subsequent step is dependent on the successful completion of all prior steps (see Figure 1, below). The nature of the pilot phase's obligate sequence therefore will provide an innate means for assessing how effectively individual project components have been integrated into a final environmental mortgages framework. Directed analyses of potential problem areas and mitigation of identified risks (e.g. how to equitably account for pronounced disparities in prior individual environmental performance, 'leakage' of deforestation from outside sources in community forest assets) have been undertaken with the goal of facilitating this process due to the initiative's complexity.
2) Establishment of a permanent environmental lending trust, to be employed in the achievement of cacao market system goals. Outcome indicators: By the beginning of year 2, the trust has been capitalized in conjunction with an experienced Ecuadorian MFI and is embedded locally to allow for community co-management and ownership of the process; A consensus on the relevancy of proposed cacao market system goals for implementation has been reached with target communities. Ecuador currently has substantive capacity in the microfinance sector (see http://www.mixmarket.org/mfi/country/Ecuador). We are working to assess MFIs and other finance management options for the establishment of community environmental trusts.
3) Establishment of an organized cacao cooperative in each of the 3 communities to attain export-level quality and volume requirements. Outcome indicators: By the beginning of year 2, at least 50% of each community's cacao farmers are participating members of cooperatives; Cooperatives each have elected and trained staff to run operations during the project's second year.
4) Progress in steps toward revamping the current cacao market system during the project's implementation phase (i.e., year 2). Outcome indicators: Cooperatives have engaged in the environmental mortgage program and have applied for a minimum of two community loans during the pilot phase; At least one market system step is completed during the project's second year, and at least two steps have been initiated.

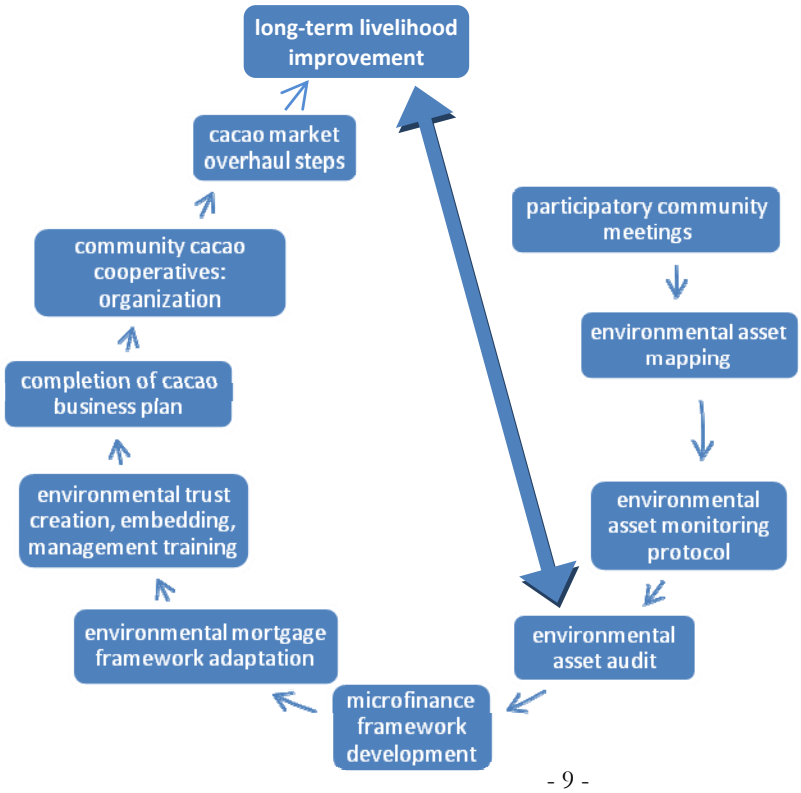


Figure 1. Flow diagram illustrating the step-wise order of different project components that must be developed for effective integration of the model. Completion of the activity in each box may occur before its position on the flow chart, but not after. The large two-sided arrow represents forest asset conservation & restoration, the deciding factor which links livelihood improvements to loan capital.

3.2 Activities and input

3.3 Strategic approach and methods

We aim to permanently reverse deforestation in the Mache-Chindul Reserve by facilitating long-term livelihood improvements that are inextricably linked to environmental stewardship. For this region, cacao represents the primary source of cash income for most families despite an immature and inefficient market. As such, 'livelihood improvements' here will translate into a revamping of the current cacao market system. Based on the guidance of an experienced cacao cooperative with similar goals in eastern Ecuador[3], this will entail: 1) removing intermediaries, 2) improving harvest yields, 3) acquiring third-party certifications, and 4) organizing a drying and fermenting cooperative to attain export-level quality and volume. Required funding for these steps will be run through the 'environmental mortgages' model of microfinance-lending[4], in which lines of available credit are calculated against the global conservation value of intact natural resources beneath a community's *de facto* control.

This conservation finance mechanism is the first to incorporate several critical and previously lacking requisites to success. First, tying the available capital in a permanent lending trust to the state of a community's rainforest 'assets' creates long-term incentives for their conservation, ensuring that better cacao prices do not catalyze another deforestation driver. Second, environmental mortgages do not require legal land tenure, coinciding with the reality of who has access to those assets in remote areas of developing countries, where the poorest of the population often settle out of economic necessity. This aspect allows for the long-overdue participation of the rural poor—disproportionately important stakeholders—in forest conservation incentive programs. Third, areas under reforestation can be written in as extensions of the original environmental asset (at calibrated values), providing the typically elusive yet fundamental long-term incentives needed for reverting degraded habitat to forest.

How quickly a community meets its cacao objectives will depend on the extent of forest they are willing to set aside, whether or not degraded areas are placed under reforestation, and annual 'audits' of environmental performance. Lines of credit and associated loan terms will be adjusted yearly based on audit results (*i.e.*, deforestation monitoring and science-based assessments of forest biodiversity and ecological function), providing tangible, easily interpreted outcomes for a community's recent environmental actions. To ensure that the benefits of this program outweigh those of competing, deforestation-based land uses, starting credit lines will be based on opportunity costs and interest will be used to cover transaction fees, asset audits, and wrap-around services. Loans will be co-managed by an experienced microfinance institution and a trust embedded in the community at a local or regional level, balancing external oversight with community engagement and ownership of the process.

Given the impressive success of microfinance institutions in poverty alleviation and the perpetual lack of access to capital that plagues landholders without legal title, this model is a promising approach for translating standing rainforest into sustainable development in the Mache-Chindul Reserve. This project represents one of six environmental mortgage pilot tests slated for implementation in developing areas worldwide. Because it is the first strategy to tangibly transfer global 'existence values' for natural resources into the hands of the rural poor, where cycles of either exploitation or stewardship begin, we believe that this approach has the potential to revolutionize environmental conservation in developing countries.

[3] The Kallari Association is a self-governed coalition of organic, fair-trade cacao producers comprised by over 850 indigenous families in the Ecuadorian Amazon. For more information, see their recent coverage in The New York Times.

[4] The 'environmental mortgage' is a mechanism for transferring access to economic values for intact natural resources into the hands of the local populations that determine their fate. Designed by Advanced Conservation Strategies, this concept was selected as a finalist for the Marketplace on Innovative Financial Solutions for Development Competition.

3.4 Work plan

Outputs and Activities	Responsible Party	Schedule (in months)																							
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Output 1: Comprehensive due diligence for the environmental mortgages framework																									
1.1. Assessment of sociopolitical community landscape	Consultant																								
1.2. Design of monitoring & evaluation protocols for environmental asset	Consultant																								
1.3. Definition of microfinance details	Consultant																								
1.4. Completion of cacao business plan	Consultant																								
Output 2: Establishment of a permanent environmental lending trust																									
2.1. Negotiations with Ecuadorian microfinance institutions	Consultant																								
2.2. Embedding of trust at a local or regional level	Consultant																								
2.3. Training of community trust co-managers	Microfinance Institution																								
Output 3: Establishment of an organized cacao cooperative in each of 3 communities																									
3.1. A series of participatory community organization meetings	Project Coordinator																								
3.2. Election & training of cacao coop personnel	Interns																								
Output 4: Progress in steps toward revamping the current cacao market system																									
4.1. Removal of intermediary brokers and direct connection to markets	Project Coordinator																								
4.2. Improvement of harvest yields	Cacao Entrepreneur																								
4.3. Acquisition of third-party certification schemes	Rainforest Alliance																								
4.4. Construction of drying & fermenting facilities	Cacao Entrepreneur																								

3.5 Budget*

*Justification of personnel and training expenses: community trainings will be conducted by Project Coordinator Amy Rogers, Collaborators Josh Donlan and Drew Tulchin, and project interns with specific expertise in required subject areas, with the exception of cacao certification trainings (conducted by Rainforest Alliance personnel and budgeted under Services). The cost for coordinators of these trainings is therefore incorporated into personnel salaries. Additional training expenses not incorporated elsewhere into the budget are minimal, and accurately reflect the cost of implementation.

Consolidated budget by component

Category	Description	Total	Year 1	Year 2
10.	Project Personnel			
11.	National Experts (Long term)			
	11.1 Project Coordinator	$85,715.00	$46,548.00	$39,167.00
	11.3 Accountant	$5,632.00	$4,032.00	$1,600.00
	11.4 Project Liaison (EA)	$7,168.00	$5,376.00	$1,792.00
	11.5 Volunteer Coordinator	$7,680.00	$3,840.00	$3,840.00
	11.6 Executive Director	$9,600.00	$4,800.00	$4,800.00
	11.7 Legal Representative	$9,600.00	$4,800.00	$4,800.00
12.	Other personnel			
	12.11 Field Assistant 1	$500.00	$500.00	$0.00
	12.12 Field Assistant 2	$500.00	$500.00	$0.00
	12.2 Office Intern (US)	$9,600.00	$4,800.00	$4,800.00
	12.31 Community Liaison 1	$1,500.00	$1,500.00	$0.00
	12.32 Community Liaison 2	$1,500.00	$1,500.00	$0.00
	12.33 Community Liaison 3	$1,500.00	$1,500.00	$0.00
	12.4 Sustainable Development Intern	$5,800.00	$5,800.00	$0.00
	12.5 Cacao Intern	$5,400.00	$5,400.00	$0.00
	12.6 Mapping Intern	$5,400.00	$5,400.00	$0.00
	12.7 Administrator (field)	$3,600.00	$3,600.00	$0.00
14.	International Consultants			
	14.1 Consultant 1 (Environmental mortgages framework)	$17,000.00	$17,000.00	$0.00
	14.2 Consultant 2 (Microfinance/business aspects)	$7,600.00	$7,600.00	$0.00
15.	Fellowships and Training			
	15.1 Training 1 (community trust co-managers)	$250.00	$250.00	$0.00
	15.2 Training 2 (cacao cooperative personnel)	$600.00	$0.00	$600.00
	15.3 Training 3 (harvest yields improvement)	$500.00	$0.00	$500.00
19.	Component Total:	$186,645.00	$124,746.00	$61,899.00
30.	Travel			
31.	Daily Subsistence Allowance			
	31.1 Project Coordinator	$1,425.00	$1,425.00	$0.00
	31.2 International Consultants	$1,800.00	$1,800.00	$0.00

		31.3 Interns	$900.00	$900.00	$0.00
	32.	International Travel			
		32.2 International Consultants	$4,400.00	$4,400.00	$0.00
	33.	Local Transport Costs	$7,400.00	$3,700.00	$3,700.00
	39.	Component Total:	$15,925.00	$12,225.00	$3,700.00
40.	Capital Items				
	43.	Vehicles	$12,500.00	$6,250.00	$6,250.00
	44.	Capital Equipment			
		44.1 Computer Equipment	$9,420.00	$9,420.00	$0.00
		44.2 Forestry Equipment	$1,700.00	$1,700.00	$0.00
	49.	Component Total:	$23,620.00	$17,370.00	$6,250.00
50.	Consumable Items				
	51.	Raw materials	$3,000.00	$3,000.00	$0.00
	52.	Field Supplies	$400.00	$400.00	$0.00
	53.	Utilities	$3,744.00	$1,872.00	$1,872.00
	54.	Office Supplies	$2,600.00	$1,300.00	$1,300.00
	59.	Component Total:	$9,744.00	$6,572.00	$3,172.00
60.	Miscellaneous				
	61.	Services (mapping)	$1,000.00	$1,000.00	$0.00
	62.	Services (financial institutions)	$200.00	$200.00	$0.00
	63.	Services (certification)	$2,500.00	$0.00	$2,500.00
	64.	Office and computer equipment	$7,200.00	$7,200.00	$0.00
	66.	Services (independent financial audit)	$2,000.00	$0.00	$2,000.00
	69.	Component Total:	$12,900.00	$8,400.00	$4,500.00
70.	National Administrative Costs				
	71.	Administrative costs of executing agency	$11,520.00	$5,760.00	$5,760.00
	79.	Component Total:	$11,520.00	$5,760.00	$5,760.00
80.	Project Monitoring & Administration				
	83.	ITTO Programme Support Costs (8%)	$11,105.36		
	89.	Component Total:	$11,105.36		
100.		GRAND TOTAL:	$271,459.36		

ITTO yearly budget

Category	Description	Total	Year 1	Year 2
10.	Project Personnel			
11.	National Experts (Long term)			
	11.1 Project Coordinator	$50,000.00	$46,548.00	$3,452.00
	11.3 Accountant	$5,632.00	$4,032.00	$1,600.00
	11.4 Project Liaison (EA)	$7,168.00	$5,376.00	$1,792.00
12.	Other personnel			
	12.11 Field Assistant 1	$500.00	$500.00	$0.00
	12.12 Field Assistant 2	$500.00	$500.00	$0.00
	12.31 Community Liaison 1	$1,500.00	$1,500.00	$0.00
	12.32 Community Liaison 2	$1,500.00	$1,500.00	$0.00
	12.33 Community Liaison 3	$1,500.00	$1,500.00	$0.00
	12.4 Sustainable Development Intern	$5,800.00	$5,800.00	$0.00
	12.5 Cacao Intern	$5,400.00	$5,400.00	$0.00
	12.6 Mapping Intern	$5,400.00	$5,400.00	$0.00
	12.7 Administrator (field)	$3,600.00	$3,600.00	$0.00
14.	International Consultants			
	14.1 Consultant 1 (Environmental mortgages framework)	$17,000.00	$17,000.00	$0.00
	14.2 Consultant 2 (Microfinance/business aspects)	$7,600.00	$7,600.00	$0.00
15.	Fellowships and Training			
	15.1 Training 1 (community trust co-managers)	$250.00	$250.00	$0.00
	15.2 Training 2 (cacao cooperative personnel)	$600.00	$0.00	$600.00
	15.3 Training 3 (harvest yields improvement)	$500.00	$0.00	$500.00
19.	Component Total:	$114,450.00	$106,506.00	$7,944.00
30.	Travel			
31.	Daily Subsistence Allowance			
	31.1 Project Coordinator	$1,425.00	$1,425.00	$0.00
	31.2 International Consultants	$1,800.00	$1,800.00	$0.00
	31.3 Interns	$900.00	$900.00	$0.00
32.	International Travel			
	32.2 International Consultants	$4,400.00	$4,400.00	$0.00
33.	Local Transport Costs	$6,350.00	$3,700.00	$2,650.00
39.	Component Total:	$14,875.00	$12,225.00	$2,650.00
40.	Capital Items			
44.	Capital Equipment			
	44.1 Computer Equipment	$920.00	$920.00	$0.00
49.	Component Total:	$920.00	$920.00	$0.00
50.	Consumable Items			

	51.	Raw materials	$3,000.00	$3,000.00	$0.00
	53.	Utilities	$1,872.00	$1,872.00	$0.00
	59.	Component Total:	$4,872.00	$4,872.00	$0.00
60.	Miscellaneous				
	61.	Services (mapping)	$1,000.00	$1,000.00	$0.00
	62.	Services (financial institutions)	$200.00	$200.00	$0.00
	63.	Services (certification)	$2,500.00	$0.00	$2,500.00
	69.	Component Total:	$3,700.00	$1,200.00	$2,500.00
		SUBTOTAL all categories	$138,817.00	$125,723.00	$13,094.00
80.	Project Monitoring & Administration				
	83.	ITTO Programme Support Costs (8%)	$11,105.36		
	89.	Component Total:	$11,105.36		
100.		GRAND TOTAL:	$149,922.36		

Fundacion Equilibrio Azul (EA) yearly budget

Category	Description	Total	Year 1	Year 2
10.	Project Personnel			
11.	National Experts (Long term)			
	11.5 Volunteer Coordinator	$7,680.00	$3,840.00	$3,840.00
	11.6 Executive Director	$9,600.00	$4,800.00	$4,800.00
	11.7 Legal Representative	$9,600.00	$4,800.00	$4,800.00
19.	Component Total:	$26,880.00	$13,440.00	$13,440.00
50.	Consumable Items			
54.	Office Supplies	$2,400.00	$1,200.00	$1,200.00
59.	Component Total:	$2,400.00	$1,200.00	$1,200.00
60.	Miscellaneous			
64.	Office and computer equipment	$7,200.00	$7,200.00	$0.00
69.	Component Total:	$7,200.00	$7,200.00	$0.00
70.	National Administrative Costs			
71.	Administrative costs of executing agency	$11,520.00	$5,760.00	$5,760.00
79.	Component Total:	$11,520.00	$5,760.00	$5,760.00

	SUBTOTAL all categories	$48,000.00	$27,600.00	$20,400.00
100.	GRAND TOTAL:	$48,000.00		

Pinchot Institute for Conservation (other funding sources) yearly budget

Category	Description	Total	Year 1	Year 2
10.	Project Personnel			
	11.1 Project Coordinator	$35,715.00	$0.00	$35,715.00
19.	Component Total:	$35,715.00	$0.00	$35,715.00
30.	Travel			
33.	Local Transport Costs	$1,050.00	$525.00	$525.00
39.	Component Total:	$1,050.00	$525.00	$525.00
40.	Capital Items			
43.	Vehicles	$12,500.00	$6,250.00	$6,250.00
44.	Capital Equipment			
	44.1 Computer Equipment	$4,500.00	$4,500.00	$0.00
	44.2 Forestry Equipment	$1,700.00	$1,700.00	$0.00
49.	Component Total:	$18,700.00	$12,450.00	$6,250.00
50.	Consumable Items			
52.	Field Supplies	$400.00	$400.00	$0.00
53.	Utilities	$1,872.00	$0.00	$1,872.00
54.	Office Supplies	$200.00	$100.00	$100.00
59.	Component Total:	$2,472.00	$500.00	$1,972.00
60.	Miscellaneous			
66.	Services (independent financial audit)	$2,000.00	$0.00	$2,000.00
69.	Component Total:	$2,000.00	$0.00	$2,000.00
	SUBTOTAL all categories	$59,937.00	$13,475.00	$46,462.00
100.	GRAND TOTAL:	$59,937.00		

Advanced Conservation Strategies (other funding sources) yearly budget

Category	Description	Total	Year 1	Year 2
10.	Project Personnel			
12.	Other personnel			
	12.2 Office Intern (US)	$9,600.00	$4,800.00	$4,800.00
19.	Component Total:	$9,600.00	$4,800.00	$4,800.00
40.	Capital Items			
44.	Capital Equipment			
	44.1 Computer Equipment	$4,000.00	$4,000.00	$0.00
49.	Component Total:	$4,000.00	$4,000.00	$0.00
	SUBTOTAL all categories	$13,600.00	$8,800.00	$4,800.00
100.	GRAND TOTAL:	$13,600.00		

Overall Project Budget By Activity and Component (in U.S. Dollars)

OUTPUTS / ACTIVITIES + Non-Activity Based Expenses	BUDGET COMPONENTS														Year	GRAND TOTAL
	10. Project Personnel		20. Sub-Contracts		30. Duty Travel		40. Capital Items		50. Consumable Items		60. Miscella-neous					
Output 1: Comprehensive due diligence for the environmental mortgages framework																
Activity 1.1: Assessment of sociopolitical community la	7,000.00	I	-		1,650.00	I	9,500.00	IO	200.00	O	3,340.00	IE			Y1	21,690.00
Activity 1.2: Design of monitoring & evaluation protocols	3,000.00	I	-		-		1,200.00	O	400.00	O	2,340.00	E			Y1	6,940.00
Activity 1.3: Definition of microfinance details	10,000.00	I	-		-		-		-		2,340.00	E			Y1	12,340.00
Activity 1.4: Completion of cacao business plan	4,600.00	I	-		300.00	O	-		-		2,340.00	E			Y1	7,240.00
Activity 1.5: International travel	-		-		4,400.00	I	-		-		-				Y1	4,400.00
Activity 1.6: In-country travel	-		-		3,700.00	IO	6,250.00	O	-		-				Y1	9,950.00
Activity 1.7: Communications	-		-		-		-		1,872.00	O	-				Y1	1,872.00
Activity 1.8: Personnel	73,240.00	IEO	-		-		-		1,200.00	E	2,340.00	E			Y1	76,780.00
Subtotal 1	**97,840.00**	**IEO**	**-**		**10,050.00**	**IO**	**16,950.00**	**IO**	**3,672.00**	**EO**	**12,700.00**	**IE**				**141,212.00**
Output 2: Establishment of a permanent environmental lending trust																
Activity 2.1: Negotiations with Ecuadorian microfinance	-		-		1,500.00	I	-		-		2,340.00	E			Y1	3,840.00
Activity 2.2: Embedding of trust at a local or regional le	-		-		-		-		-		200.00	I			Y1	200.00
Activity 2.3: Training of community trust co-managers	250.00	I	-		-		-		-		-				Y1	250.00
Subtotal 2	**250.00**	**I**	**-**		**1,500.00**	**I**	**-**		**-**		**2,540.00**	**IE**				**4,290.00**
Output 3: Establishment of an organized cacao cooperative in each of 3 communities																
Activity 3.1: A series of participatory community organi	-		-		675.00	I	420.00	I	-		-				Y1	1,095.00
Activity 3.2: Election & training of cacao coop personne	600.00	I	-		-		-		-		-				Y1	600.00
Subtotal 3	**600.00**	**I**	**-**		**675.00**	**I**	**420.00**	**I**	**-**		**-**					**1,695.00**
Output 4: Progress in steps toward revamping the current cacao market system																
Activity 4.1: Removal of intermediary brokers and direct	2,500.00	I	-		-		-		-		2,340.00	E			Y2	4,840.00
Activity 4.2: Improvement of harvest yields	500.00	I	-		-		-		-		-				Y2	500.00
Activity 4.3: Acquisition of third-party certification scher	-		-		-		-		-		2,500.00	I			Y2	2,500.00
Activity 4.4: Construction of drying & fermenting facilitie	-		-		-		-		3,000.00	I	-				Y2	3,000.00
Activity 4.5: In-country travel	-		-		3,700.00	I	6,250.00	O	-		-				Y2	9,950.00
Activity 4.6: Communications	-		-		-		-		1,872.00	I	11,105.36	I			Y2	12,977.36
Activity 4.7: Personnel	84,960.00	IEO	-		-		-		1,200.00	E	4,340.00	IEO			Y2	90,500.00
Subtotal 4	**87,960.00**	**IEO**	**-**		**3,700.00**	**I**	**6,250.00**	**O**	**6,072.00**	**EI**	**20,285.36**	**IEO**				**124,267.36**
Subtotal (ITTO)	**114,450.00**		**-**		**14,875.00**		**920.00**		**4,872.00**		**14,805.36**					**149,922.36**
Subtotal (E. Agency)	**26,880.00**		**-**				**-**		**2,400.00**		**18,720.00**					**48,000.00**
Subtotal (Others)	**45,321.00**		**-**		**1,050.00**		**22,700.00**		**2,472.00**		**2,000.00**					**73,543.00**
TOTAL	**186,651.00**		**-**		**15,925.00**		**23,620.00**		**9,744.00**		**35,525.36**					**271,465.36**

(I) - Contribution of the ITTO
(E) - Contribution of the Executing Agency / Host Government
(O) - Contribution from Other Sources

IMPLEMENTATION ARRANGEMENTS

4.1 Executing agency and organizational structure

The nominated executing agency, Ecuador's Fundación Equilibrio Azul, is a non-profit organization dedicated to the conservation of Ecuador's marine and terrestrial ecosystems. Equilibrio Azul's overarching objective is to conduct scientific investigations of Ecuadorian ecosystems that will facilitate their conservation, and to transmit the knowledge acquired from those investigations to the scientific community, the public, and state authorities so that the necessary conservation actions can take place. Equilibrio Azul fundamentally focuses their work on local communities, with the objective of simultaneously achieving the protection and conservation of the ecosystems that surround them.

Fundación Equilibrio Azul contributes eight years of practical experience in the design, implementation, and evaluation of conservation projects in Ecuador to this initiative. Their knowledge of the Ecuadorian coast will be of direct utility to the proposed project, as will their experience in jointly managing multiple initiatives in collaboration with Ecuador's government entities. Equilibrio Azul's role in this project will be multi-faceted, including the management and channelling of financial project resources, supervision to ensure that those resources are managed in conformity with all applicable Ecuadorian tax laws, hiring and payment of national and foreign project personnel, and disbursements of project funding according to operative planning schemes.

Primary collaborating agency the Pinchot Institute for Conservation is a US-based non-profit 501(c)(3) organization established in 1989 and focused on forest conservation policy. The Institute's mission is to strengthen forest conservation thought, policy and action by: 1) advancing sustainable forest management, 2) developing conservation leaders, and 3) providing science-based solutions to emerging natural resource issues. This is accomplished through nonpartisan research, education and technical assistance on key issues influencing the future of conservation and sustainable natural resource management. As a relatively small organization, the Institute's strength lies in partnering with governmental, NGO, industry, and community organizations to analyze the factors underlying conservation problems, identify the most promising opportunities, and facilitate policies for fundamental institutional change.

Leveraging nine years of conservation research and programmatic experience in Ecuador's remote forest communities (including Mache-Chindul Reserve), the Pinchot Institute's direction of all implementation-oriented project components will contribute fundamental field skills to this project. Furthermore, the Institute has established a strong working relationship with the founder of Ecuador's Kallari Association, providing an indispensable model for the project's cacao market overhaul, and is recognized as one of the country's leading authorities on tropical forest ecology—critical to the success of both environmental mortgage audits and concurrent reforestation efforts.

Secondary collaborating agency Advanced Conservation Strategies (ACS) defines their purpose as providing innovative, self-sustaining, and economically efficient solutions to environmental challenges by building cross-sector synergy and integrating biological, economic, technological, and socio-political threats and opportunities. ACS works with a suite of institutions around the world developing and implementing incentive mechanisms for biodiversity conservation and climate change adaptation; they will contribute a vital financial expertise and six years of interdisciplinary team building to the project. ACS is internationally recognized for innovations in conservation finance, and was recently selected as a finalist for the Marketplace on Innovative Financial Solutions for Development Competition sponsored by the Gates Foundation, World Bank, and *AgenceFrançaise de Développement.*

International development consultant Drew Tulchin of Social Enterprise Associates has 14 years of professional experience in more than 30 countries across 5 continents. Holding an MBA with concentrations in finance and marketing, Mr. Tulchin's environmental consulting areas of expertise include development finance, green market research, small and medium enterprise, public/private partnerships, climate change, international trade, sustainability, and corporate social responsibility. Mr. Tulchin has been a working associate of Advanced Conservation Strategies for over four years.

4.2 Project management

The team in charge of managing project implementation is comprised by three primary supervisors:

1) Dr. Amy Rogers, trained in applied tropical forest ecology and specialized in the processes that underlie rainforest regeneration, has been managing the Mache-Chindul Project initiative at Pinchot Institute since 2008. Amy is the Project Coordinator of the proposed work, and will work full-time on this project throughout the grant's duration. Her salary of $35K/a plus legally required associated costs (fringe, taxes, etc.) will be met through a combination of ITTO funds, a $20K grant from the Robert & Patricia Switzer Foundation, and supplemental funding sources (applications currently pending). Dr. Rogers will be employed both by executing agency Fundación Equilibrio Azul and by primary collaborating agency Pinchot Institute for Conservation during this project; she will serve as the principal liaison between these two organizations.
2) Dr. Josh Donlan, trained in invasive species ecology, island conservation, and the role of top predators in ecosystem integrity, has been the executive director of Advanced Conservation Strategies (ACS) since it was founded in 2006. As founder of the environmental mortgages concept, Josh will be subcontracted under the auspices of ACS to head up adaptation of the model to Mache-Chindul's pilot communities.
3) Drew Tulchin, MBA, trained in finance mechanisms and green marketing, has been consulting independently and internationally for 14 years, and with Social Enterprise Associates since 2007. Drew will design all microfinance and business aspects of the proposed project, and will be hired via a working MoU with subcontracted agency Advanced Conservation Strategies.

Several young and yet impressively experienced and well-travelled interns also comprise part of the project team, with specific background training in forestry, microfinance and sustainable development, cultural anthropology, and socioeconomics. We aim to hire as many Ecuadorian professionals and community liaisons as possible with available funding, as local development is at the core of this project's objectives.

4.3 Monitoring and reporting

This project's progress will be monitored primarily according to the specific outputs and output indicators outlined in section 3.1 above, as these provide a direct means for the assessment of proposed interventions. Impact indicators and outcome indicators in sections 2.3.1 and 2.3.2, respectively, will also be employed as a means of verification.

All subcontractors, interns, Ecuadorian professionals, and community liaisons will be required to report quarterly to the Project Coordinator (Amy Rogers/Pinchot Institute for Conservation) on project progress and finances. Finances will be managed in conjunction with the accounting department of Fundación Equilibrio Azul based on monthly reports and itemized receipts from all project personnel. The Project Coordinator will be responsible for all reporting duties to ITTO.

The development and testing of an environmental asset auditing protocol for avoided forest degradation and reforestation will be completed collaboratively by Amy Rogers (Pinchot Institute for Conservation) and Josh Donlan (Advanced Conservation Strategies) during the first year of the project. Once developed, the Pinchot Institute for Conservation will be responsible for implementing these audits every six months during the project's second year. Beyond this two-year pilot project, it is projected that environmental asset audits will be conducted annually rather than every six months.

ANNEX 1. PROFILE OF THE EXECUTING AGENCY

Name: Fundación para la Investigación y Preservación de los Ecosistemas Marinos y Terrestres del Ecuador "EQUILIBRIO AZUL" ("Blue Equilibrium" Foundation for the Investigation and Preservation of Ecuador's Marine and Terrestrial Ecosystems)

Address: Main office in Quito: Avenida Amazonas 2915 e Inglaterra, Edificio Inglaterra, piso 2.

Coastal office in Puerto Lopez, Manabí.

Location of current projects: Parque Nacional Machalilla, Manabí; Pacoche, Manabí; Portete, Esmeraldas; Santa Rosa, Santa Elena; Isla Santa Clara, El Oro.

Mission:
Equilibrio Azul's overarching objective is to conduct scientific investigations of Ecuadorian ecosystems that will facilitate their conservation, and to transmit the knowledge acquired from those investigations to the scientific community, the public, and state authorities so that the necessary conservation actions can take place. Equilibrio Azul fundamentally focuses their work on local communities, with the objective of simultaneously achieving the protection and conservation of the ecosystems that surround them.

Year of Establishment: 2004

Fields of Expertise:

1. Scientific Investigation
2. Applied Conservation Activities
3. Environmental Education

Organizational Chart:

FUNDACION EQUILIBRIO AZUL: Profile

Summary

Equilibrio Azul (EA), a non-profit organization that was created in 2004 and is legally registered with the Ministry of Environment, is dedicated to the conservation of Ecuador's marine and terrestrial ecosystems.
With their administrative headquarters in Quito and a field base in Puerto López, Manabí, this organization has conducted scientific research and environmental education in multiple sites along the Ecuadorian coast: Parque Nacional Machalilla (Manabí), Portete (Esmeraldas), Isla Santa Clara (Machala) and Santa Rosa (Santa Elena).

Over the years Equilibrio Azul has worked collaboratively with a range of public and private institutions, including Ecuador's Ministry of Environment, Machalilla National Park, Galapagos National Park, Conservation International – Ecuador, EcoFondo Foundation, The National Environment Fund, National Fish and Wildlife Service (NFWS), National Oceanic and Atmospheric Administration (NOAA), the American Bird Conservancy (ABC), Island Conservation, San Francisco de Quito University, SEK International University, the Valdivia Aquarium, The Carey Initiative of the East Pacific, and Migramar, amongst others.

Equilibrio Azul's work has always been based on the principal that in order to implement the necessary conservation measures, it is first necessary to understand the state of target ecosystems and the species that live within them. Toward that aim, we consider it necessary to involve top-level national and international scientists in our efforts and to stay up-to-date on current ecological trends and new investigative technologies. These two principals have allowed for our collaboration with all of the aforementioned organizations, and have marked us as the first Ecuadorian organization to use acoustic and satellite transmitters in the study of marine fauna.

Another fundamental objective of EA is to increase public interest in, and awareness of, environmental preservation. Toward this end, we work with a diverse range of volunteers from different universities and nationalities, and always try to facilitate the maximum involvement of Ecuadorian nationals out of a recognition that this local professional development directly contributes to the sustainability of our projects.

In all of our projects, we first acquire the investigative permits from relevant authorities.

For more information about our work, please go to www.equilibrioazul.org .

List of recent projects (2009 – 2011)

- Turtle Project, finance by Conservation International with Ecuadorian funds, and the National Fish and Wildlife Service (NFWS)
- Marine Bird Project, financed by the American Bird Conservancy with US funds.
- Shark Project, financed by Conservation International with Ecuadorian funds.
- Environmental Education Project
- Islands Project, financed by the Ecofondo Foundation with Ecuadorian funds.
- Incidental Fishing Observers Project, financed by the American Bird Conservancy with US funds.

List of projects and pre-projects submitted to ITTO

None.

Infrastructure

- Fully equipped offices in Quito with a working capacity for six people total (including phone, fax, computers, internet, copy machine, and scanner). Library of scientific and educational literature.

- Puerto Lopez office: a project house equipped for scientific investigation and lodging by up to 12 researchers and volunteers. Facilities include those necessary for both field work and office work, including computers, internet access, and WiFi for research use.
- Fiberglass boat for marine investigations with two 50HP outboard motors, VHF marine radio, GPS and sonar.
- Inflatable Zodiac craft with 25HP outboard motor for marine investigations.
- Small fiberglass boat for near-shore investigations.
- Diving tanks and equipment for six people, as well as an air compressor for diving.
- Investigative equipment including metric tapes, calipers, flashlights, marking applicators, alcohol, tool kits, pit tags and scanner, binoculars, shovels, acoustic receivers and transmitters.
- Equipment for field trips (tents, sleeping bags).
- Environmental education and documentation materials, including cameras, submarine cameras, and InFocus.

Personnel

- Number of personnel with post-graduate degrees: 3
- Number of personnel with university degrees: 2
- Number of middle-level technicians: 2
- Administrative personnel: 2

Recent Organizational Budgets (2009 – 2011)

Please see the following pages.

Note: The following financial statements were prepared by Maria Esther Arcos, legally registered Accountant # 4,492, and were approved by Andres Baquero Gallegos, Legal Representative of Fundacion Equilibrio Azul.

EQUILIBRIO AZUL
BALANCE SHEET
Through December 31, 2009

ASSETS		
CURRENT ASSETS		**$21,013.78**
Bank Accounts	$11,659.16	
Short-term Investments	$6,300.96	
Accounts Receivable	$2,574.37	
Withholdings, Tax Advances, etc.	$479.29	
FIXED ASSETS		**$30,394.08**
Office Equipment	$963.20	
Computer Equipment	$12,397.32	
Watercraft	$19,735.91	
Other Equipment	$6,769.67	
(-) Depreciation	-$9,472.02	
TOTAL ASSETS		**$51,407.86**
LIABILITIES		
CURRENT LIABILITIES		**$10,512.52**
Accounts Payable	$2,826.20	
Social Benefits	$222.25	
Projects to Settle	$5,573.07	
Tax Debts	$1,389.67	
IESS Debts	$501.33	
TOTAL LIABILITIES		**$10,512.52**
EQUITY		**$40,895.34**
Foundation Capital	$400.00	
Institutional Equity Funds	**$40,495.34**	
Accumulated/restricted Social Fund	$10,101.26	
Fixed Asset Funds	$30,394.08	
TOTAL LIABILITIES AND EQUITY		**$51,407.86**

EQUILIBRIO AZUL
INCOME STATEMENT
January 1 – December 31, 2009
INCOME

INSTITUTIONAL FUNDRAISING		$17,910.72
DONATED INCOME		$90,321.48
INTEREST-BASED REVENUE		$287.39
TOTAL INCOME		**$108,519.59**
(-) OPERATIONAL EXPENSES		
ADMINISTRATIVE & PROJECT COSTS		**$92,325.96**
Salaries & Wages	$3,190.81	
Utilities	$309.00	
Rentals	$3,000.00	
Office Supplies/newspapers/magazines	$252.34	
Expendable Supplies	$3,348.66	
Mail, Wires, Internet	$979.14	
Phone & Conferences	$103.50	
Fees	$31,388.13	
Organization-based Fees	$6,492.05	
Travel Costs	$11,866.06	
Petrol	$60.00	
Taxes, Fees, Contributions	$92.06	
Promotional Expenses	$185.00	
Mobilization	$56.80	
Small Equipment	$13,879.44	
Workshop Expenses	$774.29	
Miscellaneous Services	$1,305.76	
Transport Costs	$325.20	
Miscellaneous	$524.74	
Temporary Labor	$5,142.01	
Foreign Temporary Labor	$896.00	
Expenditure-based IVA	$142.62	
Equipment Maintenance	$661.45	
Depreciation	$7,350.90	
(-) OTHER EXPENSES		
Bank Charges	$276.35	$326.20
Other Costs	$49.85	
DIFFERENCE BETWEEN INCOME & EXPENSES		**$15,867.43**

EQUILIBRIO AZUL
BALANCE SHEET
Through December 31, 2010

ASSETS		
CURRENT ASSETS		**$34,773.93**
Bank Accounts	$10,115.30	
Short-term Investments	$11,988.49	
Accounts Receivable	$12,190.85	
Withholdings, Tax Advances, etc.	$479.29	
FIXED ASSETS		**$20,915.88**
Office Equipment	$963.20	
Computer Equipment	$12,397.32	
Watercraft	$19,735.91	
Other Equipment	$6,769.67	
(-) Depreciation	-$18,950.22	
TOTAL ASSETS		**$55,689.81**
LIABILITIES		
CURRENT LIABILITIES		**$16,177.74**
Accounts Payable	$1,970.17	
Social Benefits	$360.11	
Projects to Settle	$13,134.57	
Tax Debts	$583.89	
IESS Debts	$129.00	
TOTAL LIABILITIES		**$16,177.74**
EQUITY		**$39,512.07**
Foundation Capital	$400.00	
Institutional Equity Funds	**$39,112.07**	
Accumulated/restricted Social Fund	$18,196.19	
Fixed Asset Funds	$20,915.88	
TOTAL LIABILITIES AND EQUITY		**$55,689.81**

EQUILIBRIO AZUL
INCOME STATEMENT
January 1 – December 31, 2010
INCOME

LOCAL DONATED INCOME	$7,098.00
PROJECT-BASED DONATED INCOME	$90,765.50
INTEREST-BASED REVENUE	$387.46
TOTAL INCOME	**$98,250.96**

(-) OPERATIONAL EXPENSES

ADMINISTRATIVE & PROJECT COSTS		**$99,634.23**
Salaries & Wages	$9,906.65	
Consultant Fees	$42,556.55	
Temporary Labor	$4,135.04	
Printing	$446.40	
Rentals	$3,000.00	
Office Supplies/newspapers/magazines	$97.18	
Expendable Supplies	$3,637.77	
Mail, Wires, Internet	$263.81	
Phone & Conferences	$711.57	
Accounting Fees	$3,142.23	
Travel Costs	$12,980.94	
Taxes, Fees, Contributions	$54.60	
Mobilization	$38.95	
Small Equipment	$6,192.21	
Workshop Expenses	$1,213.70	
Miscellaneous	$1,455.25	
Depreciation	$9,478.20	
Bank Charges	$323.18	

DIFFERENCE BETWEEN INCOME & EXPENSES	**-$1,383.27**

EQUILIBRIO AZUL
BALANCE SHEET
Through December 31, 2011

ASSETS		
CURRENT ASSETS		**$27,834.95**
Bank Accounts	$13,790.03	
Short-term Investments	$12,215.97	
Accounts Receivable	$1,353.26	
Withholdings, Tax Advances, etc.	$475.69	
FIXED ASSETS		**$20,408.08**
Furniture & Appliances	$1,236.26	
Office Equipment	$963.20	
Computer Equipment	$10,181.16	
Watercraft	$24,043.58	
Other Equipment	$14,557.19	
(-) Depreciation	-$30,573.31	
TOTAL ASSETS		**$48,243.03**
LIABILITIES		
CURRENT LIABILITIES		**$12,001.98**
Accounts Payable	$4,366.82	
Social Benefits	$947.94	
Projects to Settle	$5,399.46	
Tax Debts	$993.13	
IESS Debts	$294.63	
TOTAL LIABILITIES		**$12,001.98**
EQUITY		**$36,241.05**
Foundation Capital	$400.00	
Institutional Equity Funds	**$35,841.05**	
Accumulated/restricted Social Fund	$15,432.97	
Fixed Asset Funds	$20,408.08	
TOTAL LIABILITIES AND EQUITY		**$48,243.03**

EQUILIBRIO AZUL
INCOME STATEMENT
January 1 – December 31, 2011

FUNDRAISING INCOME		**$30.00**
LOCAL DONATED INCOME		$90.00
PROJECT-BASED DONATED INCOME		$95,160.57
INTEREST-BASED REVENUE		$375.13
TOTAL INCOME		**$95,655.70**
(-) OPERATIONAL EXPENSES		
ADMINISTRATIVE & PROJECT COSTS		**$98,418.92**
Salaries & Wages	$20,024.07	
Consultant Fees	$27,339.76	
Temporary Labor	$41.27	
Rentals	$3,000.00	
Office Supplies/newspapers/magazines	$22.08	
Expendable Supplies	$3,418.60	
Mail, Wires, Internet	$302.19	
Phone & Conferences	$3,116.98	
Accounting Fees	$3,111.10	
Travel Costs	$15,222.58	
Taxes, Fees, Contributions	$100.00	
Promotional Costs	$151.20	
Mobilization	$46.40	
Small Equipment	$10,953.25	
Workshop Expenses	$1,797.56	
Miscellaneous	$1,970.74	
Bank Charges	$323.04	
DIFFERENCE BETWEEN INCOME & EXPENSES		**-$2,763.22**

ANNEX 2. CURRICULA VITAE OF KEY PROJECT PERSONNEL

Please see the following pages.

AMY E. ROGERS

Pinchot Institute for Conservation
Eugenio Santillán N34-248 y Maurián
Quito, Ecuador, Sudamérica
+593 85 179 517
arogers@pinchot.org
www.ioe.ucla.edu/ctr/staff/Rogers_Amy.html

OBJECTIVE:

To implement sustainable, long-term conservation strategies for tropical forest systems by integrating the scientific, political, and socioeconomic components necessary to effect change.

SELECT PROFESSIONAL EXPERIENCE:

2010 – present: Director, Mache-Chindul Program, Pinchot Institute for Conservation, Esmeraldas, Ecuador.

2008 – present: Senior Research Fellow, Center for Tropical Research, Institute of the Environment at University of California – Los Angeles

2008 – 2010: Research Fellow, Ecuador Program, Pinchot Institute for Conservation , Esmeraldas, Ecuador.

1997: Staff Biologist, Asociación Sudcalifornia de Protección al Medio Ambiente y la Tortuga Marina, Baja California Sur, México.

SELECT RESEARCH EXPERIENCE:

2009 – 2010: Co-principal Investigator, Pinchot Institute for Conservation/Universidad de los Andes, Mache-Chindul Reserve, Ecuador. Co-PI: Rocio Manobanda.
>Based on long-term monitoring of mature forest seedlings in secondary forest, manipulations of available light via removal of different forest strata, with objective of fostering continued post-establishment seedling growth.

2003 – 2008: Dissertation Research, University of California – Los Angeles, Mache-Chindul Reserve, Ecuador.
>Ecological experiments to determine key limiting factors in tropical secondary forest succession, for application to slated buffer zone and corridor reforestation plans in Esmeraldas Province.

2001: Research Technician, US Geological Survey/University of California – Santa Cruz/University of Washington, Aleutian Islands, Alaska. PI's: Donald Croll, James Estes, and John Maron.
>Impact assessment of introduced fox populations on diversity in the Aleutian Island archipelago: comparison of vegetation communities and trophic level isotopes on islands which sustained foxes and which did not.

2000: Master's Research, San Francisco State University, Maya Biosphere Reserve, Guatemala.
>Tropical forest fragmentation and seed dispersal ecology: effects of alterations in the seed dispersal role of the largest remaining vertebrate, the black howler monkey, on forest regeneration processes.

1999: Research Technician, San Francisco State University/CalTrans, Richmond-San Rafael Bridge, California. PI's: Sarah Allen and Hal Markowitz.
>Impact assessment of seismic retrofit construction on local harbor seal populations, preventative modifications to construction protocol.

1997: Research Intern, Wildlife Conservation Society, Maya Biosphere Reserve, Guatemala. PI: Roan McNab
>Comparisons of macrofauna transects and animal harvest data in Parque Naciónal Tikal and nearby Uaxactún village as baseline for community land concession project to conserve areas outside park boundaries.

1995: Research Assistant, University of California – Santa Cruz, Año Nuevo State Reserve, California. PI: Burney LeBoeuf.
>Assessment of population status in California's largest recovering northern elephant seal breeding rookery: behavioral, physiological and genetic studies for application to management plans.

EDUCATION:

- **Ph.D.**, Ecology & Evolutionary Biology, University of California – Los Angeles, 2002-2008.
- Ecology & Evolutionary Biology Ph.D. Program, University of California – Santa Cruz, 2001.
- **M.A.**, Ecology & Systematic Biology, San Francisco State University, 1998-2001.
- **B.A.**, Biology, University of California – Santa Cruz, 1993-1995.
- Biology Undergraduate Program, Cabrillo College, 1992-1993.
- Wildlife & Fisheries Biology Undergraduate Program, University of Vermont, 1991-1992.

AWARDS & GRANTS:

2010	Luis F. Bacardi 'Advances in Tropical Conservation' Award
2010	Robert & Patricia Switzer Foundation Professional Development Fund Grant
2009-2012	John D. & Catherine T. MacArthur Foundation 'Conservation & Sustainable Development' Grant
2009-2010	Robert & Patricia Switzer Foundation Leadership Grant
2008-2011	World Land Trust/Private Donor Grant
2008-2009	Robert & Patricia Switzer Foundation Leadership Grant
2006-2007	University of California – Los Angeles Graduate Division Dissertation Fellowship
2006	Stephen A. Vavra Graduate Fellowship in Tropical Plant Systematics
2005-2006	Robert & Patricia Switzer Foundation Environmental Fellow
2005	Stephen A. Vavra Graduate Fellowship in Tropical Plant Systematics
2004-2005	U.S. Dept. of State Fulbright Fellow – Ecuador
2004	Stephen A. Vavra Graduate Fellowship in Tropical Plant Systematics
2003-2004	University of California – Los Angeles 'Quality of Graduate Education' Fellow
2002-2003	University of California – Los Angeles Latin America Center Grant
2000	Wildlife Conservation Society Research Fellow
1999-2000	U.S. Dept. of Education 'Graduate Assistance in Areas of National Need' Predoctoral Fellow
1999-2000	San Francisco State University Women's Association Scholarship
1994	Don Medina Memorial Award Biology Scholarship

PRESENTATIONS & PUBLICATIONS:

Rogers, A.E., Vogler, L.M., and Smith, T.B., *In prep.* Locally available seed sources and dispersal limitation determine colonist composition in a tropical secondary forest.

Rogers, A.E., Levine, J.L., Vogler, L.M., and Smith, T.B., *In prep.* Experimental evidence that dispersal limits succession in tropical secondary forest.

"Experimental evidence that dispersal limits succession in tropical secondary forest." Oral presentation at Association for Tropical Biology & Conservation annual meeting. Bali, Indonesia. July 21, 2010.

Rogers, A.E., 2010. How to reconstruct a rainforest. Pinchot Letters 15(3): 14-15. Available at: http://www.pinchot.org/uploads/download?fileId=935

"Adaptations to island life: seed dispersal dynamics in degraded tropical forest fragments." Oral presentation at Society for Conservation Biology annual meeting. Hilo, Hawaii. August 3, 2001.

Rogers, A.E., 2000. Efectos de la Dispersión de Semillas por el Mono Aullador en Bosque Tropical de Impacto Humano. Technical report prepared for Consejo Nacional de Areas Protegidas (CONAP), Guatemala City, Guatemala.

SELECT INSTRUCTION & COURSE DEVELOPMENT:

2002 – 2003: Teaching Fellow, University of California – Los Angeles Institute of the Environment.
>Instruction of year-long interdisciplinary course examining environmental science through the lenses of biology, politics, and social science. Independent development & implementation of seminar course.

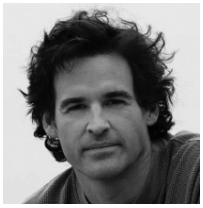
1999: Graduate Assistant, San Francisco State University Biology Department.
>Grading and note-taking for upper-level graduate division Population Genetics course.

1995: Field Instructor/Teaching Assistant, University of California – Santa Cruz, Año Nuevo State Reserve.
>Field instruction of upper-division course for science majors: independent supervision of students including field research techniques, data entry, and guidance in research projects/final papers.

OTHER SKILLS / RELEVANT EXPERIENCE:

- Languages: fluent spoken & intermediate written Spanish, basic comprehension of Portuguese & French.
- Tropical and boreal plant identification skills; voucher specimen collection and proficiency with dichotomous keys.
- Fund-raising, proposal writing, and budget preparation.
- Field experience in experimental design; vegetation survey techniques; phenological monitoring; animal behavior, physiology & genetics; census techniques; and ecological habitat measurements.
- Proficiency in use of GPS, spherical canopy densiometer, clinometer, and compass navigation.
- Independent travel to Bahamas (Andros), Greece, Italy, Mexico, Honduras, Guatemala, Belize, Ecuador, Colombia, Peru, Bolivia, Brazil, Singapore, and Indonesia.
- Independent management of research teams totaling >25 field assistants (US, European, Australian, Guatemalan, Ecuadorian, Peruvian) in extremely remote conditions.

References available upon request.



C. JOSH DONLAN

P.O. Box 1201 ♦ Midway, Utah 84049 USA ♦
+1 (607) 227-9768 ♦jdonlan@advancedconservation.org

Josh Donlan is a seasoned scientist and practitioner who builds and leads interdisciplinary initiatives to develop innovative solutions to environmental, biodiversity, and sustainability challenges. He has over a decade of experience in biodiversity science, ecology, economics, and finance. Leveraging his management, scientific, and leadership skills, Josh has worked in over a dozen countries on initiatives that work across sectors and disciplines, including project monitoring and evaluation.

MANAGEMENT & TECHNICAL SKILL SUMMARY

- Expert in environmental and biodiversity science. Skills include quantitative analysis, statistics, field methods, ecological restoration, monitoring and evaluation, outcome-based approaches to environmental conservation and expert elicitation.
- Experience in finance and risk management, including environmental markets, return on investment analysis, derivatives and insurance-based financial products, and impact investing.
- Experience in management, consulting, and leadership, including project design and management, negotiation, strategic planning, relationship building, fundraising, and performance planning.
- Experience in economic development and livelihood improvement, including poverty alleviation, microfinance, and incentive-based programs.

SELECTED EXPERIENCE

- Director and Founder, Advanced Conservation Strategies, 2006-present. Leads the organization by building interdisciplinary teams to tackle problems in novel ways.
  - ✓ Innovated a suite of novel financial and incentive mechanisms for environmental conservation, including marine biodiversity offsets, environmental lending, and biodiversity performance bonds.
  - ✓ Consulted for environmental NGOs and foundations on strategic planning and the development of return on investment frameworks.
  - ✓ Lead advisor to the Argentinean and Chilean governments on the restoration of the Tierra del Fuego bioregion.
  - ✓ Technical Expert, United Nations Environmental Program—Convention on Migratory Species Secretariat, United Arab Emirates. Lead architect on a transboundary program the leverages financial incentives and market opportunities to protect coastal ecosystems across the Indian and Pacific Ocean basins. Also assisted with fundraising efforts.
  - ✓ Leading efforts to create a pre-compliance species conservation market in the United States. This effort blends science, policy, and market-based approaches to create a program that incentivizes preemptive conservation actions through the buying and selling of habitat credits. The program concurrently manages environmental risk and incentivizes conservation action on private lands.
  - ✓ Creation of a portfolio investment fund for impact investors focused on ensuring proper execution and reporting of a triple bottom line – social, environmental, and financial returns.

- Chief Scientist, Project Isabela, Galápagos National Park, Ecuador, 2002-2006
  - ✓ Helped direct the world's largest island restoration project to date, a $10 million dollar successful effort to remove invasive mammals from two of the largest islands in the Galápagos.

- Director of Research, Island Conservation, Santa Cruz, California, 1998-2002
  - ✓ Played a pivotal role in building the NGO Island Conservation, whose mission is to prevent extinctions by removing invasive species from islands, from a five-person operation to a multi-million dollar organization that now works in over a dozen countries.
  - ✓ Accomplishments include restoring 26 islands in northwest México, which protected 200 seabird-breeding colonies and over 80 species unique to the region. The NGO was awarded México's National Conservation Recognition Award.

EDUCATION

Cornell University, New York, USA | Ph.D. in Ecology & Evolutionary Biology | 2008
University of California, California, USA | M.A. in Biology (minor in Statistics) | 2000
Northern Arizona University, Arizona, USA | B.S. in Biology, Summa Cum Laude | 1996

PROFESSIONAL DEVELOPMENT

Leadership and Media Training: The Robert & Patricia Switzer Foundation; Environmental Leadership Program; Kinship Conservation Program.
Business Training: Kinship Conservation Fellowship, training on business, economics, management, finance, and markets.
Collaborative Process and Negotiation Training: Harvard Program on Negotiation.
Finance and Markets: Fundamentals of commodity derivatives seminar and ISDA energy, commodities, and developing products conference, International Swaps Derivatives Association, New York; iGlobal Annual Carbon Trading Summit, New York; International Swaps Derivatives Association, ISDA Master Agreement, New York.

AFFILIATIONS, FELLOWSHIPS, ACTIVITIES & AWARDS

Affiliations: Visiting Fellow, Cornell University (2008-present); Visiting Researcher, CSIRO Marine & Atmospheric Research, Australia (2007-09).
Fellowships: Fulbright Fellow (Chile, 2011); Guggenheim Fellow (2010); Copeland Fellow in Global Sustainability, Amherst College (2009); Practitioner Fellow, Alcoa Foundation Conservation and Sustainability Program (2008); Fellow, The Kinship Foundation (2008); Fellow, Environmental Leadership Program (2002); Fellow, The Robert & Patricia Switzer Foundation (1998); Smithsonian Tropical Research Institute Fellowship (1997).
Boards: TBC Capital; Climate Science & Solutions Program, Northern Arizona University; The Robert & Patricia Switzer Foundation.
Activities: Co-chair, Innovative Finance Mechanisms Working Group, Conservation Finance Alliance; Co-chair, Drafting Committee, Outcomes of the UNESCO International Year for Biodiversity Science Policy Conference (Paris, 2010).
Awards: Finalist, Marketplace of Innovative Financial Solutions for Development Competition, World Bank, Bill & Melinda Gates Foundation, and *Agence Française de Développement*(2010); The Best American Science and Nature Writing by Houghton Mifflin (2008); Outside Magazine's "25 heroes saving the world"(2005); New York Times Magazine'sBig Ideas (2005).

PUBLICATIONS & PRESENTATIONS

Over 45 peer-reviewed publications in scientific journals on a variety of topics, including environmental markets, management, and policy; risk management, biodiversity conservation, applied ecology; ecological restoration; and ecological history.
Publications in leading journals, including Nature, Proceedings of the U.S. National Academy of Sciences, Conservation Biology, American Naturalist, Frontiers in Ecology & Environment, Conservation Letters, Journal of Applied Ecology, PLOS-One, and Biological Conservation.
Thirteen book chapters and 25 articles in leading magazines and newspapers on environmental topics, including SEED Magazine, Scientific American, Orion, Slate Magazine, and Grist Magazine.
Over 50 invited talks in sixteen countries over the past five years.

SELECTED MEDIA COVERAGE &APPEARANCES

Television: NBC Today Show, ABC Good Morning America, CNN.
Radio: The World, Public Radio International; All Things Considered, National Public Radio; Talk of the Nation-Science Friday, National Public Radio; The Kojo Nnamdi Show; Australian Broadcast Service.
Print: New York Times, The Economist, Life Experience Magazine (cover story on sustainability), Der Speigal, Le Figaro, New Zealand Herald, The Guardian, and Fohla de San Paulo.

References available upon request.

ANDREW TULCHIN

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Washington, DC 20010 ** Santa Fe, NM 87505
drew@socialenterprise.net
(202) 256-2692

PROFESSIONAL EXPERIENCE

MANAGING PARTNER – SOCIAL ENTERPRISE ASSOCIATES, 2007-present Washington, DC

Development 'triple bottom line' consulting firm. Engagements span more than 30 countries. Efforts have generated more than $100 million in capital for community health, finance and development

- **Environmental Defense Fund (EDF) Mexico.** Researched national scan of government agencies for community and public health initiatives; contributor to $5 million grant proposal to help rural poor Mexican fishing communities
- **New Mexican Tribal Loan Fund.** Developed investment fund for $10 million for lending in Native American rural communities for agricultural, value chain and infrastructure improvements
- **Nemours Health and Prevention Services.** On multi-year project, developed program metrics, evaluated project effectiveness & tracked impact to reduce obesity & related health affects
- **SOFIDES – Haiti.** For the firm Chemonics, conducted assessment for USAID DCA guarantee re-authorization. Made risk and operational improvement recommendations to SME lender
- **SEEP Network.** Facilitating a network social enterprises in India, Pakistan, and the Philippines to develop sustainable plans for scaling-up and linking to resources in the global North

DIRECTOR – ECDC/ENTERPRISE DEVELOPMENT GROUP, 2006-07 Arlington, VA

US small business lender serving immigrants, minorities, refugees and low income people

- Managed 9 staff, $1.2 million budget and $6 million balance sheet. Hired staff and interns
- Oversaw all program management: 10 community programs focused on immigrant populations
- Community relationships: established 12 member advisory board; signed 12 community partnerships

SENIOR PROGRAM OFFICER – GRAMEEN FOUNDATION, 2003-05 Washington, DC

- Founding staff person of Capital Markets Group: established risk management for all lending; contributed to launch of $60 million program called Growth Guarantees. Contributed to 20 deals totaling $10 million
- Managed initiative: 'High Growth Partner Project'. Designed program; established criteria to evaluate 45 partners in 16 countries. Worked on-the-ground with 12 leading lending institutions to conduct reviews. Developed 5 year strengthening plans with senior management and boards

OPERATIONS DIRECTOR – PRISMA MICROFINANCE, 2001-03 Seattle, WA

Finance company with operations in Central America

- Co-authored business plan won 'Global Social Venture Competition'; raised $1.2 million in private capital
- Led operational set up of and oversaw lending in country of Nicaragua
- New products: conducted market study, designed criteria and established underwriting for 3 new products

FINANCIAL ANALYST – COSANT WIRELESS, 2000 Seattle, WA

- Established financial reporting procedures; reported to board; tracked performance metrics
- Managed process to raise $3.2 million in private capital for wireless start-up

ENVIRONMENTAL EDUCATOR – FAMILY ECOLOGY, 1996-98 Oakland, CA

- Facilitated environmental education programs in 12 schools for multi-lingual inner city families
- Worked with teachers, parents and businesses to design community environmental projects

TEAM LEADER – AMERICORPS' EAST BAY CONSERVATION CORPS, 1994-95 Oakland, CA

- Leadership Department: launched department. Led marketing/sales; reached break-even in 6 months
- Community Service: managed 10 staff to complete 25 community projects

VISTA – AMERICAN RED CROSS AND ALAMEDA FOOD BANK, 1993 Los Angeles & Oakland, CA

- Provided earthquake disaster relief bi-lingual case management. Worked 12 hour shifts, 6 days a week
- Holiday Food Drive: coordinated with 120 corporate partners to raise 323,000 pounds of food

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SELECT ADDITIONAL CONSULTING EXPERIENCE

- **City of Santa Fe (NM, US) Sustainability Plan.** Provided systematic review of existing sustainability plan to maximize job creation in public and private sectors
- **Northern New Mexico (US).** Conducted regional study of local food and economic system, including Native American tribal communities, to document agricultural value chains, increase local market connections, and identify where financing can make a difference
- **MADERA/MISFA– Afghanistan.** For Banyan Global, conducted market study, wrote business plan, developed staff training needs, designed rural products, negotiated $3.2 million financing
- **Organic Exchange.** for an international agricultural membership organization working in the cotton value chain to increase environmental beneficial production: conducted market review and made recommendations on adding services to increase membership
- **Pride Africa's Sunlink.** In Kenya, for donor, evaluated MFI, developed plan and raised $1 million

EDUCATION

UNIVERSITY OF WASHINGTON, MBA with concentrations in Finance - 2000 Seattle, WA

- Received Innovation & Entrepreneurial Leadership Award from Graduate Business Foundation
- NGO Consultant: improved financial & operational performance at 6 inner city NGOs
- Net Impact Internship, Working Assets' Shopforchange.com: negotiated 12 on-line corporate partnerships

WASHINGTON UNIVERSITY, BA, Cum Laude - 1992 St. Louis, MO & Brighton, UK

- Double major in History and International Relations
- Year abroad at Sussex University (England) School of International Development; received honors

SKILLS AND INTERESTS

- Community Involvement: Permaculture Credit Union Board Member, Global Social Enterprise Competition Advisory Board Member, Net Impact – Lifetime Member, William James Foundation Sustainable Business Plan Competition Judge & Santa Fe Community Foundation Future Santa Fe Co-Chair
- Enjoy travel: worked in 30+ countries on 5 continents; visited 48 U.S. states; and hope to visit Antarctica
- Languages: fluent in Spanish; conversant in French; knowledgeable in Portuguese
- Ultimate Frisbee: charity tournaments organizer. Raised more than $100,000 for local non-profits

RECENT PUBLICATIONS & PRESENTATIONS

Materials available online at www.socialenterprise.net/resources.html

- Co-author, *Food Systems and Community Health*, submitted to Food Chain Journal, 2011
- Writer, *Financing Green Small Businesses*. The Greenfire Times. November Edition, 2010
- Editor, *Labournet Case Study*. USAID MicroLinks Notes from the Field, 2010
- Editor, 12 SEEP Network publications from USAID Finance Program Learning Network, 2010
- Co-author. *Environmental Mortgages*. Published in Conservation Letters, 2009
- Co-author, *Crossfire: Business Incubators*, from Enterprise Development & Microfinance Journal, 2009
- Researcher for book: Compelling Returns, A Guide to Socially Responsible Investing, TIAA-CREF, 2008
- Editor, *Small Foundations, How to Invest in Microfinance*. 2008
- Author, *Standards Industry Survey & Business Models Developed*, SEEP Focus Notes, 2007
- Published presentation, *Serving Millions, Not Hundreds for Microfinance*, 2007
- Co-author, *Brief: Raising Capital from Faith Based Investors*, 2006
- Project Manager / Author, Ford Foundation funded article, *Microfinance & the Double Bottom Line*, posted on the United Nations' website and Imp-Act, 2003. Prizewinner in industry competition, 2004

ANNEX 3. TERMS OF REFERENCE OF PERSONNEL AND CONSULTANTS FUNDED BY ITTO

The project's **executing agency**, Fundación Equilibrio Azul, will manage and channel financial resources from ITTO according to the terms of an inter-institutional Memorandum of Understanding with **primary collaborating agency** Pinchot Institute for Conservation and **secondary collaborating agency** Advanced Conservation Strategy. Together, the two collaborating agencies will manage the implementation of all project field components in Ecuador according to the current proposal. Equilibrio Azul will manage the legal hiring and payment of national and foreign project personnel, disbursements of required project funding according to operative planning schemes, and all environmental legal assessments directly related to implementation of the environmental mortgages model. This strategic arrangement between the executing agency and collaborating agencies will allow all partners to perform optimally in their respective areas of project expertise while remaining fully within the limits of recent Ecuadorian decrees and regulations.

The specific responsibilities of the **Project Coordinator** in terms of project component areas will be:

- Constant management of all in-country travel, communications, and personnel logistics.
- Spearheading all participatory community organization meetings as a first step toward cacao cooperative establishment, then supervising the cacao intern through subsequent remaining steps. Meetings will also be used to reach a concensus on cacao market system goals.
- Realizing analyses and subsequent action steps for the removal of intermediary cacao brokers and subsequent direct connection to market buyers during year two implementation phase.
- Supervision of cacao intern on all market revamping efforts during year two.
- Design of science- and priority-based monitoring and evaluation protocols for environmental asset audits in collaboration with International Consultant 1.
- Supervision of mapping intern on all community environmental asset delimitation during year one.
- Collaboration and input on all of the project's environmental mortgage, microfinance, and business consulting actions, as well as all community training opportunities.

The specific responsibilities of **International Consultant 1**, specialized in conservation finance innovation, will consist of the following:

- Assessment of sociopolitical landscape in the three target communities.
- Comprehensive design of the environmental mortgages framework based on all due diligence findings during the first year; identified risks have been deliberately mitigated.
- Supervision of sustainable development intern on all conservation finance and business project-related tasks.
- Design of science- and priority-based monitoring and evaluation protocols for environmental asset audits in collaboration with the Project Coordinator.

The specific responsibilities of **International Consultant 2**, specialized in micro-finance and sustainable development, will consist of the following:

- Negotiations with Ecuadorian microfinance institutions and capitalization of environmental trust using creative financing solutions.
- Embedding of the environmental trust at a local or regional level. This trust will be employed to facilitate the achievement of cacao market system goals.
- Detailed definition of all microfinance considerations related to the environmental mortgages program. A working program of environmental lending by the end of year one.
- Completion of a cacao business plan appropriate for each of the three communities by the end of year one.

ANNEX 4: RESPONSES TO ITTO REVIEWER COMMENTS

Reviewer Comment	Amendment(s) made	Page #
Comment 1: *1.2.1. Although the section is well written, it is unclear whether the proposed environmental mortgage program in three Mache-Chindul forest communities would be relevant to ITTO as part of sustainable forest management/conservation of biodiversity. In view of this, the proposal is lacking the clear linkage to the ITTO mandate and priorities, as its focus appears more on defining a micro financing system for cacao business and the improvement of a cacao marketing system.*	Section 1.2.1. Conformity with ITTO's objectives and priorities: Specific relevance to ITTO mandate and priorities, both general and REDDES-specific, has been included. The role of microfinancing and cacao as vehicles for forest conservation and restoration alone is more clearly explained.	2
Comment 2: *1.2.1. Good and detailed description on how the proposal relates to the TPD and the MP, however, the proposal is lacking clear evidence on how the project will contribute to the development and implementation of PES mechanisms.*	Section 1.2.1. Conformity with REDDES TPD deliverables and MP: Details have been specified on how environmental mortgages will contribute to the further development and implementation of PES mechanisms.	3
Comment 3: *1.4. If implemented successfully, this pilot project promises to be of direct value to the communities in the project area and could then be applied to the remaining communities in the project area. Details are provided on people directly and indirectly involved. It would be useful to elaborate on how self-sustaining incentives mechanisms to be developed by the project will contribute to tropical forest conservation and the reforestation of degraded tropical lands*	1.4. Outcomes at project completion: A more detailed explanation of how the model's incentive mechanisms will be self-sustaining, and of specifically how they will contribute to tropical forest conservation and reforestation, has been provided.	6
Comment 4: *2.2. The problem analysis explains well what did not work well, e.g. indirect payments or incentive payments and why they may fail - however, its analysis did not show any problem relating to the lack of an environmental mortgages program which is the key problem to be addressed by the project.*	2.2. Problem Analysis: We have added a detailed explanation of how the environmental mortgages strategy will address specific environmental issues and the socioeconomic issues that drive them. Direct relevance to ITTO mandates and priorities is also described.	7, 8
Comment 5: *2.3.1. Needs to show a clear relationship to the ITTO mandates and priorities*	2.3.1. Development objective and impact indicators: Relationship to ITTO mandates and priorities has been more clearly incorporated into development objective.	8
Comment 6: *2.3.2. Needs to show a clear relationship to the ITTO mandates and priorities*	2.3.2. Specific objective and outcome indicators: Relationship to ITTO mandates and priorities has been more clearly incorporated into specific objective.	8
Comment 7: *3.1. Outputs and indicators are clearly defined, although it is not clear how the proponents can be sure that things fall into place, e.g. a final framework integrating cacao, microfinance, conservation payment and reforestation measure can be addressed. Have experienced MFI voiced their cooperation?*	3.1. Outputs: We have included an expanded explanation of how effective integration of project components will be assessed. Progress in assessing finance management options to date has been included.	9
Comment 7: *3.2. In line with the outputs. It is though better to present this in tree form (see reference in the Manual).*	3.2. Activities and inputs: Activities and inputs have been reformatted using tree form as per Manual recommendations.	10

Reviewer Comment	Amendment(s) made	Page #
Comment 8: *3.5. The ITTO budget is heavy on personnel (coordinator, subcontracts) and travel. Unit costs appear reasonable. The budget on training is very low.* *Please include ITTO monitoring & review expenses at US$ 10K/a and an appropriate amount for one annual and one final audit*	3.5. Budget: Budget has been revised. ITTO monitoring and review expenses have been added at $10K/a, a final audit has been added at $2K (final audit only, as per communications with Gerhard Breullman), and executing agency overhead costs have been removed. A brief budget justification addressing low training costs and heavy personnel costs has been added at the beginning of section 3.5.	13-16
Comment 9: *4.2. The team appears very competent. Will the Director of the EA (Amy Rogers) work full-time on only this project on ITTO funds?*	4.2. Project management: Employment details (salary, focus, funding sources) of Project Coordinator Amy Rogers have been further explained.	18
Comment 10: *4.3. Indicators are clearly defined with timeline. Monitoring will be according to those indicators and follow ITTO standards. The TORs do not include reporting duties. It is furthermore not clear who and how auditing is done on reforestation and avoided forest degradation*	4.3. Monitoring and reporting: Reporting duties have been specified and details of environmental asset audit timing, approach, and responsible parties have been included.	19
Comment 11: *Annex 3. Needs further details*	Annex 3. Terms of reference of personnel and consultants funded by ITTO: Annex and section 4.2 have been modified to more clearly define the relationships among the three implementing agencies, including details of subcontract arrangements (duration, amount, MoUs).	35, 18
(As per email instruction from ITTO Project Officer John Leigh)	3.5 Budget: The three budget tables have been adjusted to reflect Equilibrio Azul counterpart funding; what was Pinchot Institute counterpart funding has been designated 'other' funding sources.	13-17
(As per email instruction from ITTO Project Officer John Leigh)	4.1 Executing agency and organizational structure: Fundacion Equilibrio Azul has been clearly identified as the Executing Agency, and Pinchot Institute as the Primary Collaborating Agency. Their respective roles in the project are described.	18
(As per email instruction from ITTO Project Officer John Leigh)	4.2 Project management: Details of the project coordinator's employment have been further elucidated to clarify link between Equilibrio Azul and Pinchot.	19
(As per email instruction from ITTO Project Officer John Leigh)	4.3 Monitoring and reporting: Equilibrio Azul's role as the overseer of financial management has been clarified.	19
(As per email instruction from ITTO Project Officer John Leigh)	Annex 1: Pinchot Institute for Conservation profile and budgets have been replaced by those of Fundacion Equilibrio Azul to reflect changes in executing agency.	20-29
(As per email instruction from ITTO Project Officer John Leigh)	Annex 3: Terms of reference have been modified with Equilibrio Azul as executing agency and a description of the Equilibrio Azul-Pinchot working arrangement for this project provided.	37

Please expand table as needed