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 Программа Организации Объединенных Наций по окружающей среде برنامج الأمم المتحدة للبيئة

联合国环境规划署



PROJECT DOCUMENT

SECTION 1: PROJECT IDENTIFICATION

1.1 Project title:	Multiplying environmental and carbon benefits in high Andean ecosystems.
1.2 Project number:	GFL/ PMS:
1.3 Project type:	FSP
1.4 Trust Fund:	GEF
1.5 Strategic objectives:	
GEF strategic objective:	BD-2; CCM-5; LD-3; SFM-1; SFM-2
1.6 UNEP priority:	Ecosystem Management
1.7 Geographical scope:	Sub-Regional Bi-National
1.8 Mode of execution:	External
1.9 Project executing organization:	CONDESAN (Regional) MAE Ecuador, MINAM Peru
1.10 Duration of project:	48 months Commencing: 01/04/2014 Technical completion: 31/03/2018
Validity of legal instrument:	months

1.11 Cost of project	US\$	%
Cost to the GEF Trust Fund	4,796,364	22,89
Co-financing Total	16,159,826	77,11
Total Project	20,956,190	100,00
Co-finance- Summary		
Cash		
Ministerio del Ambiente Ecuador	4,500,000	21,47
PRODERN – Belgium Cooperation	690,000	3,29
CONDESAN	1,750,000	8,35
Tungurahua Paramos Management and Poverty Alleviation Fund - FMPLPT	100,000	0,48
Regional Government of Huancavelica	127,000	0,61
<i>Sub-total</i>	7,167,000	34,20
In-kind		

Ministerio del Ambiente Ecuador	2,500,000	11,93
Ministerio de Ambiente Perú	1.622.826	7,74
PRODERN – Belgium Cooperation	120,000	0,57
CONDESAN	820,000	3,91
UNEP	3,450,000	16,46
Tungurahua Paramos Management and Poverty Alleviation Fund - FMPLPT	100.000	0,48
Regional Government of Huancavelica	380.000	1,81
	<i>Sub-total</i>	8.992.826 42,91
	Total Co-financing	16.159.826 77,11

1.12 Project summary

Upper montane forests, alpine grasslands and wetlands found in the Tropical Andes are major contributors to the globally significant carbon stocks and biodiversity. These ecosystems also play a fundamental role in sustaining the livelihoods of millions of people, providing essential ecosystem services such as water and food.

These high Andean ecosystems are continuously being degraded. Threats to these systems include unsustainable agricultural and rangeland management practices, fire, deforestation, and overexploitation of natural resources. Agriculture encroachment pastures expansion are especially damaging to upper montane forests. Improper use of tree species in afforestation, land restoration and agroforestry programs also contribute to processes of land degradation. More recently, infrastructure development and mining has become an increasing threat to these ecosystems and rural livelihoods, as governments foster investments in the Andes to support economic growth.

The goal of this project is to contribute to the conservation or enhancement of carbon stocks and biodiversity of global interest in Tropical Andes of Ecuador and Peru, embracing sustainable forest management (SFM) and sustainable land management (SLM) practices at multiple scales. More specifically, the project's objective is to protect and restore the High Andean ecosystems at 5 selected intervention sites (3 in Ecuador and 2 in Peru) by mainstreaming scientifically-validated SFM/ SLM tools and practices that contribute to the mitigation of climate change, while improving the livelihoods of participating rural families taking considering that in many cases, gender has a profound influence on the use of these resources.

Aimed at overcoming barriers that impeded the conservation of these critical ecosystems, this project is divided into four sequentially linked components. **Component 1** mandates the generation of science-based information to fill in knowledge gaps together with the construction of effective tools and improved SFM/SLM practices that enable national and local institutions to preserve and restore high Andean ecosystems and the services they provide. **Component 2** aims at strengthening local governments and rural communities to integrate these instruments in supporting policy, cross-sectorial planning and development programs. Seeking to validate the instruments mentioned above, **Component 3** promotes sustainable livelihood strategies and implements integrated forest and land management practices at the selected intervention sites. Finally, **Component 4** calls for the insertion of project findings and tools by national environmental authorities into their MRV systems and incentive programs. Further, this component aims to increase public awareness of project results and outreach findings of validated management practices among local governments and key stakeholders surrounding the project's direct intervention area.

The project is supported by a growing political commitment and associated core investments being made by both Ecuador and Peru to reduce GHG emissions, conserve carbon stocks and preserve biodiversity. Both countries are signatories of the Convention on Biological Diversity (CDB), the United Nations Framework Convention on Climate Change (UNFCCC), and the United Nations Convention to Combat Desertification (UNCCD). Constitutional amendments, national and environmental development plans and recently created incentives programs for the conservation of natural resources are among some of the more important instruments now being applied in these countries to meet their declared commitments to these international agreements.

This project contributes directly to GEF's strategic goals #1, #2 and #3: Conserve, sustainably use, and manage biodiversity, ecosystems and natural resources globally, taking into account the anticipated impacts of climate change; Reduce global climate change risks by stabilizing atmospheric GHG concentrations through emission reduction actions, and assisting countries to adapt to climate change,

including variability; and Build national and regional capacities and enabling conditions for global environmental protection and sustainable development. In particular, the project is in accordance to SO # 2 in Biodiversity Focal Area, SO # 5 in the Climate Change, SO # 3 in Land Degradation and SO # 1 and SO # 2 in Sustainable Forest Management. Global and local benefits as related to project outcomes are summarized below.

Following guidelines set down by a Theory of Change (TC) exercise conducted in the preparatory phase, this project will strive to meet the following Intermediate States (IS):

- a) Expanded knowledge base on Andean ecosystem dynamics available and accessible for decision making processes.
- b) Stakeholders implement plans and development programs that properly deal with threats and barriers to the conservation of high Andean ecosystems.
- c) Land degradation is reduced as result of conservation schemes and sustainable forestry and land management practices promoted by the project at proposed intervention sites.
- d) National and local partner institutions disseminate and upscale conservation schemes and sustainable forestry and land management practices into their land management plans and regulatory framework.

GEF has designated UNEP as the implementing Agency for this project, following requests by the Governments of Ecuador and Peru. In consultation with national authorities, UNEP determined that the Consortium for the Sustainable Development of the Andean Eco-Region (CONDESAN) will manage the project at the international, bi-national and national levels, in coordination with national environmental authorities. Project staff members include the Project Manager and Project Monitoring and Evaluation Officers, Thematic Experts and Technical and Administrative Assistants. With the participation of local municipalities and rural communities, including farm families, intervention sites will be developed jointly with the provincial governments of Carchi, Pichincha and Tungurahua in Ecuador and the regional governments of Piura and Huancavelica in Peru. National and international consultants will be hired to assist in the implementation of specific aspects of project components. Collaborative agreements with NGOs, universities and other development organizations will also be negotiated for this purpose. With offices in both Ecuador and Peru, project duration is four years.

Aided by the Steering Committee (SC), the project will follow UNEP standard monitoring, reporting and evaluation processes and procedures. A mid-term management review will take place at the mid-point in the project. An independent terminal evaluation will take place 6 months prior to the end of project, determining lessons learned. GEF tracking tools will be updated at mid-term and at the end of the project, or when considered necessary by the SC. Findings of these events will be analyzed jointly by UNEP, GEF, national authorities and other important Stakeholders. The GEF Activity Based Budget is US\$ 4,796,364. Approximately 8.93% (US\$ 428,499) of this budget is dedicated to the process of monitoring and evaluation. Surpassing requirements, counterpart cash and in kind contributions negotiated for this project is estimated at US\$ 16.2 million.

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ACRONYMS AND ABBREVIATIONS

AGB-BGB	Above and Below-Ground Biomass
ALTROPICO	Foundation for the Development of Community Alternative for the Conservation of the Tropics
AM	Adaptive Management
BD	Biodiversity
BNWG	Bi-national Working Groups
CBD	Convention on Biological Diversity
CBP	Carbon Benefits Project
CCM	Climate Change Mitigation
CEPLAN	National Strategic Planning Center
CESA	Ecuadorian Centre of Agricultural Services
CICC	Climate Change Inter-Institutional Committee
CNCC	Climate Change National Commission
COMAFORS	Corporation for Sustainable Forest Management
CONDESAN	Consortium for the Sustainable Development of the Andean Eco-Region
COOTAD	Organic Code for Territorial Management and Decentralization
EBA	Ecosystem Based Adaptation
EBM	Ecosystem Based Mitigation
EMP	Evaluation and Monitoring Program
ENDB	National Biodiversity Strategy
EOU	Evaluation and Oversight Unit
FAO	Food and Agriculture Organization of the United Nations
FCPF	Forest Carbon Partnership Facility
FONAG	Fund for the Protection of Water
GADS	Local Decentralized and Autonomous Governments
GEC	Global Environmental Changes
GEF	Global Environmental Facility
GHG	Green House Gases
GIZ	German Technical Cooperation
GORE-H	Regional Government of Huancavelica
GORE-P	Regional Government of Piura
GPC	Provincial Government of Carchi
GPT	Provincial Government of Tungurahua
INRM	Integral Natural Resource Management
IPCC	Intergovernmental Panel on Climate Change
IS	Intermediate States
KFW	Reconstruction Credit Bank of Germany
LD	Land Degradation
LUCC	Land-use and Land-cover Change
LULUCF	Land Use, Land-Use Change and Forestry
M&E	Monitoring and Evaluation
M&EP	Monitoring and Evaluation Plan
MAE	Ministry of Environment - Ecuador
MAGAP	Ministry of Agriculture, Cattle Raising and Fishing

MDMQ	Municipal Government of Quito
MEBA	Microfinance for Ecosystem Based Adaptation
MINAM	Ministry of Environment - Peru
MRV	Monitoring Report and Verification
NCI	Nature and Culture International
NGO	Non Governmental Organization
PAN	National Environmental Policy
PANE	Natural Areas Patrimony of the State
PES	Payment for Environmental Services
PIR	Project Implementation Review
PLANAA	National Environmental Action Plan
PNREDD+	National REDD+ Programme
PPG	Project Preparation Grant
PUCE	Pontifical Catholic University of Ecuador
REDD	Reducing Emissions from Deforestation and Forest Degradation
RPP	Readiness Preparedness Plan
SC	Steering Committee
SCC	Climate Change Subsecretary
SDC	Swiss Agency for Development and Cooperation
SENPLADES	National Secretariat for Planning and Development
SES	Social Environmental Standard
SFM	Sustainable Forest Management
SGCAN	Andean Community General Secretariat
SLM	Sustainable Land Management
SMART	Specific, Measurable, Achievable, Relevant, Timely Indicators
SNAP	National System of Protected Areas
SO	Strategic Objective
SOC	Soil Organic Carbon
SPN	National Patrimony Subsecretary
SWAMP	Sustainable Wetlands Adaptation and Mitigation Program
TAP	Technical Assistant Peru
TAs	Technical Assistants
TC	Theory of Change
TOR	Terms of Reference
TT	Tracking Tools
UNALM	La Molina National Agrarian University
UNCCD	United Nations Convention to Combat Desertification
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
USAID	United States Agency for International Development
WCMC	World Conservation Monitoring Center
ZEE	Ecological and Economic Zoning

SECTION 2: BACKGROUND AND SITUATION ANALYSIS (BASELINE COURSE OF ACTION)

2.1. Background and context

1. Common understanding of the causes of land-use and land-cover change (LUCC) is dominated by simplifications which, in turn, underlie many environment-development policies; Land use changes in the Tropics are dynamic and are the result of complex socio-economic dynamics that interact at multiple scales (Lambin *et al.*, 2001). Such changes have a direct effect on biodiversity loss, land degradation, depletion of the natural capital and carbon dynamics in the region. At the same time, land use regimes provide the basis for the livelihoods of numerous people, especially in the rural areas of developing countries. These dynamics pose a central challenge for the attainment of development goals that guarantee the persistence of biodiversity and its services (Foley *et al.*, 2005).
2. Tropical high mountain environments are crucial ecosystems that sustain biodiversity, biological processes, carbon storage and surface water provision. They extend between mid-range of the Andean mountains and the permanent snow line. This coincides with a lower limit between 2500 and 2800 m and an upper limit of about 5000 m, depending on the latitude and local conditions (Josse *et al.*, 2011). These environments are identified as one of the terrestrial ecosystems most vulnerable to global environmental change, because they are controlled by low temperature conditions; their upper limits in particular (Körner & Paulsen, 2004). With increasing altitude, climate-related ecological factors become dominant, thus the effects of climate change may be more pronounced compared to ecosystems of lower latitude.
3. The Tropical Andes can be divided in two distinct biogeographic regions, the Northern Andes and the Central Andes. The former one extends from Venezuela to northern Peru while the Central Andes expand from there to northern Argentina. The dominant ecosystems found in the Northern Andean Mountains are the cloud forest and the alpine grasslands named *Paramo*; cloud forests cover most of the region, whereas *paramos* are insular formations around the highest peaks. The Central Andes extends from northern Peru to northern Argentina; this bioregion is characterized by cloud forest locally named *Yungas* and the *Puna*. The *Puna* ecosystem can be defined as high elevation seasonal alpine grassland, occurring from the tree-line (3500 m) to the snow border line. The *Puna* is bordered on the west by the dry *Sechura* desert and to the east by the wet Peruvian *Yungas*, which makes for extreme transitional zones and increase the important number of endemic genera and species. The *Puna* harbors an extraordinary important ecosystem, the tropical mountain wetlands or peatlands, which have been referred to as *bofedales*, or *vegas*. Despite hyper-aridity, intense solar radiation, high-velocity winds, hypoxia, daily frost, and a short growing season, *bofedales* are near the hydrological and altitudinal limits for plant life in the cold and arid grasslands of Perú, Bolivia, Chile and Argentina (Squeo *et al.*, 2006).
4. Ecosystems in the High Andes have been subject to a long history of degradation processes due to productive systems based on extensive cattle grazing combined with fire regimes, the upward expansion of agricultural systems, in contexts where the productive systems have generally little investment and control. During the last decades, extensive cattle grazing became more important for local farmers (Farley *et al.* 2012), and *paramos* and forests near densely populated areas have experienced the intensification of productive activities, including cattle ranching and annual crops. Montane forests have been heavily transformed to pastures and croplands (i.e. potatoes) in the last 30-40 years. In Colombia montane forests decreased from 7.3 million of ha in 1985 to 6.4 million ha in 2005 (0.63%) (Rodríguez *et al.* 2013). A similar pattern is reported for the highlands of Cajamarca in Peru, where over 1 million ha

(0.4%) were lost between 1987 and 2007 with profound effects on the ecological integrity of this area (Tovar *et al.*, 2011).

5. These land use practices influence both biodiversity and carbon stocks. For instance, exotic herbivores have negative effects on the diversity, soil biochemistry, soil structure, and the capacity to capture and store carbon in the vegetation and soils of high Andean ecosystems. Overgrazed areas typically lose species of tussock grasses, which are most palatable species for grazers (Molinillo 1997). The loss of this species decreases the already low carrying capacity of the system (< 1 animal unit/ha). In overgrazed paramos plant communities show a characteristic shift of the dominance of tussock grasses to species that form extensive mats, with low plant species diversity (Keating 2000, Molinillo 1997). In the central Andes, the Puna ecosystem has been strongly impacted by human influences for centuries. As is the case in paramos, large areas of puna are burned to facilitate grazing on annual basis. Yet, studies on the effects of intensive grazing and fire on the species diversity of this ecosystem are scarce.
6. Intensively grazed areas also have an altered capacity to store carbon in living biomass and soils. The factors responsible include human-induced fires, trampling, and higher rates of nutrient inputs through manure. In paramo ecosystems fire has been traditionally used under the wrong assumption that it enhances the growth of palatable species. However, detailed studies of the interaction between fire and grazing have found no such effect (Hofstede 1995). On the contrary, fire, trampling and increased availability of nutrients linked to over grazing decrease soil organic carbon. For example, it has been found that fire and trampling are related to loss of soil organic carbon by up to 50% in wet paramos and 40% in dry paramos of Ecuador (Podwojewski *et al.* 2001). Additionally, over the past four decades the establishment of pine plantations in high altitude páramo and puna grasslands has been a growing land use change in Ecuador (Farley *et al.* 2007, 2010) and in Peru (Tovar *et al.* 2011). The few existing studies have shown that, in the case of páramo to pine transitions, the biophysical response includes a loss of soil carbon, nitrogen, and water retention capacity, implying important trade-offs between the ecosystem services provided by paramos and those provided by pine plantations. Nevertheless, the factors that promoted paramos to pine transitions in Ecuador from 1990s onwards was prompted by their potential as carbon sinks and a source of carbon credits (Farley 2010).
7. In summary, land degradation due to unsustainable agricultural practices (cultivation, tillage, fires), overgrazing, and afforestation with exotic species, deforestation and mismanagement of water resources threatens ecosystem integrity and rural livelihoods that depends on the continuous flows of ecosystem services (Buytaert *et al.* 2006, Farley *et al.* 2004, Podwojewski *et al.* 2002, Poulenard *et al.* 2001).
8. Nevertheless, agriculture is a major component of rural incomes, especially in the Andes. Access to, control over, and management of these resources determine which activities are pursued, which goods may be produced, and whether the lives of rural families are enhanced or diminished (Valdivia & Gilles 2001). Access, though, differs from control, in that the latter implies a form of ownership or rights to the resource (Agarwal, 1994). In many cases, gender has a profound influence on the use of these resources; often women have access through men (Ellis 1998). Differences between men and women in control over resources and in property rights may lead to inefficient management, and threaten the welfare and food security of rural families (Bebbington 1999).
9. The threats to the High Andes' ecosystems are myriad, and in recent years they have been compounded by the manifold impacts of climate change, and it is likely that LUCC impacts

will be magnified under these novel conditions (IPCC 2007, Jetz et al. 2007, Foster 2001, Bradley et al. 2006). Given the complexity of these dynamics, tackling the challenges imposed by global environmental change in the region requires a basic understanding of their ecological systems and its responses to these drivers of transformation.

10. The project is designed to implement activities in a set of five intervention sites distributed in high Andean landscapes in Ecuador and Peru. The locations of the sites was defined to represent the heterogeneity found in the Andean region both in terms of ecosystem processes and socioeconomic dynamics underlying different land use regimes. The intervention sites, 3 in Ecuador and 2 in Peru, were defined using political – administrative units as building blocks to promote and facilitate direct links to local environmental governance frameworks. Within these sites there are specific areas of direct influence and areas of indirect influence of the Project; in the direct areas of influence specific research activities and SFM /SLM practices will be implemented (See description of Components 1 and 3 in Section 3.3); whereas the areas of indirect influence, include entire political administrative territorial units, that will be affected by the project mainstreaming and up-scaling activities directed towards local governments and their local policy frameworks (See description of component 2 and 4 in Section 3.3). The five selected sites are (Figure 1): 1) Carchi, Ecuador, 2) Pichincha, Ecuador, 3) Tungurahua, Ecuador, 4) Piura, Peru and 5) Huancavelica, Peru. The main characteristics of the five sites are described in Table 1.

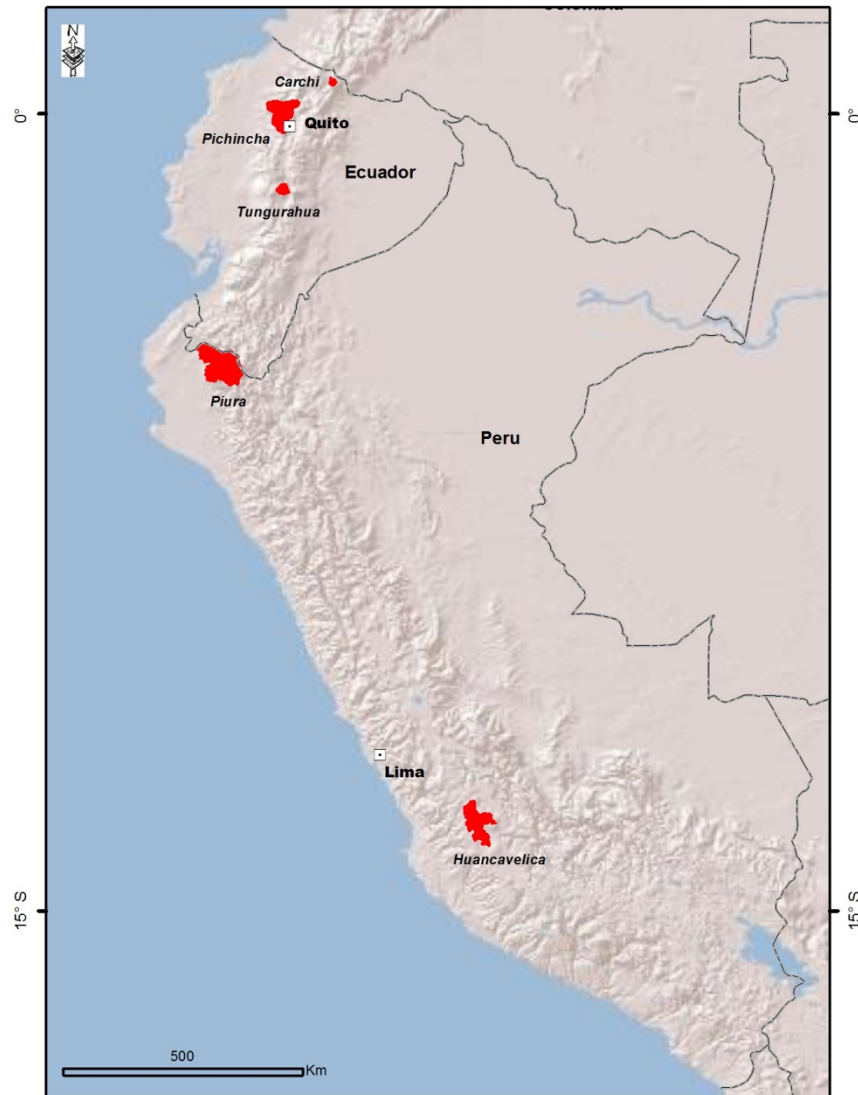


Figure 1: Selected Intervention Sites for the Project

11. The northernmost intervention site is located in the Carchi province¹, Ecuador. The site covers an area of more than 10,000 ha corresponding to the limits of three parishes: Fernández Salvador, Huaca and Mariscal Sucre. The land use – land cover mosaic follows a structure common in the northern Ecuadorian Andes. The valley bottom of the Andean valley is dominated by a mixed crop-pasture system, where potatoes are the main cash crop cultivated intensively with high inputs in biocides and fertilizers (Sherwood 2009). Moving eastward and up towards the eastern Andean range, remnants of Andean forests replace the agricultural mosaic, as the topography becomes more complex. Further up, the tree line defines the start of paramo ecosystems, at elevations between 3,400 – 3,600 m (Moscol-Olivera y Hooghiemstra 2010). Remnants of forest and paramos cover approximately 18% and 20% of the intervention

¹ In Ecuador, the political units from top to bottom are province, canton and parish. In Peru, the units in the same order are department, province and district.

site, respectively, and have been identified as important areas for the preservation of habitat connectivity for key Andean species such as the spectacled bear (*Tremactos ornatus*) (Peralvo et al. 2005). The upward expansion of the agricultural frontier represents a major threat to these forest and paramo ecosystem, combined with degradation associated to the use of fire and the extraction of wood to fabricate charcoal.

12. The institutional context in Carchi provides opportunities for the articulation and up scaling of the project's activities. The Government of the Province has articulated a strong platform of stakeholders working in development, environmental governance, land use planning. One of the strategic goals of the land use and development plan is to promote the conservation of healthy ecosystems and their functions, with emphasis on soil and water conservation. The eastern Andean range has been identified as a key planning unit, with the idea of establishing a biological corridor as an integrated land management strategy. Comparatively, the remnant montane forests and paramos in this site are less disturbed than in the other sites and, together with the neighboring agricultural mosaics, provide opportunities to characterize the interaction between key ecosystem functions and their variation along environmental and land use gradients.
13. The Pichincha site in Ecuador was defined as the territory of six parishes of Quito's Metropolitan District (Calacalí, Lloa, Nanegal, Nanegalito, Nono, San José de Minas, Gualea, Pacto) and one parish of the adjacent the San Miguel de los Bancos canton (Mindó). The site covers an area of approximately 236,000 ha and has the most extensive area of montane forests among the five intervention sites with 137,000 ha (58% of the intervention site, Table 1). Located in the vicinity of Quito, Ecuador's capital, the intervention site presents a wide environmental gradient, with elevations between 500 and 4,800 m.a.s.l. In the upper part of the study site which is closer to Quito, the landscape contains paramos heavily disturbed by human originated fires and a mosaic of agricultural and livestock systems. The north-western portion of the site covers the lower portion of the altitudinal range. These landscapes are dominated by dairy production systems interspersed with forest remnants under different land management schemes, including private and public protected areas. The Municipality of Quito is one of the key stakeholders in terms of land use planning in the intervention site. The Municipality's Land Use and Development Plan contemplates the creation of a conservation corridor that covers part of the intervention sites and integrates paramo and forest ecosystems. This is part of a wider conservation strategy with a goal of protecting 290,000 ha of fragile ecosystems in the Metropolitan District of Quito by 2020 (MDMQ 2012).
14. The intervention site in the Tungurahua province, Ecuador, includes four cantons: Cevallos, Mocha, Quero and Tisaleo. The total area is approximately 34,000 ha with predominance of an agricultural mosaic (70%) and paramo ecosystems (24%, Table 1). Paramos in this study site are extremely degraded due to the presence of agriculture (especially potatoes), and intensive grazing by sheep and cattle, leading to a strong decline in the number of plant species, the replacement of the tussock grass vegetation by other plant communities, and an increase of bare land associated with processes of aeolian and gully erosion (Podwojewski et al. 2002). Within the paramo matrix, high elevation wetlands are important due to their role in water regulation and the provision of sources of irrigation for the agricultural systems at lower elevations that depend on healthy ecosystems for water provision (Hunink et al. 2013). These productive systems are characterized by a dominance of market-oriented, smallholder agriculture that includes cash crops and including fruit orchards (Ospina et al. 2009).

15. The development agenda for Tungurahua for the period 2013 – 2015 establishes three main strategic areas: water, people and production (GADP-Tungurahua 2013). The strategic goals for water emphasize the importance of paramo ecosystems and implement specific land management plans for these areas, at local and province levels. A key actor in the governance framework for paramos is the trust fund of paramos and fight against poverty in Tungurahua, which is governed by a consortium of indigenous communities, second-tier indigenous and peasant organizations, NGOs and local governments. The fund has the role of planning and funding key management actions for paramos, as they relate to conservation and sustainable development goals.
16. In Peru, the northernmost intervention site is located in the Piura department, and corresponds to the territory of the Ayabaca province. Land cover in the province is dominated by an agricultural mosaic (Table 1). Upper montane forests cover approximately 5% of the area and paramos 2% with important surfaces of both ecosystems under different processes of degradation (Dunin-Borkowski 2011). Paramos and upper montane forests are concentrated in the easternmost portion of the province, and even though their extent is limited in relation to the total area of the province, these areas are key for the maintenance of ecosystem services related to water regulation and provision (MP-Ayabaca y NCI 2011). In this context, the functional links between these high elevation Andean ecosystems and the land use and land cover mosaics in the lower parts of the department are fundamental, especially for agricultural systems producing for international markets.
17. The regional government of the Piura Department and the municipal government of the Ayabaca province are key stakeholders in the framework for the environmental governance related to paramo and montane forests. Recent processes aimed at strengthening the procedures and tools applied in land use planning in this intervention site have opened opportunities for the articulation of actions oriented to identify knowledge gaps linking governance platforms and local land managers within different strategies and collaboration initiatives. For example, the Environmental Agenda of the Ayabaca Municipality establishes the creation of a public environmental information system, a plan for the conservation and sustainable management of montane forests and paramos, the promotion of reforestation and the implementation of agroforestry systems in collaboration with a wide set of actors (MP-Ayabaca 2011).
18. The fifth and southernmost intervention site is located within the Huancavelica, department in Peru. The districts of Pilpichaca and Santa Ana were identified as the intervention site, with a combined area of approximately 284,500 ha (Table 1). The landscape in this site is dominated by puna ecosystems with a long history of intensive use associated to pastoralists systems of Andean camelids, mainly llamas (*Lama glama*) and alpacas (*Vicugna pacos*). Pastoralist land use regimes are characterized by complex local institutional arrangements that regulate access to fodder areas, though these systems are subject to changes posited by recent processes of socioeconomic change such as market integration and land scarcity (Postigo et al. 2008). This site has a high incidence of poverty, with almost 85% of the population listed as poor. High levels of out-migration in the 80's have subsided after civil unrest linked to irregular groups in Peru ended which has led to an increasing pressure over land and water resources.
19. A key issue in Huancavelica is the maintenance and recovery of key ecosystem functions that provide the livelihood basis for the population. Fodder and water availability and their link with land use regimes are key issues for the sustainable management of the landscape in this area. Different actors address part of these dynamics with different thematic and

methodological emphasis. One of such actors is the Sustainable Development and Strategic Management of Natural Resources Program (PRODERN) attached to the Peruvian Ministry of the Environment. This and other initiatives open spaces for integrated approaches that link planning frameworks with site-level conservation and land management activities and connect them to efforts by local communities and local / regional governments.

Table 1. Principal characteristics of project's intervention sites; Puna ecosystems are only present in the Huancavelica site.

Intervention site	Total area (ha)	Forest ² (ha)	Paramo / Puna / Wetlands ² (ha)	Agriculture / Pastures ² (ha)	Protected areas ³ (ha)	Total population ⁴	Population defined as poor ⁵
1. Carchi, EC	10 267	1 825	2 013	5704	0	8 906	5 987
2. Pichincha, EC	235 877	136 978	7 036	76 042	3 391	30 691	22 433
3. Tungurahua, EC	33 757	345	8 149	23 507	4 571	46 282	35 104
4. Piura, PE	519 089	25 352	11 980	246 029	0	138 403	115 482
5. Huancavelica, PE	284 541	284	178 840	0	0	5 726	4 866

2.2. Global significance

20. The tropical Andes top the list of worldwide hotspots for endemism and the number of species/area ratio (Myers et al. 2000). The snow-capped peaks, steep slopes, deep canyons, and isolated valleys of these mountains have led to a large diversity of microhabitats favoring speciation (Josse et al. 2011). A major contributor to the rich biodiversity and endemism of the tropical Andes are the tropical alpine grasslands and the cloud forest, covering the upper parts of the tropical Andes from Venezuela south to Bolivia.
21. The cloud forest are a globally important concern due to its high levels of species diversity, especially plants ranging from ca. 30,000 – 40,000 species; (Gentry, 1995) and birds (Fjeldså, 1995; Fjeldså *et al.*, 1999). These forests owe their extraordinary diversity to their juxtaposition with the Amazon or the Chocó-Pacific regions, the sharp altitudinal gradient and the barriers to distribution. The alpine grasslands (paramos and punas) occupy the upper section of the high-Andean belt and form distinct plant communities; these ecosystems harbour the most diverse alpine flora in the world (Smith & Young, 1987) and have high levels of endemism, both for species and genera (Sklenár & Ramsay, 2001; Sklenár *et al.*, 2005). Further, these ecosystems play a fundamental role in sustaining the livelihoods of millions of people, providing essential ecosystem services such a climate regulation, water

² Source Ecuador: MAE (2010). Sources Peru: Dunin-Borkowski (2011)

³ Sources: Ministry of the Environment of Ecuador, National Service of State Protected Natural Areas, Peru.

⁴ Source: Ecuador, Census of Population and Housing 2010 (Available at: <http://redatam.inec.gob.ec/cgibin/RpWebEngine.exe/PortalAction>). Peru, Census of Population and Housing 2007 (Available at: <http://www.inei.gob.pe/>)

⁵ Sources: SIISE (Available at: <http://www.siise.gob.ec/>)

production for urban uses and hydropower generation (Bradley *et al.*, 2006; Buytaert *et al.*, 2006b).

22. The geomorphology of these ecosystems allows the formation of extensive peatlands; these areas are particularly important as reservoirs of biodiversity and carbon stocks. In the Puna a small number of mammals and bird species, about one-third of which is threatened, depend upon this ecosystem for grazing, nesting and water. Local dwellers are directly dependent upon these peatlands in this region where conditions are so severe as to almost preclude human habitation; this ecosystem is used for grazing by their domestic herds of llamas (*Lama glama*) and alpacas (*Vicugna pacos*), which are the basis of the local indigenous economy. These environments are an extraordinary carbon sink that contains roughly 500 tons of organic carbon per hectare and even higher values has been estimated for the Northern Andes wetlands (Squeo *et al.*, 2006; Chimner & Karberg, 2008).
23. These high altitude mountain ecosystems are also known for their high carbon contents, particularly in their soils and in the above ground biomass in the case of the cloud forest (Gibbon *et al.*, 2010; Zimmermann *et al.*, 2010; Moser *et al.*, 2011). In the high Andes, the sequestration of organic carbon in soils is a major process, primarily due to its climatic setting: cool and humid conditions prevailing in high altitude landscapes favor soil carbon accumulation (Buytaert *et al.*, 2006a). Soil carbon accumulation is further enhanced when these high altitude soils are developed in volcanic ash. Such volcanic ash soils have been recognized worldwide as containing very large stocks of soil organic matter per unit area: approximately 5% of global soil carbon within only 0.84% of the earth's surface.
24. The total amount of above and below-ground biomass (AGB-BGB) for upper montane forests range from 154 to 67 Mg C/ha controlled by the altitudinal gradient (Gibbon *et al.*, 2010; Moser *et al.*, 2011), and from 7.5 to 28.6 Mg C/ha for tropical alpine grasslands (i.e. páramo & puna) depending on the land-use history and on the local climatic conditions (i.e. precipitation). Furthermore, a key compartment is the soil organic carbon which is particularly high in tropical mountain regions, ranging from 300 Mg C/ha in the humid puna of Perú (Zimmermann *et al.*, 2010) to 500-800 Tons/ha in the wet paramos of northern Ecuador (Tonneijck *et al.*, 2010; Chimner and Karberg, 2008). However, patterns of aboveground and below-ground carbon contents are extremely variable at the landscape scale and more comprehensive approaches are needed to characterize the links between carbon dynamics, biodiversity and the provision of key environmental services under different land use regimes.
25. These figures show the overall importance of these environments and their preservation and restoration could have a substantial impact on the carbon budget of the region and deliver substantial global benefits. Moreover, the total amount of carbon sequestered in these biomes might have important implications for climate change mitigation strategies and biodiversity conservation in the Andean countries. Thus, whether this region becomes a net carbon source or sinks largely depends on current and future trends in land use and climate change impacts and the measures that are taken to counteract these impacts.
26. Additionally, the soil organic carbon is strongly linked to the extraordinary water holding and water flow regulation capacities of these ecosystems from which over 20 million of persons rely on (Buytaert *et al.*, 2011). The soil functions as a storage compartment, releasing water in a slow hydrologic response. Furthermore, tropical alpine grasslands and cloud forests play a fundamental role in sustaining the livelihoods of millions of people, providing essential ecosystem services such a soil productivity and biomass for cattle grazing. The generation and preservation of these services depends heavily on the integrity of the ecosystems which is

expressed as a delicate inter-dependency amongst three key elements: a) the hydro-physical properties of the soil, b) the vegetation structure, and c) the water cycle. The maintenance of these properties allows the existence of different elements of this rich biodiversity aggregated at different spatial scales.

27. These vital functions rely on the responses of species that are unequally distributed across the planet, many of which are adversely affected by both land conversion and changing climate (Midgley et al. 2010); this is particularly the case for the tropical high Andean ecosystems (i.e. high diversity, high carbon contents) with current elevated conversion/deforestation rates and high sensitivity to climate change impacts (Buytaert *et al.*, 2011; Tovar *et al.*, 2013). Nevertheless, there is currently a poorly developed understanding of the relationship between biodiversity and the carbon cycle at global, continental and regional scales. Improving it would help to assess how large the effect of projected reductions in species richness due to climate and habitat change will be on the carbon cycle. In addition to the positive relationship between biodiversity and ecosystem productivity, it is relevant to highlight the role of diversity on the dynamics of natural ecosystems. The capacity of ecosystems to continue functioning (or to be resilient) after altered environmental conditions also relates to other ecosystem attributes, including stability and resistance (Diaz and Cabido 2001, Hooper et al. 2005). Species diversity is particularly important to promote ecosystem resilience during times of changed environmental conditions, such as drought, elevated environmental temperatures, habitat loss and degradation.

2.3. Threats, root causes and barrier analysis

28. **Threats (Pressures):** The Andean highlands have been subject to historical degradation processes and biodiversity loss such as deforestation, habitat fragmentation and soil erosion (c.f. Cuesta et al. 2009; Hofstede et al. 2002, Buytaert et al. 2005, Hofstede et al. 1995, Romero 2005). Land degradation—due to unsustainable agricultural practices (e.g. tillage, cultivation of unsuitable soils, grassland fires), overgrazing, deforestation, overexploitation of forest resources, and mismanagement of water resources—threatens Andean ecosystem integrity and functioning (Buytaert et al. 2006, Farley et al. 2004, Podwojewski et al. 2002, Poulénard et al. 2004). In some areas, agriculture encroachment, pastures expansion and unsustainable exploitation of native forests (including fuel wood extraction for both household consumption and commercial use) are direct causes of forests loss and degradation, while the improper use of tree species in afforestation, land restoration and agroforestry programs have frequently been part of ineffective and unsustainable processes encouraged throughout the region. A high proportion of the land in the Andes is characterized by water erosion on steep slopes and due to inappropriate land use practices (Stroosnijder 2009). In some areas, intensive use of agrochemicals (e.g. herbicides, pesticides, fertilizers) depletes soil nutrients and contaminates water sources. More recently, infrastructure development and mining has become an increasing threat to highland ecosystems and rural livelihoods, as Andean governments are fostering investments to achieve substantial financial returns to the economy.
29. **Root causes (Drivers):** The root causes of biodiversity loss, deforestation and land degradation in the high Andes include a set of complex and interacting forces operating at different levels. Aside from natural and climatic conditions that help to explain the diversity and fragility of Andean ecosystems, major root causes include demographic, economic, institutional, cultural and technological factors.
30. The Andes are relatively high dense areas, with a broad percentage of its population within poverty levels, and rural households have limited access to assets such as technological and

financial. Economic trends in the Andes countries and growing urbanization processes have transformed the urban-rural relations and have fostered the market links of rural dwellers. In particular, migration—including cyclical or permanent in-out patterns—poses a heavy influence on households' land use decisions and the landscape configuration. In some cases (e.g. Carchi, Ecuador), the rent seeking behaviour among newly arrived inhabitants are contributing to forest degradation given the weak enforcement of the law and land tenure issues among smallholders. At the local level, political and institutional factors including weak governance, unclear allocation rights, improper incentives in place and insufficient information to support decision making and land use planning are a common setting within the Andes. Additionally, contradictory sectorial policies promoting or encouraging production in fragile lands, without proper or innovative technology, often turns out as perverse incentives against sustainable manage. Lastly, a lack of awareness—especially among decision-makers—of the functions and value of critical ecosystem services and biodiversity to human wellbeing, the persistence of misguided cultural values—particularly those related to the use of fire—and individual behaviour are social constraints that undermines efforts for sustainable management in the Andes.

31. **Barrier analysis:** The main barriers impeding the conservation of critical Andean ecosystems, hence of biodiversity and carbon stocks, are:
- *Incomplete and insufficient knowledge regarding the functions and values of the ecological services being affected by degradation and deforestation processes:* The complex functions of high Andean ecosystems and the lack of consistent efforts to understand synergies among BD, CCM, SFM and LD have undermined the comprehension of its relations or of the consequences of anthropogenic activities over them. Limited knowledge and incomplete information prevents a proper assessment of the value of biodiversity conservation and leads to bad decisions. In many cases, such bad decisions are due to a lack of awareness of negative externalities and trade-offs among productive and conservation activities, and a lack of means or tools to integrate new knowledge base within decision-making.
 - *Lack of appropriate resources, inputs and tools to support decision-making processes:* Incomplete information represents a serious barrier to support sound decision making, yet it is not the only limitation to overcome. For instance, at both national and subnational levels, there are a limited number of professionals, field-extensionists and community leaders trained in the conservation and sustainable management of Andean ecosystems. This lack of appropriate inputs and tools to support decision-making is translated into weak policy formulation and implementation of sustainable management. It is also expressed through a lack of articulation within land use planning at national, regional and local levels. Overall, the lack of proper incentives, weak institutional frameworks and ineffective tools in place, are not able to encounter increasing threats over the high Andean ecosystems and guarantee the provision of multiple and critical benefits.
 - *Lack of coherence among cross-sectoral policies that undermine the conservation of high Andean ecosystems and critical environmental services:* Cross-sectorial efforts have been seldom supported within the Andean countries. The absence of effective mechanisms to promote collaborative efforts and foster dialogue has meant a lack of coherence among policies implementation to achieve sustainable management in the region. Hence, there are very few exceptions of integrated land use plans in place, while contradictory incentives arise and encourage the chaotic management of territories at different jurisdictions. Ineffective dialog and the lack collaborative agreements intensify threats on conservation,

and are further exacerbated in the case of energy and infrastructure projects pursued by national governments.

- *Unfeasible sustainable management practices promoted in the Andes:* In order to address critical threats to Andean ecosystems, alternative management practices need to be identified and disseminated. However, a broad number of governmental and non-governmental agencies have promoted a series of management practices without being aware of critical constraints that undermine their feasibility. Unless such good practices are validated socially, institutionally, economically—as well as ecologically—and key barriers addressed, it cannot be guaranteed that those practices will be adopted by local dwellers after the intervention is gone.
- *Limited capacity at local and national levels to endure mid-and-long term processes and upscale interventions:* Andean institutions and governmental ones, in particular, are very susceptible to political and economic changes. Furthermore, they have a limited capacity to disseminate and share lessons learned, as well as integrate and upscale improved policies, tools and corrective measures.

2.4. Institutional, sectoral and policy context

32. The project builds upon the growing political commitment and associated core investments being made by both Andean countries to protect biodiversity and reduce GHG emissions. Peru and Ecuador are signatories of the Convention on Biological Diversity (CDB), the United Nations Framework Convention on Climate Change (UNFCCC), and the United Nations Convention to Combat Desertification (UNCCD), and have made consistent efforts to meet their declared commitments to these international agreements with several national political and institutional strategies. The more relevant to the Project objectives are described below.
33. The **National Constitution of Ecuador**, approved on 2008, includes specific mandates for the promotion of energetic efficiency and the development and use of clean technology and practices (Art. 413), the mitigation of climate change (Art. 414), the right to water as an essential and irrevocable resource, and considers biodiversity and genetic patrimony as a strategic sector to be regulated, controlled and managed by the State (Art. 313). The Constitution explicitly recognizes high Andean ecosystems, such as the paramo and wetlands, as fragile and critical ecosystems for human wellbeing (Art.406). In relation to forests, the Constitution establishes that the Central State maintains exclusive competences on forest resources (Art. 261) and decrees the prohibition of forest resources exploitation on protected areas and intangible zones (Art. 407).
34. The **National Development Plan 2009-2013** (Plan Nacional del Buen Vivir) issued by SENPLADES, establishes several policies with specific targets for conservation and sustainable management of resources. Among the most relevant for this project are Target 4.1.1 that establishes a 5% increment of the national territory under conservation or environmental management by 2013, Target 4.1.3 which mentions a 30% reduction on the national deforestation rate by the same year, and Target 4.5.1 with a reduction on 23% of high level of threat and 69% of medium level of threat, of the ecosystem's vulnerability to climate change index, by 2013.
35. Articulated to several objectives of the National Development Plan 2009-2013, is the **National Environmental Policy** (PAN) issued on 2009. It includes 6 specific policies with their respective programs, projects and goals. Policy 1 is directed towards the establishment of

practices and incentives to promote economic and environmental sustainability; Policy 2 addresses the efficient use of strategic resources: water, air, soil and biodiversity. Climate change is addressed on Policy 3 in terms of adaptation and reduction of GHG. Policy 4 is directed towards prevention and control of environmental pollution. Citizen involvement and participation is addressed on Policy 5. Policy 6 aims to strengthen the institutional framework for ensuring environmental management through applied research.

36. The Ministry of Environment (MAE) in Ecuador is the governing entity on environmental issues at the national scale. MAE through its Natural Patrimony Sub-secretariat (SPN) promotes sustainable biodiversity and forest management in the national territory. The Biodiversity National Direction of the SPN is in charge of formulating policies and strategies related to wildlife management, fragile ecosystems conservation, creation, maintenance and management of the National System of Protected Areas (SNAP), promotion of sustainable tourism, biosecurity and access to genetic resources. On 2009, the SPN issued the **High-mountain Ecosystem Policy** that promotes the conservation and sustainable management of biodiversity and agro-biodiversity contained in these systems. This GEF project will work closely with the SNAP system to enable the creation of conservation agreements with local governments and communities in the intervention sites.
37. The **Forestry, Natural Areas and Wildlife Conservation Law** establish MAE as the National Forestry Authority with competence to plan, develop, protect and control forest lands in Ecuador. In this context, the Forestry National Direction of the SPN has developed the **Forestry Governance Model** as the guiding instrument to manage forestry resources within the national territory, considering economic, ecological and social sustainability criteria. The model includes 5 strategies: 1) the establishment of incentive systems, 2) the development of a Forestry Information System, 3) the development of a Forestry Control and Administration System, 4) promotion of forest zoning, 5) knowledge generation and capacity building.
38. On 2012, MAE carried out an actualization of the **National Forestation and Reforestation Plan** which contains an incentive program for the protection and conservation of forests, regulated and coordinated by MAE and implemented through local governments (Resolution No. 007-CNC-2012 Competences National Council). The Plan also contains a program for the establishment of commercial plantations, coordinated and executed by the Forestry Production Sub-secretariat of the **Ministry of Agriculture, Cattle Raising, Aquaculture and Fishing (MAGAP)** (Resolution No. CSP-2012-040R-04 Production Sectorial Council). Both programs work through direct monetary incentives to cover the initial investment costs (first 5 years) of establishing and maintenance of commercial and conservation forest plantations (80% survival rate). The commercial incentive value reaches an amount of U\$1,558/ha on annual basis, whereas the MAE forestry program set an amount of U\$ 830/ha. During the formulation phase an agreements with both programmess were reached in which the Project will facilitate the establishment of reforestation areas with native species to recover degraded lands (3,000 ha) as well as commercial plantations (2,000 ha). Commercial plantations in this Project are conceptualized as a land management strategy oriented to deliver multiple benefits. By designing a system that mainstreams best management practices, several benefits can be delivered such as carbon sequestration, biodiversity conservation, landscape and land restoration as well as local income. Additionally, the promotion of commercial plantations in the Andean highlands constitutes a proven strategy to decrease pressure on native forests due to firewood and timber extraction. Through these activities the project envisions to foster the synergies and collaboration schemes between the Ministry of Agriculture and the Ministry of Environment of Ecuador as a way to articulate the different incentive instruments and avoid negative externalities.

39. The **Socio Bosque Program** initiated by MAE on 2008 to protect Ecuador's natural heritage by providing incentives for forest and paramos conservation. Socio Bosque provides a direct payment per hectare of native forest to landowners who agree to conserve their forest through voluntary conservation agreements that are monitored on a regular basis for compliance. Through Socio Bosque, the Ecuadorian government seeks to bridge the gap between conservation and development and promote a mechanism that directly benefits farmers and indigenous communities. The government prioritizes implementation of Socio Bosque in areas where the most benefits can be obtained in terms poverty alleviation, protection of ecosystem services such as carbon storage, water regulation and biodiversity conservation, and reduction of deforestation. On 2013, a new chapter of this Program was launched to deliver incentives for ecological restoration of native paramos and forests. This GEF project will strength SocioBosque by incorporating new areas of high Andean ecosystems into Socio Bosque incentive program at intervention sites, formulation of technical criteria to develop indicators and monitoring g systems of ecological and social impacts of Socio Bosque at project intervention sites, start operating activities in the field also targeting the recovery of degraded lands and upscale lesson learned from land restoration activities.
40. MAE also has leading governing competences on the establishment of national climate change policies and the development and implementation of mitigation and adaptation strategies, through its Climate Change Sub-secretariat (SCC). Two National Directions are part of the SCC, one centered on adaptation and the other on mitigation. The Mitigation Direction regulates and coordinates the policies, programs, projects and strategies to reduce GHG emissions, linked to global mechanisms like MDL, REDD+ among others.
41. On 2012 the SCC presented the **National Climate Change Strategy** that establishes national climate change priorities and actions through 3 Programs: (1) The Mitigation National Plan, (2) The Adaptation National Plan and (3) Plan for the Creation and Strengthening of Conditions. In this context, the SCC is promoting the REDD+ National Program (PNREDD+) to contribute to the reduction of GHG emissions caused by deforestation and degradation of forests, promoting access to multiple benefits, especially for local and indigenous communities. In this line, Ecuador participated as a “beneficiary country” in the United Nations Program for REDD (UN-REDD) for the implementation of activities in preparation for REDD+.
42. The **Climate Change Inter-institutional Committee (CICC)** was created in Ecuador on 2010, integrating public entities to coordinate, dictate and facilitate the implementation of integral climate change policies, programs and projects. The CICC is in charge of facilitating the implementation of the National Climate Change Strategy and other compromises derived from the UNFCCC; as well as promote and request studies and investigations to generate relevant and current information on climate change adaptation and mitigation.
43. In Ecuador, the **Organic Code for Territorial Management and Decentralization (COOTAD)**, in force since October 2010, transfers economic, social and environmental planning to the territorial dimension, strengthening the role of Local Decentralized and Autonomous Governments (GADS).
44. On 2011, the Provincial Government of Carchi on Ecuador established the **Carchi Development and Territorial Management Plan** for the next 20 years. This Plan has as one of its main objective an environmentally sustainable development of the Province; to obtain this, the Plan establishes programs and projects on watershed management, natural risks management, biodiversity conservation, agro-ecological production, ecotourism, among

others. The conformation of a large biological corridor to connect forests, paramos and wetlands of the Province from the oriental to the occidental Andean mountain ranges, is established in this Plan.

45. The **Territorial Agenda of Tungurahua**, issued by the Tungurahua Provincial Government on 2012, includes as one of its objectives an increment of water quality and quantity. In this line, the Provincial Government submitted a **Tungurahua Provincial Ordinance** on 2013 that establishes as a public policy, the implementation of actions to improve the environmental, social and economic conditions of the population linked to paramo ecosystems and its buffer zones (Official Registry # 900). The Ordinance recognizes the Trust Fund for Paramos of Tungurahua, as the provincial entity to plan, promote and finance, together with other public and private entities, the development of paramo management plans and socio-productive initiatives.
46. The Quito Municipality has established 3 instruments to direct environmental and territorial management:
 - **The Metropolitan Development and Territorial Plan of Quito 2012-2022**, establishes as one of its strategic objectives, the consolidation of the Protected Areas and Ecological Corridors System.
 - **The Environmental Agenda of Quito 2011-2016** establishes targets, strategies and actions to manage the natural patrimony of the metropolitan district, reduce climate change vulnerability and contribute to GHG emission reduction, control environmental pollution, and promote citizen participation and co-responsibility.
 - **The Quito Climate Change Strategy** presented on 2009 has as Objective 2 the promotion of technologies and good environmental practices to reduce and capture GHG emissions, and establishes a specific program for the creation and maintenance of carbon sinks and reservoirs (forestation, reforestation, and REDD).
47. The **National Constitution of Peru**, approved on 1993, establishes a number of mandates related to natural resources management. Renewable and nonrenewable natural resources are declared national heritage, and the State has sovereignty over its use (Art 66). The constitution determines that the State is responsible for national environmental policy and is the promoter of natural resources sustainable use (Art 67). The State has to promote the conservation of biodiversity and the establishment of natural protected areas (Art. 68).
48. The **National Agreement of Peru**, establishes policies with specific targets for sustainable environmental and climate risk management. The most relevant to this project are: Policy 15 which establishes measures against droughts, desertification, pests, erosion of biodiversity and land and water degradation; Policy 19 which promotes the institutionalization of environmental management and environmental sustainability, with emphasis on vulnerable populations; Policy 32 establishes that the State must ensure the integrated management of water resources, taking into account climate change.
49. The **National Strategic Plan for Development 2010-2021 - PLAN PERU** issued by CEPLAN establishes as a national objective, the conservation and sustainable use of natural resources and biodiversity (Objective 6), promoting healthy viable and functional ecosystems. In the same line, the MINAM approved the National Environmental Action Plan PLANAA Peru 2011-2020, which aims the sustainable development of the country through the prevention, protection and recovery of the environment and its components.

50. The Ministry of Environment of Peru (MINAM) is the governing entity on environmental issues for the local, regional and national scales, within sectorial and cross-sectorial issues. The MINAM approved the **National Environment Policy**, (Supreme Decree No. 012-2009-MINAM) and is responsible for the formulation, implementation, evaluation, and monitoring of its objectives and goals.
51. MINAM is organized into two Vice-ministries: The Vice-ministry of Environmental Management and the Vice-ministry of Strategic Development of Natural Resources, this last one, oversees the implementation of the **National Biodiversity Strategy** (ENDB); this Vice Ministry also directs the activities on climate change, in coordination with other public entities, aggregated on the **Climate Change National Commission (CNCC)**.
52. The national policy instrument for biodiversity conservation and management is the National Biodiversity Strategy (Supreme Decree 102-2001-PCM). This Strategy was issued on 2001, accompanied by 19 regional strategies. Particularly relevant to this project are Objectives 1 directed towards biodiversity conservation and 5 to improve knowledge on biological diversity. This Strategy is been actualized with the participation of different stakeholders, to address management, governance and decentralization issues.
53. MINAM has developed various programs and actions to address climate change. The **National Scientific Investigation Agenda on Climate Change 2010-2021** approaches 4 thematic lines: development of climate change scenarios, mitigations of GHG emissions, vulnerability and adaptation to climate change, and decision making processes.
54. The main policy instrument related to climate change in Peru is the **National Strategy on Climate Change** (D.S N° 086 – 2003 – PCM), issued on 2003. It has 11 strategic lines of action with specific objectives and targets, which are in process of actualization.
55. The **Action Plan for Adaptation and Mitigation of Climate Change**, issued on 2010, presents a series of programs, projects and actions for the short and medium term. It is structured around 7 themes: 1) GHG inventories and MRV; 2) Mitigation measures; 3) Adaptation measures; 4) Decision making processes; 5) Investigation and systematic observation; 6) Capacity building and public awareness;and 7) Financing.
56. In 2008, the **Forests Conservation Program for Climate Change Mitigation** was launched, with an expected duration of 10 years. The objective of this Program is the conservation of 54 million hectares of tropical forests as a contribution to climate change mitigation and sustainable development.
57. In relation to REDD, MINAM has been working on the development of the **REDD National Strategy** and the actualization of the Readiness Plan Proposal. The Forestry Inversion Plan is under elaboration; it aims to facilitate and channel initial financing from multilateral organisms, to reduce deforestation and forest degradation.
58. Finally, the **Organic Law of Regional Governments of Peru** (Law #27867), issued on 2002, establishes the role of regional governments on formulating and approving their Regional Strategies on biodiversity, climate change, and territorial development. In this context, the regional governments of Piura and Huancavelica have important accomplishments: the Huancavelica Regional Government has issued its Regional Environmental Policy, the Regional Environmental Action Plan and its Environmental Agenda; The Piura Regional Government has issued its Climate Change Strategy, approved by ordinance on 2011. Both

Regional Governments have generated their Ecological and Economic Zoning (ZEE) as a fundamental input for the Regional Territorial Management Plans, currently under construction.

2.5. Stakeholder mapping and analysis

59. During the preparation phase potential stakeholder's involvement in the project was examined at different levels, with special attention given to existing programs that could support project activities. Possible synergies and inter-institutional alliances promoting greater efficiency and effectiveness in the use of project resources are explained in the tables below. Key stakeholders who can contribute to project implementation in both countries are listed in Table 2. It is highly likely that other contributing stakeholders will be identified and included during project execution phase.

Table 2: Alliances, synergies and contributions in Ecuador, Peru and international

Stakeholders	Current impact in project area	Potential impact	Synergies with the project	Potential contributions to the project
ECUADOR				
<i>GOVERNMENT AGENCIES</i>				
Ministry of Environment (MAE)—National Reforestation Incentive Program	MAE has recently launched the national incentive program to promote reforestation of deforested lands through direct payments. No implementation activities being developed at intervention sites yet.	High	Facilitate the establishment of reforestation areas with native species to recover degraded lands on forested high Andean ecosystems.	Provide economic incentives (USD 830/ha) for community reforestation areas at intervention sites.
Ministry of Environment (MAE)—Socio Bosque Páramo Chapter & Restoration Chapter	Socio Bosque is the national incentive program promoting biodiversity conservation operating since 2008. An estimate of ~11,000 ha of Paramos (64%) and Andean forests (36%) are currently under protection of incentive programs at intervention sites. No implementation activities regarding land restoration have yet being developed at intervention sites or other areas beyond intervention sites.	High	Incorporate new areas of Paramos and Andean forests into Socio Bosque incentive program at intervention sites. Define technical criteria to develop indicators and monitoring systems of ecological and social impacts of Socio Bosque. Start operating activities in the field also targeting the recovery of degraded lands.	Provide economic incentives (up to USD 30/ha) to conserve Andean ecosystems and recover degraded lands at intervention sites.
Ministry of Environment (MAE)—Monitoring and Evaluation Unit	Initial activities to design and implement an MRV system at national scale have started and are based in National Forestry Inventory (closing at the end of 2013) and the Historical Deforestation Map (1990-2000-2008-2013).	High	Monitor biodiversity dynamics and carbon stocks & fluxes in Andean ecosystems; comprehensive forest and carbon inventory in high Andean ecosystems; map deforestation and land degradation at intervention sites.	Participate of technical staff in workshops and tools development.
Ministry of Environment (MAE)—State	PANE Program seeks to improve management in the national protected areas	Medium	Design biological corridors and promote institutional arrangements to support its	Provide funding for establishing biological corridors at intervention

Stakeholders	Current impact in project area	Potential impact	Synergies with the project	Potential contributions to the project
Natural Areas Patrimony (PANE)	system (PANE). All intervention sites in Ecuador are within the influence of protected areas.		implementation in or around intervention sites.	sites.
Ministry of Agriculture (MAGAP)—National Reforestation Program	Complementary to MAE’s National Reforestation Incentive Program, MAGAP is in charge of the reforestation program promoting productive/commercial tree plantations. No implementation activities are being developed at intervention sites yet.	Medium	Establish tree plantations for productive and commercial purposes. Define technical criteria and guidelines to develop tree plantations in forested areas in the high Andes.	Provide economic incentives (USD 1,558/ha) for the establishment commercial tree plantations at intervention sites.
National Secretariat for Planning and Development (SENPLADES)	Planning and development policies and activities of subnational governments are subject to approval and monitoring of SENPLADES. Regional offices have been established and are supposed to be support local governments planning efforts. Generic guidelines had been established and cross-sectoral actions require further support.	Medium	Incorporate environmental criteria and monitoring systems within land use plans. Promote cross-sectoral dialogue at subnational levels.	Facilitate dialogue among governmental agencies related to planning.
Climate Change Intersectorial Committee (CICC)	Cross-sectoral discussions and agreements among governmental agencies	Medium	Provide technical inputs to cross-sectoral discussions and agreements relevant for SLM/SFM management practices and investments in the high Andes.	Facilitate dialogue among governmental agencies to enhance cross-sectoral linkages in key policies and national programs being implemented.
SUBNATIONAL GOVERNMENTS				
Municipal Government of Quito (MDMQ)	The MDMQ has a Secretary of Environment encouraging the protection of high Andean ecosystems surrounding Quito. On-going efforts include the municipal reforestation program and municipal protected areas. Additionally, through Quito-Tourism Program, funding to promote and enhance technical capacity is available.	High	Establish a biological corridor, including developing appropriate cross-sectoral land use plans and mobilize resources to support newly protected areas at the intervention site. Define technical criteria and guidelines to establish reforestation areas. Foster tourism entrepreneurs as a local livelihood alternative within the intervention site. Possible replication of activities beyond the intervention site within the province.	Provide personnel, equipment and funding for establishing biological corridors and SLM/SFM practices at Pichincha intervention site .
Provincial Government of Tungurahua (GPT)	GPT—including land use plans design—has driven its intervention efforts on the basis of broad local participation. Cross-sectoral working groups have been promoted (called <i>Parlamentos</i>), including water-irrigation-productivity-and-paramo	High	Support conservation on-going efforts within the province with technical criteria and guidelines to avoid further land degradation, promote good management practices and recover degraded areas of paramo. Establish monitoring systems to support policy making. Implement the province Environmental Agenda	Provide personnel, equipment and funding for land use plans implementation and SLM/SFM practices at Tungurahua intervention site .

Stakeholders	Current impact in project area	Potential impact	Synergies with the project	Potential contributions to the project
	issues. GPT have also been supportive to the establishment of the <i>Paramo Fund</i> of Tungurahua, a fiduciary fund to support the protection of paramos.		and propose regulatory instruments (<i>ordenanzas</i>) to declare community protected areas.	
Provincial Government of Carchi (GPC)	The GPC has an Environmental Unit that is promoting reforestation activities, has launched a research agenda, and has established formal agreements with MAE national programs. Land use plans of the province have been designed, but they do not have a monitoring system incorporated to assess impacts. Additionally, the Productivity Unit has made investments to promote new entrepreneurs in the province for the last 3 years (CARCHI EMPRENDE Program).	High	Establish a biological corridor to secure key water sources in the intervention sites. Support the environmental research program of the regional government and monitoring system of the province. Define technical criteria to promote SLM/SFM practices. Encourage green/sustainable entrepreneurs as local livelihood alternative in the intervention site. Possible replication of activities beyond the intervention site within the province.	Provide personnel, equipment and funding for establishing biological corridors and SLM/SFM practices at Carchi intervention site .
LOCAL CONSERVATION AND WATER FUNDS				
Water Fund for Quito (FONAG)	Established in 2000, FONAG runs with an annual budget of ~1.7 million of a diversified mix of funding sources. FONAG develops research, educational, reforestation and restoration activities in surroundings areas of Quito, particularly in the water sources.	High	Monitor and evaluate of water, biodiversity and carbon dynamics. Train community leaders in watershed management. Train technical staff with protocols and tools developed by the project. Facilitate collaboration with Secretary of Environment of MDMQ.	Possible support in the development of the <i>Atacazo-Nono biological corridor</i> in the Pichincha intervention site .
Paramo Fund of Tungurahua	Established in 2008, the Fund (with a fiduciary budget of approximately USD 600,000. Over ten land use plans in paramo (with up to US\$140,000 available per year) have been developed throughout the province with participating indigenous organizations and communities.	High	Technical advice and support for the implementation of Paramo Land Use Management Plans. Increase the effectiveness of current investments. Train community leaders in watershed management. Train technical staff with protocols and tools developed by the project.	Possible support in the development of the <i>Paramos Sur-Occidentales</i> in the Tungurahua intervention site .
OTHERS				
JOCOTOCO	National NGO with fifteen years of experience. They have protected over 12000 ha in private reserves. They own Reserve Yanacocha (1200 ha) which is within the Pichincha intervention site and where research efforts by CONDESAN have been undertaking to	High	Monitor and evaluate of water, biodiversity and carbon dynamics.	Possible support in the development of the <i>Atacazo-Nono biological corridor</i> in the Pichincha intervention site .

Stakeholders	Current impact in project area	Potential impact	Synergies with the project	Potential contributions to the project
	monitor environmental changes.			
JATUN SACHA	National NGO with twenty years of experience supporting forest conservation in the Andes and tropical regions. Guandera Biological Station (1000 ha) in the Carchi intervention site.	High	Research, monitor and evaluate of water, biodiversity and carbon dynamics in paramo and native Andean forests. Train technical staff with protocols and tools developed by the project. Train community leaders SFM practices.	Possible support in the implementation of research activities related to biodiversity and conservation of native forests in <i>Paramos y Bosques Orientales de Carchi</i> intervention site.
ALTROPICO	Local NGO with twenty five years of experience supporting communities in the Andes. Active presence in the province of Carchi.	Medium	Promote participatory rural development, gender and sustainable agriculture and land management practices. Train community leaders in the good management practices.	Possible support in elaboration and implementation of community development plans.
RANDI-RANDI	Fifteen years of experience supporting rural communities in the Andes. Previous work in Carchi with communities and local governments.	Medium	Implement participatory development methodologies and gender analysis of conservation efforts in Páramo conservation.	Possible support in the development of planning tools in intervention site.
Ecuadorian Centre of Agricultural Services (CESA)	National NGO working in sustainable rural development with communities in the Andes. CESA supports production systems, rural marketing, social management of water, natural resource management, local capacity building, etc. They have active participation within the Tungurahua intervention site.	Medium	Train community leaders in the establishment and management tree plantations for industry. Address barriers of key chain value at Tungurahua intervention site.	Possible support in the implementation of rural development and natural resource management in <i>Paramos Sur-Occidentales</i> in the Tungurahua intervention site.
Corporation for sustainable Forest Management (COMAFORS)	COMAFORS works in several Andean provinces prompting community forestry.	Medium	Technical guidelines to promote agroforestry systems and the implementation of forestry national incentive programs. Train community leaders in the establishment and management tree plantations for industry.	Provide, equipment, personal and other in kind contributions for training community leaders in forestry at intervention sites
PERU				
<i>PUBLIC INSTITUTIONS</i>				
Ministry of Environment (MINAM)—Division of Evaluation, Valuation, Forest Inventory and Financing/ National Forest Inventory Program	In Peru, the National Forest Inventory is being developed with emphasis in amazon forest. Nonetheless, in the Department of Piura the inventory of the dry forest is currently being conducted. Andean forest so far have not been included in the intervention site.	High	Include Andean forests in national forest inventory, measuring carbon content of above/below ground biomass and forest soils.	Inventory of native Andean forest found in the Department of Piura
Ministry of Environment (MINAM)—Natural	PRODERN—with a total of 13 million euros for 6 years of implementation—is financed by the Government	High	Strength institution capacity building, implement participatory rural methodologies and sustainable management of	Possible support in the development of the Huancavelica intervention site.

Stakeholders	Current impact in project area	Potential impact	Synergies with the project	Potential contributions to the project
Resource Development Program (PRODERN)	of Belgium. It works in several Departments of Peru, including the Huancavelica intervention site. It promotes good practices in degraded pasture lands.		pasture lands.	particular in the area of <i>punas of Pilpichaca and Huaytarà</i> .
Ministry of Environment (MINAM)—Division of Biodiversity	The Division of Biodiversity of MINAM is working forward to establish a regional program to protect paramos and increase its representatives within the National Protected Area System.	High	Prepare and disseminate guidelines and technologies for the sustainable management of Andean Ecosystems	Will provide personnel, equipment and some funding for the preparation and dissemination of sustainable development tools
Ministry of Environment (MINAM)—Division of Climate Change, Desertification, Hydraulic Resources and REDD+	The Division of Climate Change, Desertification, Hydraulic Resources and REDD+ of MINAM is leading on-going efforts to implement REDD+ activities and the National Climate Change Strategy in Peru.	Medium	Formulate standardized protocols for monitoring and evaluation of environmental services; allometric equations of carbon stocks (REDD+).	Provide equipment, personal and other in kind contributions for the formulation of standardized protocols to be used at intervention sites
Ministry of Environment (MINAM)—Program for the conservation of Forests and Mitigation of Climate Change	The Conservation of Forests Program has been recently launched by the Peruvian government as a national incentive program to foster biodiversity conservation. No apparent activities have been identified at intervention sites.	Medium	Establish areas of Punas, Paramos and Andean forests into the national incentive program at intervention sites. Share lessons learned from Ecuador's Socio Bosque national incentive program.	At this time, this program has no mandate to promote the conservation of Andean forests
Ministry of Agriculture (MINAG)—Division of Forestry	The Forestry Program is supported by USAID Peru Forest Sector Initiative. (Falta incluir breve descripción de lo que hacen y que sea relevante para el proyecto). No direct activities being developed at intervention sites.	Medium	Revitalize national reforestation plan, creating incentive program	A new forest service is being created. It is expected that this program will support forestation in the Andes.
SUBNATIONAL GOVERNMENTS				
Regional Government of Piura (GORE-P)	GORE-P has strongly promoted the protection of paramos, disseminating their importance for the region. Incipient conservation agreements are being promoted within low and upper users. As part of the existing Land Use Plan, the regional government is aiming to create a regional protected area system.	High	Strengthen land use plans and monitoring of regional and local governments. Support the regional government to establish the regional protected areas system within Ayabaca. Promote good management practices in paramo and Andean forests.	Provide personnel, equipment and funding for establishing protected areas and biological corridors and SLM/SFM practices at Piura intervention site .
Regional Government of Huancavelica (GORE-H)	GORE-H is finalizing the design of its Regional Land Use Plans, yet it lacks a monitoring system to assess their impacts. Key issues in	High	Strengthen land use plans and monitoring of regional and local governments. Promote good management practices in puna.	Provide personnel, equipment and funding for promoting SLM/SFM practices at Huancavelica intervention site .

Stakeholders	Current impact in project area	Potential impact	Synergies with the project	Potential contributions to the project
	the area include support of extensive grazing systems of alpacas and mining.			
OTHERS				
Nature & Culture International (NCI)	International NGO with active presence within the Piura intervention site. NCI has over fifteen years supporting conservation of nature resources in the Department of Piura. Has been a key partner of CONDESAN in previous activities of research and community development.	High	Promote the conservation of natural resources and sustainable land and forest management practices. Train community technical staff and leaders in the good management practices.	Possible support for the development of the <i>paramo and Andean Forests of Ayabaca-Papaipamba</i> in the Piura intervention site .
ECUADOR & PERU				
LEADING EXECUTING PARTNER				
Consortium for the Sustainable Development of the Andean Ecoregion (CONDESAN)	CONDESAN is an ONG with 20 years' experience working regionally with governments and partners at different levels to promote sustainable development in the Andes. Current efforts focus in monitoring and research to support policy and land planning.	High	Provide technical assistant during the project implementation, validate monitoring protocols and define guidelines for SLM/SFM practices. Facilitate dialogue among government agencies, communities and researchers. Develop tools and decision support systems for policy making and land planning.	Assist governments through technical inputs and monitoring systems. Provide personnel, equipment and funding environmental assessments program at intervention sites.
REGIONAL GOVERNMENT PANELS				
General Secretariat of the Andean Community (SGCAN)	SGCAN has recently approved and launched a Regional Environmental Agenda to guide countries in their regional efforts.	Low	Interchange of information on conservation and management of highland ecosystems.	Share information and invitations to participate in seminars and other training events.
NATIONAL AND INTERNATIONAL UNIVERSITIES & RESEARCH CENTERS				
Landcare Research	Landcare is an independent research center of the NZ government working since 1992. Its core interests are the provision of research and transfer of technology and knowledge to improve measurement, management and protection of terrestrial ecosystems and biodiversity, GHG emissions, and ecosystem services. It is interested in supporting Andean countries government in monitoring activities.	High	Improve measurement, management and protection of terrestrial ecosystems and biodiversity, GHG emissions, and ecosystem services. Share lessons learned from previous experience in establishing NZ national monitoring systems.	Provide technical assistance, methodologies and funding to establish monitoring systems, implement land use plans and fulfill critical baseline knowledge gaps (e.g. modeling soil and vegetation carbon stocks, mapping land management).
University of Amsterdam (UvA)	Investigations on carbon stocks and biodiversity in high Andean ecosystems have been undertaken by several researchers, especially in the Carchi intervention site.	High	Strengthen the monitoring system with emphasis in environmental and carbon fluxes.	A new research project will be developed by UvA and become co-financing for applied research in the project.
Pontifical Catholic	PUCE-Herbarium has been involved in currently efforts	High	Strengthen the monitoring system with emphasis in biodiversity	Personnel and other In kind support for research

Stakeholders	Current impact in project area	Potential impact	Synergies with the project	Potential contributions to the project
University of Ecuador (PUCE)	designing field protocols to assess and monitor biodiversity and carbon dynamics in paramo and native Andean forests within different environmental gradients at the Pichincha intervention site.		and carbon fluxes. Scientifically validate biodiversity and carbon protocols in the field. Train technical staff with protocols and tools developed by the project.	programs.
La Molina National Agrarian University (UNALM)	Research activities at intervention sites.	Medium	Strengthen the monitoring system with emphasis in forestry and biodiversity. Train technical staff with protocols and tools developed by the project.	Personnel and other In kind support for research programs.
Other national and local universities	Research activities at intervention sites.	Medium	Research in subject related to project goals.	Personnel and other In kind support for research programs.
KEY INTERNATIONAL DEVELOPMENT ORGANIZATIONS AND COOPERATION AGENCIES				
United Nations Environment Programme UNEP	Cooperation with both countries and regional on a series of relevant and related initiatives.	High	Promote the provision of tools and mechanisms for science / technology based decision making and environmental policy development in the area of ecosystem management.	Provide technical backstopping and community of knowledge interaction with the Ecosystem Management Sub-Programme for 2014-2017.
Swiss Agency for Development and Cooperation (SDC)	Regional activities to protect forests in the Andean countries, with a long history of promoting the protection of Andean forests.	Medium	Prepare and promote of strategic plans and methodologies for the conservation of Andean forests.	A new international project financed by SDC will provide equipment, training, and funds to support conservation efforts at intervention sites.
USAID (Silvacarbon)	Strong capacity building and outreach program in the Andean countries to strength national MRV systems and REDD+ preparation phase. No apparent activities being developed at intervention sites	Low	Monitoring and evaluation of carbon stocks.	Support capacity building for the establishment of national monitoring systems. Provide personnel and equipment needed for monitoring activities developed at the paramos and forests of Ayabaca- Papaipamba at the Piura intervention site.
German Technical Cooperation (GIZ)	GIZ has supported for over a decade natural resource management in both countries. It offers direct assistance to national and local governments. It has executed development programs at most of the proposed intervention sites.	Low	Monitoring carbon stocks and risk management related to adversity of climate changes	Provide equipment, personnel and some funds for institutional capacity building at intervention sites.
CARE	International NGO supporting rural development and natural resource management through capacity building. CARE has executed development programs at most of the proposed intervention sites	Low	Foster capacity building of regional governments, municipalities and rural community organizations.	Provide equipment, personnel and some funds for capacity building of local institutions.

2.6. Baseline analysis and gaps

60. **National Programs:** In Ecuador, the National baseline programs upon which this Project is built are the National Incentive Program for forest conservation in private and communal lands (i. e. Programa SocioBosque), the National Forests Inventory (FAO/Finlandia), the National REDD+ programs and their MRV system, and the two reforestation Programs from the Ministry of Agriculture (MAGAP) and the Ministry of Environment (MAE) (Please refer to sections 2.5 and 2.7 of the PRODOC for details of these programs in both countries).
61. NFI (FAO/Finlandia) finished field activities in 2013 and until mid-year 2014 analysis of the data will be completed. NFI is also working on developing a standard methodology for carbon stock in non-forest lands. CONDESAN is collaborating with the NFI sharing lessons learned based on a pilot study carried out last year to estimate carbon stocks (in the five pools) and fluxes in upper montane forest and paramo ecosystems. Further support to the NFI and UN-REDD activities should involve developing in-depth studies in high Andean ecosystems such as carbon estimations in wetlands, allometric equation for key selected species of montane forests, and assisting MAE's monitoring efforts to verify the performance of any REDD+ mechanisms to be established at both national and subnational levels.
62. Recently, MAE identified five new strategies to foster the conservation and sustainable use of Ecuador's natural capital, which includes National Incentives. In the first case, Socio Bosque's experience will be the base to establish new incentive programs for restoration, biotrade, forest management, among others. Nonetheless, a lack of previous knowledge and expertise on those issues demands further technical and institutional support, particularly around restoration practices. In the case of Socio Bosque and other national incentives, the main baseline gaps identified include: i) development of technical guidelines and criteria to implement active and passive restoration activities in High Andean ecosystems, ii) support monitoring systems, including new thematic modules (carbon, hydrological services, socio-economic indicators), and iii) consolidate on-going initiatives at local scales.
63. In Peru, the key programs which this project aims to strengthen are the National Forest Conservation Program (NFCP), the REDD+ mechanism and the National Forests Inventory (FAO/Finlandia) (Please refer to sections 2.5 and 2.7 for details of these programs in both countries). During the formulation phase (PPG) MINAM decided to incorporate the REDD+ mechanism as part of the National Forest Conservation Program (NFCP). The NFCP increased their target from 54 million to 70 million hectares under conservation schemes by 2021 with a primary emphasis in tropical lowland forest. Nevertheless, this change in the expected target offers new opportunities to incorporate Andean ecosystems, primarily montane forest and wetlands, into the national REDD+ strategy.
64. In this context, the project will contribute to cover several baseline gaps identified by NFCP such as providing key information regarding carbon stocks in Andean ecosystems as well as methodologies and tools to assess and monitor carbon stocks and fluxes in different environmental gradients and land-use regimes. Although, the Project will work in two specific sites in the Peruvian highlands, it is expected that the information and methodologies validated can be up-scaled at the national level through the activities planned in Component 4 (please refer to section 3.3) which are meant to strengthen the monitoring capabilities of MINAM at national level.
65. The National Forest Inventory (NFI) will cover the whole territory of Peru, spanning approximately 2,000 measuring plots to be completed in 5 years (2014-2018). Of these

figures, none of the planned plots will be located in non-forested ecosystems (puna grasslands and wetlands) and only a roughly 5% of the total plots will be placed in montane forests; within these plots, only trees > 30 cm of DBH will be measured. Moreover, the protocol that will be implemented in the NFI to estimate carbon stocks only focuses on two pools, above ground biomass and below ground biomass, leaving out soil organic carbon (SOC) which is a key carbon pool for high Andean ecosystems. Under these circumstances, the Project will collaborate with the REDD+ and the NFI through the development of protocols and information regarding SOC estimation in key high Andean ecosystems and to estimate carbon stocks and fluxes in the five carbon pools along environmental gradients and different land-use regimes. It is expected that all this information will be incorporated into the REDD+ mechanism and into the mitigation section of national strategy of climate change.

66. **Intervention sites:** Characterizing the current situation at the intervention sites and their national and sub-national contexts for the design of this multi-focal project has required systematizing information for: 1) recent dynamics of land use and land cover change and current configuration of the wider landscape at the intervention sites, 2) current state of sources of threat to the health of environmental and social systems in the intervention sites and their root causes (Section 2.3) and 3) ongoing efforts to overcome existing barriers and to address the underlying processes that drive these threats at national, sub-national and local levels (See Section 2.5 for a description focused on institutional and policy based efforts).
67. Human activities in the high Andean ecosystems have increased drastically over the last two decades (Gondard 1988; de Koning et al. 1998). High elevation Andean landscapes are progressively used for intensive cattle grazing, forestation with exotic species, cultivation, and human inhabitation leading to severe degradation, biodiversity loss and GHG emissions. There are strong scientific evidences that these activities may have a drastic impact on the ecosystem health. Land use practices have a significant, negative effect on the composition and structure of the vegetation (Hofstede 1995; Ramsay and Oxley 1997; Suárez and Medina 2001), on their above-below ground biomass ratio (Hofstede et al. 1995; Ramsay and Oxley 2001), on the hydrological behaviour of the system - in particular water production and regulation capacity (Farley et al. 2004; Buytaert et al. 2006, 2007), and on the chemical/physical properties of the soils (Poulenard et al. 2001, 2004; Podwojewski et al. 2002). Further, intensive grazing and burning leads to a change in the community structure of the paramo and puna flora (Hofstede et al. 1995; Ramsay 1992), which in turns causes biodiversity loss and change in soil microclimate conditions due to lower above ground biomass and more exposure of bare ground (Hofstede et al. 1995).
68. Current resource use and management practices at the intervention sites present important shortcomings that translate into greater impacts on the structure and functioning of high Andean ecosystems and the environmental benefits they generate. The main problems associated to current practices are related to the over use of natural and semi-natural ecosystems, human altered disturbance regimes (e.g. burning of natural grasslands) that affect key environmental goods and services and unsustainable production practices in the broader landscape that generate pressure for conversion of forest and non-forest ecosystems. The specific configuration of the land use regimes and their impacts changes across the intervention sites, and the Project is designed to the specific shortcomings of the resource use and management practices, their root causes and direct and indirect impacts (Please Refer to Section 3).
69. Degradation of non-forest high Andean paramo and puna ecosystems in the intervention sites results from the combination of overgrazing and the use of fire as a landscape management

practice. In the southernmost intervention site in Huancavelica, Peru, the puna and wetland ecosystems are intensively used to manage mixed herds of Andean camelids, sheep and cattle. Even though the access to fodder areas is structured around customary rules, the increasing fragmentation of landholdings coupled with population increments influence management practices such as rotation of grazing areas and adds pressures on land and water sources in high elevation wetlands (FAO 2005). As a result, it has been estimated that 84% of the area of the two districts (i.e. Santa Ana and Pilpichaca) that constitute the intervention site is undergoing severe and strong degradation and desertification processes (GORE-Huancavelica 2011). The effects of these land degradation processes are compounded by a strongly seasonal climate regime with incidence of freezing events and dry spells during the winter (June-August).

70. Degradation of paramo ecosystems is also prevalent in the Tungurahua site in Ecuador. Again, the combination of overgrazing and fire has produced a mosaic of land cover in different stages of degradation, with the particularity that the herds are almost exclusively of sheep and free ranging cattle. The interaction between topography, precipitation regime and grazing intensity has generated loss of vegetative cover and features that include stairs and rill erosion in the most extreme cases (Podwojewski et al. 2002). A preliminary assessment of land cover at the landscape scale in the Tungurahua site suggests that at least 22% of the paramo is intensively used as grazing land.
71. Fire is intensively used across the intervention sites as a management tool to promote the growth of palatable species for livestock, remove natural vegetation before conversion to agricultural uses, and other cultural motives (e.g. to promote rains during dry spells). The incidence of fires is correlated to the seasonality of precipitation, with extensive areas of paramo and puna ecosystems burned in the dry season. For example, a time series of Landsat 7 satellite images acquired over a period of two months in the dry season of 2001 showed that 1027 ha of paramo (13% of the total area) were burnt, and the areas covered different altitudinal ranges and topographic conditions. A preliminary assessment of current land cover patterns in the Pichincha site suggests that 15% of the paramo presents vegetation communities that correspond to different stages of regeneration from recent fire events.
72. Conversion of natural forest and non-forest ecosystems associated to the expansion of agricultural and livestock farming systems is still widespread in the Andean region (Wassenaar et al. 2007). Ecosystem conversion results from complex interactions of economic, institutional, political, technological, and demographic factors, within the specific social and environmental context of specific areas. However, certain patterns in current resource use and management practices appear consistently across a diverse set of sites and conditions. In the three sites in Ecuador, smallholder mixed subsistence / market oriented farming systems dominate the inner slopes of the Andean ranges while more fertile land in the bottom of the inter-Andean valleys generally correspond to larger agricultural productive units dedicated to more capital intensive, market oriented crops (e.g. potatoes)(Dixon et al. 2001). Diminishing productivity due to soil erosion and the incidence of diseases and extreme weather events is associated to the ever increasing need to augment the use of expensive biocides and fertilizers (Sarmiento 2002, Sherwood 2009). These factors generate added pressures for the conversion of forest and non-forest ecosystems.
73. Different patterns emerge across the intervention sites in Ecuador and Peru in terms of the conversion of natural ecosystems. Deforestation is still prevalent in the Pichincha site, where almost 33,400 ha of montane forest (22.7% of the forest area in 1990) were converted to pastures and other agricultural uses in the period 1990-2008 (MAE 2010). In contrast, only

500 ha of paramo ecosystems (6.6% of the paramo area in 1990) were converted in the same area for the same period. In the Tungurahua site, conversion of paramo to agriculture is still an active process, especially for the cultivation of Andean tubers (PLANTEL y PPA 2008). For the period 1990-2008, 1,170 ha of paramo were converted in this site, corresponding to 14% of the surface of these ecosystems in 1990 (MAE 2010).

74. Characterizing ecosystem modification in general, and particularly patterns of montane forest and paramo degradation presents specific challenges. Even though methods to generate point estimations of paramo degradation have been developed, no standardized set of criteria has been consistently applied and validated at landscape scales. The patterns of degradation in high elevation grasslands and forest are extremely heterogeneous at fine scales as a result of the influence of topographic and environmental controls, land use practices (e.g. fires and grazing) and other factors that structure disturbance regimes (Hofstede et al. 2002; Ramsay and Oxley 1996, 2001). At broad scales, a gradient of degradation is found in the set of intervention sites. In general, the ecosystems in the Carchi site present fewer disturbances while the Tungurahua site presents intensive patterns of use, especially high elevation grazing and agriculture that should be translated into an elevated level of paramo degradation (Podwojewski et al. 2002; Poulenard et al. 2001, 2004). Yet, the extraction of selected tree species for timber production and charcoal is still an ongoing practice that has an important effect on species loss (i.e. orchids and epiphytes communities), disruption on forest structure, GHG, habitat fragmentation and GHG emissions (Báez et al. 2010). The sites at Piura and Pichincha present intermediate levels of degradation in both forest and non-forest lands. The Huancavelica site is singular due to the predominance of high elevation pastoralist production systems that structure the degradation patterns of this landscape.
75. Furthermore, there is a growing understanding of the potential value of biodiversity in enhancing carbon management aims, but key knowledge gaps remain as barriers for more integrated policy development for their co-management, which are the following: (a) Adaptation of scientific-sound methodologies and comprehensive studies to characterize links between BD-carbon- LUCC -SLM/SFM over the long term in these type of ecosystems; (b) Long term series of ecological data and studies to improve ecosystem-based models to guide good management practices at the landscape scale; (c) How local and landscape level changes in biodiversity might alter carbon cycling? Positive relationships between species richness and productivity have been demonstrated by many small scale experiments and observations of wild ecosystems. However, it remains unclear how changing species composition affects productivity and other aspects of carbon cycling at landscape to regional scales - a scale at which many changes in richness are currently occurring; (d) a fundamental aspects to overcome major institutional barriers and knowledge gaps is based on the development of better tools to integrate environmental monitoring, land use planning and on the ground activities (i.e. reforestation) together with strengthen technical criteria of ongoing national incentive programs as well as design better schemes to integrate efforts between levels of governance.
76. In close relation to the social and environmental complexity found in the intervention areas, local communities and sub-national and national government and non-government entities work with different approaches and scopes of interest. Decentralization of governance is a common thread in Ecuador, Peru and other countries in the region. This has generated a changing context and challenges for local levels of government. Development and land use planning instruments have been applied in all the intervention sites and present different levels of detail and articulation into decision making. In general, the main challenges that these planning exercises face are: 1) information gaps; 2) lack of institutionalized knowledge

management procedures; 3) lack of monitoring and evaluation procedures. Decision support tools and integrated planning methodologies still need to be developed, and this offers ample space for improvement and contribution by the project. More specifically, tools will be developed to support the inclusion of SLM/SFM criteria linked to services associated to carbon and biodiversity dynamics in high Andean ecosystems into spatially explicit planning processes.

2.7. Linkages with other GEF and non-GEF interventions

77. Since 2009—and with a funding up to US\$ 4 million—Ecuador is part of the UN-REDD Program. The Ministry of Environment (MAE), as the national environmental authority, has started the implementation of the National REDD + (PN-REDD +) whose objectives are i) to mitigate climate change by reducing emissions, and ii) good use of forest resources to control deforestation. PN-REDD aims to: 1) develop incentive systems for both conservation and afforestation, reforestation and sustainable forest management, 2) enhance forest control and articulate national efforts to comply with model of forest governance proposed by MAE, 3) Establish a Monitoring, Register and Verification (MRV) System, and 4) the regularization of land tenure in coordination with the Ministry of Agriculture (MAGAP). Very recent MAE has established official guidelines for the implementation of REDD+ activities in the country, primarily targeting the national jurisdiction. This explains the urgency to support efforts to establish and develop a comprehensive MRV system aligned with further conservation activities and forest sustainable management. Further, the PN-REDD expects to have accomplished the following results by the end of 2013: 1) national implementation of a REDD+ consultation process involving civil society, and local (indigenous communities); 2) development of policies and instruments for the implementation of REDD+; 3) development of the operational framework for the implementation of REDD+; 4) assurance of multiple environmental and social benefits; f) design and implementation of a benefit-sharing system.
78. Ecuador is now close to complete the National Forests Inventory (FAO/Finlandia) measuring carbon stocks in all five carbon pools in forest lands. Results are expected to be publicly available at the end of 2013. The government has also carried out Ecuador's official Historical Deforestation Map (1990-2000-2008) and is currently updating the information until 2013. These efforts are being used as the basis to establish a permanent Monitoring and Evaluation Unit within MAE, in charge of initial activities to design and implement an MRV system at national scale. These include establishing reference scenarios for GHG emissions in LULUCF with the support of UNEP/GIZ/KFW. Additionally, REDD+ SES (Social and Environmental Standards) is being applied into the National REDD+ Strategy to assess the social and environmental quality of the design phase, recognizing the importance of considering multiple benefits. A spatial assessment of co-benefits was carried out by UNEP/WCMC at the national scale. Such assessment recalls the need to generate detailed data on SOC stocks, especially in the Andes, where preliminary results based on global data on soil carbon revealed that the contribution of Andean ecosystems might be even larger than low-land forests once SOC is considered.
79. In the case of Peru, a REDD+ Readiness Preparedness Plan (RPP) has been implemented and submitted to the Forest Carbon Partnership Facility (FCPF)/World Bank. Funding has been allocated to enable Peru to move ahead with the preparation for Readiness, and as a FIP country they are starting the design of Peru's Investment Plan. Same as Ecuador, an important step is the preparation of the National Forests Inventory (FAO/Finlandia), which has recently started and preliminary results for selected case studies in the Amazon. Additional funding provided by KFW and the Gordon and Betty Moore Foundation seeks to foster scientific and

technical capacities for carbon monitoring developing the national MRV system and reference scenarios at subnational levels in five regions (mainly amazon and dry forests).

80. Complementarily, both countries have established incentive based policies to conserve biodiversity in private and communal lands (i.e. government financed PES schemes). In Ecuador Socio Bosque invested over 7 million per year through direct payments in over 1 million ha and more than 123,000 beneficiaries until Oct. 2012. Of these areas, at least 6% corresponds to high Andean ecosystems, including Andean forests and paramos. Currently, Socio Bosque is working in a strategy to promote restoration practices in degraded lands, though neither on-the-ground activities have been developed in the program, nor critical degraded areas to be targeted have been identified. A priority within the program is to foster monitoring efforts that can account for the enhancement of multiple benefits—both social and ecological. In Peru, the National Forest Conservation Program, aiming to conserve 54 million hectares of forests by 2021, was officially launched in 2009, yet the program is still under design and no clear criteria to prioritize conservation areas or monitor individuals' compliance and ecosystem services enhancement have been envisioned. Both programs can play a key role to support ecosystem services in human-dominated landscapes densely inhabited as the Andes. Nonetheless, as many other similar government programs in Latin America (i.e. government financed PES), addressing specific design, implementation and monitoring caveats will greatly enhance the provision of multiple benefits and its contribution to GEBs.
81. Additionally, the Ecuadorian government has launched two complementary reforestation programs by MAGAP and MAE with a time frame of 4 years, 2013-2016. These programs offer direct payments to land-owners to establish commercial/productive tree plantations (USD 1,558/ha in the case of MAGAP for the Andean highlands) or reforestation areas to recover degraded lands on forested high Andean ecosystems (USD 830/ha in the case of MAE). Although both programs are expected to execute significant investments in the future years, a critical matter is to ensure the effectiveness of such interventions. These include targeting priority areas, guarantee high levels of tree survival (>80%), and avoid negative externalities. Both programs also require establishing viable implementation schemes and appropriate institutional arrangements to effectively transfer funding on the ground. Project synergies with all the national incentive programs have been discussed with key authorities and potential contributions identified to avoid duplicating actions or lack of coordination. Instead key activities to support and assist them will be developed by the project to maximize the effectiveness of such interventions and foster transectorial coordination.
82. One of the project purposes is to take lessons and tools previously developed to account for carbon stocks, and calibrate them to the high Andes taking into consideration new information and knowledge base generated through the project including forest soil carbon. This project will be coordinated with the will be coordinated with the Carbon Benefits Project (UNEP) to apply, calibrate and adapt if necessary their tools for modeling, measuring and monitoring carbon stocks and GHG mitigation benefits for GEF projects. During the project implementation field data will be gathered to fulfill the CBP Detailed Assessment that is based upon activity data on different land use categories and management practices (i.e. mosaic deforestation and degradation). In addition, the project results will be available through CBP's open access platform.
83. Given the complementary nature of the project with other on-going GEF projects, close collaboration will be pursued to promote synergies and avoid duplicating actions. Those projects include "Management of Chimborazo's Natural Resources" in Ecuador, "Promoting Sustainable Land Management in Las Bambas" in Peru, "and "Valuation of Environmental

Services of High Andean Wetlands” in both countries, where close bonds with most of the leading organizations of those projects have already been established through previous partnerships with CONDESAN. The recently approved GEF SCCD Project “Andes Adaptation to the Impact of Climate Change in Water Resources” to be implemented in Colombia, Ecuador, Peru and Bolivia, presents important synergies and potential collaboration opportunities with this project. These synergies include: information generation about climate change impacts on Andean ecosystems, strengthening of national and local policies and programs to promote integral management and adaptation measures, and capacity building and knowledge transfer. The project will pursue to establish collaboration agreements with implementing organizations of this GEF SCCD Project in Ecuador and Peru. The project will also be aware of lessons learned from previous relevant GEF projects (e.g. Andean Paramo Project, “Adaptation to the impact of rapid glacier retreat in the Tropical Andes – PRAA) and will be ready to incorporate them within the project’s design and implementation.

84. Additionally, the project will enable coordination and interaction events with other UNEP projects in the region that are working under the Ecosystem Based Adaptation (EBA) approach, as a mean to integrate this approach with the Ecosystem Based Mitigation (EBM) approach under which this project will be implemented. The results of these interactions will be integrated into the communication material produced by the Project under component 4 as well as a lesson learned as part of the M&E Plan.
85. Furthermore, this project will be coordinated in-house with the efforts that UNEP and partner agencies are presently carrying out in the UN REDD framework of actions. This initiative is currently making progress in Ecuador and looks forward to advancing work in Peru, for which the present project bodes well. Specific complementarities with the present initiative will be discussed and collaboration agreed during the project preparation phase to maximize efficiencies in the support to aligned objectives. Finally, the countries in the region are continuously receiving support and guidance from UNEP regarding the work in the area of Green Economy, The Economics of Ecosystem and Biodiversity and on the Intergovernmental Platform on Biodiversity and Ecosystem Services. The activities of this project will be aligned with said support and the emerging developments in these areas, reflected by the goals contained in UNEP’s Ecosystem Management Subprogramme for the years 2014-2017.

SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE)

3.1. Project rationale, policy conformity and expected global environmental benefits

86. UNEP received a request from the governments of Ecuador and Peru for assistance to overcome barriers linked to major threats to the conservation and sustainable management of High Andean ecosystems, cited in Section 2.3. The fundamental rationale of this project was defined in consultation with governments at multiple scales. The rationale states that by incorporating applied research findings, scientifically validated and integrated land planning tools and Sustainable Land Management (SLM) and Sustainable Forestry Management (SFM) practices into existing national and local policy instruments, major knowledge gaps and barriers will be addressed and significant improvements in the conservation and sustainable management of high Andean ecosystems will be attained, delivering important global benefits. In order to assist in the development and validation of the tools and land management practices mentioned, it was decided that the project would set up 3 intervention or demonstration sites in Ecuador and 2 in Peru. Also, to ensure that institutional capacities are strengthened and country ownership secured, activities in all intervention sites will be implemented in close partnership with local governments and selected rural communities.

87. The high Andean ecosystems are classified as highly threatened due to their fragile nature to human impacts. Increased land-use land-cover change dynamics (LUCC) have led to a severe degradation process in many historically impoverished rural communities in the Andes. Furthermore, these globally important ecosystems are expected to be among the most affected by climate change over the next 100 years, according to available modeling exercises. The combination of fragile ecosystems and accelerated global environmental changes illustrate the potentially dramatic effect of these drivers on local system dynamics, affecting essential ecosystem processes such as primary productivity, carbon sequestration and stream-flow regulation. Nevertheless, there is limited scientific information that is able to explain at local and landscape scales how these drivers of change impact ecosystem dynamics, and the outcomes that suggested adaptation measures and resource management practices will have on mitigating these impacts. The project will contribute with scientific knowledge on high Andean ecosystem dynamics and the effect global environmental changes (GEC) have on biodiversity and carbon stocks and on the multiple environmental and social benefits they provide. New knowledge will be produced through robust, cost-effective monitoring systems established on each intervention site, and linked to national Monitoring, Reporting and Verification (MRV) systems.
88. This project seeks to develop an enabling environment for integrated ecosystem management in the high Andean ecosystems of Ecuador and Peru, and likewise to develop and validate the application of integrated land management approaches through selected demonstration practices in the wider landscape at the 5 intervention sites. It recognizes as its ultimate goal that ecosystem-based management must contribute to preserving or restoring the integrity of ecological systems as the base upon which socio-economic development and human wellbeing depend. The project will mainstream biodiversity conservation and its multiple benefits into cross-sectoral planning tools and policy instruments at the wider landscape as well as into relevant productive sector practices (i.e. agriculture, forestry). Likewise, the Project will guarantee that decision makers at different levels have increased access to science-based knowledge and SLM/SFM strategies through decision support tools that enable conservation and sustainable management of high-Andean Ecosystems.
89. This project will address current resource use and management practices, taking into consideration the different roles of local stakeholders, including men and women, in such key areas as agriculture, forestry, and tourism, with a view to developing robust policy and cross-sectorial regulatory frameworks, targeted training and capacity building, and management guidance that will enable local governments to put in place an ecosystem-based management strategy. The primary outcome of this line of work will be to ensure that institutional capacities are improved to apply knowledge and resource management tools which support policies, integrated land use plans and incentive programs (i.e. the Socio Bosque Programme in Ecuador) for the conservation and sustainable management of High Andean ecosystems.
90. A central rationale of this project is to foster important synergies between GEF focal areas as a strategy to accomplish the project's goal. The project will address land-use and cover change trends, which are a major driver of biodiversity loss and GHG emissions in Ecuador and Peru, maintaining and enhancing carbon stocks in the soils and biomass of high Andean ecosystems through SLM/SFM practices and policies. The project will contribute to the creation of an enabling environment in both countries to mainstream biodiversity conservation, promote climate change mitigation and upscale SLM/SFM in the wider landscape. National and local capacities will be strengthened to include environmental benefits in land use planning and policies, and foster economic incentives. Given the interdependence between soil organic carbon (SOC), biodiversity, and hydrological functions, this project will have an impact on

maintaining critical ecological functions which contribute to sustain local rural livelihoods. On-the-ground activities will be developed and executed in demonstrative sites in alliance with local governments and up-scaled into the wider landscape. Sustainable land management practices that address land degradation trends will also generate key cross-focal gains including: i) reduction in the use of synthetic pesticides and fertilizers, leading to improved watershed water quality, and associated ecological and public health benefits; ii) control of fire and cattle grazing regimes thereby limiting the reduction of biomass and soil degradation; iii) forestation with native species in suitable places to recover microhabitat conditions, improve soil infiltration and water holding capacity, and enable species colonization and facilitation for their establishment. Finally, strengthening national capacities for carbon monitoring and evaluation will facilitate the participation of governments in international carbon markets, provided these markets develop positively.

91. This project contributes directly to GEF's strategic goals #1, #2 and #3: Conserve, sustainably use, and manage biodiversity, ecosystems and natural resources globally, taking into account the anticipated impacts of climate change; Reduce global climate change risks by stabilizing atmospheric GHG concentrations through emission reduction actions, and assisting countries to adapt to climate change, including variability; and Build national and regional capacities and enabling conditions for global environmental protection and sustainable development. In particular, the project is in accordance to SO # 2 in Biodiversity Focal Area, SO # 5 in the Climate Change, SO # 3 in Land Degradation and SO # 1 and SO # 2 in Sustainable Forest Management. Global and local benefits as related to project outcomes are summarized in Table 3 below.

Table 3. Global and local benefits as related to project outcomes

Project outcomes	Local benefits	Global benefits.
<p>Outcome 1.1: An extended knowledge base regarding high Andean ecosystem dynamics and how global environmental changes (GEC) affect biodiversity and carbon stocks and the multiple environmental and social benefits they provide; and</p> <p>Outcome 1.2: DM accessed increased to knowledge base and practices for SM Andes.</p>	<ul style="list-style-type: none"> • Leaders make decisions using new knowledge, science-based tools and validated productive practices, resulting in improved programs for the conservation and sustainable management of high Andean ecosystems 	<ul style="list-style-type: none"> • Enhanced institutional capacity to account for GHG emission reduction and increase in carbon stocks (MRV). • INRM tools and methodologies developed and tested
<p>Outcome 2.1: Enabling environment in place to integrate multiple benefits in cross-sectorial planning tools at the wider landscape; and</p> <p>Outcome 2.2: Enhanced institutional capacities to apply knowledge and tools that support policies, integrated land use plans and ongoing programs for the conservation and sustainable management of critical high-Andean ecosystems.</p>	<ul style="list-style-type: none"> • Improved planning, training, collaborative agreements and incentive programs, resulting in more effective conservation and sustainable management programs of high Andean ecosystems. • Increased institutional capacities to integrate environmental criteria into land-use planning schemes. 	<ul style="list-style-type: none"> • Biodiversity conservation and sustainable use of high Andean ecosystems are mentioned in sector policy through specific legislation. Regulations are in place to implement the legislation, and regulations are under implementation.

Project outcomes	Local benefits	Global benefits.
<p>Outcome 3.1: Livelihood strategies and key productive value chains strengthened at interventions sites to address barriers affecting productivity and commercialization;</p> <p>Outcome 3.2: Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands in the high Andes.</p>	<ul style="list-style-type: none"> • Improved livelihoods of participating farm families through elimination of barriers and strengthening of critical value chains. • Improved livelihoods of participating farm families through the implementation of validated SLM/SFM practices. 	<ul style="list-style-type: none"> • Reduce pressures from competing land-uses to preserve and restore globally important High Andean ecosystems and associated environmental benefits. • Biodiversity conservation and enhancement of carbon stocks of 27.000 ha of globally important high Andean ecosystems and 194.325 tons of sequestered CO₂ during project lifetime. • 3-5 % increase of population of ecosystem health indicator species at intervention sites. • Increased carbon sequestration (3-5% over baseline) from afforestation, reforestation agroforestry and restoration of degraded lands in the wider landscape.
<p>Outcome 4.1: National environmental authorities in Ecuador and Peru incorporate science-based knowledge and tools developed by the project into their MRV systems and financial incentive programs;</p> <p>Outcome 4.2: Knowledge, tools and lessons learned disseminated among other local governments and key stakeholders outside the project intervention sites.</p>	<ul style="list-style-type: none"> • National monitoring programs strengthened by incorporating into their programs new science-base tools and the inclusion of high Andean ecosystems in their work scope. • Conservation and sustainable management of critical Andean ecosystems extended outside the project’s direct intervention area. 	<ul style="list-style-type: none"> • Measures to conserve and sustainably use biodiversity in high Andean ecosystems and its multiple benefits incorporated into cross-sectoral planning tools and policy instruments at the wider landscape as well as into relevant productive sector practices (i.e. agriculture, forestry). • Information on INRM technologies and good practice guidelines disseminated

3.2. Project goal and objective

92. The goal of this project is to contribute to the conservation and enhancement of globally important biodiversity and carbon benefits embracing sustainable land and forest management at multiple scales. The project’s objective is protect critical high-Andean ecosystems at selected intervention sites by mainstreaming scientifically-validated and integrated SLM tools and practices that preserve and enhance biodiversity and carbon stocks while contributing to the mitigation of climate change.
93. The multiple scale intervention approach of this project implies areas of direct and indirect project influence within the intervention sites. In the direct areas of influence specific research activities and SFM /SLM practices will be implemented (See description of Components 1 and 3 in Section 3.3); whereas the areas of indirect influence, include entire political administrative territorial units, that will be affected by the project mainstreaming and up-scaling activities directed towards local governments and their local policy frameworks (See description of component 2 and 4 in Section 3.3).
94. A Theory of Change (TC) exercise was conducted in the preparatory phase. Details of this critical-thinking exercise are presented in Appendix 16. The primary conclusions of this exercise are listed below. According to the ROTI Handbook (GEF), “the Intermediate States (IS) occur between the project outcomes and the ultimate impacts (Global benefits), and are achievements that build the sustainability of project outcomes and lead to their scaling up and out towards eventual impacts, or in GEF terms, global environmental benefits”. Projects are

generally successful if and once they achieve their projected IS. The IS identified for this project are:

- a) Stakeholders implement plans and development programs that properly deal with threats and barriers to the conservation of Andean ecosystems.
- b) Land degradation is reduced as result of conservation schemes and sustainable land management and forestry practices promoted by the project at proposed intervention sites.
- c) Principal partner institutions (local governments) disseminate and upscale conservation schemes and sustainable land management and forestry practices into their land management plans and regulatory framework.

95. Transformative actions are factors that contribute to the achievement of the project's impacts and objective that can be controlled during the implementation phase. Transformative actions to be managed in this project are:

- a) Leadership committed to promoting conservation and sustainable management of High Andean ecosystems and increased awareness of the functions and value of ecosystem services and biodiversity to human wellbeing.
- b) Information, tools and SLM/SFM practices integrated into national, regional and community land use management and development plans.
- c) National incentives programs and cross sectorial collaborative agreements maximize the impact of their investments through integrated landscape management that sustain flows of key ecosystem services.

96. Transformative actions are factors that contribute to the achievement of the project's impacts and objective that can be controlled during the implementation phase. As shown in Appendix 16, transformative actions to be managed in this project are:

- a) Leadership committed to promoting conservation and sustainable management of High Andean ecosystems and increased awareness of the functions and value of ecosystem services and biodiversity to human wellbeing.
- b) Information, tools and SLM/SFM practices integrated into national, regional and community land use management and development plans.
- c) National incentives programs and cross sectorial collaborative agreements maximize the impact of their investments through integrated landscape management that sustain flows of key ecosystem services.

3.3. Project components and expected results

97. This project is divided into four inter-dependent components (Figure 2). **Component 1** is focused on the generation of science-based information to fill in knowledge gaps together with the development of new tools and validation of improved SLM/SFM practices that enable national and local institutions to preserve and restore high Andean ecosystems and the services they provide. **Component 2** aims at strengthening local governments and rural communities to integrate these instruments in cross-sectorial planning, supporting policy and development programs. In order to validating the instruments mentioned above, **Component 3** seeks to promote sustainable livelihood strategies and implement integrated land and forest management practices at selected intervention sites to preserve and enhance biodiversity and carbon stocks into the wider landscape to deliver globally important benefits. Finally, **Component 4** calls for the insertion of project findings and tools by national environmental authorities into their MRV systems and incentive programs. Further, this component aims to

increase public awareness of project results and outreach findings of validated good management practices to promote conservation and sustainable use of High Andean ecosystems among local governments and key stakeholders surrounding the project's direct intervention area.

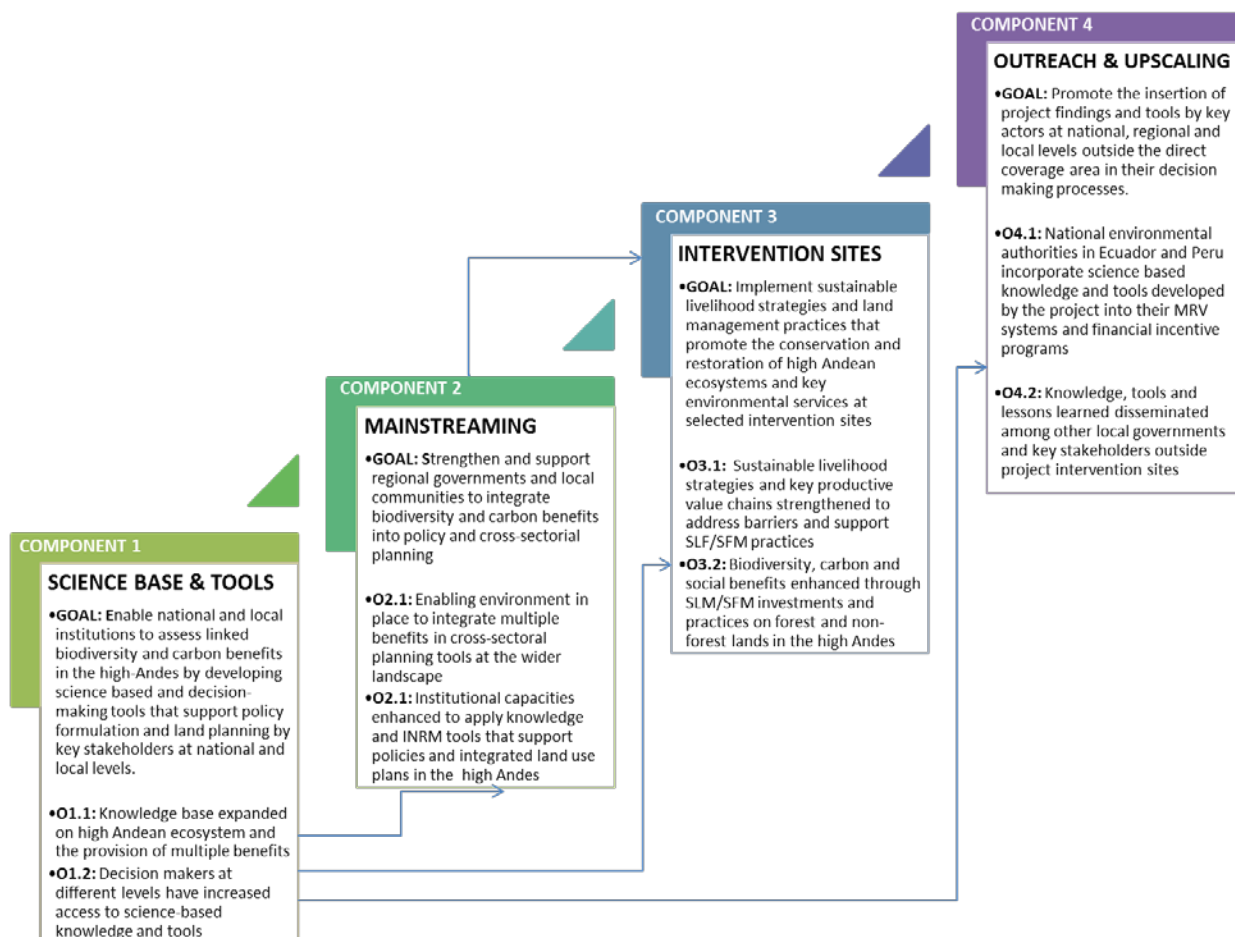


Figure 2: Relation among components and outcomes of the project

98. Project development components are fully explained in the Project Result Framework, Appendix 4. The following is a summary of each component.
99. **Component 1: Knowledge and Tools (US\$ GEF: 1,201,506; COF: 3,600,000):** The objective of this component is to enable national and local counterpart institutions to assess synergies between biodiversity and carbon benefits in the high Andes. This will be achieved by developing science-based tools⁶ that support decision-making, policy formulation and design more effective SLM/SFM practices. Addressing key knowledge gaps that undermine sustainable management of these fragile ecosystems and developing appropriate tools to support more effective management practices (C3) and policies (C2) is critical for protecting

⁶Science-based tools (SBT) consist of a variety of tools to assist conservation professionals in developing effective strategies for averting biodiversity loss, carbon enhancement and natural resource management. These tools range from sophisticated analytical simulation software for studying carbon dynamics to structured workshop facilitation techniques aimed at helping people reach shared understanding

these ecosystems and enhance multiple benefits. These results will also be used as a basis for actions in component 2 and 3.

100. Requests for more information and tools related to the interaction between land use regimes and ecosystem dynamics in the High Andes received from decision makers during the project formulation phase (PPG) confirmed the relevance of this objective. Additionally, the project contributes to advances made by earlier GEF projects on soil organic carbon (e.g. GEF-SOC and Carbon-Benefits Project). These earlier initiatives have recommended further action on: i) the need to deepen carbon dynamics knowledge, particularly in high elevation tropical areas where the biggest changes in land use and degradation are expected while least data is available, and ii) the importance to promote sustainable land/forest and ecosystem management as a key climate change mitigation measure to safeguard current carbon pools in above/below ground biomass and soil.
101. This component has two expected outcomes:
 - **Outcome 1.1:** An expanded knowledge base regarding high Andean ecosystem dynamics and how global environmental changes (GEC) affect biodiversity and carbon stocks and the multiple environmental and social benefits they provide.
 - **Outcome 1.2:** Increased access for decision makers at different levels to science-based knowledge and SLM/SFM practices through decision support tools that enable conservation and sustainable management of high Andean ecosystems.
102. The expanded knowledge base will allow a broad comprehension of high Andean ecosystems dynamics subject to different land use patterns (**Outcome 1.1**). This component will primarily operate at intervention sites—carefully chosen in both countries—to analyze different environmental and degradation gradients. In order to promote comparative analysis of ecosystem dynamics across all intervention sites, it is necessary to develop replicable and cost-effective protocols and appropriate monitoring systems. This will be achieved by the establishment of an integrated environmental monitoring system of biodiversity, carbon stocks and land-use dynamics at each intervention site. Adjusting and validating existing protocols in the field will offer the scientific basis to infer trends and patterns at the landscape scale in the future. The selected intervention sites include an array of biophysical and socioeconomic characteristics and different trajectories of land use and land cover change (LUCC) that are representative of the diversity of the Ecuadorian and Peruvian Andes. The monitoring systems established at each site, will be strongly linked to the national monitoring programs implemented by the Ministries of Environment through the adoption of common standards for data generation, management, and quality assurance.
103. The proposed monitoring system at site-scale has a modular design in which four thematic modules are considered. The main goal of these monitoring systems is measuring long-term changes in biodiversity and carbon cycling resulting from human activity and other environmental factors (Figure 3) The rationale of the monitoring strategy is to measure and compare ecosystem function derived from key indicators in a range of environments (i.e. intervention sites), from relatively well preserved places to highly degraded areas due to overexploitation of resources and unsustainable management practices.
104. The first module focuses on monitoring LUCC dynamics in the intervention sites with a primary focus on Andean ecosystems (i.e. forest, paramo/puna and wetlands). The main tasks implemented in each intervention site will be a reconstruction of historical LUCC patterns in the recent past– 15-20 years –, generating a baseline land cover map (year 2014), a mid-term evaluation (2016) and a final map at the end of the Project (2017/2018). These outputs will

be produced using a direct change detection approach with methodologies developed and tested in high elevation ecosystems by CONDESAN using approaches similar to those used by the Forest Resource Assessment (Peralvo & Bastidas, 2013; FAO & JRC. 2012). Additionally, this module includes a specific research and development topic oriented to quantify degradation patterns in high Andean ecosystems due to the land-use regimes prevalent in the intervention sites (See Sections 2.1 and 2.6).

105. The second module focuses on quantifying carbon stocks and fluxes along environmental and land-use gradients based on a methodology developed in the Peruvian Andes (Gibbon et al., 2010) and adapted in a pilot study carried out in the Pichincha site (Calderon et al. 2014). Yet, to accurately estimate carbon stocks in Andean wetlands the development a specific protocol is required, a task that will be carried out during PY1. Coordination activities has been advanced with the SWAMP Program of the US Forest Service and the REDD+ programs of Ecuador and Peru to develop a common protocol that can be validated and implemented in the Project intervention sites.
106. The third module focuses on monitoring biodiversity and key environmental benefits in non-forested, forested and selected land-use types. For the forested systems the methodology proposed is based on a protocol developed recently by the Andean forest network in which permanent plots are set to assess forest resources, carbon stocks and tree dynamics (Osinaga et al., 2013). It is envisioned this design will produce valuable information to inform and adjust SFM tools and practices. Yet, additional protocols are required to measure biodiversity status in the different land cover types as a way to evaluate the effects of the proposed SFM/SLM practices that will be designed and implemented in Component 3. Furthermore, this module will develop tailor-made protocols to assess critical environmental benefits (i.e. water provision) derived from ecosystem preservation that foster synergies between biodiversity, carbon and SLM/SFM practices.
107. A fourth analytical module is planned in which all the information generated in the previous modules converge, and landscape indicators can be derived to inform SFM/SLM practices that will be applied and promoted in Component 3 and Component 4.

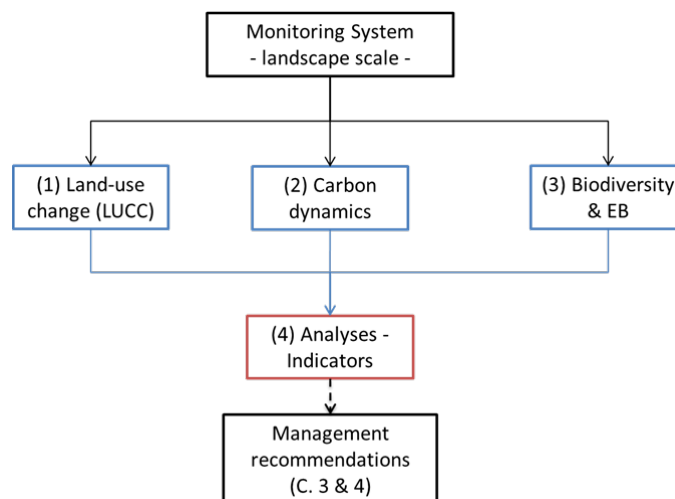


Figure 3. Schematic diagram of the monitoring system to be implemented at each intervention site.

108. Outputs contributing to *Outcome 1.1 Knowledge base expanded on high Andean ecosystem dynamics and GEC* are:
- a) At least five cost-effective protocols—adapted, validated and applied at intervention sites—for monitoring biodiversity, carbon stocks and key ecosystem dynamics. These protocols include several topics, such as carbon dynamics along environmental and land use gradients, biodiversity health indicators on forest and non-forest ecosystems in the high Andes, climate change experiments and mapping land use and land cover change and its effects on ecosystem health.
 - b) At least 8 science-based studies on ecosystem dynamics along environmental and degradation gradients in order to fulfill critical knowledge gaps and foster synergies between biodiversity, carbon and SLM/SFM practices. This output contributes directly to TT LD (**TT LD Line 86-87**)
 - c) One monitoring system established at each project intervention site to account carbon, biodiversity and land cover and use changes on environmental services.
109. Additionally, Component 1 will also increase the access of decision makers to useful information generated by the project —particularly scientifically validated SLM/SFM practices—and innovative tools to support policy making (**Outcome 1.2**). These tools include a broad range of resources such as integrated natural resource management (INRM) methodologies developed and tested, good management practices guidelines disseminated and adopted by counterpart institutions and communities, print-out protocols for High Andean ecosystem restoration practices, or sophisticated spatially explicit policy support systems based upon new available knowledge, environmental and economic valuations.
110. **Outcome 1.2 Increased DM access to knowledge base and practices for SM Andes** offer several outputs targeting indicators within LD TT (**LD.EC. 17.a, LD.EC. 18a-c, LD.PE. 18a-c, LD.EC.9.a-b, LD.PE.9.a-b; LD.EC.3.a & LD.PE.3.a; LD.EC.4.a-b & LD.EC.4.a-b**) and CC TT (**CCM.EC.1.d; CCM.PE.1.d**). Those are:
- a) At least 6 assessments or INRM tools to support on-going efforts on conservation and climate change strategies at different scales (**LD.EC. 17.a, LD.PE.17.a, LD.EC. 18a-c, LD.PE. 18a-c**).
 - b) At least 1 innovative agroforestry system and 1 land restoration system scientifically validated per intervention site (**TT LD.EC.9.a-b, LD.EC.PE.9.a-b; LD.EC.4.a-b & LD.EC.4.a-b**). Scientific validation involves environmental, economic, social and institutional criteria and assessment. At least 2 policy decision support systems/tools based upon new knowledge, environmental scenarios & economic valuations developed and adopted by stakeholders at intervention sites (**CCM.EC.1.d; CCM.PE.1.d; LD.EC. 18a-c**). Policy support systems will integrate: i) environmental scenarios including economic valuations of biodiversity (i.e. replacement costs, contingent valuations, choice-experiments, cost-benefit analysis), ii) spatially explicit trade-off models between different land use options to identify and target critical areas for environmental and carbon benefits, and iii) vulnerability assessments of environmental changes that affect social and natural systems in the intervention sites.
111. All the tools developed by the project will be further disseminated among policy-makers in Component 2 to incorporate cross-sectoral analysis and target key environmental objectives in policy instruments (e.g. integrate environmental considerations in land use planning). Also, these tools will be used in Component 4 in order to increase the effectiveness of national MRV systems, incentive programs and decision making processes.

112. This component will also incorporate tools developed earlier by the Carbon Benefits Project (GEF-UNEP). During its implementation phase (PY1), the project will use the CBP Simple Assessment tool to conduct an ex-ante analysis of C-benefits in the project region, establishing a baseline and the project scenario. The baseline will take into account LUC dynamics in the intervention areas and consider the expected land use/management situation change during the project (e.g. forest land, grassland, wetlands, annual cropland, perennial cropland, settlements, livestock). Complementarily, a Measurement and Monitoring Plan will be developed taking into account the CBP framework developed in order to include carbon pools and emissions that will improve the project's overall C/GHG estimate and improve the GEF Tracking Tool indicators for climate change and SFM. So far, interaction with CBP's technical team is ongoing to identify ways of further collaboration regarding on-the-ground application of the CBP tools and feedback for their refinement. Additionally, new information and knowledge from C1 regarding high Andean ecosystems dynamics will be used to improve the methodology for modeling, measuring and monitoring carbon stocks and GHG mitigation benefits of this project.
113. Additionally, CONDESAN has established contact with the Sustainable Wetlands Adaptation and Mitigation Program (SWAMP), which is a collaborative effort by the Center for International Forestry Research (CIFOR), the USDA Forest Service (USFS) and Oregon State University with funding from the US Agency for International Development (USAID). Acknowledging that most countries do not have sufficient information to include wetlands in their national reporting nor to develop plans for avoiding GHG emissions from wetland degradation, SWAMP is developing robust scientific approaches and methodologies to account carbon stocks in peatlands. Collaboration with SWAMP will be useful for the project to generate relevant knowledge to policymakers and practitioners regarding the sustainable management of wetlands in the face of changing global climate and livelihoods.
114. **Component 2: Mainstreaming and Capacity Building (US\$ GEF: 1,099,943; COF: 2,799,826):** Mainstreaming BD, CCM, SLM and SFM into policy frameworks will be pursued by the project with the goal to reduce the pressure of proximate and underlying causes of LUC dynamics at the wider landscape. Mainstreaming encompasses the processes by which environmental considerations are brought into attention and included within decision-making (Dalal-Clayton & Bass 2009). An effective environmental mainstreaming involves a mix of approaches (Dalal-Clayton & Bass 2009), and this component will work along two lines: capacity building, and strengthening of development and land use planning process taking into account environmental issues as a fundamental part of planning and decision-making. Overall, through all these activities the project also expects to improve the awareness of environmental issues among decision-makers at different levels, while institutional capacities are enhanced.
115. This component has two expected outcomes:
- **Outcome 2.1:** An enabling environment in place to integrate multiple benefits in cross-sectoral planning tools in the high Andes
 - **Outcome 2.2:** Institutional capacities enhanced to apply new available knowledge and INRM tools developed by the project
116. In order to optimize the provision of multiple carbon and environmental benefits across the landscape, a cross-sector enabling environment will be enhanced (**Outcome 2.1**). Given the characteristics of the Andes—and that policy frameworks in both countries are fostering decentralization of environmental governance—the project considers an opportunity to assist

local governments to improve land use plans integrating environmental concerns within decision-making. The project foresees land use plans as valuable policy instruments that can contribute to the integration of multiple benefits within land management alternatives at several scales. The central objective is to strengthen and support local governments and rural communities to integrate biodiversity and carbon benefits in cross-sectorial planning supporting policy and decision-making processes. In this line of thinking, this component will strengthen existing integrated land-use plans and appropriate policies and investments will promote sustainable land use regimes aimed at slowing degrading processes in the wider landscape at the intervention sites.

117. The specific outputs derived from *Outcome 2.1 Enabling environment in place to integrate multiple benefits in cross-sectoral planning tools* are:
- a) At least two policy instruments formulated or strengthened by the project to be formally adopted by local Governments to enhance sustainable biodiversity, forest and land management practices (**TT SFM.EC.6.a & SFM.EC.7.a; SFM.PE.6.a & SFM.PE.7.a; BD.EC.11.a- 11.d; BD.PE.11.a- 11.d**).
 - b) At least 10 community development plans formulated or strengthened, 2 for each intervention site, contributing to TT BD (**BD.EC.11.a-11.d; BD.PE.11.a 11.d**).
 - c) At least five Integrated Land Use Plans developed and strengthened at each intervention site to support regional governments. This output contributes to TT BD (**BD.EC.4.c; BD.EC.4.d; BD.PE.4.c; BD.PE.4.d**).
118. Despite the fact that regional and local governments in both countries currently have specific mandates in the management of natural resources, important gaps persist in terms of human capital, , information, tools and—in some cases—the awareness to face such responsibilities. Given that these are critical constraints to the mainstreaming of environmental criteria in planning and decision making, the project will provide a platform to enhance institutional capacities to apply science-based INRM tools for the conservation and sustainable management of critical high-Andean ecosystems (**Outcome 2.2**).
119. Capacity building is an important emphasis of this component, (as well as Component 4) involving local governments, counterpart organizations and communities. Through a continuous training program targeting a representative group of technicians and decision makers, the project aims to increase access to targeted information and tools regarding biodiversity conservation, protection of environmental goods and services, SLM/SFM and implementation of good management practices in high Andean ecosystems. For instance, the project will be in a position to assist these actors in identifying critical areas for preservation or enhancement of carbon pools and biodiversity based on new available information or through the application of scientifically validated good management practices for SFM and restoration of degraded lands.
120. The project will also pursue increasing opportunities to gain access to new funding for SLM/SFM practices support. To increase INRM/SFM investments in and around intervention sites, the project will develop Sustainable Financial Plans. Good financial planning enables managers to make strategic financial decisions and investments, and can be used as blueprints for decision makers to show how funds will be managed, generated, and invested. Financial plans are valuable tools to identify financial gaps, prioritize key actions and propose alternative sources of income to achieve sustainable financing (Bovarnick et al. 2010, Emerton et al. 2006). By addressing four key questions: (a) what has to be financed? (b) What does this financing cost? (c) What are the institutional arrangements required to support the financing system? and (d) what are the funding sources?, financial plans will

assist local governments in fulfilling their environmental commitments and in allocating spending to match management priorities.

121. Specifically, the project will: 1) assess financial gaps of local land use plans to achieve their environmental targets and prioritize actions, 2) screen financial mechanisms that could be promoted, and 3) implement a workplan with local stakeholders to mobilize public or private funding to diversify the financial resource base. For instance, in the Pichincha site, two recently declared municipal protected areas within the Pichincha site lack sufficient and sustained funding to support management actions. The Municipio de Quito, as main responsible of their management, identified during the PPG the need to develop financial plans for both areas in order to identify financial needs and identify new sources of available funding from public or private institutions. Thus, the project will assist local authorities in developing those financial plans, identify new financial opportunities, define a workplan to promote collaborative agreements with key stakeholders, and implement alternative financing mechanisms. Such financing mechanisms can include: public-private partnerships, users fees o new income-generating activities for local communities (e.g. tourism). The project recognizes that achieving financial sustainability is a long term process that depends on the characteristics and capacities available. Thus, the project will adapt its tools to conditions of each intervention site and support local governments develop new institutional and technical capacities for financial planning.
122. **Outcome 2.2** (*Institutional capacities enhanced to apply knowledge and INRM tools*) will be achieved with the following outputs and targets:
 - a) At least 60 technicians attend continued and specific training program in management and restoration practices focus on SLM/SFM and rangeland management on high Andean ecosystems, 45 in Ecuador and 15 in Peru.
 - b) At least 2 sustainable financing plans to support INRM/SFM and diversify the financial resource base designed and implemented at intervention sites.
 - c) At least 30 local decision makers attend specific training program⁷ on the conservation and sustainable management of high Andean Ecosystems and its link to land use planning, 20 in Ecuador and 10 in Peru
 - d) At least 2 extension programs operated by local governments or counterpart organizations strengthened (**LD.EC.21.a, LD.PE.21.a**).
123. Vertical and horizontal coordination among national, regional and local stakeholders will be encouraged, as a basis to articulate cross-sectoral processes, while land use plans and policies will be strengthened to incorporate environmental considerations. In order to achieve this, the project will involve relevant stakeholders in both countries and other important sectorial institutions. The project also acknowledges that a broad-based participation and a locally driven agenda need to build on existing local capacities (Bolger 2000). Therefore, partnerships among subnational and national stakeholders will be built.
124. During PPG, the project and local governments identified several synergies that will be supported by the project in this component (please refer to Table 2 for further details). Among these, the following are highlighted because of their importance in the strengthening of institutional capacities:

⁷ Training programs will be designed considering the different roles and needs local stakeholders, including men and women, have on resource management in the Andes including key productive sectors such as agriculture, forestry, and tourism.

- Foster implementation of existing and new regulatory frameworks (e.g. Environmental Agendas) to protect key areas for biodiversity and the provision of other important environmental services.
 - Design and establish biological corridors in targeted areas, promoting institutional arrangements for their implementation in or around intervention sites.
 - Establish monitoring systems that support policy making and which are integrated into land use planning tools.
 - Facilitate and promote cross-sectoral dialogue among governmental agencies related to planning at national and regional levels.
125. **Component 3: Intervention sites (US\$ GEF 1,387,943; COF 7,955,000):** The main objective of this component is to implement sustainable livelihood strategies and land and forest management practices that promote the conservation and restoration of high Andean ecosystems and key environmental services at selected project intervention sites. To increase SLM and SFM investments at intervention sites, the project will target and use funding provided by national economic incentives (e.g. PSB up to USD 30/ha for forest conservation and Ecuador's national reforestation program up to USD 830/ha for community reforestation areas). Also, important investments in Microfinance for Ecosystem Based Adaptation MEBA led by UNEP in the region will represent a strategic counterpart to support direct impact and upscaling, providing technical assistance and funding, in particular in terms of i) innovative alternatives for sustainable livelihood strategies and key productive value chains and ii) enhancement of social and environmental benefits through SLM/SFM investments and practices.
126. Overexploitation of forest resources and inappropriate land use practices have exacerbated environmental degradation to a point that land restoration and natural regeneration of vegetation are being considered as valuable options for conservation and support of local livelihoods in the high Andes (Sarmiento 1995). Improvements in quality and quantity of the carbon pools, through soil conservation practices, agroforestry, reforestation and restoration of high Andean ecosystems can increase biomass/agricultural production, improve biodiversity health indicators, enhance water flow and quality, reduce sedimentation of reservoirs and mitigate risks of global warming by increasing rural livelihoods and ecosystems resilience (Lal 2004).
127. This component includes two expected outcomes.
- **Outcome 3.1:** Sustainable livelihood strategies and key productive value chains strengthened through SLM/SFM practices at intervention sites
 - **Outcome 3.2:** Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands
128. **Outcome 3.1** seeks to improve rural livelihoods and economic conditions as a means to overcome critical root causes of land degradation in the intervention sites (see section 2.3). Thus, the expected outcome (3.1) aims to strengthen livelihood strategies and key productive value chains at interventions sites to address barriers affecting productivity and commercialization. By doing so, the project contributes to accomplish an expected national socio-economic benefit of the LD GEF-Strategy *Sustained livelihoods for people dependent on the use and management of natural resources (land, water, and biodiversity)*, as well as to contribute to the third objective of this focal area *Reduce pressure from competing land-uses to preserve and restore globally important High Andean ecosystems and its environmental benefits*. In this line of work, a characterization of current livelihood strategies will be undertaken to consider alternatives to address the need to move toward sustainable self-

sufficiency in relation to agricultural production, while improving livelihoods, diversifying incomes, and promoting sustainable economic growth with equal opportunities among men and women. These activities will be closely linked to the targeted training and capacity building actions described in outcome 2.2.

129. Outputs associated with Outcome 3.1: *Sustainable livelihood strategies and key productive value chains strengthened through SLM/SFM practices at intervention sites* include:
- a) One baseline assessment addressing critical barrier developed and proper actions implemented at each intervention site integrating gender considerations, and contributing to TT BD (**BD.EC.5.a – 5.f; BD.PE.5.a-5.c**)
 - b) At least 3 start-up programs in key production chains implemented and incorporating SFM/SLM practices at intervention sites. This output contributes to all four Tracking Tools, particularly TT SFM (**SFM.EC.2.d; SFM.PE.2.c**), TT BD (**BD.EC.4.a-4.i; BD.PE.4.A-4.i**), TT CCM (**CCM.EC.1.b-1.d; CCM.PE.1.b-1.d**).
 - c) At least 10% of participating families' income diversified by activities promoted by the project (**TT BD.EC.5.a-4.b; BD.PE.5.b**).
130. **Outcome 3.2** targets to conserve and enhance biodiversity and carbon pools in the intervention sites through SLM/SFM practices on forest and non-forest lands. Direct benefits derived by the project will be accounted for through the monitoring system in each pilot site. On the ground investments in pilot sites are meant to facilitate innovation, dissemination and replication of good management practices. On such basis the project will also offer policy and decision-makers at multiple scales (Component 2 and 4) specific recommendations on sustainable management options, tested and validated in pilot sites in Ecuador and Peru.
131. SLM practices refers to restoration practices in degraded lands (e.g. native plants propagation, planting, and rescue; relocation of soil and vegetation paths; building protective erosion-control structures) and alternative management activities (e.g. soil conservation techniques such as terraces and crop rotation, no-burning areas, improvement in the grazing and rangeland management techniques, and agroforestry systems). Those include activities based on technical knowledge, as well as traditional practices. Many projects have ignored the importance of local practices regarding natural resource management, including adaptive responses to environmental changes. Nonetheless, this project will also take into account local knowledge and add-in technical innovations that can enhance local adaptive capacity.
132. SFM activities will be oriented towards good management practices applied in existing forests as a means to enhance carbon pools from reduced forest degradation and to improve habitat quality to restore key biodiversity indicators as a co-benefit. Furthermore, SFM will also address protection and conservation of critical areas selected by local communities (e.g. upper watersheds) and establishing conservation agreements with local stakeholders (including communities or private landlords) will be pursued. Additionally, commercial plantations will be placed in selected degraded areas of intervention sites where an innovative approach based on mainstreaming good management practices are expected to deliver local and global benefits.
133. The expected outputs to achieve *Outcome 3.2: Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands* are:
- a) 5,000 ha of Upper Montane Forest protected under conservation or managed through sustainable forest management. This output will be contributing to indicators in TT SFM (**SFM.EC.1.a, SFM.EC.2.a, SFM.EC.6.c & SFM.EC.7.f; SFM.PE.1.a, SFM.PE.2.a,**

- SFM.PE.6.c & SFM.PE.7.c), TT BD (BD.EC.3.a-3.i; BD.EC.3.a-3.i), and TT CCM (CCM.EC.1.a; CCM.PE.1.a)**
- b) 10,000 ha of Paramo, Punas and Wetlands under conservation or sustainable land management, contributing to **TT BD (BD.EC.3.a-3.i; BD.EC.3.a-3.i)** and **TT CCM (CCM.EC.1.b - d; CCM.PE.1.b - d)**.
 - c) 3,000 ha of improved rangeland under good management practices (**TT SFM.EC.2.d; SFM.PE.2.c**)
 - d) 4,000 ha of community plantations and agroforestry systems using native tree species with a survival rate of 85% (**TT SFM.EC.2.c**) (**TT CCM.EC.1.c; CCM.PE.1.c**)
 - e) 2,000 ha of commercial plantations with a survival rate of 85% (**TT SFM.EC.2.c**) (**TT CCM.EC.1.c; CCM.PE.1.c**)
 - f) 3,000 ha of degraded land under sustainable land management practices other than tree plantations (**TT SFM.EC.2.d; SFM.PE.2.c**)
 - g) 3-5 % increase of population of ecosystem health indicator species at intervention sites (**TT BD.EC.4.a-c**) (**TT CCM.EC.1.d; CCM.PE.1.d**).
 - h) 3-5% increase of tons of carbon over baseline in work areas (**TT SFM.EC.5.a; SFM.EC.5.b; SFM.PE.5.a; SFM.PE.5.b**) (**TT CCM.EC.1a-b; CCM.EC.1.f-g; CCM.PE.1a-b; CCM.PE.1.f-g**).
134. **Component 4: Outreach and Up scaling (US\$ GEF: 878,596; COF: 1,150,000)**. The objective of this component is twofold. First, activities will aim at upscaling project findings and tools into Ecuador's and Peru's MRV systems and financial incentive programs. An adequate incorporation of ecosystem processes and land use dynamics that are specific to high Andean ecosystem is a persisting gap in policy instruments and monitoring systems at national scales, and the project prioritizes the articulation of knowledge and tools validated at site-level through a process of constant collaboration with the national environmental authorities . The second objective of Component 4 is to outreach to local governments and key stakeholders outside the project intervention sites to insert project findings and tools into their decision-making processes. Thus, indirect benefits in terms of biodiversity conservation, carbon stocks maintained, and sustainable management in forest and non-forest lands will be derived from this component.
135. This component has two expected outcomes:
- **Outcome 4.1:** National environmental authorities and incentive programs in Ecuador and Peru incorporate science based knowledge and tools developed by the project.
 - **Outcome 4.2:** Knowledge, tools and lessons learned disseminated among other local governments and key stakeholders beyond intervention sites.
136. To accomplish **Outcome 4.1**, the project will work closely together with environmental authorities of both countries. As confirmed in the preparation phase, national environmental authorities in Ecuador and Peru are currently working towards structuring Measuring, Reporting and Verification systems in the context of the preparation of a mechanism aimed at reducing emissions from deforestation and forest degradation (REDD+). Robust land use monitoring is also a key component for the effective implementation of national level incentive programs to conserve their country's biodiversity and related environmental benefits (see section 2.5). The science-based protocols, tools and knowledge developed and validated at the intervention sites will be linked to these national-level monitoring efforts to provide a solid base for proper accounting of carbon dynamics and their links to key ecosystem services in high Andean ecosystems. Such effort is considered necessary to fulfill future requirements of any global financial mechanism, in order to diversify the financial resource base in the future and support policies and institutional changes to promote cost-

effective mitigation activities in the LULUCF sector. The project will also support national incentive programs to upscale and increase country-wide impacts in both countries through technical guidelines (tested and validated in Components 1 and 3) and establish rigorous and cost-effective monitoring systems. These include activities to evaluate environmental and socioeconomic impacts, target key areas that can provide multiple environmental and carbon global benefits, and control for spatial demand spillovers, which are typical shortcomings among national incentive programs and PES elsewhere (STAP-GEF 2010⁸).

137. During the project design, several arrangements for joint collaboration were agreed with national authorities and Programs directors. These agreements are translated into project co-financing (please refer to Table 2 and Section 7.2 for details) as well as concrete collaborative actions such as: i) strengthen protocols for monitoring carbon and biodiversity dynamics in High Andean ecosystems, ii) validation of protocols and criteria for the reforestation programs together, iii) technical support to establish indicators and criteria for restoring degraded lands in non-forest ecosystems, and iv) improve implementation models and arrangements with local stakeholders. Additionally, in the case of **Ecuador**, the project will support the Socio-Bosque Program by increasing the area of paramo and upper montane forest under conservation agreements as well as with tested actions and practices related to monitoring Program's impact on preserving valuable biodiversity areas as well as carbon stocks in the three intervention sites that can be replicated at the national scale.
138. The outputs to be generated of Outcome 4.1 *National environmental authorities and incentive programs in Ecuador and Peru incorporate science based knowledge and tools developed by the project* are:
- a) National MRV systems of Ecuador and Peru strengthened for monitoring climate change and land use impacts (**TT SFM.EC.6.d & SFM.EC.7.g; SFM.PE.6.d & SFM.PE.7.d; CCM.EC.1.e; CCM.PE.1.e**). In this line, a module for comprehensive forest and carbon inventory and monitoring system of high Andean ecosystems will be developed in coordination with technical teams of both Ministries thus results can be incorporated with on-going national-level MRV efforts.
 - b) At least four financial incentive programs strengthened—3 in Ecuador and 1 in Peru—to increase investments effectiveness at the national level, contributing to **TT CCM (TT CCM.EC.1a-c; CCM.PE.1a-c)**.
 - c) At least 4 thematic working groups—including the participation of national authorities, individual researchers and research institutions—formed or strengthened to replicate project actions in areas beyond intervention sites. Working groups will address key thematic areas for the project such as Sustainable Forest Management, biodiversity and carbon maintenance and enhancement, Land Use and Land Cover Change monitoring, land restoration, among others. Thematic Working Groups will act as small 'learning and sharing groups' that can complement project findings and boost up environmental mainstreaming within existing efforts. Such groups can work collaboratively to, for instance, identify examples and agree on approaches to be used among both countries, and make recommendations.
139. Additionally, **Outcome 4.2** will disseminate project findings and results to relevant stakeholders beyond intervention sites. These will include information, methodologies and

⁸ Wunder, S., S. Wertz-Kanounnikoff, P. Ferraro. 2010. Payments for Environmental Services and the Global Environment Facility: A STAP advisory document. STAP GEF/UNEP. Washington DC.

tools for INRM as well as good practice guidelines. Lessons learned on SLM/SFM practices and tools will target other local governments and communities.

140. The outputs to be generated of Outcome **4.2: Knowledge, tools and lessons learned disseminated among other local governments and key stakeholders beyond intervention sites** are:
- a) At least one publication of lessons learned on SLM/SFM practices disseminated among key stakeholders, including local communities (**TT SFM.EC.3.a–b; SFM.PE.3.a–b & LD.EC.18.a,b,c, LD.PE.18.a,b,c**)
 - b) Tool kit produced of project findings (lessons learned and SLM/SFM practices) produced for use by participating regional governments for promoting conservation and sustainable management of Andean ecosystems
 - c) At least 3 local governments outside project intervention sites (2 in Ecuador and 1 in Peru) are aware of validated actions to promote conservation and sustainable management Andean ecosystems management (**TT BD.EC.11.a-e; BD.PE.11.a-e**).
141. Finally, the project’s Monitoring and Evaluation Plan (M&EP) is presented in Appendix 7. This plan assures the continuous measurements of impacts, outcomes and outputs established in the Results Framework/GEF Tracking Tools. Means of verification are mentioned in the Results Framework. They include Steering Committee Meetings, Technical Committee Meetings, Annual Assessments, Midterm Evaluation, evaluation produced by counterpart institutions, internal appraisal of work being carried out at intervention sites and the Terminal Evaluation, among others. Using information generated by the M&EP, the Project Manager (PM) will apply the Adaptive Management procedures as recommended by UNEP. More information M&E is presented in Section 6.

3.4. Intervention logic and key assumptions

142. The foundations of the intervention logic of this project are aimed at delivering globally important benefits based on the conservation and restoration of High Andean ecosystems. The starting point in the intervention logic is that a complex set of barriers difficult the attainment of sustainability goals in the development and implementation of intervention and policy instruments at local to national scales. These barriers include knowledge gaps, weak institutional mechanisms for cooperation and coordination, lack of integrated planning tools, access to markets in disadvantageous conditions, among others. The configuration of these barriers change with scale and the actors that work at different levels, including the public and private sector, civil society and the academy.
143. Overcoming barriers will include the expansion of knowledge, the development of decision-making tools and the implementation SLM/SFM practices regarding the functions and values of the ecological benefits being affected by land degradation and habitat loss. Furthermore, it is expected that the decision-making tools support policy formulation and land planning by key stakeholders at national and local levels that enable conservation and sustainable management of high-Andean Ecosystems.
144. Governments at the national and local levels contribute legislative and regulatory frameworks, social and financial stimuli and the control mechanisms needed to consolidate the sustainability of the former proposal. A primary approach of the intervention logic of this Project is to establish formal collaboration agreements with national programs and local governments at each intervention site. These agreements contemplate in-kind contribution for project activities implementation as well as the definition of key employees to act as

project Focal Points (FP) in order to facilitate project implementation and communication with local stakeholders and key actors. Improving policies, developing institutional and community land use management plans, training a cadre of professionals and community leaders and other capacity building outputs associated with this project will help stakeholders institutionalize advanced programs of biodiversity conservation carbon stocks management.

145. At the same time, the project will remove barriers related to systemic capacities at the local and national decision-making levels that will help to sustain mid-and-long term processes and upscale project outcomes into broader cross-sectoral policy and regulatory frameworks for land use planning and policy design. Development of scientifically-validated management practices that overcome land degradation and ecosystem deterioration is a primary barrier this project will remove through SLM/SFM investments and practices on forest and non-forest lands together with sustainable livelihood strategies and land management practices that promote the conservation and restoration of high Andean ecosystems and key environmental services at selected project intervention sites.
146. The project expects to achieve its stated goal through the following outcomes:
 - Outcome 1.1: Knowledge base expanded on high Andean ecosystem dynamics and the effects that global environmental changes (GEC) have on biodiversity and carbon stocks and on the multiple environmental and social benefits they provide.
 - Outcome 1.2: DM access to knowledge base and practices for SLM strategies in the Andes increased.
 - Outcome 2.1: Enabling environment in place to integrate multiple benefits in cross-sectoral planning tools at the wider landscape.
 - Outcome 2.2: Institutional capacities enhanced to apply knowledge and INRM tools that support policies, integrated land use plans and ongoing programs for the conservation and sustainable management of critical high-Andean ecosystems, including Andean forests
 - Outcome 3.1: Sustainable livelihood strategies and key productive value chains strengthened at interventions sites to address barriers and support SLF/SFM practices.
 - Outcome 3.2: Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands in the high Andes.
 - Outcome 4.1: National environmental authorities in Ecuador and Peru incorporate science based knowledge and tools developed by the project into their MRV systems and financial incentive programs.
 - Outcome 4.2: Knowledge, tools and lessons learned disseminated among other local governments and key stakeholders outside the project intervention sites.
147. During the project preparation phase (PPG) a series of meetings and workshops were held with national and local authorities in order to define the primary emphasis of the project design, the interaction and strengthening of ongoing Ministries' programs and projects together with the definition of Project intervention sites and the assessment of its political and institutional feasibility. In this line of activities, the in-cash and in-kind co-financing for this project by national counterparts is substantial and the scope, scalability and sustainability of this project is based on the assumption of the availability of these funds.
148. The success of the project also assumes that ongoing decentralization and land planning policies in Ecuador and Peru will continue for the project's lifetime and support the maintenance of key environmental benefits of High Andean ecosystems as a core objective for natural resource governance. The proactive participation of local stakeholders, particularly local communities and farm families, is indispensable for successful project

implementation. Critically important is the assumption that local governments continue to take interest in mainstreaming biodiversity and carbon benefits into their development plans.

149. An important approach of the project will be gender mainstreaming. Gender refers to the social roles that men and women play and the power relations between them which usually have a profound effect on the use and management of natural resources. Gender mainstreaming (GM) is becoming a central factor in UNEP policies and programmes, bringing the diverse roles and needs of men and women to the environmental agenda. Accounting for gender equity and equality is an important consideration. Through GM, the project will seek to:
- Identify and address specific gender differentiated needs arising from gender imbalance in policies, decision-making and processes related to the environment.
 - Develop coherent policy approaches to gender-specific environmental governance issues.
 - Integrate gender analytical tools and methods into capacity building approaches as well as in ecosystem management tools.
 - Foster alternative livelihood activities to reduce pressure on ecosystems with focus on disadvantaged groups, particularly women.
150. At the center of country ownership goals espoused by the project is cost sharing and shared responsibilities. As explained in Section 7, funds donated by governments make up a large part of the project budget. Economic contributions from other partner institutions, including provincial governments and municipalities, are expected. Rural communities and farm families will also contribute to project development, donating their time and labor.
151. Key assumptions for the project are:
- a. Stakeholders and decision-makers are receptive to incorporating project resulting tools and knowledge in integrated land use and development planning.
 - b. Counterpart organizations abide by agreements and are willing to share information and use knowledge and tools generated.
 - c. Decentralization and land planning policies in Ecuador and Peru continue as established during project lifetime and support the maintenance of key environmental benefits of High Andean ecosystems.
 - d. Local governments continue to take interest in mainstreaming biodiversity and carbon benefits into their development plans.
 - e. Large scale infrastructure projects (including mining) do not disrupt social, political and environmental systems at project intervention sites.
 - f. Financial incentive programs are effective conservation strategies for High Andean ecosystems and operate throughout project lifetime.
 - g. Communities and local governments agree to work together in the establishment and implementation of integrated land management and sustainable forest management practices.
 - h. Extreme weather and climate variations do not overly affect the conservation and sustainable management practices being promoted.
 - i. A stable group of representative decision makers and technicians are actively involved in project execution at intervention sites during project lifetime.

3.5. Risk analysis and risk management measures

152. Measures taken to improve project sustainability are given in Section 3.8. Risks that affect project sustainability over which the project has little or no control are summarized in Table 4 below. Possible mitigation strategies for these risks are also mentioned.

Table 4. Risk factors and possible mitigation measures

RISKS	RATING (High, Medium and Low)	POSSIBLE MITIGATION STRATEGIES
Participating nations are slow to benefit from international climate change programs	Medium	The project will help governments stay abreast and participate in international climate change initiatives
Professionals, technicians and community leaders trained by the project do not continue in their posts after training	Medium	As much as possible, project awareness and training programs will target long term employees and permanent community members. Also, specific project activities will be aimed at the development and implementation of monitoring and integrated land planning procedures that persist even in the presence of high personnel turnover.
Extreme weather and climate variations negatively affect the conservation and sustainable management practices being promoted.	High	SLM/SFM practices promoted by the project will be designed to be resilient under extreme weather conditions caused by climate change. For example, ecosystem conservation and restoration activities will target key areas for water flow regulation (e.g. high elevation wetlands).
Land tenure problems prevent the application of conservation schemes and sustainable management practices.	Medium	Integrated land planning processes supported by the project will promote lowering social tensions by integrating multi-level stakeholder participation. Also, activities aimed at strengthening development plans of rural communities in the intervention sites will prioritize secure land tenure regimes, conflict resolution, and lifting land tenure barriers for participation in government sponsored incentive programs.
High migration of young people diminishes capacities of rural communities at the intervention sites	Medium	The project will apply a gender approach, focusing on the livelihoods of remaining groups of women, elders and adolescents. Also, the activities will be based on sound information regarding cyclic, temporal and permanent migration processes to implement SLM/SFM adapted to local conditions of labor availability and organizational capacities.
Market fluctuations hinder the profitability of sustainable management practices promoted by the project.	Medium	Market and commodity chain analyses will be implemented to help farmers to articulate to markets in more advantageous conditions. Technical assistance will be offered to rural farmers to address production and marketing challenges in the areas of work of the project (e.g. wool production, tourism, trade of non-timber forest products, livestock management). Links with other initiatives are readily available and their lessons will be applied, such as from the Andean Biotrade project (GEF ID 2391) supporting value chains under Biotrade principles and criteria in Ecuador and Peru.
Large economic development programs take precedence over conservation and sustainable management activities being promoted.	Low	If necessary, the project will participate in strategies for conflict resolution organized by local governments to facilitate dialogue, provide key information items and promote the development of intervention sites.

3.6. Consistency with national priorities or plans

153. The project is consistent with Ecuadorian and Peruvian national policies and programs specified in section 2.4 of this document. In Ecuador, The project will provide information, knowledge and will promote specific intervention activities that contribute to the accomplishment of targets 4.1.1, 4.1.3 and 4.5.1 of Ecuador's National Development Plan, in relation to: conservation and sustainable use of biodiversity, and the promotion of adaptation and mitigation responses to climate variability. Regarding the National Environmental Policy of Ecuador, the project is in line with Policy 1: Economic and Environmental Sustainability, through including good practices and incentives; Policy 2: Efficient use of strategic resources (water, soil, biodiversity), by promoting land use plans that integrate conservation, management, and an equitable distribution of benefits among stakeholders; Policy 3: Climate change adaptation to reduce social, economic and environmental vulnerability, through mitigating impacts of climate change and reduction of GHG emissions; and Policy 6: Strengthen the institutional framework for ensuring environmental management, through applied research. The project is also consistent with the High-mountain Ecosystem Policy of Ecuador, promoting the territorial zoning and planning of paramos, mountain forests and wetlands in the intervention sites.
154. Through the activities established in Component 1, 2 and 3, the project will significantly contribute to the implementation of the Ecuadorian Forestry Governance Model established by MAE, specifically to strategies 4 and 5, related to forest zoning and planning, information generation and capacity building. Additionally, the project will work directly with the National Forestation and Reforestation Plan lead by MAE (conservation purpose) and MAGAP (commercial purpose), facilitating and giving technical support for the establishment of reforestation areas with native species, to recover degraded lands on forested high Andean ecosystems, and the establishment of tree plantations for productive and commercial purposes in selected community areas inside and around the project sites.
155. The project will contribute to initial efforts to design and implement a National MRV System in Ecuador (National Forestry Inventory and Historical Deforestation Map Projects) through the monitoring of biodiversity dynamics and carbon stocks & fluxes, comprehensive forest and carbon inventories in high Andean ecosystems; and the generation of deforestation and land degradation maps at intervention sites.
156. Additionally, the project will work closely with the SocioBosque Incentive Program (MAE) to: i) incorporate new areas of paramos and Andean forests at intervention sites, into the Program, and b) define technical criteria to develop indicators and monitoring systems of ecological and social impacts of the Program; this last aspect was established by the Program as an urgent need and a priority for the upcoming months.
157. The project is consistent with the objectives established in the Climate Change National Strategy of Ecuador. Specifically the Project will contribute to the Mitigation and Adaptation Plans of the Strategy, through the implementation of activities to enhance integrity and connectivity of high mountain ecosystems, considered important carbon reservoirs; and the reduction of GHG emissions and enhancement of the responsive capacity of socio-ecological systems at intervention sites, through the promotion of sustainable use of natural resources and land use management. The Project is also an important contribution to specific objective 1 of the Capacity Building Plan of the Strategy which promotes climate change information generation and dissemination, and specific objective 3 related to capacity building to face upcoming challenges regarding climate change.

158. Finally, the project will contribute to the Ecuadorian National Protected Areas System, established as national priority in the Constitution (Art.405), by supporting local and national authorities in the design and implementation of biological corridors in or around intervention sites, and will explore synergies and possible contributions to the National Environmental Accounting System they are working on in collaboration with SENPLADES.
159. In the case of Peru, the project is fully in line with the countries' Climate Change National Strategy and the Plan for Adaptation and Mitigation to Climate Change: i) enhancing its scientific capacity through the development of a GHG emission methodology applicable to high Andean ecosystems and establishing a monitoring system for carbon stocks that fully address GHG emission from land use and cover change in the high Andes, ii) addressing vulnerability of social and natural systems linked to the loss of carbon stocks since they are linked to several critical ecosystem services (e.g. species habitat, water regulation, soil productivity, local livelihoods), iii) supporting mitigation of GHG emissions by promoting sustainable land-use management in fragile mountainous ecosystems and reducing pressures at the landscape and local levels, and iv) enhancing national institutions capacities and have a leading role in further climate change negotiations, REDD+ and other financial mechanisms.
160. Additionally, the project will work closely with the Forests Conservation Program for Climate Change Mitigation of Peru for the inclusion of areas of punas, paramos and Andean forests at intervention sites, into this national incentive program. The project will also work closely with the National Forest Inventory of Peru to include Andean forests on the inventory, measuring carbon content of trees and forest soils and by producing the protocols for this means.
161. The Project is in line and contributes to several objectives of the National Biodiversity Strategy of Peru through information generation and monitoring of high-Andean ecosystems biodiversity, its degradation processes and climate change impacts (Objective 1.1, 3.1, 3.5 and 5.2), the incorporation of this information on territorial planning (Objective 1.2, the promotion of a sustainable use of forestry resources at intervention sites (Objective 2.4) and strengthening policies and institutional capacities around these themes, at the national and local levels (Objective 2.1, 4.2, 5.4, 6.3, and 6.7). Lineamientos para el manejo sostenible de ecosistemas altoandinos.
162. Though the Natural Patrimony Evaluation, Valuation and Financing General Direction of the MINAM, the project will explore synergies and possible contributions to the green public account system they are working on in collaboration with the Ministry of Finance, also taking into consideration that Perú is championing the UN Partnership for Action on Green Economy (PAGE) initiative where UNEP plays a leading role.
163. The project is consistent with the main conclusions of the Second National Communication to UNFCCC submitted by both countries. In these documents both Ecuador and Peru explicitly state the need to develop specific mitigation actions to address land use conversion as one of the main sources of GHG emissions. Additionally, both countries have emphasized that the lack of quality data and solid methodologies are major limitations, particularly in estimating carbon stocks and fluxes from the following pools: belowground, soils and deadwood, to attain accurate estimations of carbon stocks, impairing a proper quantification of GHG emissions in each country. Both needs are addressed by the Project.

3.7. Incremental cost reasoning

164. **Baseline analysis:** High Andean ecosystems are valuable and highly threatened ecosystems that provide multiple benefits, both globally and locally. Their preservation is severely endangered due to unsustainable agricultural practices together with resource base overexploitation which leads to ecosystem degradation, biodiversity loss and soil erosion. Likewise, several practices related to land-use planning and development policies at local and national levels, lack of capacity to develop and enforce an appropriate regulatory framework, and persisting knowledge gaps are the driving forces that perpetuates these losses.
165. National and local authorities in both countries are undertaking efforts to overcome this situation, within a framework of decentralization of environmental governance targeted at increasing participation, transparency, efficiency and equity of interventions from the public and private sectors. This includes the strengthening of national MRV systems, establishment of incentive programs and other interventions that have resulted in important financial resources—up to 7,0 M US\$ in Ecuador and 2,43 M US\$ in Peru— earmarked for related activities in the project’s intervention sites. Yet, unless critical barriers described in section 2.3 are properly addressed, the available funding will not ensure the provision of multiple benefits from the conservation of biodiversity and the maintenance or enhancement of carbon stocks. Addressing such knowledge, political and institutional barriers requires developing a sound science and practice base to support policy-making and enhancing local and national capacities to support biodiversity conservation, climate change mitigation, SLM and SFM in the high Andes.
166. Without GEF’s intervention, on-going national programs will not be provided with a solid scientific base and appropriate tools to support decision making and implementation tailored to the social and environmental context of high Andean landscapes. Due to emphasis in forest low land ecosystems, it is very likely that national MRV systems in both countries—when finally in place—will be less suited to include biodiversity and carbon stocks dynamics of high Andean ecosystems. Therefore, it is expected that impacts of land use and land cover changes over carbon stocks, fluxes and land degradation dynamics in the highlands will continue to be underrepresented within monitoring efforts thus missing key opportunities for environmental benefit financing. Furthermore, subnational land use plans will be based on static and non-integrated approaches without explicit strategies to create and maintain key land planning and intervention capacities by local governments. These plans will also continue to lack clear environmental criteria that guide the prioritization of interventions. It is foreseen that without this project, a proper mechanism to mainstream SLM/SFM practices and to systematize and incorporate lessons learned from on-the-ground interventions will be lacking. Thus, current resource management approaches and investments will not be able to optimize the provision of multiple benefits, target critical areas within land-use planning, or redirect investments to diversify the financial resource base to promote sustainable land and forest management in the high Andes.
167. **GEF Alternative:** The GEF alternative will help bridge the gaps between knowledge and practice that undermine the conservation and sustainable management of high Andean ecosystems. The knowledge base on the relationships between structure and function in high Andean ecosystem and the effects of global environmental changes will be expanded. Such knowledge will be transferred to decision makers by strengthening environmental monitoring procedures (including national MRV systems) and providing tools to support integrated land use planning by local governments. GEF support will also help to build the institutional capacity at different levels on both countries. Furthermore, local governments will be

assisted to undertake integrated approaches to effectively integrate conservation and SLM/SFM practices in the design and implementation of land use plans.

168. A key point to foster integrated approaches among local governments involves strengthening land use plans, which typically lack tools to identify and prioritize spatially explicit targets related to different management goals (e.g. conserve critical areas for the provision of water). Also, the GEF investment will strengthen monitoring systems to assess the impact of specific SFM/SLM practices on the provision of key ecosystem services and guide future adjustments. Furthermore, the importance of SLM/SFM practices for mitigation of climate change will be streamlined in land use plans to promote cross-sectorial articulation. The project will develop robust scientific information and tools to strengthen land use plans, carry out sustainable financing plans, and design complementary regulatory frameworks. Thus, at the end of the project an enabling environment is expected to be in place to mainstream multiple benefits at the wider landscape in different environmental and social contexts identified at the intervention sites.
169. Locally, communities and land managers will be directly involved in on-the-ground activities and direct investments to provide global and local benefits. Such activities will offer feasible—socially, economically, institutional and ecological—alternatives and address key livelihood barriers that undermine sustainable management. Throughout the project implementation, lessons learned will be identified, disseminated and incorporated to support further actions. This will be the basis to outreach the project findings with key stakeholders beyond the direct intervention areas. Ultimately, the project aims to upscale such findings at the national scale by supporting environmental authorities to incorporate science based knowledge and tools developed by the project into their MRV systems and financial incentive programs. In sum, GEF contribution would remove critical barriers—through technical advice and strategic investments at multiple scales—in order to maximize the provision of global and local benefits that are currently being encouraged through national programs.
170. **Global Benefits:** The global benefits of this project include the protection of high Andean ecosystems in the Tropical Andes, considered one of the world’s hotspots of biodiversity. The project will offer direct benefits in 5 intervention sites (3 in Ecuador and 2 in Peru) covering a total area of approximately 1’080,000 hectares. Within those areas, SLM and SFM activities will be implemented in direct intervention areas with a global target of roughly 27,000 hectares in forest and non-forest lands across the five sites. Activities will include conservation of ecosystem areas critical for the provision of environmental benefits, restoration of ecosystem structure and functions and promotion of SLM/SFM practices (e.g. improved management of native pastures).
171. To generate a rough estimation of global carbon benefits derived from the project activities, the historical ecosystem conversion rates for montane forests and paramos were calculated for the Ecuadorian sites using the Historical Deforestation Map generated by the Ministry of the Environment (MAE 2010). Using these rates, the area in risk of conversion was projected for each type of ecosystem within the four year period of the forest. No historical Land Use and Land Cover Change (LUCC) data is available for the sites in Peru, so the same rates were used to generate an initial estimate of conversion. Carbon stocks for montane forest and paramos were estimated for biomass (above and below ground) and soils using literature for the Andean region. A conservative target of 15% of the carbon in risk of being emitted was estimated as an indication of the potential contribution of the Project in the five intervention sites (Table 5).

172. Global benefits in terms of carbon sequestration are also expected through the implementation of SLM/SFM practices in the intervention sites, especially those related to restoration of high Andean ecosystems through active (e.g. reforestation) and passive (e.g. grazing and fire exclusion) strategies. Estimates of these benefits cannot be provided given the lack of systematic assessments of carbon fluxes associated to these practices. In this context, a key global contribution of the Project will be the development and validation of robust protocols to quantify carbon stocks in different reservoirs in high Andean ecosystems and the impact of different SFM/SLM practices in terms of carbon sequestration. This is particularly important for high elevation wetlands which have been found to store quantities as high as 1,400 Mg C / ha in Soil Organic Carbon (Chimner y Carberg 2008). The generation of more accurate and detailed historical LUCC baselines in the intervention sites will also allow a better estimation of the global carbon benefits expected by the implementation of the Project.

Table 5. Global benefits that will be provided by the project

Direct Benefits in Pilot Sites	Land Area (ha)	Mean C stored (t C/ha*yr)	Expected Global Benefits		Observations
Carbon captured in forest and non-forest lands within pilot sites	15,000	-	194,325	t C	Estimate of carbon accumulated in above ground biomass in areas conserved during the direct lifetime of the project. Accurate SOC estimates will be generated through activities in Component 1 (Knowledge and tools)
			3-5 % increase of population of ecosystem health indicator species at intervention sites		
Non-forest lands (<i>paramo, puna</i>)	10,000	4.97	124,815	t C	Phillips et al., 2011; Hall et al., 2012; Hofstede & Aguirre, 1999; Zimmermann et al., 2010; Rhoades et al., 2000; Ramsay & Oxley, 2001; Fehse et al., 2002; Girardin et al., 2010; Hofstede, 1995; Moser et al., 2011; Gibbon et al., 2010
Forest lands (<i>polylepis, alnus and upper montane forest</i>)	5,000	4.71	69,510	t C	
C stocks enhanced through sustainable land management	6,000	-	3-5% increase of tons of carbon over baseline in work areas		Includes rangeland under good management practices and degraded lands under restoration practices other than reforestation
C stocks enhanced through sustainable forest management	6,000	-			Includes reforestation for restoration of ecosystem structure and function and commercial plantations.

173. **Benefits at other scales:** Working at multiple scales will promote the articulation of global and local benefits to boost project impacts and promote replication (See Section 3.9). The project is focused on the implementation of activities at multiple scales, as a strategy to overcome key coordination and articulation barriers between central and local governments and local communities. Activities that support income diversification of families participating in SFM/SLM activities and link development and land planning at local scales to national programs and initiatives belong to this overarching strategy. In this context the

project will provide specific examples and lessons on how to effectively realize the social and environmental benefits associated to decentralized governance of natural resources.

174. **Project's contribution to GEF Strategic Program:** This project contributes directly to GEF's strategic goals #1, #2 and #3: Conserve, sustainably use, and manage biodiversity, ecosystems and natural resources globally, taking into account the anticipated impacts of climate change; Reduce global climate change risks by stabilizing atmospheric GHG concentrations through emission reduction actions, and assisting countries to adapt to climate change, including variability; and Build national and regional capacities and enabling conditions for global environmental protection and sustainable development. In particular, the project is in accordance to SO # 2 in Biodiversity Focal Area, SO # 5 in the Climate Change, SO # 3 in Land Degradation and SO # 1 and SO # 2 in Sustainable Forest Management. Strengthening the existing linkages between focal areas is the basis of the proposal, and synergies regarding conservation and restoration of carbon stocks in forest and non-forest lands (BD, CCM, SFM, LD) will be pursued. As such, the GEF increment will foster the achievement of global environmental benefits taking advantage of significant baseline investments through the aforementioned national programs.

3.8. Sustainability

175. The project presents strong factors that promote the continued achievement of its objectives and outcomes long after its direct lifetime. Partnering with public institutions such as local governments and environmental and agricultural ministries in Ecuador and Peru means that the project goal is fully integrated with national and sub-national policies and development plans and therefore relevant to and prioritized by these institutions. Through capacity building the project seeks to strengthen partner institutions to overcome barriers (Section 3.4) to the preservation and sustainable management of High Andean ecosystems. In short, sustainability is an inherent part of the project's capacity building strategy and is integrated in all development components. Goals associated with this strategy are summarized below:

- New knowledge, improved integrated land planning tools and validated conservation schemes and sustainable land and forestry management practices are mainstreamed into policies, long term land management plans and development programs of partner institutions, effectively orienting development processes for years to come.
- Specific training programs, collaborative agreements, and co-financing strategies implemented by this GEF intervention will prepare partner institutions for the correct and continued application of the development tools generated in this project.
- The application of ESM, PAR and AM approaches will enhance efficiency and effectiveness of partner institutions, enabling them to expand conservation programs.
- Benefits gained by farm families from conservation schemes and sustainable land management and forest practices applied at the intervention sites will motivate these and other farm families to continue and expand this work.
- Outreach and up scaling activities will facilitate the expansion of conservation and sustainable management programs to areas outside the project's intervention sites.

3.9. Replication

176. A replication strategy will be designed in the first year of the project. This strategy includes activities implemented in all project components, especially in the Upscaling and Outreach Component (C4). In this context, replication will follow two main trajectories. The first corresponds to the extension of project impacts by working with public agencies and other

stakeholders operating at sub-national and national scales. This promotes replication of activities and use of knowledge and tools in other areas where these actors work. The second trajectory corresponds to outreach and communication activities aimed at decision makers and local stakeholders in municipalities and communities outside the project's intervention sites.

177. Alliances and collaborative agreements with actors working at different scales will be pursued as potentials for replication. As mentioned, possible associates are listed in Section 2.5. It is expected that these institutions will pick up on some of the concepts and tools developed in this project, thus replicating these elements in areas where they work. Specific actions will be undertaken at least at three scales extending project impacts geographically beyond project sites, reaching into other areas such as specific adaptation efforts and fostering long term impact to last beyond project duration:

- At local scales, close collaboration with related on-going initiatives in the region will be pursued (e.g. REGATTA EBA-Peru) using tools, field measurements and demonstrative actions developed in components 1 and 3, and systematizing and disseminating lessons learned through upscale and outreach activities (Component 4). Also, direct impacts on local livelihoods will be pursued by lifting barriers of articulation to markets for sustainable productive activities with the goal of diversifying sources of income and enhancing local resilience to environmental changes. In this regard, important investments in Microfinance for Ecosystem Based Adaptation (MEBA) led by UNEP in the region will represent a strategic counterpart to support project outcomes in terms of i) innovative alternatives for sustainable livelihood strategies and key productive value chains and ii) enhancement of social and environmental benefits through SLM/SFM investments and practices.
- At the national scale, government's incentive programs and national MRV systems will be supported by science-based methods developed at pilot sites, up scaling project's outcomes.
- South-south cooperation between thematic working groups in the Andean region will be enhanced through the generation of work plans that support project's activities and address specific needs of stakeholders operating at site, sub-national and national scales. For example, this includes the generation of monitoring systems and tools that integrate spatially explicit scenarios and multiple ecosystem services into integrated land use planning.

178. Component 4 contains communication and dissemination activities that will be considered in the replication strategy. These will be focused on the systematization of lessons learned for other local governments and key stakeholders outside the project intervention sites. Before its termination, this project will have strengthened the instructional capacities of farm families, rural communities, provincial governments, and national environmental authorities. The replication strategy will consider how the involvement of a wide range of entities can contribute to the continued sustainability and replication of the outcomes and impacts generated by the project.

3.10. Public awareness, communications and mainstreaming strategy

179. Increased public awareness as to the importance of the ecological services provided by high Andean ecosystems is an objective of this project. Communication with farmers, city dwellers, entrepreneurs, public employees, and other actors will be done with a view to increasing their participation in the conservation of high Andean ecosystems. Using a variety

of communication methods, these actors will be informed as to the growing importance of Andean ecosystems and efforts being made for their protection. They will also receive support for the organization of special events to further conservation efforts of these important natural assets. Events supported by the project may include, but are not limited to town meetings, fairs, and cultural celebrations.

180. As explained, the project will work to mainstream project findings into the development plans and work programs of public institutions responsible for promoting the conservation of Andean ecosystems. Work-shops, seminars, and training events will target decision makers at national, regional and local levels for this purpose. Decision makers will also be invited to review work done at the interventions sites. These visits will culminate with brainstorming sessions to analyze how lessons learned at these sites can be used to improve plans and ongoing development programs.
181. The project will prepare and distribute educational and didactic materials. It is expected that decision makers will use research papers, training manuals and evaluation reports to adjust development strategies. Regional governments will receive an extension kit to be used to prepare municipalities and community organizations in the art of prompting conservation and sustainable land and forest management practices. Dedicated to production, this material will promote validated SLM and SFM practices. All educational material will consider gender considerations and whenever possible, it will integrate gender analytical tools and methods into capacity building approaches as well as in ecosystem management tools.

3.11. Environmental and social safeguards

182. UNEP is working to articulate, facilitate and support appropriate timely responses in order to secure the environmental conditions for prosperity, stability and equity. Ecosystems are under unprecedented pressure, which threatens the prospects for sustainable development worldwide. While the challenges are daunting, they also provide opportunities for local communities, business and government to innovate for the benefit of communities, economies and the global environment. This project embraces UNEP's guidelines to promote the involvement of stakeholders, in particular women in defining ecosystem needs and developing and implementing broad-based sustainable solutions. Additionally, GEF corporate wide guidance on gender mainstreaming will also be considered and integrated within project actions.
183. The project has been designed to have positive environmental and social impacts by effectively integrating biodiversity conservation and SLM/SFM tools within government policies/plans and national incentive programs. The project aims to facilitate dialogue among key stakeholders and strengthen planning and decision-making tools at different scales. During the project design, direct consultation with key stakeholders was carried out taking into account the concerns and needs of project partners and beneficiaries, including specific considerations for men and women. Increased capacity building targeting technical staff and local communities will be an essential strategy to increase positive impacts. A participatory planning approach is being used to identify needs of key stakeholders and articulate them to decision making processes. The project also includes carefully designed environmentally and culturally compatible economic alternatives achieved through consultation and consensus development with indigenous communities and local governments. Field demonstrations, measurements and monitoring systems will be executed

with active participation of local communities and will disseminate lessons learned to replicate actions.

184. The main socio-economic benefit delivered by the project will be the sustainable enhancement of local livelihoods through the maintenance of critical ecological services of high Andean ecosystems. Communities as direct natural resource users key agents to ensure protection of the soil and vegetation cover, and it is only through full participation of community members that degradation processes can be stopped and reversed. The project will be aware of key indigenous matters. The Andean landscape is characterized with the presence of marginalized and poor indigenous communities, which represents a living cultural heritage. Most intervention sites are rural areas close to urban sites—with strong linkages to them—and within the influence of protected areas. Biodiversity loss, water stresses and soil nutrients are undoubtedly critical issues that undermine local livelihoods. The project acknowledges the challenge that working in such context implies, and will ensure appropriate involvement of indigenous communities as important users and landowners of natural resources. The project will support customary land use rights of indigenous people, fostering traditional knowledge for natural resource management, and provide new livelihood opportunities to diversify income sources.
185. A main approach of the project will be gender mainstreaming. Gender relations, roles and responsibilities exercise important influence on women and men's access to and control over environmental resources and the goods and services they provide. The project incorporates a gender and social safeguards focus, and will include among its beneficiaries groups of women, elderly persons and youth, emphasizing on sustainable livelihood activities that are compatible with their capacities and the environment. All interventions at the community level will take into consideration the way women are part of the decision-making process at the farm level, and will foster alternative livelihood activities with focus on disadvantaged groups, particularly women. The project will also develop coherent policy approaches to gender-specific environmental governance issues and will integrate gender analytical tools and methods into capacity building approaches.
186. The project will also put in place a monitoring and evaluation system to assess project impacts and provide timely feedback on project implementation and performance. This will enable the implementation team to strengthen in practice both environmental and social outcomes. Lastly, the project will provide appropriate working conditions to the staff. Besides complying with the legal framework in each country, the project will also offer private health insurance and safe means of mobilization to staff.

SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS

187. **Institutional framework:** Project internal and external structure diagrams are presented in Appendix10. GEF has designated UNEP as the implementing Agency for this project following requests by the Governments of Ecuador and Peru, through their respective national environmental authorities. In consultation with these authorities, the Consortium for the Sustainable Development of the Andean Eco-Region (CONDESAN) was designated to manage the project at the international, bi-national and national levels. As mentioned earlier, the national environmental authorities have assigned high-ranking officials to facilitate project operations. FPs will work side-by-side with CONDESAN in the implementation the project.
188. During the preparation phase, it was determined that the project will work jointly with the provincial governments of Carchi, Pichincha and Tungurahua in Ecuador and the regional

- governments of Piura and Huancavelica in Peru. As in the case of the national environmental authorities, these institutions will name high-ranking officials to facilitate and participate in the implementation of project activities. Together with the provincial governments named the project will implement intervention or demonstration sites. Municipalities and rural communities, including farm families, will participate in the development of these sites.
189. The project focuses on UNEP's top priority competencies, including scientific and technical analysis as well as technical assistance in monitoring and evaluation of ecosystem services, particularly biodiversity and carbon stocks. The planning, validation and promotion of sustainable forest and land management practices are also prioritized in this project, closely aligning it with UNEP's EMP. Other EMP activities promoted in the project include:
- Support to national financial incentive programs for conservation of biodiversity and mitigation of climate change adversities,
 - Assistance in the development and application of national and regional policies and land management practices that foster the conservation and sustainable use of critical Andean ecosystems,
 - Development of intervention sites enhancing livelihoods of farm families through sustainable land and forest management practices, and
 - Mainstreaming of new science-based information and lessons learned promoting results based management among partner institutions and Stakeholders in general.
190. Ecosystems Management is one of the Sub Programmes in UNEP's Programme Framework for 2014-2017 and this project is closely aligned with its expected accomplishments. UNEP's Division of Environmental Policy (DEPI) is the focal point for the coordination of the EMP, which is mandated to provide technical assistance to all UNEP divisions. UNEP's GEF Coordination Office and DEPI work closely together to ensure the continuous exchange of information among all UNEP projects focusing on the ecosystems approach. Regular interdivisional meetings and permanent collaboration between staff based in Headquarters and Regional Offices, as well as Task Managers stationed around the world, help achieve this goal. Highly trained, UNEP professionals have experience in a wide variety of interventions related to this project, including monitoring of environmental services, mainstreaming policy support, assessment, valuation, sustainable land and forestry management practices, all slated to provide critical backstopping to UNEP projects focusing and ecosystems management. The Task Manager for this project is stationed in Panama and will remain in constant communication with the PM during its execution period.
191. **Implementation arrangement:** Project internal and external structure diagrams are presented in Appendix 10. Project Headquarters (PH) will be located in Quito. Staff working out of this office include the Project Manager (PM), Monitoring and Evaluation Officer Ecuador (MEO-EC), Administrative Assistant Principal (AAP) and Thematic Experts (TE). One TE will be hired to lead the implementation of each of the development components. Local and international consultants will be hired to support project execution. Carbon sequestration, conservation of biodiversity, forest management, recuperation of degraded lands, monitoring and evaluation of environmental services, community planning, value chain, and data management, are just a few of themes subject to consultancies in this project. Other consultancy needs will be identified during project implementation.
192. Another Monitoring and Evaluation Officer (MEO-PE) and an Administrative Assistant (AA) will work from CONDESAN'S office in Lima, Peru. The MEO-PE will see to it that project outcomes and outputs planned for Peru are met. In this respect, he or she will assist

the PM in the application of the project M&E Work Plan. Establishing close collaboration with MINAM, the MEO-PE will give special attention to reaching institutional building goals cited for Peru in Component 2 as well as ensuring up scaling processes expected in Component 4.

193. Technical Assistants (TAs) will be hired to lead project development at the project's five intervention sites. Their job is to design and supervise the implementation of intervention site work plans. This will be done in collaboration with participating Regional Governments and under the supervision of the PM/Thematic Experts. Terms of References for all project staff are presented in Appendix 11.
194. One high-ranking official of MAE and MINAM, CONDESAN Executive Director and UNEP Task Manager make up the Steering Committee (SC). In practical terms the SC is responsible for ensuring that the project meets goals announced in the Project Result Framework by helping to balance conflicting priorities and resources. Evaluation methodologies used by committee members may include, but are not limited to, interviews with project staff, review of project monitoring and evaluation reports, conferences with representatives of Regional Governments, municipalities and rural communities and inspection visits to the intervention sites. As explained in Section 6, conclusions and recommendations produced by the SC will be used by UNEP and the PM to modify implementation strategies, annual work plans and resources allocation budget and, when necessary, to adjust the project's Result Framework. The SC will be chaired by UNEP (Task Manager). The PM will act as the Committee Secretary. This committee will meet every six months.
195. Bi-national Technical Working Groups (BTWG) will assist in the implementation of specific aspects of the project. Comprised mainly of experts selected from national ministries and Regional Governments and supported by project staff and national or international consultants, the BTWG will formulate technical thematic recommendations to help the project meet its outcomes and outputs, and promote interchange between Ecuador and Peru. Chaired by the PM the BTWGs will meet as convened. In order to promote interchange between the BTWG and the SC, meetings will be timed to coincide with SC meetings.
196. Rough drafts of intervention site work plans were developed during the preparation phase and will be elaborated at inception. In collaboration with the participating Regional Governments, municipalities and rural communities, these work plans will be finalized no later than 6 months into project operations. Pending discussions with participating Regional Governments, the project may want to hire third parties to develop certain actions cited in intervention site work plans. A few possible support agencies were identified in the preparation phase. They are:
 197. For Ecuador:
 - **FONAG** is an alliance of individuals and institutions committed to the protection of Quito's water supply. Seeking consensus through dialogue, the Fund executes five interrelated development programs: Communication, Environmental Education, Reforestation, Integrated Watershed Management, and Control and Vigilance. Water contamination, forest fires and excess tourist traffic are important threats to Quito's water supply addressed in these programs.

- **Jatun Sacha Foundation** is an Ecuadorian NGO founded in 1989 dedicated to the conservation of tropical, aquatic and highland ecosystems. It has five research and conservation centers, one of which is located in the project intervention site of Carchi/Sucumbios. The Foundation has experience in both participatory development and research programs dedicated to the conservation of highland ecosystems.
- **ALTROPICO** is an NGO committed to social and environmental causes in southwestern Colombia and northwestern Ecuador. It was founded in 1992, and has worked extensively in promoting community development among Afro and Kichwas nations and other indigenous communities. Its mission is to improve the livelihoods of these groups by promoting development alternatives that strengthen the ability of local residents to have a say in the formulation of local, regional and national development policies.
- Along with the Kichwas and Evangelist indigenous movements, the Regional Government of Tungurahua established the **Tungurahua Paramos Management and Poverty Alleviation Fund - FMPLPT** in 2008. As an investment mechanism, the Fund provides economic resources to finance activities, plans and/or programs that contribute to the conservation, maintenance, development and restoration of water sources in the Province of Tugurahua. At present, the Fund now finances ten Paramo Management Plans presented and operated by local indigenous groups.

198. For Peru:

- **Nature and Culture International (NCI)** is an international NGO working in the Province of Piura, Peru, promoting conservation of natural ecosystems, including wetlands, Paramos, and high mountain forests. CONDESAN has a history of close collaboration with NCI (this NGO ran the GEF Paramo Conservation Project in Piura and Pacaipampa) and understands that it is an efficient and effective organization. NCI is especially talented in institution building and promoting the development of regional and local policies related to natural resource conservation and sustainable forest and land management practices.
- The **Program for the Sustainable Economic Development and Natural Resources Strategic Management (PRODERN)** works in five Provinces of Peru, including Huancavelica where the project has identified an Intervention Site. PRODERN is a development project funded by the Government of Belgium and implemented by MINAM. The project has identified two central goals: 1) improved regional and local land management planning, conservation and sustainable use of important environmental services of highland ecosystems, and 2) the active participation of rural communities in sustainable management of their natural resources.

199. A decision-making flowchart and organizational scheme is presented in Appendix 10.

SECTION 5: STAKEHOLDER PARTICIPATION

200. By filling out questionnaires, attending workshops and granting interviews, many stakeholders helped identify important aspects of the project, including planned outcomes and outputs.
201. The environmental authorities of Ecuador and Peru were most helpful. After approving important counterpart contributions, these project partners pledged assistance for the

development of a number of project activities, including monitoring and evaluation of environmental services, planning and evaluation of economic incentive programs for conservation and the validation of productive systems that support livelihoods of rural communities, while conserving Andean ecosystems.

202. Provincial governments, municipalities interviewed in the preparation stage also pledged their support. It seems these partner institutions are most interested in improving the livelihoods of the rural poor, through improved pasture management, agroforestry and plantation forestry systems. Preventing the further destruction of native forests, Paramos, Punas and wetlands was also noted to be a high priority for these institutions.
203. Rural communities visited showed interest in the project, but gave a word of caution. Community leaders have this to say: “Projects come and go. Very few leave strong lessons. Most just go and never return, and whatever they had or wanted to give us was lost. If this project is to be successful, it must consider the needs, abilities, customs and the wishes of the farmers”.

SECTION 6: MONITORING AND EVALUATION PLAN

204. The project will follow UNEP standard monitoring, reporting and evaluation processes and procedures. Substantive and financial project reporting requirements are summarized in Appendix 8. Reporting requirements and templates are an integral part of the UNEP legal instrument to be signed by the executing agency and UNEP.
205. The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Appendix 4 includes SMART indicators for each expected outcome. These indicators along with the key deliverables and benchmarks included in Appendix 6 will be the main tools for assessing project implementation progress and whether project expected results are being achieved. The means of verification of these elements are summarized in the Project Result Framework, Appendix 4. The Theory of Change Chart in Appendix 16 identified key drivers for the realization of project outcomes and impacts.
206. A costed first draft of project M&E Plan is presented in Appendix 7. Costs mentioned in this tool are fully integrated in the project budget, presented in Appendix 1. Project indicators, key deliverables, benchmarks and drivers will be adjusted 6 months into project implementation, i.e., once the baseline study and project work plans for the interventions sites are finalized. A final draft of the M&E plan will be formulated immediately thereafter. This plan will be implemented by the PM, with the assistance of the M&E Officers (Ecuador and Peru), and other staff members. The M&E Officers will assist project implementation activities at intervention sites according to the Project Work Plan, assuring project activities are aligned with planning and monitoring instruments (i.e. RF, Focal area TTs). Furthermore, the PM and M&EO will follow the implementation of the project activities to accomplish project outputs and deliverables
207. An inception workshop will be held at the onset of project implementation to ensure all actors understand their roles and responsibilities vis-à-vis project monitoring and evaluation. Indicators and their means of verification may be fine-tuned at the inception workshop. Day-to-day project monitoring is the responsibility of the project management team, but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the PM to inform UNEP of any delays or difficulties

faced during project implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

208. As mentioned earlier in this document, the SC will meet every six months. This committee will issue reports on progress by the project and make recommendations concerning the need to revise any aspects of the Project Results Framework, Theory of Change Chart or the M&E plan. Supervision to ensure that the project meets UNEP and GEF policies and procedures is the responsibility to the UNEP-GEF Task Manager. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications in close collaboration with PM and M&EOs.
209. At the time of project approval 30% of baseline data is available. Baseline data gaps will be addressed during the first year of project implementation. A plan for collecting the necessary baseline data has been drafted during the preparation phase and will be further developed at inception. Concerning mainly the intervention sites, the main subjects for which additional baseline data are needed include:
- Current distribution of biodiversity and carbon stock
 - Surfaces of lands under agricultural, pasture and forestry practices
 - Surfaces of degraded lands in need of recovery
 - Surfaces of native forests, Paramos and wetlands in need of protection and conservation.
 - Social, economic conditions and needs of the rural population.
210. This new information along with existing baseline data are needed in order to support the implementation of integrated land management plans at the project's intervention sites.
211. Project supervision will take an AM approach. The Task Manager will develop an initial supervision plan that will be communicated to the project partners during the inception workshop for comments. The emphasis of the Task Manager supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring. Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed by the SC. Project risks and assumptions will be regularly monitored both by project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.
212. A mid-term management review or evaluation will take place at the mid-point in the project, as indicated in the project milestones. Two independent consultants will be hired to conduct this evaluation. The project coordination unit will manage the mid-term review (MTR) process, unless extraordinary conditions determined by UNEP- GEF standards are assessed, in which case a Mid Term Evaluation (MTE) will be managed by The Evaluation and Oversight Unit (EOU) of UNEP. The review will include the basic evaluation parameters recommended by the GEF Evaluation Office for terminal evaluations and will verify information gathered through the GEF tracking tools, as relevant. The review will be carried out using a participatory approach whereby parties that may benefit or be affected by the project will be consulted. Such parties were identified during the stakeholder analysis (see Sections 2.3 and 5). The SC will participate in the mid-term review and develop a management response to the evaluation recommendations along with an implementation

plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented.

213. An independent terminal evaluation will take place within the last semester of project implementation. The Evaluation and Oversight Unit (EOU) of UNEP will manage the terminal evaluation process. A review of the quality of the evaluation report will be done by EOU and submitted along with the report to the GEF Evaluation Office not later than 6 months after the completion of the evaluation. The standard terms of reference for the terminal evaluation are included in Appendix 9. These will be adjusted to the special needs of the project.
214. The GEF tracking tools are attached as Appendix 15. These will be updated at mid-term and at the end of the project, or when considered necessary by the SC. Findings will be made available to the GEF Secretariat along with the project PIR report. As mentioned above, the mid-term and terminal evaluation will verify the information of the tracking tool.
215. For more details on the project M&E plan, see Appendix 7: Costed M&E Work Plan

SECTION 7: PROJECT FINANCING AND BUDGET

7.1. Overall project budget

216. The overall project budget is presented in detail in Appendix 1 (budget by project components, by year and UNEP budget lines) and Appendix 2 (co-financing by source and UNEP budget lines). The incremental cost necessary to achieve the Project objective and the corresponding global benefits is US\$ 20,956,190 of which US\$ 4,796,364 (22.9%) constitute the sum requested to the GEF. Co-financing amounts to US\$ 16,159,826 equivalent to 77.1% of the total amount required. A summary of the GEF budget by outcome is shown in Table 6.

7.2. Project co-financing

217. Co-financing by project budget lines is presented and in Appendix 2. Co-financing amounts by outcome of the project is presented in Table 6 below.

Table 6. Co-financing by Project Outcomes

ALL FIGURES IN US\$	GEF	CO-FINANCE								
OUTCOMES	GEF TF	FEMPLPT	MAE	MINAM	PRODERN	GORE - H	CONDESAN	UNEP	CO-FINANCE TOTAL	TOTAL PROJECT
COMPONENT 1										
Outcome 1.1: Knowledge base expanded on high Andean ecosystem dynamics and the effects that global environmental changes (GEC) have on biodiversity and carbon stocks and on the multiple environmental and social benefits they provide	512,593	0	1,000,000	350,000	200,000	0	500,000	400,000	2,450,000	2,962,593
Outcome 1.2: DM access to knowledge base and practices for SLM strategies in the Andes increased.	688,913	0		250,000	0	200,000	300,000	400,000	1,150,000	1,838,913
TOTAL COMPONENT 1	1,201,506	0	1,000,000	600000	200000	200,000	800,000	800,000	3,600,000	4,801,506
COMPONENT 2										
Outcome 2.1: Enabling environment in place to integrate multiple benefits in cross-sectorial planning tools at the wider landscape	607,143	0	700,000	42,826	0	0	300,000		1,042,826	1,649,969
Outcome 2.2: Institutional capacities enhanced to apply knowledge and INRM tools that support policies, integrated land use plans and ongoing programs for the conservation and sustainable management of critical high-Andean ecosystems, including Andean forests	492,800	0	800,000	300,000	200,000	107,000	300,000	50,000	1,757,000	2,249,800
TOTAL COMPONENT 2	1,099,943	0	1,500,000	342,826	200,000	107,000	600,000	50,000	2,799,826	3,899,769

ALL FIGURES IN US\$	GEF		CO-FINANCE							TOTAL PROJECT
	GEF TF	FMLPPT	MAE	MINAM	PRODERN	GORE - H	CONDESAN	UNEP	CO-FINANCE TOTAL	
COMPONENT 3										
Outcome 3.1: Sustainable livelihood strategies and key productive value chains strengthened at interventions sites to address barriers and support SLF/SFM practices.	584,400	200,000	0	400,000	100,000		150,000	1,300,000	2,150,000	2,734,400
Outcome 3.2: Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands in the high Andes.	803,543	0	3,500,000	280,000	310,000	200000	215,000	1,300,000	5,805,000	6,608,543
TOTAL COMPONENT 3	1,387,943	200,000	3,500,000	680,000	410,000	200,000	365,000	2,600,000	7,955,000	9,342,943
COMPONENT 4										
Outcome 4.1: National environmental authorities in Ecuador and Peru incorporate science based knowledge and tools developed by the project into their MRV systems and financial incentive programs.	610,143	0	1,000,000	0	0	0	150,000	0	1,150,000	1,760,143
Outcome 4.2: Knowledge, tools and lessons learned disseminated among other local governments and key stakeholders outside the project intervention sites.	268,403	0	0	0	0	0	0	0	0	268,453
TOTAL COMPONENT 4	878,596	0	1,000,000	0	0	0	150,000	0	1,150,000	2,028,596
PROJECT ADMINISTRATION	228,376	0	0	0	0	0	655,000	0	655,000	883,376
GRAND TOTAL	4,796,364	200,000	7,000,000	1,622,826	810,000	50,7000	2,570,000	3,450,000	16,159,826	20,956,190

7.3. Project cost-effectiveness

218. Cost effectiveness of this project is based on maximizing the impact of current investments and targeting the provision of multiple benefits in these critical ecosystems. In order to achieve that, the project will provide critical technical and political support to key stakeholders at multiple scales (e.g. national incentive programs, regional governments, communities). Unless such support is provided, it is very likely that available funding will not be able to reach local stakeholders or promote good management practices in the high Andes.
219. While analyzing the project's cost effectiveness, it is important to consider that a key approach of the project is outreach and upscaling lessons learned beyond intervention sites by working closely with national authorities. National efforts, albeit of involving large investments in both countries, lack technical inputs to guide their activities. Furthermore, most on-going national incentives programs have yet not develop strong linkages to regional and local scales. The project will carry activities to address these two critical issues articulating key stakeholders and mobilizing available funding. In that way, the project will prove to be cost-effective, driving changes not only within the intervention sites but also in Ecuador and Peru with a relatively small investment strategically combined with substantial national incentives.
220. Additionally, this project bundles together the provision of multiple benefits through a comprehensive understanding of synergies and links between them. The conservation and sustainable management of high Andean ecosystems will contribute to enhance local livelihoods and guaranty the provision of critical ecosystem services (water, soil, wood) in an area of 28.000 hectares. A GEF investment of USD 5 million—catalyzing more than three times in other funding— to protect biodiversity and carbon stocks in high Andean ecosystems should be considered a cost-effective investment. Through the project's leveraging and influence, available funding will simultaneously contribute to biodiversity conservation, climate change mitigation and sustainable forest and land management.

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Appendix 1: Budget by project components and UNEP budget lines

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Appendix 2: Co-financing by source and UNEP budget lines

See separate excel file

Appendix 3: Incremental cost analysis

BASELINE	ALTERNATIVE	INCREMENT
(B)	(A)	(B) - (A)
COMPONENT 1: Knowledge and tools		
Without GEF's intervention, on-going conservation programs will not be provided with scientific base and appropriate tools to support decision making and implementation of national and local efforts.	The knowledge base on high Andean ecosystem dynamics and the effects of global environmental changes will be expanded and transferred to decision makers to support decision making with appropriate tools.	Scientific, political and institutional barriers undermining SLM/SFM in the high Andes addressed.
Knowledge gaps and the lack of appropriate tools will undermine ongoing efforts of local and national stakeholders to foster SLM/SFM in the high Andes.	The GEF alternative will help bridge the gaps between knowledge and practice that undermine the conservation of high Andean ecosystems and sustainable management.	
COMPONENT 2: Mainstreaming sustainable land management		
Subnational land use plans will continue to be based on static and non-integrated approaches. They will continue to lack clear and useful environmental criteria within their planning strategies.	GEF support will help to build the institutional capacity at different levels on both countries. Local governments will be assisted to undertake integrated approaches to conservation and SLM/SFM by strengthening land use plans, developing sustainable financing plans to mobilize resources, designing complementary regulatory frameworks when needed and proposing cross-sectoral agendas.	Reduction in the loss of globally significant biodiversity and carbon stocks through conservation of ecosystems and land restoration.
Capacity building of local governments and communities will not be directly fostered and proper mechanisms to mainstream SLM/SFM practices will not be developed.	Local governments in both countries undertaking efforts to protect high Andean ecosystems are strengthened by the project.	
COMPONENT 3: Intervention sites		
Unsustainable practices will continue to threaten the conservation of high Andean biodiversity and the provision of critical environmental services.	Locally, dwellers and communities will be directly involved in on-the-ground activities and direct investments to provide global and local benefits.	Maintenance of carbon stocks and increased carbon sequestration from afforestation, reforestation, agroforestry and restoration of degraded lands.
Local livelihoods will not continue to lack viable alternatives to embrace SLM/SFM.	On-the-ground activities will offer feasible—socially, economically, institutional and ecological—alternatives and address key livelihood barriers that undermine sustainable management.	Livelihoods of local families improved while pressures over critical Andean ecosystems reduced.
COMPONENT 4: Upscaling and outreach		
Investments of national incentive programs in both countries will not ensure the provision of multiple benefits from the conservation of biodiversity and the maintenance of carbon stocks in the high Andes.	National incentive programs and MRV systems will have suitable technical inputs to include biodiversity and carbon stocks dynamics of high Andean ecosystems.	Replication of local and subnational benefits into national programs resulting in the expansion of conservation and sustainable management of forest and non-forest lands.

BASELINE	ALTERNATIVE	INCREMENT
(B)	(A)	(B) - (A)
Current resource management approaches and investments of local governments will not embrace an integrative approach or target critical areas; thus opportunities to provide GEBs will be dismissed.	Throughout the project implementation, lessons learned will be identified, disseminated and incorporated to support further actions of relevant stakeholders beyond intervention sites. Ultimately, the project will upscale its findings at the national scale by supporting environmental authorities MRV systems and financial incentive programs.	
COST BASELINE	COST ALTERNATIVE	GEF: \$ 4,796,364 Co-financing: \$ 16,159,826
TOTAL: \$ 8,260,500	TOTAL: \$ 29,216,690	TOTAL: \$ 20,956,190

Appendix 4: Results Framework

NB: Notes in brackets are cross references to GEF Tracking Tools including indication of the focal area and project specific coding that has been included in the respective Tracking Tools found in Appendix 15.

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
PROJECT GOAL: TO MAINTAIN AND ENHANCE GLOBALLY IMPORTANT BIODIVERSITY AND CARBON BENEFITS OF CRITICAL HIGH-ANDEAN ECOSYSTEMS OF ECUADOR AND PERU (US\$ 4,796,364)					
<p>Project Objective: To protect critical high-Andean ecosystems at selected intervention sites by mainstreaming scientifically-validated and integrated SLM tools and practices that preserve and enhance biodiversity and carbon stocks while contributing to the mitigation of climate change</p>	<p><u>KNOWLEDGE AND TOOLS</u></p> <p>Number of monitoring systems, scientific reports, SLM practices validated and decision- tools that enable national and local institutions to preserve and restore global environmental benefits in the high-Andes developed and adopted by key stakeholders</p>	<p>Counterpart organizations do not have information, monitoring systems, decision support tools and data on the links between conservation and sustainable management of high-Andean ecosystems and the preservation of biodiversity, carbon stocks and other key environmental services to support their land use plans and policies.</p>	<p>5 protocols for project environmental monitoring systems; 1 environmental monitoring system that manages geographic information installed at each intervention site; 8 studies or tools related to carbon and biodiversity dynamics along environmental and land use gradients; 4 studies and tools related to climate change mitigation and SLM/SFM in High Andean ecosystems; 1 Agroforestry system and 1 Pasture land restoration system scientifically validated for each intervention site</p>	<p>The Project Monitoring and Evaluation Systems will produce the following M&E documents:</p> <p>Steering Committee Meeting Reports</p> <p>Technical Committee meeting Reports</p> <p>Annual Assessment Reports</p> <p>The Midterm Evaluation Report</p> <p>The Terminal Evaluation Report</p> <p>Reports of national counterpart institutions</p>	<p>Decentralization and land planning policies in Ecuador and Peru continue as established during project lifetime and support the maintenance of key environmental benefits of High Andean ecosystems.</p> <p>Counterpart organizations abide by agreements and are willing to share information and use knowledge and tools generated.</p> <p>Large scale</p>

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
	<p><u>MAINSTREAMING AND CAPACITY BUILDING</u></p> <p>Number of integrated land planning policy instruments, ongoing work plans and training programs of counterpart institutions that incorporate information and tools generated by the project</p>	<p>Local governments have development plans that include protection and sustainable management of natural resources. However these plans face important barriers and challenges related to the knowledge and information required to effectively implement actions oriented to promote SLM of high Andean ecosystems.</p>	<p>1 regional land use plan improved for each intervention site; 1 municipality community extension and training program strengthened at each invention site; 2 rural community development plans strengthened at each intervention site; 20 decision makers and 45 technicians in Ecuador and 10 decision makers and 15 technicians in Peru participating in a continuous training program.</p>	<p>Internal appraisal of work being carried out at intervention sites.</p>	<p>infrastructure projects (including mining) do not disrupt social, political and environmental systems at project intervention sites.</p> <p>Extreme weather and climate variations do not overly affect the conservation and sustainable management practices being promoted</p>
	<p><u>DEMONSTRATION- AND INTERVENTION SITES</u></p> <p>Ha increase of critical ecosystems area (Upper Montane Forests, Paramos, Punas, Wetlands, and agricultural/rangeland mosaics) under good management practices and conservation schemes</p>	<p>Estimated ha currently under formal public or community conservation or management schemes at the project intervention sites is summarized as follows: Huancavelica, Perú: 0 ha. Piura, Perú: 2,000 ha Carchi, Ecuador: 2,962 ha. Pichincha, Ecuador: 87,458 ha Tungurahua, Ecuador: 5,550 ha.</p>	<p>1 assessment study at each intervention site; 27000 additional ha of high Andean ecosystems under conservation or sustainable management; 3 production chains strengthened; 3-5 % over baseline of health indicator species at intervention sites; 3-5% increase of tons of carbon over baseline in intervention sites.</p>		

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
	<p><u>UP SCALING AND OUTREACH</u></p> <p>Number of national, regional and local level instruments and tools that incorporate the knowledge and findings generated by the project to promote the preservation and enhancement of globally important biodiversity and carbon benefits of critical high-Andean ecosystems.</p>	<p>The national environmental authorities of both countries have initiated their MRV systems and designed important incentive programs to conserve their countries' biodiversity and their related environmental benefits. Yet, these instruments are primarily focused on tropical lowland ecosystems due to the important knowledge gaps and barriers the Andean ecosystems represent.</p> <p>There are national working groups related to MRV programs under the REDD+ strategies on both countries. Yet, these groups don't address all the thematic components of this project. Furthermore they include only government technicians at the national level. Also, there is no interaction between both national working groups.</p> <p>Currently, there are 3 regional research and monitoring networks (GLORIA, Andean Forests,</p>	<p>2 National MRVs programs and at least 3 financial incentive programs of Ecuador and Peru strengthened;</p> <p>4 Thematic working groups conformed by researchers and government technicians strengthened to support the implementation of project actions at intervention sites.</p> <p>Local governments outside project intervention sites are aware and compromised to incorporate project findings, to promote conservation and sustainable management of Andean ecosystems.</p>		

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
		<p>iMHEA) that include mostly academic researchers. These networks are meant to provide technical support to national monitoring programs. Yet, these networks were recently conformed and require further support to consolidate their work with national authorities.</p> <p>Local governments lack instruments and capacity to incorporate lessons learned and better practices implemented at other localities (outside intervention sites).</p>			

COMPONENT 1: Knowledge and tools (US\$ 1,201,506)

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
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OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
Outcome 1.1: Knowledge base expanded on high Andean ecosystem dynamics and the effects that global environmental changes (GEC) have on biodiversity and carbon stocks and on the multiple environmental and social benefits they provide	Number of protocols adapted and validated at intervention sites (LD86-87) ⁹	During PPG, the project executing partner has started the developed of 5 protocols—in coordination with MAE—to address global environmental changes on Andean ecosystems dynamics. Further field validation is needed to assessed land degradation, sustainable forest management and ecosystem restoration under different land use regimes.	At least 5 protocols developed and adapted to intervention sites.	At least 5 adapted protocols being applied at intervention sites.	Protocols tested and being used at intervention sites.	Stakeholders and decision-makers are receptive to incorporating project resulting tools and knowledge in integrated land use and development planning.
	Number of studies produced, published and disseminated focused on synergies between biodiversity, carbon and SLM/SFM practices (LD.EC.19.a – c & LD.PE.19.a – c; LD.EC.20.a – c & LD.PE.20.a – c)	Nonexistent, Baseline assessment in PY1	At least 5 studies or tools scientifically validated (6 in Ecuador and 2 in Peru)	At least 8 studies or tools scientifically validated (6 in Ecuador and 2 in Peru)	Studies or tools produced, presented and distributed	
	Number of environmental monitoring systems installed at project intervention sites, generating information to support SLM (LD86-	In 3 out 5 intervention sites is nonexistent, Baseline assessment in PY1. During PPG, the project executing partner has started efforts to monitor GEC in two intervention sites.	5 monitoring systems installed at intervention sites. These include carbon stocks and fluxes,	5 monitoring systems installed and generating consistent information to support integrated land	Monitoring systems developed at intervention sites	

⁹ Notes in brackets are cross references to TT with indication of the focal area and line number in the respective TT.

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
	87)		biodiversity status, land use changes, land degradation and forestry.	management practices at intervention sites		
Outcome 1.2: Decision makers at different levels have increased access to science-based knowledge and SLM strategies through decision support tools that enable conservation and sustainable management of high-Andean Ecosystems.	Number of assessments and INRM tools developed to support on-going national efforts on conservation and climate change strategies (LD.EC.17.a, LD.PE.17.a; LD.EC.18.a - c, LD.PE.18.a - c)	Existing tools lack focus on high Andean ecosystems. Further analysis should be done during baseline assessment in PY1.	At least 3 assessments or tools scientifically validated (2 in Ecuador, 1 in Peru)	At least 6 assessments or tools scientifically validated (4 in Ecuador, 2 in Peru)	Studies or tools produced, presented and distributed.	
	Number of policy decision support systems/tools developed and adopted at intervention sites (CCM.EC.1.e & CCM.EC.1.e) (LD.EC.18.a - c, LD.PE.18.a - c)	There are no policy decision support systems at the project intervention sites except for Tungurahua.	N/A	At least two policy decision systems developed and adopted by stakeholders at intervention sites.	Policy decision support systems developed, installed and operating	
	Number of innovative agroforestry systems proposed and scientifically validated (LD.EC.15.a – b & LD.PE.15.d – e)	Nonexistent, Baseline assessment in PY1	3 agroforestry systems proposed and validated at intervention sites (2 in Ecuador and 1 in Peru).	At least 1 agroforestry system proposed and validated per each intervention site (3 in	Validated practice being applied and producing multiple benefits	

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
				Ecuador and 2 in Peru)		
	Number of land restoration systems proposed and scientifically validated (LD 12-16)	Nonexistent, Baseline assessment in PY1.	3 land restoration systems proposed and validated at intervention sites. (2 in Ecuador and 1 in Peru)	At least 1 land restoration system proposed and validated per each intervention site. (3 in Ecuador and 2 in Peru)	Validated practice being applied and producing multiple benefits	

OUTPUTS:**Outcome 1.1 Knowledge base expanded on high Andean ecosystem dynamics and GEC**

1. Five protocols for monitoring biodiversity, carbon stocks and key ecosystem dynamics adapted, validated and applied at intervention sites.
2. At least 8 science-based studies on ecosystem dynamics along environmental and degradation gradients and synergies between biodiversity, carbon and SLM/SFM practices (LD86-87).
3. One monitoring system established at each project intervention site to account carbon, biodiversity and changes on environmental services.

Outcome 1.2 DM access to knowledge base and practices for SLM strategies in the Andes increased

1. At least 6 assessments or INRM tools to support on-going efforts on conservation and climate change strategies at different scales (LD.EC.17.a, LD.PE.17.a; LD.EC.18.a -c, LD.PE.18.a - c).
2. At least 2 policy decision support systems/tools based upon new knowledge, environmental scenarios & economic valuations developed and adopted by stakeholders at intervention sites (CCM.EC.1.e & CCM.EC.1.e) (LD.EC.18.a -c, LD.PE.18.a - c).
3. At least 1 innovative agroforestry system proposed and scientifically validated per each intervention site (LD.EC.9.a – b & LD.PE.9.a - b).
4. At least 1 land restoration system proposed and scientifically validated per each intervention site (LD 12-16).

COMPONENT 2: Mainstreaming sustainable land management (US\$1,099,943)

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
Outcome 2.1: Enabling environment in place to integrate multiple benefits in cross-sectoral planning tools at the wider landscape	Number of regional integrated land use plans strengthened (BD.EC.11.a - e; BD.PE.11.a – e)	Regional governments selected for participation in this project have elaborated and are applying land use plans. The law obliges to reformulate them every 5 years. However, they lack adequate inputs and an integrated approach and have not developed monitoring efforts to assess impacts.	3 regional integrated land use plans developed or strengthened at intervention sites (2 in Ecuador and 1 in Peru)	5 regional integrated land use plans developed or strengthened. One for every intervention site (3 in Ecuador and 2 in Peru)	Existing regional integrated land use plans corresponding to intervention sites improved	Decentralization and land planning policies in Ecuador and Peru continue as established during project lifetime and support the maintenance of key environmental benefits of High Andean ecosystems.
	Number of rural community development plans strengthened or established (LD.EC.21.a LD, PE.21.a)	Some communities selected to participate in this project have development plans; some do not.	6 community development plans strengthened or established at intervention sites (4 in Ecuador and 2 in Peru)	10 community development plans strengthened or established. Two for each intervention site (6 in Ecuador and 4 in Peru)	Rural community development plans, including integrated farm development programs, implemented and evaluated periodically	Local governments continue to take interest in mainstreaming biodiversity and carbon benefits into their development plans.
	Number of policy instruments or regulatory frameworks (SFM.EC.6.a – e & SFM.EC.7.a; SFM.PE.6.a – e & SFM.PE.7.a); BD.EC.11.a - e; BD.PE.11.a – e).	Existing regional regulatory frameworks lack an adequate integration of biodiversity and environmental services criteria.	N/A	At least 2 policy instruments or regulatory frameworks in place to conserve biodiversity and environmental services (1 in Ecuador and 1 in Peru)	Regulatory proposals	Communities and local governments agree to work together in the establishment and implementation of integrated land management and sustainable forest management practices.

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
Outcome 2.2: Institutional capacities enhanced to apply knowledge and INRM tools that support policies, integrated land use plans and ongoing programs for the conservation and sustainable management of critical high-Andean ecosystems, including Andean forests	Number of extension programs strengthened (LD.EC.21.a LD, PE.21.a)	Community extension and training programs operated by local governments or counterpart organizations at the project intervention sites lack training, didactical material, mobility and other resources.	At least 2 extension programs strengthened at intervention sites (1 in Ecuador and 1 in Peru)	At least 5 extension programs strengthened. One for each intervention site (3 in Ecuador and 2 in Peru)	Extension material and field technicians and community leaders skilled in participatory development with a gender dimension	A stable group of representative decision makers and technicians are actively involved in project execution at intervention sites during project lifetime.
	Number of SLM/SFM financing plans being implemented in the wider landscape. (LD.EC.15.c; LD.PE.15.i).	There is an incipient number of financing strategies in the Andes to support SLM/SFM with important access barriers faced by regional and local actors.	N/A	At least 2 sustainable financing plans implemented and mobilizing investments into INRM and SFM (1 in Ecuador and 1 in Peru)	Financing strategies developed	
	Number of decision makers participating in continued and specific training programs for the application of knowledge and INRM tools (LD.EC.15.f; LD.PE.15.c)	Existing programs lack a curricula focus on the conservation and sustainable management of high Andean Ecosystems and its link to land use planning.	At least 12 national and local decision makers participate in specific training programs organized by the project (8 in Ecuador and 4 in Peru).	At least 30 national and local decision makers participate in specific training programs organized by the project (20 in Ecuador and 10 in Peru).	Specific training program designed. Periodic evaluation of participant's progress.	

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
	Number of technicians participating in specific training programs for the application of knowledge and INRM tools (LD. EC.15.f; LD.PE.15.c)	Existing programs lack a curricula focus on management and restoration practices focus on SLM/SFM and rangeland management on high Andean ecosystems.	At least 24 national and local technicians attend long tern training program, (18 in Ecuador and 6 in Peru)	At least 60 national and local technicians attend long tern training program, (45 in Ecuador and 15 in Peru)	Specific training program designed. Periodically evaluation of progress being made by specific trainees.	

OUTPUTS:**Outcome 2.1: Enabling environment in place to integrate multiple benefits in cross-sectoral planning tools**

1. 5 Integrated Land Use Plans developed and strengthened at each intervention site (BD.EC.11.a - e; BD.PE.11.a – e).
2. 10 local development plans formulated or strengthened, 2 for each intervention site (BD.EC.11.a - e; BD.PE.11.a – e).
3. At least two policy instruments formulated or strengthened by the project to be formally adopted by local Governments to enhance sustainable biodiversity, forest and land management practices (SFM.EC.6.a – e & SFM.EC.7.a; SFM.PE.6.a – e & SFM.PE.7.a); BD.EC.11.a - e; BD.PE.11.a – e).

Outcome 2.2: Institutional capacities enhanced to apply knowledge and INRM tools that support policies, integrated land use plans and ongoing programs for the conservation and sustainable management of critical high-Andean ecosystems

1. At least 60 technicians attend continued and specific training program in management and restoration practices focus on SLM/SFM and rangeland management on high Andean ecosystems, 45 in Ecuador and 15 in Peru. (LD. EC.15.f; LD.PE.15.c)
2. At least 2 sustainable financing plans designed and implemented to support INRM/SFM and diversify the financial resource base at intervention sites (LD.EC.15.c; LD.PE.15.i).
3. At least 30 local decision makers attend specific training program on the conservation and sustainable management of high Andean Ecosystems and its link to land use planning, 20 in Ecuador and 10 in Peru (LD. EC.15.f; LD.PE.15.c).
4. At least 2 extension programs operated by local governments or counterpart organizations strengthened (LD.EC.21.a LD, PE.21.a).

COMPONENT 3: Interventions sites (US\$1,387,943)

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
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OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
Outcome 3.1: Sustainable livelihood strategies and key productive value chains strengthened at interventions sites to address barriers and support SLF/SFM practices	Number of participating families	Nonexistent, Baseline assessment in PY1 in all pilot sites	At least 10 families in one intervention site participate in start-up program.	At least 10 families per site in three intervention sites participate in start-up programs.	Project M&E System mid-term and final reports	Counterpart organizations abide by agreements and are willing to share information and use knowledge and tools generated.
	Number of assessments addressing critical barriers and possible livelihood development strategies at intervention sites	Nonexistent, Baseline assessment in PY1 in all pilot sites	At least 2 assessment study for intervention sites.	1 assessment study for each intervention site (3 in Ecuador and 2 in Peru)	Assessment studies report	Financial incentive programs are effective conservation strategies for High Andean ecosystems and operate throughout project lifetime.
	Number of start-up programs developed or strengthened in key productive value chains (Tourism, Livestock, NTFP) incorporating SLM/SFM practices (BD.EC.5.a-f; BD.PE.5.a-c)	Nonexistent, Baseline assessment in PY1 in all pilot sites	At least 1 startup in Ecuador	At least 3 startups (2 in Ecuador and 1 in Peru)	Project M&E System mid-term and final reports	Extreme weather and climate variations do not overly affect the conservation and sustainable management practices being promoted
	Percentage of income diversification in participating families	Nonexistent, Baseline assessment in PY1 in all pilot sites.	N/A	At least 10% of participating families' income diversified by activities promoted by the project	Project M&E System mid-term and final reports	

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
Outcome 3.2: Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands in the high Andes	Number of hectares of native Andean forest being conserved or under sustainable management practices (SFM.EC.1.a & SFM.PE.1.a; SFM.EC.2.a & SFM.PE.2.a; SFM.EC.6.c SFM.PE.7.c) (BD.EC.3.a – i; BD.PE.3.a – i & BD.EC.4.a – i; BD.PE.4.a - i)(CCM.EC.1.a & CCM.PE.1.a)	Ecuador has initiated the conservation of native forest through its program Socio Bosque	2,000 ha protected or under management (1,600 in Ecuador 400 in Peru)	5,000 ha protected or under management (4,000 in Ecuador and 1,000 in Peru)	Formal agreements for the protection or management of native Andean forests	
	Number of hectares of Páramo, Punas and wetlands being conserved or under sustainable management practices BD.EC.3.a – i; BD.PE.3.a – i & BD.EC.4.a – i; BD.PE.4.a - i)(CCM.EC.1.b & CCM.PE.1.b) (CCM.EC.1.d & CCM.PE.1.d)	Ecuador has initiated the conservation of critical area of Páramos through its Incentive Program Socio Páramo	4,000 ha under management (2,800 in Ecuador 1,200 in Peru)	10,000 ha under management (7,000 in Ecuador 3,000 in Peru)	Formal agreements for the protection or management critical Andean Ecosystems	

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
	Number of hectares of commercial tree plantations established (SFM.EC.2.c)(CCM.EC.1.c & CCM.PE.1.c).	Ecuador has recently initiated a financial incentive program for the establishment of industrial tree plantations.	800 ha of commercial tree plantations established in Ecuador.	2,000 ha of commercial tree plantations established in Ecuador.	New areas of industrial tree plantations (85% survival rate)	
	Number of hectares of tree plantations established by participating rural communities using native tree species (SFM.EC.2.b & SFM.PE.2.b; SFM.EC.7.e & SFM.PE.6.b; SFM.PE.7.b SFM.EC.7.e)(CCM.EC.1.c & CCM.PE.1.c)	Both countries have a long history in implementation of community forestry programs	1,600 ha of community tree plantations and agroforestry systems established using native tree species (1,200 in Ecuador and 400 in Peru)	4,000 ha of community tree plantations and agroforestry systems established using native tree species (3,000 in Ecuador and 1,000 in Peru)	New areas of community tree plantations supporting agriculture, land restoration, wood production, etc. established (85% survival rate)	
	Number of hectares of native rangelands under sustainable management (SFM.EC.2.d & SFM.PE.2.c)	Both countries have long history in agricultural and range management development practices.	1,200 ha rangeland under sustainable management practices (400 in Ecuador, 800 in Peru)	3,000 ha rangeland under sustainable management practices (1,000 in Ecuador, 2,000 in Peru)	New areas under sustainable agriculture and rangeland management practices.	
	Number of hectares of degraded land under practice of restoration (SFM.EC.2.d & SFM.PE.2.c)	Other than tree plantations, little has been done to recover degraded areas of the Andean Highlands	1,200 ha under restoration schemes other than tree planting (800	3,000 ha under restoration schemes other than tree planting (2,000 in Ecuador	New areas of degraded land under restoration schemes	

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
	(BD.EC.4.a – i; BD.PE.4.a - i) (CCM.EC.1.b & CCM.PE.1.b) (CCM.EC.1.d & CCM.PE.1.d)		in Ecuador 400 in Peru)	1,000 in Peru)		
	Populations of health indicator species increased (BD.EC.4.a – i; BD.PE.4.a - i)(CCM.EC.1.d & CCM.PE.1.d)	Nonexistent, Baseline assessment in PY1 in all pilot sites.	1.2-2% of population increase of selected species.	3-5 % of population increase of selected species.	Population density estimates, biodiversity indexes.	
	Total amount of carbon stocks maintained or enhanced in work areas within intervention sites. (SFM.EC.5.a SFM.PE.5.a; SFM.EC.5.b & SFM.PE.5.b) (CCM.EC.1.a – b & CCM.PE.1.a - b; CCM.EC.1.f – g & CCM.PE.1.f – g)	Nonexistent, Baseline assessment in PY1 in all pilot sites.	1.2-2% increase of tons of carbon over baseline at intervention sites	3-5% increase of tons of carbon over baseline at intervention sites	Metric tons conserved in important Andean ecosystems	

OUTPUTS:**Outcome 3.1: Sustainable livelihood strategies and key productive value chains strengthened through SLM/SFM practices at interventions**

1. One baseline assessment addressing critical barrier developed and proper actions implemented at each intervention site (BD.EC.5.a-f; BD.PE.5.a-c)
2. At least 3 start-up programs in key production chains implemented and incorporating SFM/SLM practices at intervention sites (SFM.EC.5.a SFM.PE.5.a) (BD.EC.4.a – i; BD.PE.4.a - i) (CCM.EC.1.b & CCM.PE.1.b; CCM.EC.1.d & CCM.PE.1.d)
3. At least 10% of participating families' income diversified by activities promoted by the project (BD.EC.5.a – b; BD.PE.5.a).

Outcome 3.2: Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands

1. 5,000 ha of Upper Montane Forest under conservation or sustainable forest management (SFM.EC.2.b & SFM.PE.2.b; SFM.EC.7.e & SFM.PE.6.b; SFM.PE.7.b SFM.EC.7.e) (BD.EC.3.a – i; BD.PE.3.a – i & BD.EC.4.a – i; BD.PE.4.a - i) (CCM.EC.1.a & CCM.PE.1.a)
2. 10,000 ha of Páramo, Punas and Wetlands under conservation or sustainable land management (BD.EC.3.a – i; BD.PE.3.a – i & BD.EC.4.a – i; BD.PE.4.a - i) (CCM.EC.1.b & CCM.PE.1.b) (CCM.EC.1.d & CCM.PE.1.d)
3. 3,000 ha of improved rangeland under good management practices (SFM.EC.2.d & SFM.PE.2.c).
4. 4,000 ha of community plantations and agroforestry systems using native tree species (85% survival rate) (SFM.EC.2.c)(CCM.EC.1.c & CCM.PE.1.c)
5. 2,000 ha of commercial plantations (85% survival rate) (SFM.EC.2.c)(CCM.EC.1.c & CCM.PE.1.c)
6. 3,000 ha of degraded land under sustainable land management practices other than tree plantations (SFM.EC.2.d & SFM.PE.2.c)
7. 3-5 % increase of population of ecosystem health indicator species at intervention sites. (BD.EC.4.a – i; BD.PE.4.a - i)(CCM.EC.1.d & CCM.PE.1.d).
8. 3-5% increase of tons of carbon over baseline in work areas (SFM.EC.5.a – b & SFM.PE.5.a – b) (CCM.EC.1.a – b & CCM.PE.1.a - b) (CCM.EC.1.f – g & CCM.PE.1.f - g).

COMPONENT 4: UPSCALING AND OUTREACH (US\$878,596)

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
Outcome 4.1: National environmental authorities in Ecuador and Peru incorporate science based knowledge and tools developed by the project into their MRV systems and financial incentive programs.	Number of financial incentive programs strengthened (CCM.EC.1.a – b & CCM.PE.1.a - b, CCM.EC.1.c & CCM.PE.1.c).	Ecuador's Incentive programs include Socio Bosque/Páramo/Restoration and Reforestation and Afforestation programs for commercial/conservation purposes implemented by MAE and MAGAP. MINAN also operates an incentive program, but only for Amazon forests	N/A	Socio Bosque/Páramo, Reforestation MAE, Reforestation MAGAP (Ecuador) strengthened; Programa de Conservación de Bosques (Peru) improved to support conservation of High Andean Ecosystems.	Guidelines and assessments reports.	Local governments continue to take interest in mainstreaming biodiversity and carbon benefits into their development plans. Stakeholders and decision-makers are receptive to incorporating project resulting tools and knowledge in integrated land

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
	<p>Number of national MRV systems strengthened by integrating scientifically validated protocols to monitor carbon fluxes and biodiversity status in high Andean ecosystems (SFM.PE.7.d & SFM.EC.6.d; SFM.EC.7.g & SFM.PE.7.d)(CCM.E C.1.e & CCM.PE.1.e)</p>	<p>Ecuador and Peru have initiated the development of their MRV systems and its protocols to assess biodiversity status and carbon pools within the UNFCC and CBD frameworks. Yet, the majority of these are focused on tropical lowland ecosystems. National MRV systems lack tools and protocols to integrate high Andean ecosystems into their national programs.</p>	<p>N/A</p>	<p>National MRV systems in Ecuador Peru strengthened</p>	<p>National MRV system documentation and procedures</p>	<p>use and development planning.</p>
	<p>Number of thematic working groups formed and/or functioning</p>	<p>At least 3 thematic working groups are currently operating in the Andean region (GLORIA, iMHEA, RedBosques). However, they still require financial support.</p>	<p>3 existing thematic working groups strengthened to support the implementation of project actions at intervention sites with the participation of national environmental authorities.</p>	<p>At least 4 thematic working groups formed and/or strengthened to support the implementation of project actions at intervention sites with the participation of national environmental authorities.</p>	<p>Thematic working groups workshops proceedings.</p>	

OBJECTIVES, OUTCOMES AND OUTPUTS	INDICATORS	BASELINE CONDITIONS	MID TERM TARGETS	EOP TARGETS	MEANS OF VERIFICATION	ASSUMPTIONS
Outcome 4.2: Knowledge, tools and lessons learned disseminated among other local governments and key stakeholders outside the project intervention sites	Number of publications (or other media resources) that systematized lessons learned on SLM/SFM practices of the project (LD.EC.17.a, LD.PE.17.a; LD.EC.18.a - c, LD.PE.18.a - c)	International development projects have produced technical reports on some SLM practices. No practices exist on management of Andean native forests	N/A	At least one publication of lessons learned on SLM/SFM practices disseminated	Publications (or other media resources)	Local governments continue to take interest in mainstreaming biodiversity and carbon benefits into their development plans.
	Number of key stakeholders at different scales have been provided with information materials and tool kits on project results	Local governments and other key stakeholders lack assistance, information and tools to support the conservation and sustainable management of Andean ecosystems	N/A	At least 3 local governments outside project intervention sites (2 in Ecuador and 1 in Peru) are aware of validated actions to promote conservation and sustainable management Andean ecosystems management.	Workshops and tool kits	Stakeholders and decision-makers are receptive to incorporating project resulting tools and knowledge in integrated land use and development planning.

OUTPUTS:**Outcome 4.1: National environmental authorities and incentive programs in Ecuador and Peru incorporate science based knowledge and tools developed by the project**

1. At least four financial incentive programs strengthened (3 in Ecuador and 1 in Peru) to increase investments effectiveness (CCM.EC.1.a – c & CCM.PE.1.a – c).
2. National MRV systems of Ecuador and Peru strengthened for monitoring climate change and land use impacts (SFM.PE.7.d & SFM.EC.6.d;

SFM.EC.7.g & SFM.PE.7.d; CCM.EC.1.e & CCM.PE.1.e)

3. At least 4 thematic working groups (including the participation of national authorities) formed and/or strengthened to replicate project actions in areas beyond intervention sites.

Outcome 4.2: Knowledge, tools and lessons learned disseminated among other local governments and key stakeholders beyond intervention sites

4. At least one publication of lessons learned on SLM/SFM practices disseminated among key stakeholders, including local communities (LD.EC.17.a, LD.PE.17.a; LD.EC.18.a -c, LD.PE.18.a - c)
5. Tool kit produced of project findings (lessons learned and SLM/SFM practices) produced for use by participating regional governments for promoting conservation and sustainable management of Andean ecosystems.
6. At least 3 local governments outside project intervention sites (2 in Ecuador and 1 in Peru) are aware of validated actions to promote conservation and sustainable management Andean ecosystems management (BD.EC.11.a - e; BD.PE.11.a – e).

Appendix 5: Workplan and timetable

Component/Outcomes	Activity	PY1				PY2				PY3				PY4			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
0. General Activities																	
0.1 Project institutional and operational conditions in place for implementation	0.1 Establishing the project team and project facilities																
	0.2 Project inception workshops at each country and intervention site																
	0.3 Review of logical framework and establishing a tailor-made workplan for each intervention site																
	0.4 Development of the Project M&E System																
0.2 Project impacts and global benefits assessed	0.5 M&E of Project activities																
1. Component 1: Knowledge and tools																	
1.1 Knowledge base expanded on high Andean ecosystem dynamics and GEC	1.1 Adaptation and validation of monitoring protocols at intervention sites																
	1.2 Establishment of monitoring system at each intervention site																
	1.3 Implementation of science-based studies focus on synergies between Bd-carbon and SLM/SFM practices																
1.2 DM access increased to knowledge base and practices for SLM strategies in the Andes	1.4 Development of assessments and INRM tools to support on-going efforts on conservation and climate change																
	1.5 Design and implementation of policy decision support systems																
2. Component 2: Mainstreaming and SLM																	

Component/Outcomes	Activity	PY1				PY2				PY3				PY4			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
2.1 Enabling environment in place to integrate multiple benefits in cross-sectoral planning tools at the wider landscape	2.1 Strengthening of regional land-use plans																
	2.2 Formulation or strengthening of rural community development plans																
	2.3 Formulation or strengthening of policy instruments or regulatory frameworks																
2.2 Institutional capacities enhanced to apply knowledge and INRM tools that support policies, integrated land use plans and ongoing programs for the conservation and sustainable management of critical high-Andean ecosystems, including Andean forests	2.4 Design and implement sustainable financing plans to support INRM/SFM at intervention sites																
	2.5 Strengthening of local stakeholders, technicians and extension programs in INRM tools, policy decision support systems and monitoring protocols																
3. Component 3: Interventions sites																	
3.1 Sustainable livelihood strategies and key productive value chains strengthened at interventions sites to address barriers and support SLF/SFM practices	3.1 Development or strengthening of start-up programs in key value productive chains																

Component/Outcomes	Activity	PY1				PY2				PY3				PY4			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
3.2 Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands in the high Andes	3.2 Implementation of integrated SFM/SLM practices in forest and non-forest lands																
4. Component 4: Upscaling & Outreach																	
4.1 National environmental authorities in Ecuador and Peru incorporate science based knowledge and tools developed by the project into their MRV systems and financial incentive programs.	4.1 Strengthening of national financial incentive programs																
	4.2 Strengthening of MRV systems																
	4.3 Consolidation of thematic working groups (bi-national)																
4.2 Knowledge, tools and lessons learned disseminated among other local governments and key stakeholders outside the project intervention sites	4.4 Dissemination of lessons learned & Project findings																

Appendix 6: Key deliverables and benchmarks

Component/Outcomes	Activity	Outputs	Deliverables	Benchmarks
0. General Activities				
0.1 Project institutional and operational conditions in place for implementation	0.1 Establishing the project team and project facilities	0.1.1 Project personal hired	Contracts	PY1Q4: Administrative procedures in place and field and core teams operating
	0.2 Project inception workshops at each country and intervention site	0.1.2 Project planning agreed with local stakeholders	RF and work plan adjusted	M&E System implemented and generating information
	0.3 Review of logical framework and establishing a tailor-made work plan for each intervention site			Agreements with local stakeholders signed
	0.4 Development of the Project M&E System	0.1.4 TT incorporated into Project indicator framework	M&E platform	PY2Q4: Mid-term report
0.2 Project impacts and global benefits assessed	0.5 M&E of Project activities	0.1.5 Project evaluation reports	Midterm and final reports	PY4Q4: Final report
1. Component 1: Knowledge and tools				
1.1 Knowledge base expanded on high Andean ecosystem dynamics and GEC	1.1 Adaptation and validation of monitoring protocols at intervention sites	1.1.1 Five protocols for monitoring biodiversity, carbon stocks and key ecosystem dynamics adapted, validated and applied at intervention sites.	Five technical documents Data systematized in database	PY2Q1: Social and environmental monitoring platforms operating in each intervention site
	1.2 Establishment of monitoring system at each intervention site	1.2.1 One monitoring system established at each project intervention site to account carbon, biodiversity and changes on environmental services.	Monitoring platforms	PY3Q4: Series of technical reports and documents produced
	1.3 Implementation of science-based studies focus on synergies between Bd-carbon and SLM/SFM practices	1.3.1 At least 1 innovative agroforestry system proposed and scientifically validated per intervention site (LD.EC.9.a – b & LD.PE.9.a - b).	Validation reports Data systematized in database	

Component/Outcomes	Activity	Outputs	Deliverables	Benchmarks
		<p>1.3.2 At least 1 land restoration system proposed and scientifically validated per intervention site (LD 12-16).</p> <p>1.3.3 Baseline gaps at each intervention site addressed</p> <p>1.3.4 At least 8 science-based studies on ecosystem dynamics along environmental and degradation gradients and synergies between biodiversity, carbon and SLM/SFM practices (LD86-87)</p>	<p>Validation reports Data systematized in database</p> <p>Baseline reports Data systematized in database</p> <p>Technical reports Data systematized in database</p>	
1.2 DM access increased to knowledge base and practices for SLM strategies in the Andes	1.4 Development of assessments and INRM tools to support on-going efforts on conservation and climate change	1.4.1 At least 6 assessments or INRM tools to support on-going efforts on conservation and climate change strategies at different scales (LD 60-61 & 72-75).	Technical reports	PY3Q4: Decision support systems implemented and ready to be used by DMs.
	1.5 Design and implementation of policy decision support systems	1.5.1 At least 2 policy decision support systems/tools based upon new knowledge, environmental scenarios & economic valuations developed and adopted by stakeholders at intervention sites (CCM.EC.1.e & CCM.EC.1.e) (LD 72-75)	Decision support system platforms	
2. Component 2: Mainstreaming and SLM				
2.1 Enabling environment in place to integrate multiple benefits in cross-sectorial planning tools at the wider landscape	2.1 Strengthening of regional land-use plans	2.1.1 Five Integrated Land Use Plans developed and strengthened at each intervention site (BD.EC.11.a - e; BD.PE.11.a – e)	Technical documents that complement and strengthen aspects of land use plans	PY4Q3: Series of documents related to SLM/SFM articulated within existing governance frameworks produced.

Component/Outcomes	Activity	Outputs	Deliverables	Benchmarks
	2.2 Formulation or strengthening of rural community development plans	2.2.1 Ten local development plans formulated or strengthened, 2 for each intervention site (BD.EC.11.a - e; BD.PE.11.a – e)	Local development plans documentation and data	
	2.3 Formulation or strengthening of policy instruments or regulatory frameworks	2.3.1 At least two policies formulated or strengthened by the project to be formally adopted by the Governments to enhance sustainable biodiversity, forest and land management practices (SFM.EC.6.a – e & SFM.EC.7.a; SFM.PE.6.a – e & SFM.PE.7.a); BD.EC.11.a - e; BD.PE.11.a – e).	Policy instrument documentation and data	
2.2 Institutional capacities enhanced to apply knowledge and INRM tools that support policies, integrated land use plans and ongoing programs for the conservation and sustainable management of critical high-Andean ecosystems, including Andean forests	2.4 Design and implement sustainable financing plans to support INRM/SFM at intervention sites	2.4.1 At least 2 sustainable financing plans designed and implemented to support INRM/SFM and diversify the financial resource base at intervention sites.	Financing plans	PY4Q3: Financing plans generate measurable impacts on the financial resource base at intervention sites.
	2.5 Strengthening of local stakeholders, technicians and extension programs in INRM tools, policy decision support systems and monitoring protocols	2.5.1 At least 60 technicians attend continued and specific training program in management and restoration practices focused on SLM/SFM and rangeland management on high Andean ecosystems, 45 in Ecuador and 15 in Peru.	Training program and associated material Reports of participation in training program activities	PY2Q4: Training program developed, tested and ready for implementation

Component/Outcomes	Activity	Outputs	Deliverables	Benchmarks
		<p>2.5.2 At least 30 national and local decision makers attend continued and specific training program in on the conservation and sustainable management of high Andean Ecosystems and its link to land use planning, 20 in Ecuador and 10 in Peru</p> <p>2.5.3 At least 5 extension programs operated by local governments or counterpart organizations strengthened, 1 for each intervention site (LD.EC.21.a LD, PE.21.a).</p>		<p>PY4Q2: Trainee population well identified and impact of program established</p>
3. Component 3: Interventions sites				
<p>3.1 Sustainable livelihood strategies and key productive value chains strengthened at interventions sites to address barriers and support SLF/SFM practices</p>	<p>3.1 Development or strengthening of start-up programs in key value productive chains</p>	<p>3.1.1 One baseline assessment addressing critical barrier developed and proper actions implemented at each intervention site (BD.EC.5.a-f; BD.PE.5.a-c)</p> <p>3.1.2 At least 3 start-up programs in key production chains implemented and incorporating SFM/SLM practices at intervention sites (SFM.EC.5.a SFM.PE.5.a) (BD.EC.4.a – i; BD.PE.4.a - i) (CCM.EC.1.b & CCM.PE.1.b; CCM.EC.1.d & CCM.PE.1.d)</p> <p>3.1.3 At least 10% of participating families' income diversified by activities promoted by the project (BD.EC.5.a – b; BD.PE.5.a).</p>	<p>Baseline reports Data systematized in database</p> <p>Start-up programs Report of implementation of programs</p> <p>Monitoring reports Data systematized in database</p>	<p>PY2Q2: Critical information regarding barriers at intervention sites systematized.</p> <p>PY3Q4: Implemented start-up programs have measurable impacts on production chains and local livelihoods.</p>

Component/Outcomes	Activity	Outputs	Deliverables	Benchmarks
3.2 Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands in the high Andes	3.2 Implementation of integrated SFM/SLM practices in forest and non-forest lands	<p>3.2.1 5,000 ha of Upper Montane Forest under conservation or sustainable forest management</p> <p>3.2.2 10,000 ha of Páramo, Punas and Wetlands under conservation or sustainable land management</p> <p>3.2.3 3,000 ha of improved rangeland under good management practices. (SFM.EC.2.d & SFM.PE.2.c)</p> <p>3.2.4 4,000 ha of community plantations and agroforestry systems using native tree species (85% survival rate) (SFM.EC.2.c)(CCM.EC.1.c & CCM.PE.1.c)</p> <p>3.2.5 2,000 ha of commercial plantations (85% survival rate) (SFM.EC.2.c)(CCM.EC.1.c & CCM.PE.1.c)</p> <p>3.2.6 3,000 ha of degraded land under sustainable land management practices other than tree plantations (SFM.EC.2.d & SFM.PE.2.c)</p> <p>3.2.7 3-5 % increase of population of ecosystem health indicator species at intervention sites. (BD.EC.4.a – i; BD.PE.4.a - i)(CCM.EC.1.d & CCM.PE.1.d)</p>	<p>Reports of implementation of activities</p> <p>Data systematized in database</p>	<p>PY1Q4: Local agreements at intervention sites established for the implementation of SFM/SLM activities</p> <p>PY3Q1: At least 50% of the target activity areas have been implemented in the intervention sites.</p> <p>PY4Q3: 100% of the target activity areas have been implemented in the intervention sites.</p>

Component/Outcomes	Activity	Outputs	Deliverables	Benchmarks
		3.2.8 3-5% increase of tons of carbon over baseline in work areas (SFM.EC.5.a – b & SFM.PE.5.a – b) (CCM.EC.1.a – b & CCM.PE.1.a - b) (CCM.EC.1.f – g & CCM.PE.1.f - g)		
4. Component 4: Upscaling & Outreach				
4.1 National environmental authorities in Ecuador and Peru incorporate science based knowledge and tools developed by the project into their MRV systems and financial incentive programs.	4.1 Strengthening of national financial incentive programs	4.1.1 At least four financial incentive programs strengthened (3 in Ecuador and 1 in Peru) to increase investments effectiveness (CCM.EC.1.a – c & CCM.PE.1.a – c).	Reports of process of support to incentive programs Technical documents generated for financial incentive programs	PY4Q4: Process of support to financial incentive programs systematized
	4.2 Strengthening of MRV systems	4.2.1 National MRV systems of Ecuador and Peru strengthened for monitoring climate change and land use impacts (SFM.PE.7.d & SFM.EC.6.d; SFM.EC.7.g & SFM.PE.7.d; CCM.EC.1.e & CCM.PE.1.e)	Reports of process of support to MRV systems Technical documents and data generated for MRV systems	PY4Q4: Process of support to MRV systems systematized
	4.3 Consolidation of thematic working groups (bi-national)	4.3.1 At least 4 thematic working groups (including the participation of national authorities) formed or strengthened to replicate project actions in areas beyond intervention sites.	Proceedings of meetings of thematic working groups	PY3Q1: Thematic working groups identified and functioning PY4Q4: Results of the meetings and other mechanisms implemented within working groups systematized.

Component/Outcomes	Activity	Outputs	Deliverables	Benchmarks
<p>4.2 Knowledge, tools and lessons learned disseminated among other local governments and key stakeholders outside the project intervention sites</p>	<p>4.2 Dissemination of lessons learned & Project findings</p>	<p>4.2.1 At least one publication of lessons learned on SLM/SFM practices disseminated among key stakeholders, including local communities (LD.EC.17.a, LD.PE.17.a; LD.EC.18.a - c, LD.PE.18.a - c)</p> <p>4.2.2 Tool kit produced of project findings (lessons learned and SLM/SFM practices) produced for use by participating regional governments for promoting conservation and sustainable management of Andean ecosystems.</p> <p>4.2.3 At least 3 local governments outside project intervention sites (2 in Ecuador and 1 in Peru) are aware of validated actions to promote conservation and sustainable management Andean ecosystems management (BD.EC.11.a - e; BD.PE.11.a - e).</p>	<p>Publications on SLM/SFM</p> <p>Publications of toolkits and lessons learned</p> <p>Dissemination strategy Report of the implementation of dissemination strategy</p>	<p>PY1Q4: Dissemination strategy produced.</p> <p>PY3Q4: Series of documents related to lessons learned in SLM/SFM produced.</p> <p>PY4Q4: Systematization of lessons learned and the implementation of the dissemination strategy</p>

Appendix 7: Costed M&E plan.

Estimated costs of M&E activities are meant to cover dedication time of project personnel as presented on the project budget (Please refer to Appendix 1). Of the total amount allocated for M&E activities US 122.400 are dedicated to cover project personnel dedication (PM, MEOs, TEs, TAs). The remaining costs will cover meetings, visits to project intervention sites, publications, among others.

M&E activity	Responsible Parties	Aprox. Budget from GEF (US\$)	Budget co-finance	Time Frame
Elaboration of Supervision Plan and first draft project M&E Plan	Project Manager (PM) with the assistance of the Project M&E Officers.	2,000	In kind support of national and local counterpart agencies	1 month into project implementation
Inception Meeting to review Supervision Plan and first draft of M&E Plan	PM, M&E Officers/ All TAs /national and local focal points.	4,000	In kind support of national and local counterpart agencies	2 months into project implementation
Inception Report / send to UNEP through Task Manager	PM with the assistance of M&E Officers, and TAP	2,000	In kind support of national and local counterpart agencies	1 month after Inception Meeting
Updating of project baseline information (filling in gaps)	Consultant with supervision of PM and TAs / M&E Officers	8,000	In kind support of national and local counterpart agencies	Baseline document finalized 6-8 months into project implementation
Finalization of regional intervention strategies (work plans)	PM/TAs/M&E Officers	6,000	In kind support of local counterpart agencies	Work plans finalized 3-6 months into project implementation
Adjustment project indicators, key deliverable bench marks, drivers	PM with the support of the M&E Officers and TAs	2,000	In kind support of national and local counterpart agencies	5-6 months into project implementation
Finalization 2d draft of project M&E Plan	PM with the support of the M&E Officers and TAs	2,000	In kind support of national and regional and local counterpart agencies	6 months into project implementation
First Steering Committee (SC) meeting/presentation 2d draft project M&E plan (10 meeting will be held, reports will be produced).	Steering Committee includes the Task Manager and reps from CONDESAN, MINAM and MAE. The IPM will act as SC secretary.	22,000	In kind support of national and local counterpart agencies	The SC will meet every six months, for a total of 10 meetings.

M&E activity	Responsible Parties	Aprox. Budget from GEF (US\$)	Budget co-finance	Time Frame
Continuous measurement of project indicators, key deliverables, benchmarks and drivers, according to M&E plan.	M&E Officers, with support of the PM, Technical Assistants and national and regional focal points	57,000	In kind support of national and local counterpart agencies	Continuous during the life of the project; progress summary reports will be produced every six months. Special reports on project intervention sites will be produced.
Support visits to project intervention sites 8 Visiting staff member will prepare evaluation reports.	M&E Officers/ TAs and national and local counterparts.	46,000	In kind support from the national and local counterpart agencies	Staff members will visit these when determined necessary by the IMP or when solicited by regional staff.
Project Binational Technical Committee Meeting (TC) (10 TC meetings will be organized during the life of the project).	Members of TC include the PM, M&E Officers, TAs, consultants and national and regional focal points. This committee will be chaired by the PM.	36,000	In kind support from the national and local counterpart agencies	Arranged to coincide with SC meetings, the TC will support and make recommendations regarding the implementation of project development components
Reconciliation of project implementation strategies, annual work plans, budget and if necessary the Results Framework (Meetings will be held with stakeholders to discuss results of the M&E system generating recommendation to improve project implementation)	PM, M&E Officers, TAs, project national counterparts	24,000	In kind support from the national and local counterpart agencies	Annual reviews will be organized to promote adaptive management procedures. The SC will evaluate and approve all proposed changes.
Semi-annual Progress/ Operational Reports to GEF/UNEP (10 reports will be developed /disseminated).	PM, M&E Officers, TAs, project national counterparts	25,000	No co-financing expected	Within 1 month of the end of reporting period
Project Implementation Review (PIR) (five reports will be produced)	Task Manager/ PM, M&E Officers, TAs, and national and local counterparts	5,000	In kind support of national and local counterparts	Risk assessment and rating is an integral part of the annual PIR
Tracking tool update (after mid-term and final evaluations)	PM, M&E Officers, TAs, and national and local counterparts	7,000	In kind support from the national counterpart agencies	This will be done after the mid-term and final evaluations
Audit	Private Audit company approved by UNEP	28,000 (5 audit reports)	In kind support from the	Annually

M&E activity	Responsible Parties	Aprox. Budget from GEF (US\$)	Budget co-finance	Time Frame
		are considered)	national counterpart agencies	
Project Co-financing report	Project Admin Officer in coordination with the PM	10,000	In kind support from the national counterpart agencies	Within 1 month of the PIR reporting period,
Publication of lessons learned	PM with the assistance of the Project M&E Officers, TAs, Assistants and national focal points.	50,000	In kind support from the national counterpart agencies	A special report on lessons learned will be published. An awareness program consisting of meeting, seminars, communication media will be organized at the end of the project help decision makers understand these lessons.
Mid Term Review/Evaluation (executed by at least two independent consultants over a period of 2 months) (cost includes national and international travel expenses).	UNEP in consultation with the Project Manager	35, 000	In kind support from the national counterpart agencies	At mid-point of project
Terminal Evaluation (executed by at least two independent consultants over a period of 3 mouths) (Cost includes national and international travel expenses)	UNEP in consultation with the Project Manager	45,000	In kind support from the national counterpart agencies	To allow proper distribution of conclusions and lessons learned, the TE will be executed 6 months prior to the finalization of the project
Project Final Report	PM with the assistance of M&E Officers, TAs and national focal points	11,999	In kind support from the national counterpart agencies	Within 2 months of the project completion date
Total M&E Plan Budget		427,999		

Appendix 8: Summary of reporting requirements and responsibilities

Reporting requirements	Due date	Format appended to legal instrument as	Responsibility of
Procurement plan (goods and services)	2 weeks before project inception meeting	N/A	PM, M&EOs
Inception Report	1 month after project inception meeting	N/A	PM, M&EOs
Expenditure report accompanied by explanatory notes	Quarterly on or before 30 April, 31 July, 31 October, 31 January	Annex 11	PM, M&EOs
Cash Advance request and details of anticipated disbursements	Quarterly or when required	Annex 7B	PM, AAP
Progress report	Half-yearly on or before 31 January	Annex 8	PM, M&EOs
Audited report for expenditures for year ending 31 December	Yearly on or before 30 June	N/A	Executing partner to contract firm
Inventory of non-expendable equipment	Yearly on or before 31 January	Annex 6	PM, AAP
Co-financing report	Yearly on or before 31 July	Annex 12	PM, AAP
Project implementation review (PIR) report	Yearly on or before 31 August	Annex 9	PM, M&EOs, TEs, Tas, TM
Minutes of steering committee meetings	Yearly (or as relevant)	N/A	PM
Mission reports and “aide memoire” for executing agency	Within 2 weeks of return	N/A	TM, DGEF FMO
Final report	2 months of project completion date	Annex 10	PM, M&EOs
Final inventory of non-expendable equipment		Annex 9	PM, AAP
Equipment transfer letter		Annex 10	PM, AAP
Final expenditure statement	3 months of project completion date	Annex 11	PM, AAP
Mid-term review or Mid-term evaluation	Midway though project	N/A	TM or EOU (as relevant)
Final audited report for expenditures of project	6 months of project completion date	N/A	Executing partner to contract firm
Independent terminal evaluation report	6 months of project completion date	Appendix 9 to Annex 1	EOU

1. PROJECT BACKGROUND AND OVERVIEW

Project rationale

The objective was stated as:

The indicators given in the project document for this stated objective were:

Relevance to GEF Programmes

The project is in line with:

Executing Arrangements

The implementing agency(ies) for this project was (were) UNEP; and the executing agencies were:

WWF Danube-Carpathian Programme

The lead national agencies in the focal countries were:

Project Activities

The project comprised activities grouped in 3 components.

Budget

At project inception the following budget prepared:

GEF Co-funding

Project preparation funds:

GEF Medium Size Grant

TOTAL (including project preparation funds)

Co-funding sources:

Anticipated:

TERMS OF REFERENCE FOR THE EVALUATION

1. Objective and Scope of the Evaluation

The objective of this terminal evaluation is to examine the extent and magnitude of any project impacts to date and determine the likelihood of future impacts. The evaluation will also assess project performance and the implementation of planned project activities and planned outputs against actual results. The evaluation will focus on the following main questions:

1. Did the project help to {} among key target audiences (international conventions and initiatives, national level policy-makers, regional and local policy-makers, resource managers and practitioners).
2. Did the outputs of the project articulate options and recommendations for {}? Were these options and recommendations used? If so by whom?
3. To what extent did the project outputs produced have the weight of scientific authority and credibility necessary to influence policy makers and other key audiences?

Methods

This terminal evaluation will be conducted as an in-depth evaluation using a participatory approach whereby the UNEP/DGEF Task Manager, key representatives of the executing agencies and other relevant staff are kept informed and consulted throughout the evaluation. The consultant will liaise with the UNEP/EOU and the UNEP/DGEF Task Manager on any logistic and/or methodological issues to properly conduct the review in as independent a way as possible, given the circumstances and resources offered. The draft report will be circulated to UNEP/DGEF Task Manager, key representatives of the executing agencies and the UNEP/EOU. Any comments or responses to the draft report will be sent to UNEP / EOU for collation and the consultant will be advised of any necessary or suggested revisions.

The findings of the evaluation will be based on the following:

1. A desk review of project documents including, but not limited to:
 - (a) The project documents, outputs, monitoring reports (such as progress and financial reports to UNEP and GEF annual Project Implementation Review reports) and relevant correspondence.
 - (b) Notes from the Steering Group meetings.
 - (c) Other project-related material produced by the project staff or partners.
 - (d) Relevant material published on the project web-site: {}.
2. Interviews with project management and technical support including {NEED INPUT FROM TM HERE}
3. Interviews and Telephone interviews with intended users for the project outputs and other stakeholders involved with this project, including in the participating countries and international bodies. The Consultant shall determine whether to seek additional information and opinions from representatives of donor agencies and other organizations. As appropriate, these interviews could be combined with an email questionnaire.

4. Interviews with the UNEP/DGEF project task manager and Fund Management Officer, and other relevant staff in UNEP dealing with {relevant GEF focal area(s)}-related activities as necessary. The Consultant shall also gain broader perspectives from discussions with relevant GEF Secretariat staff.
5. Field visits¹⁰ to project staff

Key Evaluation principles

In attempting to evaluate any outcomes and impacts that the project may have achieved, evaluators should remember that the project's performance should be assessed by considering the difference between the answers to two simple questions “*what happened?*” and “*what would have happened anyway?*”. These questions imply that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. In addition it implies that there should be plausible evidence to **attribute** such outcomes and impacts **to the actions of the project**.

Sometimes, adequate information on baseline conditions and trends is lacking. In such cases this should be clearly highlighted by the evaluator, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

2. Project Ratings

The success of project implementation will be rated on a scale from ‘highly unsatisfactory’ to ‘highly satisfactory’. In particular the evaluation shall **assess and rate** the project with respect to the eleven categories defined below:¹¹

A. Attainment of objectives and planned results:

The evaluation should assess the extent to which the project's major relevant objectives were effectively and efficiently achieved or are expected to be achieved and their relevance.

- *Effectiveness*: Evaluate how, and to what extent, the stated project objectives have been met, taking into account the “achievement indicators”. The analysis of outcomes achieved should include, *inter alia*, an assessment of the extent to which the project has directly or indirectly assisted policy and decision-makers to apply information supplied by biodiversity indicators in their national planning and decision-making. In particular:
 - Evaluate the immediate impact of the project on {relevant focal area} monitoring and in national planning and decision-making and international understanding and use of biodiversity indicators.
 - As far as possible, also assess the potential longer-term impacts considering that the evaluation is taking place upon completion of the project and that longer term impact is expected to be seen in a few years time. Frame recommendations to enhance future project impact in this context. Which will be the major ‘channels’ for longer term impact from the project at the national and international scales?
- *Relevance*: In retrospect, were the project's outcomes consistent with the focal areas/operational program strategies? Ascertain the nature and significance of

¹⁰ Evaluators should make a brief courtesy call to GEF Country Focal points during field visits if at all possible.

¹¹ However, the views and comments expressed by the evaluator need not be restricted to these items.

the contribution of the project outcomes to the Convention on Biological Diversity and the wider portfolio of the GEF.

- *Efficiency*: Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was, then did that affect cost-effectiveness? Assess the contribution of cash and in-kind co-financing to project implementation and to what extent the project leveraged additional resources. Did the project build on earlier initiatives, did it make effective use of available scientific and / or technical information. Wherever possible, the evaluator should also compare the cost-time vs. outcomes relationship of the project with that of other similar projects.

B. Sustainability:

Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts after the GEF project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, e.g. stronger institutional capacities or better informed decision-making. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes. The evaluation should ascertain to what extent follow-up work has been initiated and how project outcomes will be sustained and enhanced over time.

Five aspects of sustainability should be addressed: financial, socio-political, institutional frameworks and governance, environmental (if applicable). The following questions provide guidance on the assessment of these aspects:

- *Financial resources*. Are there any financial risks that may jeopardize sustenance of project outcomes? What is the likelihood that financial and economic resources will not be available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project's outcomes)? To what extent are the outcomes of the project dependent on continued financial support?
- *Socio-political*: Are there any social or political risks that may jeopardize sustenance of project outcomes? What is the risk that the level of stakeholder ownership will be insufficient to allow for the project outcomes to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?
- *Institutional framework and governance*. To what extent is the sustenance of the outcomes of the project dependent on issues relating to institutional frameworks and governance? What is the likelihood that institutional and technical achievements, legal frameworks, policies and governance structures and processes will allow for, the project outcomes/benefits to be sustained? While responding to these questions consider if the required systems for accountability and transparency and the required technical know-how are in place.
- *Environmental*. Are there any environmental risks that can undermine the future flow of project environmental benefits? The TE should assess whether certain activities in

the project area will pose a threat to the sustainability of the project outcomes. For example; construction of dam in a protected area could inundate a sizable area and thereby neutralize the biodiversity-related gains made by the project; or, a newly established pulp mill might jeopardise the viability of nearby protected forest areas by increasing logging pressures; or a vector control intervention may be made less effective by changes in climate and consequent alterations to the incidence and distribution of malarial mosquitoes.

C. Achievement of outputs and activities:

- Delivered outputs: Assessment of the project's success in producing each of the programmed outputs, both in quantity and quality as well as usefulness and timeliness.
- Assess the soundness and effectiveness of the methodologies used for developing the technical documents and related management options in the participating countries
- Assess to what extent the project outputs produced have the weight of scientific authority / credibility, necessary to influence policy and decision-makers, particularly at the national level.

D. Catalytic Role

Replication and catalysis. What examples are there of replication and catalytic outcomes? Replication approach, in the context of GEF projects, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). Specifically:

- Do the recommendations for management of *Promoting Payments for Ecosystem Services (PES) and Related Sustainable Financing Schemes in the Danube Basin* coming from the country studies have the potential for application in other countries and locations?

If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out.

E. Assessment monitoring and evaluation systems.

The evaluation shall include an assessment of the quality, application and effectiveness of project monitoring and evaluation plans and tools, including an assessment of risk management based on the assumptions and risks identified in the project document. The Terminal Evaluation will assess whether the project met the minimum requirements for 'project design of M&E' and 'the application of the Project M&E plan' (see minimum requirements 1&2 in *Annex 4* to this Appendix). GEF projects must budget adequately for execution of the M&E plan, and provide adequate resources during implementation of the M&E plan. Project managers are also expected to use the information generated by the M&E system during project implementation to adapt and improve the project.

M&E during project implementation:

- *M&E design.* Projects should have sound M&E plans to monitor results and track progress towards achieving project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART indicators (see Annex 4) and data analysis systems, and evaluation studies at specific times to assess

results. The time frame for various M&E activities and standards for outputs should have been specified.

- *M&E plan implementation.* A Terminal Evaluation should verify that: an M&E system was in place and facilitated timely tracking of results and progress towards projects objectives throughout the project implementation period (perhaps through use of a logframe or similar); annual project reports and Progress Implementation Review (PIR) reports were complete, accurate and with well justified ratings; that the information provided by the M&E system was used during the project to improve project performance and to adapt to changing needs; and that projects had an M&E system in place with proper training for parties responsible for M&E activities.
- *Budgeting and Funding for M&E activities.* The terminal evaluation should determine whether support for M&E was budgeted adequately and was funded in a timely fashion during implementation.

F. Preparation and Readiness:

Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing institution and counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in the project design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project implementation? Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place?

G. Country ownership / drivenness:

This is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements. The evaluation will:

- Assess the level of country ownership. Specifically, the evaluator should assess whether the project was effective in providing and communicating biodiversity information that catalyzed action in participating countries to improve decisions relating to the conservation and management of the focal ecosystem in each country.
- Assess the level of country commitment to the generation and use of biodiversity indicators for decision-making during and after the project, including in regional and international fora.

H. Stakeholder participation / public awareness:

This consists of three related and often overlapping processes: information dissemination, consultation, and "stakeholder" participation. Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the GEF- financed project. The term also applies to those potentially adversely affected by a project. The evaluation will specifically:

- Assess the mechanisms put in place by the project for identification and engagement of stakeholders in each participating country and establish, in consultation with the stakeholders, whether this mechanism was successful, and identify its strengths and weaknesses.
- Assess the degree and effectiveness of collaboration/interactions between the various project partners and institutions during the course of implementation of the project.

- Assess the degree and effectiveness of any various public awareness activities that were undertaken during the course of implementation of the project.

I. Financial Planning

Evaluation of financial planning requires assessment of the quality and effectiveness of financial planning and control of financial resources throughout the project's lifetime. Evaluation includes actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co- financing. The evaluation should:

- Assess the strength and utility of financial controls, including reporting, and planning to allow the project management to make informed decisions regarding the budget and allow for a proper and timely flow of funds for the payment of satisfactory project deliverables.
- Present the major findings from the financial audit if one has been conducted.
- Identify and verify the sources of co- financing as well as leveraged and associated financing (in co-operation with the IA and EA).
- Assess whether the project has applied appropriate standards of due diligence in the management of funds and financial audits.
- The evaluation should also include a breakdown of final actual costs and co-financing for the project prepared in consultation with the relevant UNEP/DGEF Fund Management Officer of the project (table attached in *Annex I* to this Appendix Co-financing and leveraged resources).

J. Implementation approach:

This includes an analysis of the project's management framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management. The evaluation will:

- Ascertain to what extent the project implementation mechanisms outlined in the project document have been closely followed. In particular, assess the role of the various committees established and whether the project document was clear and realistic to enable effective and efficient implementation, whether the project was executed according to the plan and how well the management was able to adapt to changes during the life of the project to enable the implementation of the project.
- Evaluate the effectiveness and efficiency and adaptability of project management and the supervision of project activities / project execution arrangements at all levels (1) policy decisions: Steering Group; (2) day to day project management in each of the country executing agencies and WWF Danube-Carpathian Programme.

K. UNEP Supervision and Backstopping

- Assess the effectiveness of supervision and administrative and financial support provided by UNEP/DGEF.
- Identify administrative, operational and/or technical problems and constraints that influenced the effective implementation of the project.

The *ratings will be presented in the form of a table*. Each of the eleven categories should be rated separately with **brief justifications** based on the findings of the main analysis. An overall rating for the project should also be given. The following rating system is to be applied:

HS	= Highly Satisfactory
S	= Satisfactory
MS	= Moderately Satisfactory
MU	= Moderately Unsatisfactory
U	= Unsatisfactory
HU	= Highly Unsatisfactory

3. Evaluation report format and review procedures

The report should be brief, to the point and easy to understand. It must explain; the purpose of the evaluation, exactly what was evaluated and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should be presented in a way that makes the information accessible and comprehensible and include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

The evaluation will rate the overall implementation success of the project and provide individual ratings of the eleven implementation aspects as described in Section 1 of this TOR. The ratings will be presented in the format of a table with brief justifications based on the findings of the main analysis.

Evidence, findings, conclusions and recommendations should be presented in a complete and balanced manner. Any dissident views in response to evaluation findings will be appended in an annex. The evaluation report shall be written in English, be of no more than 50 pages (excluding annexes), use numbered paragraphs and include:

- i) **An executive summary** (no more than 3 pages) providing a brief overview of the main conclusions and recommendations of the evaluation;
- ii) **Introduction and background** giving a brief overview of the evaluated project, for example, the objective and status of activities; The GEF Monitoring and Evaluation Policy, 2006, requires that a TE report will provide summary information on when the evaluation took place; places visited; who was involved; the key questions; and, the methodology.
- iii) **Scope, objective and methods** presenting the evaluation's purpose, the evaluation criteria used and questions to be addressed;
- iv) **Project Performance and Impact** providing *factual evidence* relevant to the questions asked by the evaluator and interpretations of such evidence. This is the main substantive section of the report. The evaluator should provide a commentary and analysis on all eleven evaluation aspects (A – K above).
- v) **Conclusions and rating** of project implementation success giving the evaluator's concluding assessments and ratings of the project against given evaluation criteria and standards of performance. The conclusions should provide answers to questions about whether the project is considered good or bad, and whether the results are considered positive or negative. The ratings should be provided with a brief narrative comment in a table (see *Annex I* to this Appendix);
- vi) **Lessons (to be) learned** presenting general conclusions from the standpoint of the design and implementation of the project, based on good practices and successes or problems and mistakes. Lessons should have the potential for wider application and use. All lessons should 'stand alone' and should:

- Briefly describe the context from which they are derived
 - State or imply some prescriptive action;
 - Specify the contexts in which they may be applied (if possible, who when and where)
- vii) **Recommendations** suggesting *actionable* proposals for improvement of the current project. In general, Terminal Evaluations are likely to have very few (perhaps two or three) actionable recommendations.

Prior to each recommendation, the issue(s) or problem(s) to be addressed by the recommendation should be clearly stated.

A high quality recommendation is an actionable proposal that is:

1. Feasible to implement within the timeframe and resources available
2. Commensurate with the available capacities of project team and partners
3. Specific in terms of who would do what and when
4. Contains results-based language (i.e. a measurable performance target)
5. Includes a trade-off analysis, when its implementation may require utilizing significant resources that would otherwise be used for other project purposes.

- viii) **Annexes** may include additional material deemed relevant by the evaluator but must include:

1. The Evaluation Terms of Reference,
2. A list of interviewees, and evaluation timeline
3. A list of documents reviewed / consulted
4. Summary co-finance information and a statement of project expenditure by activity
5. The expertise of the evaluation team. (brief CV).

TE reports will also include any response / comments from the project management team and/or the country focal point regarding the evaluation findings or conclusions as an annex to the report, however, such will be appended to the report by UNEP EOU.

Examples of UNEP GEF Terminal Evaluation Reports are available at www.unep.org/eou

Review of the Draft Evaluation Report

Draft reports submitted to UNEP EOU are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff are allowed to comment on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks feedback on the proposed recommendations. UNEP EOU collates all review comments and provides them to the evaluators for their consideration in preparing the final version of the report.

4. Submission of Final Terminal Evaluation Reports.

The final report shall be submitted in electronic form in MS Word format and should be sent to the following persons:

Segbedzi Norgbey, Chief,

UNEP Evaluation and Oversight Unit
P.O. Box 30552-00100
Nairobi, Kenya
Tel.: +(254-20)762-4181
Fax: +(254-20)762-3158
Email: Segbedzi.Norgbey@unep.org

With a copy to:

Maryam Niamir-Fuller,
Director
UNEP/GEF Coordination
P.O. Box 30552-00100
Nairobi, Kenya
Tel: +(254-20)762-4166
Fax: +(254-20)762-4041/2
Email: Maryam.Niamir-Fuller@unep.org

{Name}
[Task Manager](#)
{Contact details}

The Final evaluation will also be copied to the following GEF National Focal Points.

{Insert contact details here}

The final evaluation report will be published on the Evaluation and Oversight Unit's web-site www.unep.org/eou and may be printed in hard copy. Subsequently, the report will be sent to the GEF Office of Evaluation for their review, appraisal and inclusion on the GEF website.

5. Resources and schedule of the evaluation

This final evaluation will be undertaken by an international evaluator contracted by the Evaluation and Oversight Unit, UNEP. The contract for the evaluator will begin on ddmmyyy and end on ddmmyyy (# days) spread over # weeks (# days of travel, to {country(ies)}, and # days desk study). The evaluator will submit a draft report on ddmmyyy to UNEP/EOU, the UNEP/DGEF Task Manager, and key representatives of the executing agencies. Any comments or responses to the draft report will be sent to UNEP / EOU for collation and the consultant will be advised of any necessary revisions. Comments to the final draft report will be sent to the consultant by ddmmyyy after which, the consultant will submit the final report no later than ddmmyyy.

The evaluator will after an initial telephone briefing with EOU and UNEP/GEF conduct initial desk review work and later travel to {country(ies)} and meet with project staff at the beginning of the evaluation. Furthermore, the evaluator is expected to travel to {country(ies)} and meet with representatives of the project executing agencies and the intended users of project's outputs.

In accordance with UNEP/GEF policy, all GEF projects are evaluated by independent evaluators contracted as consultants by the EOU. The evaluator should have the following qualifications:

The evaluator should not have been associated with the design and implementation of the project in a paid capacity. The evaluator will work under the overall supervision of the Chief, Evaluation and Oversight Unit, UNEP. The evaluator should be an international expert in [] with a sound understanding of [] issues. The consultant should have the following minimum qualifications: (i) experience in river basin management issues; (ii) experience with management and implementation of nature conservation and/or freshwater projects and in particular with EU targeted at policy-influence and decision-making; (iii) experience with project evaluation. Knowledge of UNEP programmes and GEF activities is desirable. Knowledge of Romania and Bulgarian is an advantage. Fluency in oral and written English is a must.

6. Schedule Of Payment

The consultant shall select one of the following two contract options:

Lump-Sum Option

The evaluator will receive an initial payment of 30% of the total amount due upon signature of the contract. A further 30% will be paid upon submission of the draft report. A final payment of 40% will be made upon satisfactory completion of work. The fee is payable under the individual Special Service Agreement (SSA) of the evaluator and **is inclusive** of all expenses such as travel, accommodation and incidental expenses.

Fee-only Option

The evaluator will receive an initial payment of 40% of the total amount due upon signature of the contract. Final payment of 60% will be made upon satisfactory completion of work. The fee is payable under the individual SSAs of the evaluator and is **NOT** inclusive of all expenses such as travel, accommodation and incidental expenses. Ticket and DSA will be paid separately.

In case, the evaluator cannot provide the products in accordance with the TORs, the timeframe agreed, or his products are substandard, the payment to the evaluator could be withheld, until such a time the products are modified to meet UNEP's standard. In case the evaluator fails to submit a satisfactory final product to UNEP, the product prepared by the evaluator may not constitute the evaluation report.

Annex 1 to Appendix 9: OVERALL RATINGS TABLE

Criterion	Evaluator's Summary Comments	Evaluator's Rating
A. Attainment of project objectives and results (overall rating) Sub criteria (below)		
A. 1. Effectiveness		
A. 2. Relevance		
A. 3. Efficiency		
B. Sustainability of Project outcomes (overall rating) Sub criteria (below)		
B. 1. Financial		
B. 2. Socio Political		
B. 3. Institutional framework and governance		
B. 4. Ecological		
C. Achievement of outputs and activities		
D. Monitoring and Evaluation (overall rating) Sub criteria (below)		
D. 1. M&E Design		
D. 2. M&E Plan Implementation (use for adaptive management)		
D. 3. Budgeting and Funding for M&E activities		
E. Catalytic Role		
F. Preparation and readiness		
G. Country ownership / drivenness		
H. Stakeholders involvement		
I. Financial planning		
J. Implementation approach		
K. UNEP Supervision and backstopping		

RATING OF PROJECT OBJECTIVES AND RESULTS

Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Satisfactory (S): The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Unsatisfactory (U) The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Please note: Relevance and effectiveness will be considered as critical criteria. The overall rating of the project for achievement of objectives and results **may not be higher** than the lowest rating on either of these two criteria. Thus, to have an overall satisfactory rating for outcomes a project must have at least satisfactory ratings on both relevance and effectiveness.

RATINGS ON SUSTAINABILITY

A. Sustainability will be understood as the probability of continued long-term outcomes and impacts after the GEF project funding ends. The Terminal evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, i.e. stronger institutional capacities, legal frameworks, socio-economic incentives /or public awareness. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes.

Rating system for sustainability sub-criteria

On each of the dimensions of sustainability of the project outcomes will be rated as follows.

Likely (L): There are no risks affecting this dimension of sustainability.

Moderately Likely (ML). There are moderate risks that affect this dimension of sustainability.

Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability

Unlikely (U): There are severe risks that affect this dimension of sustainability.

According to the GEF Office of Evaluation, all the risk dimensions of sustainability are deemed critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an Unlikely rating in any of the dimensions then its overall rating cannot be higher than Unlikely, regardless of whether higher ratings in other dimensions of sustainability produce a higher average.

RATINGS OF PROJECT M&E

Monitoring is a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing project with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds. Evaluation is the systematic and objective assessment of an on-going or completed project, its design, implementation and results. Project evaluation may involve the definition of appropriate standards, the examination of performance against those standards, and an assessment of actual and expected results.

The Project monitoring and evaluation system will be rated on 'M&E Design', 'M&E Plan Implementation' and 'Budgeting and Funding for M&E activities' as follows:

Highly Satisfactory (HS): There were no shortcomings in the project M&E system.

Satisfactory(S): There were minor shortcomings in the project M&E system.

Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.

Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.

Unsatisfactory (U): There were major shortcomings in the project M&E system.

Highly Unsatisfactory (HU): The Project had no M&E system.

“M&E plan implementation” will be considered a critical parameter for the overall assessment of the M&E system. The overall rating for the M&E systems will not be higher than the rating on “M&E plan implementation.”

All other ratings will be on the GEF six point scale.

GEF Performance Description	Alternative description on the same scale
HS = Highly Satisfactory	Excellent
S = Satisfactory	Well above average
MS = Moderately Satisfactory	Average
MU = Moderately Unsatisfactory	Below Average
U = Unsatisfactory	Poor
HU = Highly Unsatisfactory	Very poor (Appalling)

Annex 2 to Appendix 9: Co-financing and Leveraged Resources

Co financing (Type/Source)	IA own Financing (mill US\$)		Government (mill US\$)		Other* (mill US\$)		Total (mill US\$)		Total Disbursement (mill US\$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
- Grants										
- Loans/Concessional (compared to market rate)										
- Credits										
- Equity investments										
- In-kind support										
- Other (*)										
-										
-										
-										
-										
-										

Co-financing (basic data to be supplied to the consultant for verification)

Totals										
---------------	--	--	--	--	--	--	--	--	--	--

* Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

Leveraged Resources

Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO’s, foundations, governments, communities or the private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project’s ultimate objective.

Table showing final actual project expenditure by activity to be supplied by the UNEP Fund management Officer. (insert here)

Annex 3 to Appendix 9

Review of the Draft Report

Draft reports submitted to UNEP EOU are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff provide comments on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks agreement on the findings and recommendations. UNEP EOU collates the review comments and provides them to the evaluators for their consideration in preparing the final version of the report. General comments on the draft report with respect to compliance with these TOR are shared with the reviewer.

Quality Assessment of the Evaluation Report

All UNEP GEF Mid Term Reports are subject to quality assessments by UNEP EOU. These apply GEF Office of Evaluation quality assessment and are used as a tool for providing structured feedback to the evaluator.

The quality of the draft evaluation report is assessed and rated against the following criteria:

GEF Report Quality Criteria	UNEP EOU Assessment	Rating
A. Did the report present an assessment of relevant outcomes and achievement of project objectives in the context of the focal area program indicators if applicable?		
B. Was the report consistent and the evidence complete and convincing and were the ratings substantiated when used?		
C. Did the report present a sound assessment of sustainability of outcomes?		
D. Were the lessons and recommendations supported by the evidence presented?		
E. Did the report include the actual project costs (total and per activity) and actual co-financing used?		
F. Did the report include an assessment of the quality of the project M&E system and its use for project management?		
UNEP EOU additional Report Quality Criteria	UNEP EOU Assessment	Rating
G. Quality of the lessons: Were lessons readily applicable in other contexts? Did they suggest prescriptive action?		
H. Quality of the recommendations: Did recommendations specify the		

actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?'). Can they be implemented? Did the recommendations specify a goal and an associated performance indicator?		
I. Was the report well written? (clear English language and grammar)		
J. Did the report structure follow EOU guidelines, were all requested Annexes included?		
K. Were all evaluation aspects specified in the TORs adequately addressed?		
L. Was the report delivered in a timely manner		

GEF Quality of the MTE report = 0.3*(A + B) + 0.1*(C+D+E+F)

EOU assessment of MTE report = 0.3*(G + H) + 0.1*(I+J+K+L)

Combined quality Rating = (2* 'GEF EO' rating + EOU rating)/3

The Totals are rounded and converted to the scale of HS to HU

Rating system for quality of terminal evaluation reports

A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1, and unable to assess = 0.

GEF Minimum requirements for M&E

Minimum Requirement 1: Project Design of M&E¹²

All projects must include a concrete and fully budgeted monitoring and evaluation plan by the time of Work Program entry (full-sized projects) or CEO approval (medium-sized projects).

This plan must contain at a minimum:

- SMART (see below) indicators for project implementation, or, if no indicators are identified, an alternative plan for monitoring that will deliver reliable and valid information to management
- SMART indicators for results (outcomes and, if applicable, impacts), and, where appropriate, corporate-level indicators
- A project baseline, with:
 - a description of the problem to address
 - indicator data
 - or, if major baseline indicators are not identified, an alternative plan for addressing this within one year of implementation
- An M&E Plan with identification of reviews and evaluations which will be undertaken, such as mid-term reviews or evaluations of activities
- An organizational setup and budgets for monitoring and evaluation.

¹² <http://gefweb.org/MonitoringandEvaluation/MEPoliciesProcedures/MEPTools/meptstandards.html>

Minimum Requirement 2: Application of Project M&E

Project monitoring and supervision will include implementation of the M&E plan, comprising:

- Use of SMART indicators for implementation (or provision of a reasonable explanation if not used)
- Use of SMART indicators for results (or provision of a reasonable explanation if not used)
- Fully established baseline for the project and data compiled to review progress
- Evaluations are undertaken as planned
- Operational organizational setup for M&E and budgets spent as planned.

SMART INDICATORS GEF projects and programs should monitor using relevant performance indicators. The monitoring system should be “SMART”:

1. **Specific:** The system captures the essence of the desired result by clearly and directly relating to achieving an objective, and only that objective.
2. **Measurable:** The monitoring system and its indicators are unambiguously specified so that all parties agree on what the system covers and there are practical ways to measure the indicators and results.
3. **Achievable and Attributable:** The system identifies what changes are anticipated as a result of the intervention and whether the result(s) are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.
4. **Relevant and Realistic:** The system establishes levels of performance that are likely to be achieved in a practical manner, and that reflect the expectations of stakeholders.
5. **Time-bound, Timely, Trackable, and Targeted:** The system allows progress to be tracked in a cost-effective manner at desired frequency for a set period, with clear identification of the particular stakeholder group to be impacted by the project or program.

Annex 5 to Appendix 9

List of intended additional recipients for the Terminal Evaluation (to be completed by the IA Task Manager)

Name	Affiliation	Email
Aaron Zazueta	GEF Evaluation Office	azazueta@thegef.org
Government Officials		
GEF Focal Point(s)		
Executing Agency		
Implementing Agency		
	UNEP DGEF Quality Assurance Officer	

Appendix 10: Decision-making flowchart and organizational chart

DIVISION OF RESPONSIBILITIES

This project will be operated under the supervision of Governments of Ecuador and Peru, through their respective national environmental authorities, as part of the Steering Committee (SC). UNEP is the GEF Implementing Agency, while the Consortium for the Sustainable Development of the Andean Eco-Region (CONDESAN) will manage the project's daily operations at the international, bi-national, national and local levels. CONDESAN is an international organization with main headquarters in Lima, Peru, and a branch office in Quito, Ecuador, where most of the technical capacity of the organization, relevant to this project, is installed.

Working jointly with the provincial governments of Carchi, and Tungurahua, as well as the Municipality of Quito in Ecuador and the regional governments of Piura and Huancavelica in Peru, the project will develop intervention or demonstration sites. Other local governments, rural communities, including farm families, will actively participate in the development of the intervention sites.

Promotion, implementation, and validation of sustainable forest and land management practices will be prioritized at the interventions sites, closely aligning the project with UNEP's environmental management policies and practices. Outreach and up scaling of project outcomes will be continued by the participating national ministries, local governments and rural communities once the project has terminated.

INTERNAL STRUCTURE

Project Headquarters (PH) will be located in Quito. Staff working from this office includes the Project Manager (PM), Monitoring and Evaluation Officer (MEO - EC), Administrative Assistant Principal (AAP) and Thematic Experts (TE). One TE will be hired to lead the implementation of each of the three development components. A Monitoring and Evaluation Officer (MEO - PE) and an Administrative Assistant (AA) will work in the office of CONDESAN Lima. Local and international consultants will be hired to support project execution in both countries.

At least 4 Bi-national Technical Working Groups (BTWG) will be established. The purpose of these groups is to formulate technical thematic recommendations to help the project meet its outcomes and outputs, and promote interchange between Ecuador and Peru. National ministries and local governments will name Focal Points (FPs) to serve on these groups. Other participants include project staff members, specialists, consultants, local focal points and partner institutions. Chaired by the PM the BTWGs will meet as convened. In order to promote interchange between the BTWG and the SC, meetings will be timed to coincide with SC meetings.

EXTERNAL STRUCTURE

During the preparation phase potential stakeholder's involvement in the project was examined at different levels, with special attention given to existing programs that could support project activities. Approximately 45 possible synergies and inter-institutional alliances promoting greater efficiency and effectiveness in the use of project resources have been identified. These organizations include national and international NGOs, aid agencies, research organizations

and development projects. For more information on stakeholder involvement, please see section 2.5 Stakeholder mapping and analysis.

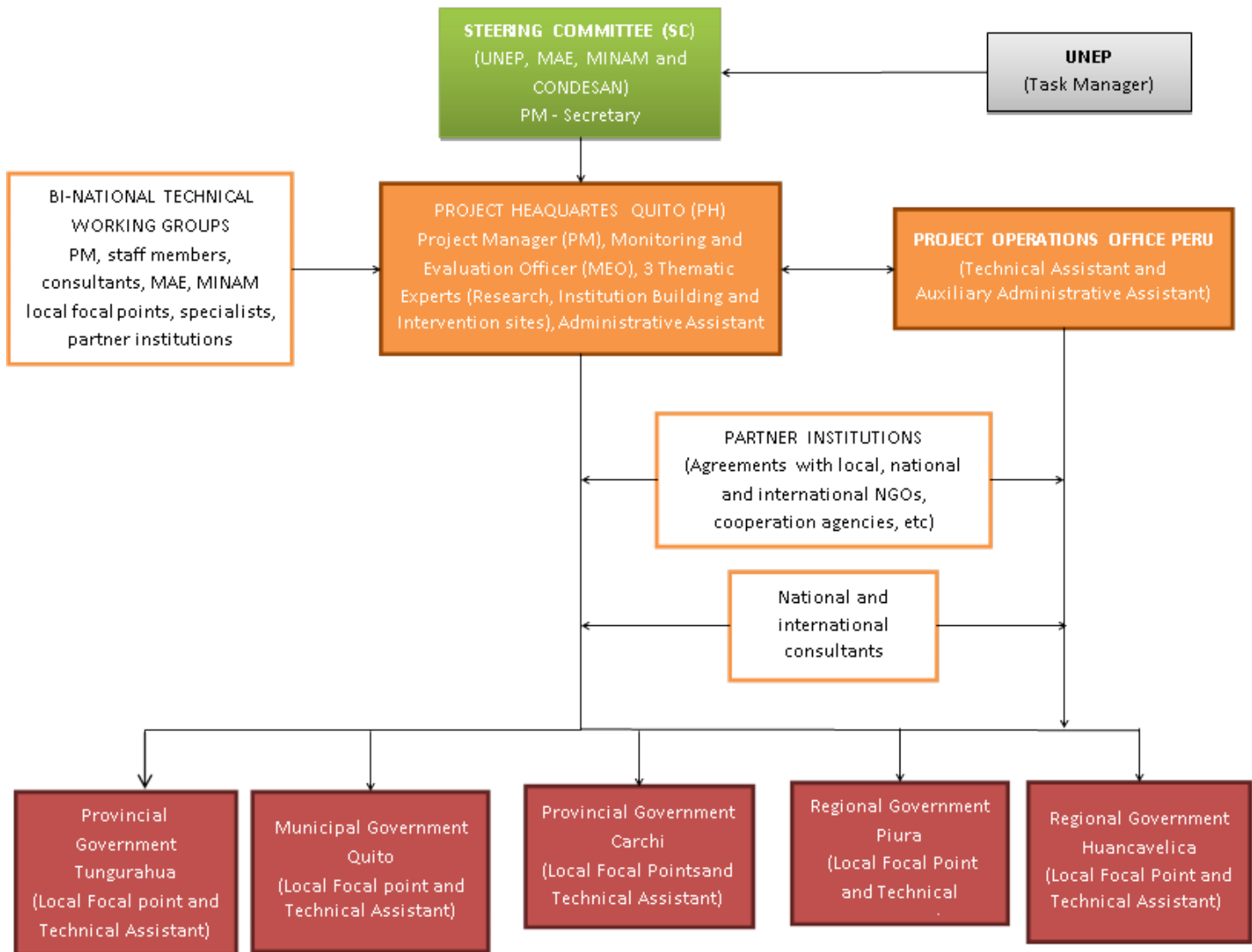
OVERSIGHT MECHANISMS

One high-ranking official of the national ministries of environment, CONDESAN and the UNEP Task Manger conform the Steering Committee (SC). In practical terms the SC is responsible for ensuring that the project meets goals announced in the Project Result Framework by helping to balance conflicting priorities and resources. The SC will be chaired by the Task Manager. The PM will act as the Committee Secretary. This committee will meet every six months.

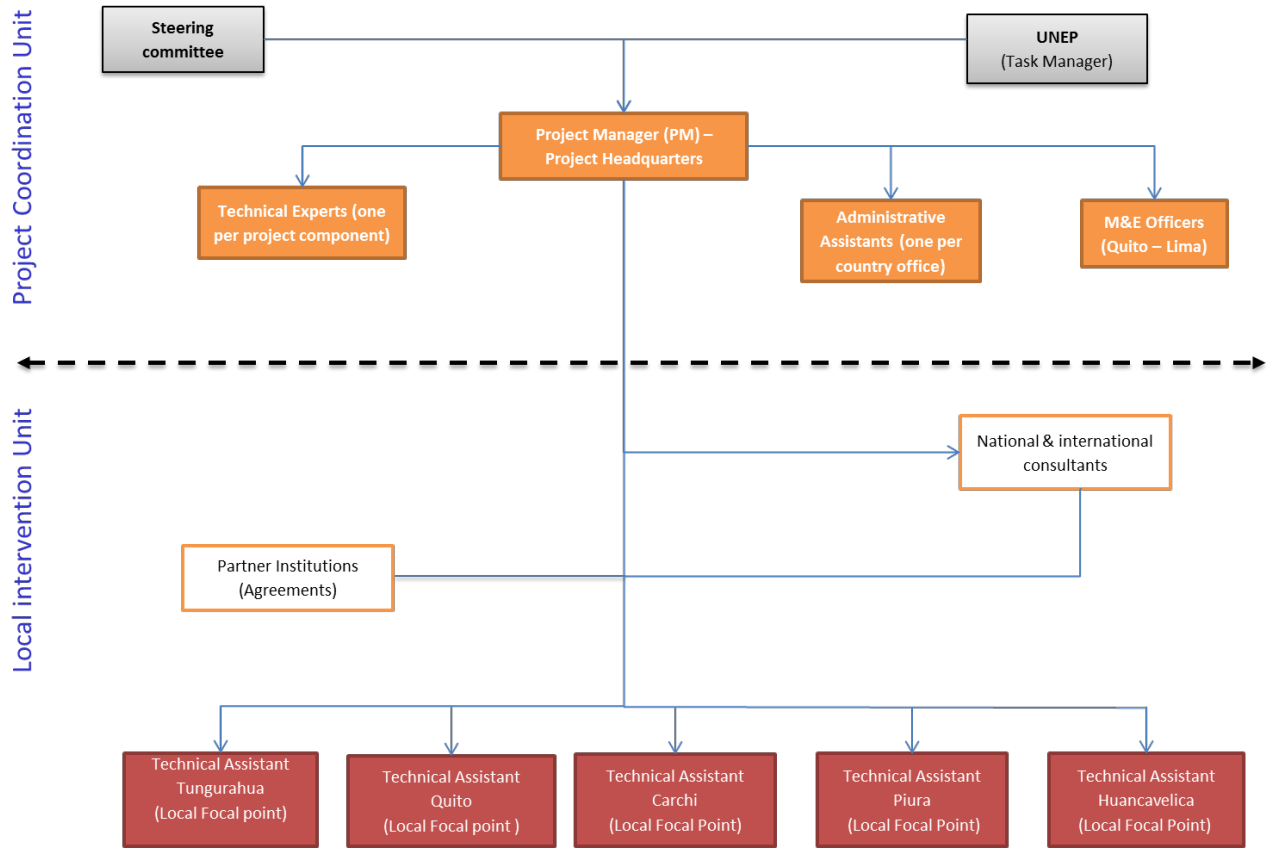
This SC will issue reports on progress by the project and make recommendations concerning the need to revise any aspects of the Project Results Framework, Theory of Change Chart or the M&E plan. Supervision to ensure that the project meets UNEP and GEF policies and procedures is the responsibility to the UNEP-GEF Task Manager. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

A mid-term management review or evaluation will take place at the mid-point in the project. An independent terminal evaluation will take place 6 months prior to the end of project. The Evaluation and Oversight Unit (EOU) of UNEP will manage the terminal evaluation process. A review of the quality of the evaluation report will be done by EOU and submitted along with the report to the GEF Evaluation Office not later than 6 months after the completion of the evaluation.

PROJECT EXTERNAL STRUCTURE



PROJECT INTERNAL STRUCTURE



Appendix 11: Terms of Reference

Separate compressed file

Appendix 12: Co-financing commitment letters from project partners

Separate pdf file

Appendix 13: Endorsement letters of GEF National Focal

Separate pdf file

Appendix 14: Draft procurement plan

UNEP/GEF Project Procurement Plan

(with examples in green text; please delete when filling out the form)

Project title and number: Multiplying environmental and carbon benefits in the High Andean ecosystems of Ecuador and Peru

UNEP Budget Line		List of Goods and Services required	Budget (USD)	Year {Note 1}	Brief description of anticipated procurement process {Note 2}
1200	Consultants				
1201	Technical Assistant (Huncavelica, Peru)	Natural resources management specialist with experience leading local/community development projects	147,200	1,2,3,4	a) ToRs will be circulated asking for CVs and an intention letter, b) All CVs will be reviewed and 5 persons will be pre-selected by CONDESAN, c) The final selection will be held in coordination with local partner institutions,
1202	Tecnical Assistant (Puirá, Peru)	Natural resources management specialist with experience leading local/community development projects	147,200	1,2,3,4	
1203	Tecnical Assistant (Carchi, Ecuador)	Natural resources management specialist with experience leading local/community development projects	147,200	1,2,3,4	
1204	Tecnical Asistant (Tugurahua, Ecuador)	Natural resources management specialist with experience leading local/community development projects	147,200	1,2,3,4	
1205	Technical Assistant (Pichincha, Ecuador)	Natural resources management specialist with experience leading local/community development projects	147,200	1,2,3,4	
2100	Sub-contracts (MOUs/LOAs for cooperating agencies)				
2200	Sub-contracts (MOUs/LOAs for supporting organizations)				
2201	Sub contracts for support consultants,	Diverse experts needed to technically support the implementation of activities in each project site and at the national level,	720,000	1,2,3,4	For consultancies less than USD 40,000: a) ToRs will be developed stating products and expertise needed;

		Number and specifics of contracts to be defined during project implementation,			<ul style="list-style-type: none"> b) ToRs will be circulated among contacts asking for CV and letter of interest; c) PM and TAs will select the consultant; d) Executive Director and Administrator will authorize contract, <p>For consultancies equal or higher than USD 40,000:</p> <ul style="list-style-type: none"> a) ToRs will be developed stating products and expertise needed; b) ToRs will be circulated, asking for CVs, a technical and economic proposal, c) PM, TAs and Administrator will revise and select the 3 best proposals, d) PM, TAs, the Administrator, and CONDESAN's Executive Director will interview 3 selected proponents, and select final consultant, <p>In both cases, if the needed services are to support directly specific local processes lead by partner institutions (local governments), this institutions will participate in the selection process,</p>
2202	Sub contracts for supporting institutions,	Contracts for activities to be executed directly by local partner institutions, Number and specifics of contracts to be defined during project implementation,	420,000	1,2,3,4	ToRs will be negotiated with partner institutions (activities, products, budget, etc,), Agreements and/or contracts will be subscribed,
2300	Sub-contracts (for commercial purposes)				
4200	Non-expendable equipment				

4201	Non-expendable equipment (field transport)	Five 4x4 vehicles	150,000	1,2	a) Define characteristics, brand and post buying benefits (guarantee,etc) of vehicles, b) Buy directly from the local representation auto shop to guarantee post sale benefits,
4202	Field equipment	Computers, GPS, data loggers, others,	92,000	1,2,3	a) Define characteristics of needed equipment, b) Obtain 3 offers from different providers, c) PM and Administrator will authorize,
4203	Satellite imagery	High resolution satellite images of project sites,	55,000	1,4	a) Define characteristic of the needed imagery (area, resolution, year, etc.) b) Buy directly from international or national providers,
GRAND TOTAL			2,173,000		

Note 1 - Year when goods/services will be procured

Note 2 - Based on your organization's procurement procedures, and in compliance with UNEP rules and procedures, briefly explain how the service provider/consultant/vendor will be selected

Appendix 15: Tracking Tools

Separate compressed file with eight tracking tool documents corresponding to four focal areas for each country.

Appendix 16: Theory of Change Exercise

STRATEGIES	OUTCOMES	DRIVERS & ASSUMPTIONS	INTERMEDIATE STATES	IMPACT
<p>STRATEGY #1: Knowledge and tools</p>	<p>Outcome 1.1: Knowledge base expanded on high Andean ecosystem dynamics and the effects that GEC have on biodiversity and carbon stocks and on the multiple environmental and social benefits they provide.</p>	<p>Research community collaborative agreements support knowledge generation, to assure scientific quality and relevance to resource management processes in the Andes.</p>	<p>Expanded knowledge base on Andean ecosystem dynamics available and accessible for decision making processes.</p>	<p>BIODIVERSITY AND CARBON STOCKS MAINTAINED OR ENHANCED</p>
	<p>Outcome 1.2: DM accessed increased to knowledge base and practices for SM Andes.</p>			
<p>STRATEGY #2: Mainstreaming and capacity building</p>	<p>Outcome 2.1: Enabling environment in place to integrate multiple benefits in cross-sectoral planning tools at the wider landscape.</p>	<p>National and local decision makers committed to promoting conservation and sustainable management of Andean ecosystems.</p> <p>National Incentive programs and cross sectorial collaborative agreements support implementation of regional and local conservation initiatives.</p> <p>Decentralization and land planning policies in Ecuador and Peru continue as established during project lifetime, and support the maintenance of key environmental benefits of High Andean ecosystems.</p>	<p>Stakeholders implement plans and development programs that properly deal with threats/barriers to Andean ecosystems</p>	

STRATEGIES	OUTCOMES	DRIVERS & ASSUMPTIONS		INTERMEDIATE STATES	IMPACT
	<p>Outcome 2.2: Institutional capacities enhanced to apply knowledge and INRM tools that support policies, integrated land use plans and ongoing programs for the conservation and sustainable management of critical high-Andean ecosystems, including Andean forests.</p>				
<p>STRATEGY #3: Intervention sites</p>	<p>Outcome 3.1: Sustainable livelihood strategies and key productive value chains strengthened at intervention sites to address barriers and support SLF/SFM practices.</p>	<p>Tools, SLM/SFM practices and lessons learned in the project are integrated into national, regional and local land use management and development plans.</p> <p>A stable group of representative decision makers and technicians are actively involved in project execution at intervention sites during project lifetime.</p>		<p>Reduced land degradation as a result conservation schemes and best land and forestry practices implemented at intervention sites</p>	
	<p>Outcome 3.2: Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands in the high Andes.</p>				

STRATEGIES	OUTCOMES	DRIVERS & ASSUMPTIONS	INTERMEDIATE STATES	IMPACT
STRATEGY #4: Outreach and up scaling	Outcome 4.1: National environmental authorities in Ecuador and Peru incorporate science based knowledge and tools developed by the project into their MRV systems and financial incentive programs.	National Incentive programs and cross sectorial collaborative agreements support implementation of regional and local conservation initiatives. Local governments continue to take interest in mainstreaming biodiversity and carbon benefits into their development plans.	Participating local governments disseminating and upscaling conservation and best land and forestry practices	
	Outcome 4.2: Knowledge, tools and lessons learned disseminated among other local governments and key stakeholders outside the project intervention sites.			

Appendix 17: Environmental and social safeguards checklist

As part of the GEFs evolving Fiduciary Standards that Implementing Agencies have to address 'Environmental and Social Safeguards'. To fill this checklist:

- STEP 1: Initially assess E&S Safeguards as part of PIF development. The checklist is to be submitted for the CRC.
- STEP 2 : Check list is reviewed during PPG project preparation phase and updated as required
- STEP 3 : Final check list submitted for PRC showing what activities are being undertaken to address issues identified

UNEP-GEF Environmental and Social Safeguards Checklist

Project Title:	Multiplying environmental and carbon benefits in high Andean ecosystems		
GEF project ID and UNEP ID/IMIS Number	4750	Version of checklist	First draft
Project status (preparation, implementation, MTE/MTR, TE)	Preparation	Date of this version:	12.07.2013
Checklist prepared by (Name, Title, and Institution)			

In completing the checklist both short- and long-term impact shall be considered.

Section A: Project location

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/No/N.A.	Comment/explanation
- Is the project area in or close to -		
- densely populated area	yes	
- cultural heritage site	yes	
- protected area	yes	
- wetland	yes	
- mangrove	no	
- estuarine	no	
- buffer zone of protected area	yes	
- special area for protection of biodiversity	yes	
- Will project require temporary or permanent support facilities?	no	
<i>If the project is anticipated to impact any of the above areas an Environmental Survey will be needed to determine if the project is in conflict with the protection of the area or if it will cause significant disturbance to the area.</i>		

Section B: Environmental impacts

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/No/N.A.	Comment/explanation
- Are ecosystems related to project fragile or degraded?	yes	
- Will project cause any loss of precious ecology, ecological, and economic functions due to construction of infrastructure?	no	

- Will project cause impairment of ecological opportunities?	no	
- Will project cause increase in peak and flood flows? (including from temporary or permanent waste waters)	no	
- Will project cause air, soil or water pollution?	no	
- Will project cause soil erosion and siltation?	no	
- Will project cause increased waste production?	no	
- Will project cause Hazardous Waste production?	no	
- Will project cause threat to local ecosystems due to invasive species?	no	
- Will project cause Greenhouse Gas Emissions?	no	
- Other environmental issues, e.g. noise and traffic	no	
<i>Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily both in the short and long-term, can the project go ahead.</i>		

Section C: Social impacts

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/No/ N.A.	Comment/explanation
- Does the project respect internationally proclaimed human rights including dignity, cultural property and uniqueness and rights of indigenous people?	yes	
- Are property rights on resources such as land tenure recognized by the existing laws in affected countries?	yes	
- Will the project cause social problems and conflicts related to land tenure and access to resources?	no	
- Does the project incorporate measures to allow affected stakeholders' information and consultation?	yes	
- Will the project affect the state of the targeted country's (-ies') institutional context?	yes	The project will increase institutional capacities of both Ecuador and Peru to provide multiple environmental and social benefits.
- Will the project cause change to beneficial uses of land or resources? (incl. loss of downstream beneficial uses (water supply or fisheries)?	no	
- Will the project cause technology or land use modification that may change present social and economic activities?	yes	All technological changes delivered by the project will involve practices that offer benefits to local inhabitants.
- Will the project cause dislocation or involuntary resettlement of people?	no	
- Will the project cause uncontrolled in-migration (short- and long-term) with opening of roads to areas and possible overloading of social infrastructure?	no	
- Will the project cause increased local or regional unemployment?	no	
- Does the project include measures to avoid forced or child labour?	NA	
- Does the project include measures to ensure a safe and healthy working environment for workers employed as part of the project?	yes	
- Will the project cause impairment of recreational opportunities?	no	
- Will the project cause impairment of indigenous people's livelihoods or belief systems?	no	
- Will the project cause disproportionate impact to women or other disadvantaged or vulnerable groups?	no	
- Will the project involve and or be complicit in the alteration, damage or removal of any critical cultural heritage?	no	
- Does the project include measures to avoid corruption?	NA	
<i>Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily both in the short and long-term, can the project go ahead.</i>		

Section D: Other considerations

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	<i>Yes/No/N.A.</i>	<i>Comment/explanation</i>
- Does national regulation in affected country (-ies) require EIA and/or ESIA for this type of activity?	N.A.	
- Is there national capacity to ensure a sound implementation of EIA and/or SIA requirements present in affected country (-ies)?	N.A.	
- Is the project addressing issues, which are already addressed by other alternative approaches and projects?	yes	
- Will the project components generate or contribute to cumulative or long-term environmental or social impacts?	yes	
- Is it possible to isolate the impact from this project to monitor E&S impact?	yes	

Appendix 18: Responses to Reviews

Responses to Comments from GEF Secretariat:

At time of CEO endorsement, please address comments in questions 8, 11, 14, 19, 20, 24b.

8. Are the relevant GEF 5 focal/multifocal areas/LDCF/SCCF/NPIF objectives identified?

At CEO endorsement, it needs to be very clear that the SFM funding is being spent on forest land not nonforestland.

This project contributes directly to GEF's strategic goals #1, #2 and #3: Conserve, sustainably use, and manage biodiversity, ecosystems and natural resources globally, taking into account the anticipated impacts of climate change; Reduce global climate change risks by stabilizing atmospheric GHG concentrations through emission reduction actions, and assisting countries to adapt to climate change, including variability; and Build national and regional capacities and enabling conditions for global environmental protection and sustainable development. In particular, the project is in accordance to SO # 2 in Biodiversity Focal Area, SO # 5 in the Climate Change, SO # 3 in Land Degradation and SO # 1 and SO # 2 in Sustainable Forest Management. Furthermore, the SFM funding will be implemented through outcome 3.2 of component 3: Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands in the high Andes. Based on this component the following outputs related to forest lands will be achieved: (1) 5,000 ha of Upper Montane Forest under conservation or sustainable forest management; (2) 4,000 ha of community plantations and agroforestry systems using native tree species (85% survival rate); and (3) 2,000 ha of commercial plantations. These outcomes contribute to several indicators of the Tracking Tool for SFM (see TT-SFM for details). A fundamental aspect to accomplish these outcomes relies on the counterpart funding of the Project. The National Incentive Program for Reforestation of MAE will invest up to US\$ 3 million dollars for SFM and LD in forested lands at the wider landscape in Ecuador's intervention sites. In the same way the joint program PRODERM of MINAM and Belgium cooperation will invest up to US\$ 2 hundred thousand dollars for forest management in the Huancavelica intervention site. Finally, the Regional Government of Piura together with the local NGO NCI will contribute with cofinancing resources to implement SFM practices at the Ayabaca intervention site.

11. Is (are) the baseline project(s), including problem (s) that the baseline project(s) seek/s to address, sufficiently described and based on sound data and assumptions?

There are a number of ongoing activities including UN-REDD which are being developed. At CEO endorsement, please ensure these are included in the baseline project.

Since 2009—and with a funding up to US\$ 4 million—Ecuador is part of the UN-REDD Program. The Ministry of Environment (MAE), as the national environmental authority, has started the implementation of the National REDD + (PN-REDD +) whose objectives are i) to mitigate climate change by reducing emissions, and ii) good use of forest resources to control deforestation. PN-REDD aims to: 1) develop incentive systems for both conservation and afforestation, reforestation and sustainable forest management, 2) enhance forest control and articulate national efforts to comply with model of forest governance proposed by MAE, 3) Establish a Monitoring, Register and Verification (MRV) System, and 4) the regularization of land tenure in coordination with the Ministry of Agriculture (MAGAP). Very recent, MAE has established official guidelines for the

implementation of REDD+ activities in the country, primarily targeting the national jurisdiction. This explains the urgency to support efforts to establish and develop a comprehensive MRV system aligned with further conservation activities and forest sustainable management at national and regional scales. Further, the PN-REDD expects to have accomplished the following results by the end of 2013: 1) national implementation of a REDD+ consultation process involving civil society, and local (indigenous communities); 2) development of policies and instruments for the implementation of REDD+; 3) development of the operational framework for the implementation of REDD+; 4) assurance of multiple environmental and social benefits; and 5) design and implementation of a benefit-sharing system.

Ecuador is now close to complete the National Forests Inventory (FAO/Finlandia) measuring carbon stocks in all five carbon pools in forest lands. Results are expected by the publicly available at the end of 2013. The government has also carried out Ecuador's official Historical Deforestation Map (1990-2000-2008) and is currently updating the information until 2013. These efforts are being used as the basis to establish a permanent Monitoring and Evaluation Unit within MAE, in charge of initial activities to design and implement an MRV system at national scale. These include establishing reference scenarios for GHG emissions in LULUCF with the support of UNEP/GIZ/KFW. Additionally, REDD+ SES (Social and Environmental Standards) is being applied into the National REDD+ Strategy to assess the social and environmental quality of the design phase, recognizing the importance of considering multiple benefits. A spatial assessment of co-benefits was carried out by UNEP/WCMC at the national scale. Such assessment recalls the need to generate detailed data on SOC stocks, especially in the Andes, where preliminary results based on global data on soil carbon revealed that the contribution of Andean ecosystems might be even larger than low-land forests once SOC is considered. In this respect, it has been agreed with MAE to assist them in designing and implementing the methodology to estimate current carbon contents in high Andean ecosystems with primary emphasis in the paramos and wetlands of the four intervention sites, and from there upscale the results to a national basis. In this respect the MAE is contributing with 1 million US\$ to carry out this task.

In the case of Peru, a REDD+ Readiness Preparedness Plan (RPP) has been implemented and submitted to the Forest Carbon Partnership Facility (FCPF)/World Bank. Funding has been allocated to enable Peru to move ahead with the preparation for Readiness, and as a FIP country they are starting the design of Peru's Investment Plan. Same as Ecuador, an important step is the preparation of the National Forests Inventory (FAO/Finlandia), which has recently started and preliminary results for selected case studies in the Amazon. Additional funding provided by KFW and the Gordon and Betty Moore Foundation seeks to foster scientific and technical capacities for carbon monitoring developing the national MRV system and reference scenarios at subnational levels in five regions (mainly amazon and dry forests).

Complementarily, both countries have established incentive based policies to conserve biodiversity in private and communal lands (i.e. government financed PES schemes). In Ecuador Socio Bosque invested over 7 million per year through direct payments in over 1 million ha and more than 123,000 beneficiaries until Oct. 2012. Of these areas, at least 6% corresponds to high Andean ecosystems, including Andean forests and paramos. Currently, Socio Bosque is working in a strategy to promote restoration practices in degraded lands, though neither on-the-ground activities have been developed in the program, nor critical degraded areas to be targeted have been identified. A priority within the program is to foster monitoring efforts that can account for the enhancement of multiple benefits—both social and ecological. In Peru, the National Forest

Conservation Program, aiming to conserve 54 million hectares of forests by 2021, was officially launched in 2009, yet the program is still under design and no clear criteria to prioritize conservation areas or monitor individuals' compliance and ecosystem services enhancement have been envisioned. Both programs can play a key role to support ecosystem services in human-dominated landscapes densely inhabited as the Andes. Nonetheless, as many other similar government programs in Latin America (i.e. government financed PES), addressing specific design, implementation and monitoring caveats will greatly enhance the provision of multiple benefits and its contribution to GEBs.

In the case of Peru, a REDD+ Readiness Preparedness Plan (RPP) has been implemented and submitted to the Forest Carbon Partnership Facility (FCPF)/World Bank. Funding has been allocated to enable Peru to move ahead with the preparation for Readiness, and as a FIP country they are starting the design of Peru's Investment Plan. Same as Ecuador, an important step is the preparation of the National Forests Inventory (FAO/Finlandia), which has recently started and preliminary results for selected case studies in the Amazon. Additional funding provided by KfW and the Gordon and Betty Moore Foundation seeks to foster scientific and technical capacities for carbon monitoring developing the national MRV system and reference scenarios at subnational levels in five regions (mainly Amazon and dry forests).

14. Is the project framework sound and sufficiently clear?

a) Responses indicate transboundary cooperation will be developed during the PPG. By CEO endorsement, a clear concise approach and mechanism for transboundary cooperation is needed.

The transboundary cooperation will be focus on technical discussion to conserve and restore high Andean ecosystems. At least 4 thematic working groups—including the participation of national authorities, individual researchers and research institutions—formed or strengthened to replicate project actions in areas beyond intervention sites. Working groups will address key thematic areas for the project such as Sustainable Forest Management, biodiversity and carbon maintenance and enhancement, Land Use and Land Cover Change monitoring, land restoration, among others. Thematic Working Groups will act as small 'learning and sharing groups' that can complement project findings and boost up environmental mainstreaming within existing efforts.

Further, Bi-national Working Groups (BNWG) will assist in the implementation of specific aspects of the project. Two groups will be established in the first year: a group for monitoring and evaluation of environmental services, and a group for promotion of sustainable land and forest management practices. Comprised mainly of experts selected from national ministries and Regional Governments and supported by project staff and national or international consultants, the BNWG will be instrumental in promoting interchange between Ecuador and Peru. Other bi-national working groups can be added as needed.

b) By CEO endorsement, a clear description of the innovative financing is needed.

The Ecuadorian government has launched two complementary reforestation programs by the Ministry of Agriculture (MAGAP) and MAE with a time frame of 5 years, 2013-2017. These programs offer direct payments to land-owners to establish commercial/productive tree plantations (USD 1,558/ha in the case of MAGAP for the Andean highlands) or reforestation areas to recover degraded lands on forested high Andean ecosystems (USD 830/ha in the case of MAE). Although

both programs are expected to execute significant investments in the future years (US\$ 360 MY for MAGAP and 90 MY for MAE), a critical matter is to ensure the effectiveness of such interventions. These include targeting suitable and priority areas, guarantee high levels of tree survival (>80%), and avoid negative externalities. Both programs also require establishing viable implementation schemes and appropriate institutional arrangements to effectively transfer funding on the ground. Project synergies with all the national incentive programs have been discussed with key authorities and potential contributions identified to avoid duplicating actions or lack of coordination. Instead key activities to support and assist them will be developed by the project to maximize the effectiveness of such interventions and foster transectorial coordination.

Complementarily, both countries have established incentive based policies to conserve biodiversity in private and communal lands. In Ecuador since 2008, Socio Bosque invested over 7 million per year through direct payments in over 1,2 million ha and more than 123,000 beneficiaries until Oct. 2012. Of these areas, at least 30% corresponds to high Andean ecosystems, including cloud forests and paramos. Currently, Socio Bosque is working in a strategy to promote restoration practices in degraded lands, though neither on-the-ground activities have been developed in the program, nor critical degraded areas to be targeted have been identified. A priority within the program is to foster monitoring efforts that can account for the enhancement of multiple benefits—both social and ecological. In Peru, the National Forest Conservation Program, aiming to conserve 54 million hectares of forests by 2021, was officially launched in 2009, yet the program is still under design and no clear criteria to prioritize conservation areas or monitor individuals' compliance and ecosystem services enhancement have been envisioned. Both programs can play a key role to support ecosystem services in human-dominated landscapes densely inhabited as the Andes. Nonetheless, as many other similar government programs in Latin America (i.e. government financed PES), addressing specific design, implementation and monitoring caveats will greatly enhance the provision of multiple benefits and its contribution to GEBs.

During the Preparation Phase it was clear that national authorities were not interested in creating a new financing mechanism but to strengthen current ongoing national incentive programs aimed at conserve biodiversity, enhance carbon stocks and reduce deforestation rates (i.e. government financed PES schemes). In this sense it was agreed with both Ministries to prioritize Project endeavors into technical assistantship towards these programs. Several arrangements for joint collaboration were agreed with national authorities and Programs directors.

These agreements are translated into project co-financing (please refer to table C, section 1)—up to 4.5 M US\$ in Ecuador and 1.6 M US\$ in Peru— earmarked for related activities in the project's intervention sites, as well as concrete collaborative actions, such as: i) strengthen protocols for monitoring carbon and biodiversity dynamics in High Andean ecosystems, ii) validation of protocols and criteria for the reforestation programs together, iii) technical support to establish indicators and criteria for restoring degraded lands in non-forest ecosystems, and iv) improve implementation models and arrangements with local stakeholders. Additionally, in the case of **Ecuador**, the project will support the Socio-Bosque Program by increasing the area of paramo and upper montane forest under conservation agreements as well as with tested actions and practices related to monitoring Program's impact on preserving valuable biodiversity areas as well as carbon stocks in the intervention sites. The project will also support national incentive programs to upscale and increase country-wide impacts in both countries through technical guidelines (tested and validated in Components 1 and 3) and establish rigorous and cost-effective monitoring systems. These include activities to evaluate environmental and socioeconomic impacts, target key

areas that can provide multiple environmental and carbon global benefits, and control for spatial demand spillovers, which are typical shortcomings among national incentive programs and PES elsewhere (STAP-GEF 2010¹³).

d&e) Revision indicates that biodiversity monitoring will be funded out of biodiversity funding, and this is also expected to be the case at CEO endorsement. In terms of carbon inventory and monitoring, at CEO endorsement clear concise details about the system and how it is coordinated with all the other monitoring and inventory work including the national forest inventory are expected.

Component 1, Research & Tools, allocated US\$ 1,092,513 of the requested GEF budget (~23%) with a co-financing of ~ US\$ 2.8 million with the objective enable national and local counterpart institutions to assess synergies between biodiversity and carbon benefits in the high Andes. This will be achieved by developing science-based tools¹⁴ that support decision-making, policy formulation and design more effective SLM/SFM practices. Addressing key knowledge gaps that undermine sustainable management of these fragile ecosystems and developing appropriate tools to support more effective management practices (Component 3) and policies (Component 2) is critical for protecting these ecosystems and enhance multiple benefits.

Further, the expanded knowledge base will allow a broad comprehension of high Andean ecosystems dynamics subject to different land use patterns (Outcome 1.1). This component will primarily operate at intervention sites—carefully chosen in both countries—to analyze different environmental and degradation gradients. In order to attain a comprehensive analysis between all intervention sites, it is necessary to develop replicable and cost-effective protocols and appropriate monitoring systems. This will be achieved by the establishment of an integrated environmental monitoring system of biodiversity, carbon stocks and land-use dynamics at each intervention site. Adjusting and validating existing protocols in the field will offer the scientific basis to infer trends and patterns at the landscape scale in the future. The selected intervention sites include an array of biophysical and socioeconomic characteristics, as well as existing and historical land use patterns, in order to have a set of representative areas of the diversity of the Ecuadorian and Peruvian Andes. The monitoring systems established at each site, will be strongly linked with the national monitoring programs implemented by the Ministries of Environment through the adoption of common standards for data generation, management, and quality assurance.

In terms of carbon accounting and monitoring, these task will be based on Condesan's protocol developed and validated from 2012-2013 to estimate carbon pools and fluxes along environmental gradients in high Andean ecosystems (Calderón et al. 2013). This protocol present a tailor made protocol to estimate Above Ground Biomass (AGB), Below Ground Biomass (BGB) and soil organic matter (SOC) at different depths. These protocol is been already applied in one of the intervention sites and their results have been shared and discussed with the National Forestry Program of both countries. In the case of Ecuador, it's been agreed with MAE this protocol will be

¹³ Wunder, S., S. Wertz-Kanounnikoff, P. Ferraro. 2010. Payments for Environmental Services and the Global Environment Facility: A STAP advisory document. STAP GEF/UNEP. Washington DC.

¹⁴ Science-based tools (SBT) consist of a variety of tools to assist conservation professionals in developing effective strategies for averting biodiversity loss, carbon enhancement and natural resource management. These tools range from sophisticated analytical simulation software for studying carbon dynamics to methods and guidelines addressing critical decision-making needs.

used to estimate and monitor carbon pools in High Andean ecosystems. In the case of Peru, further work is needed. This will be done during PY1.

f) Revision includes discussion of the Carbon Benefits Project. The CEO endorsement document should include specific details about how the CBP developers will be engaged in this project.

Component 1 will also incorporate tools developed earlier by the Carbon Benefits Project (GEF-UNEP). During its implementation phase (PY1), the project will use the CBP Simple Assessment tool to conduct an ex-ante analysis of C-benefits in the project region, establishing a baseline and the project scenario. The baseline will take into account LUC dynamics in the intervention areas and consider the expected land use/management situation change during the project (e.g. forest land, grassland, wetlands, annual cropland, perennial cropland, settlements, livestock). Complementarily, a Measurement and Monitoring Plan will be developed taking into account the CBP framework developed in order to include carbon pools and emissions that will improve the project's overall C/GHG estimate and improve the GEF Tracking Tool indicators for climate change and SFM. So far, interaction with CBP's technical team is ongoing to identify ways of further collaboration regarding on-the-ground application of the CBP tools and feedback for their refinement. Additionally, new information and knowledge from C1 regarding high Andean ecosystems dynamics will be used to improve the methodology for modeling, measuring and monitoring carbon stocks and GHG mitigation benefits of this project.

Additionally, CONDESAN has established contact with the Sustainable Wetlands Adaptation and Mitigation Program (SWAMP), which is a collaborative effort by the Center for International Forestry Research (CIFOR), the USDA Forest Service (USFS) and Oregon State University with funding from the US Agency for International Development (USAID). Acknowledging that most countries do not have sufficient information to include wetlands in their national reporting nor to develop plans for avoiding GHG emissions from wetland degradation, SWAMP is developing robust scientific approaches and methodologies to account carbon stocks in peatlands. Collaboration with SWAMP will be useful for the project to generate relevant knowledge to policymakers and practitioners regarding the sustainable management of wetlands in the face of changing global climate and livelihoods.

h) The CEO endorsement document needs to clearly and concisely state the SFM funded activities and what forestland areas they are conducted on. SFM objectives apply only to existing forestland, and a reasonable broader landscape.

The SFM funding will be implemented through outcome 3.2 of component 3: Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands in the high Andes. Based on this component the following outputs related to forest lands will be achieved: (1) 5,000 ha of Upper Montane Forest under conservation or sustainable forest management; (2) 4,000 ha of community plantations and agroforestry systems using native tree species (85% survival rate); and (3) 2,000 ha of commercial plantations. Commercial plantations are conceptualized as a way to deliver multiple benefits by designing a system in which mainstreaming best management practices several benefits can be obtained such as carbon sequestration, biodiversity conservation, landscape management and local income. Additionally, the promotion of commercial plantations in the Andean highlands constitutes a proven strategy to

decrease the pressure on native forest due to firewood and timber extraction. Additionally, the promotion of commercial plantations in the Andean highlands constitutes a proven strategy to decrease the pressure on native forest due to firewood and timber extraction. Through these activities the project envisions to foster the synergies between the Ministry of Agriculture and the Ministry of Environment as a way to articulate the different incentive instruments and avoid negative externalities. These outcomes contribute to several indicators of the Tracking Tool for SFM (see TT-SFM for details). A fundamental aspect to accomplish these outcomes relies on the counterpart funding of the Project. The National Incentive Program for Reforestation of MAE will invest up to US \$ 3 million dollars for SFM and LD in forested lands at the wider landscape in Ecuador's intervention sites. In the same way the joint program PRODERM- MINAM (Belgium cooperation) will invest up to US \$ 610 hundred thousand dollars for forest management in the Huancavelica intervention site. Finally, the Regional Government of Piura together with the local NGO NCI will contribute with cofinancing resources to implement SFM practices at the Ayabaca intervention site.

19. Is the project consistent and properly coordinated with other related region?

At CEO endorsement the coordination with all relevant groups needs to be clear and consistent.

During the preparation phase, it was determined that the project will work jointly with the provincial governments of Carchi, Pichincha and Tungurahua in Ecuador and Piura and Huancavelica in Peru. As in the case of the national environmental authorities, these institutions will name high-ranking officials to facilitate and participate in the implementation of project activities. Together with the provincial governments named the project will implement intervention or demonstration sites. Municipalities and rural communities, including farm families, will participate in the development of these sites.

The project focuses on UNEP's top priority competencies, including scientific and technical analysis as well as technical assistance in monitoring and evaluation of ecosystem services, particularly biodiversity and carbon stocks. The planning, validation and promotion of sustainable forest and land management practices are also prioritized in this project, closely aligning it with UNEP's EMP. Other EMP activities promoted in the project include:

- Support to national financial incentive programs for conservation of biodiversity and mitigation of climate change adversities,
- Assistance in the development and application of national and regional policies and land management practices that foster the conservation and sustainable use of critical Andean ecosystems,
- Development of intervention sites enhancing livelihoods of farm families through sustainable land and forest management practices, and
- Mainstreaming of new science-based information and lessons learned promoting results based management among partner institutions and Stakeholders in general.

20. Is the project implementation/execution arrangement adequate?

Adequate at PIF stage. By CEO endorsement, the implementation/execution arrangement needs to be clear and consistent.

Implementation arrangement: Project Headquarters (PH) will be located in Quito. Staff working out of this office include the Project Manager (PM), Monitoring and Evaluation Officer (MEO), Administrative Assistant and Thematic Experts (TE). One TE will be hired to lead the implementation of each of the following development components: New Knowledge and Tools, Institution Building and Intervention Sites. Local and international consultants will be hired from time to time to support project execution. Carbon sequestration, conservation of biodiversity, forest management, recuperation of degraded lands, monitoring and evaluation of environmental services, community planning, value chain, and data management are just a few of themes subject to consultancies in this project. Other consultancy needs will be identified during project implementation.

CONDESAN will also establish a project office in Lima. A Monitoring and Evaluation Assistant (MEA) and an Auxiliary Administrative Assistant will work out of this office. The MEA will see to it that project outcomes and outputs planned for Peru are met. In this respect, he or she will assist the MEO in the application of the project M&E Work Plan. Establishing close collaboration with MINAN, the MEA will give special attention to reaching institutional building goals cited for Peru in Component 2.

Technical Assistants will be hired to lead project development at the project's five intervention sites. Their job is to design and supervise the implementation of intervention site work plans. This will be done in collaboration with participating Regional Governments and under the supervision of the PM/Thematic Experts. Terms of References for all project staff are presented in Appendix 11 of the PRODOC.

One high-ranking official of MAE, MINAM, CONDESAN and UNEP Task Manager make up the Steering Committee (SC). In practical terms the SC is responsible for ensuring that the project meets goals announced in the Project Result Framework by helping to balance conflicting priorities and resources. Evaluation methodologies used by committee members may include, but are not limited to, interviews with project staff, review of project monitoring and evaluation reports, conferences with representatives of Regional Governments, municipalities and rural communities and inspection visits to the intervention sites. As explained in Section 6, conclusions and recommendations produced by the SC will be used by UNEP and the PM to modify implementation strategies, annual work plans and resources allocation budget and, when necessary, to adjust the project's Result Framework. The SC will be chaired by UNEP (Task Manager). The PM will act as the Committee Secretary. This committee will meet every six months.

A Technical Committee (TC) will be established. The purpose of this committee is to formulate recommendations and execute work plans that help the project to meet projected outcomes and outputs. Members of this committee include the national and local FPs, project staff, local consultants and invited guests. Chaired by the PM the TC will meet every six months. In order to promote interchange between the two committees, TC meetings will be timed to coincide with SC meetings.

Bi-national Working Groups (BNWG) will assist in the implementation of specific aspects of the project. Two groups will be established in the first year: a group for monitoring and evaluation of environmental services, and a group for promotion of sustainable land and forest management practices. Comprised mainly of experts selected from national ministries and Regional Governments and supported by project staff and national or international consultants, the BNWG

will be instrumental in promoting interchange between Ecuador and Peru. Other bi-national working groups can be added as needed.

Rough drafts of intervention site work plans are presented in Appendix xx. In collaboration with the participating Regional Governments, municipalities and rural communities, these work plans will be finalized no later than 6 months into project operations. Pending discussions with participating Regional Governments, the project may want to hire third parties to develop certain actions cited in intervention site work plans. A few possible support agencies were identified in the preparation phase. They are:

For Ecuador:

The “Fondo para la Protección del Agua” (FONAG) is an alliance of individuals and institutions committed to the protection of Quito’s water supply. Seeking consensus through dialogue, the Fund executes five interrelated development programs: Communication, Environmental Education, Reforestation, Integrated Watershed Management, and Control and Vigilance. Water contamination, forest fires and excess tourist traffic are important threats to Quito’s water supply addressed in these programs.

Jatun Sacha Foundation (JSF) is an Ecuadorian NGO founded in 1989 dedicated to the conservation of tropical, aquatic and highland ecosystems. It has five research and conservation centers, one of which is located in the project intervention site of Carchi/Sucumbios. JSF is experienced in both participatory development and research programs dedicated to the conservation of highland ecosystems.

The Foundation for the Development of Community Alternative for the Conservation of the Tropics (ALTROPICO) is an NGO committed to social and environmental causes in southwestern Colombia and northwestern Ecuador. It was founded in 1992, and has worked extensively in promoting community development among Afro and Kichwas nations and other indigenous communities. Its mission is to improve the livelihoods of these groups by promoting development alternatives that strengthen the ability of local residents to have a say in the formulation of local, regional and national development policies.

Along with the Kichwas and Evangelist indigenous movements, the Regional Government of Tungurahua established the “Fondo de Paramo de Tungurahua” in 2008. An investment mechanism, the Fund provides economic resources to finance activities, plans and/or programs that contribute to the conservation, maintenance, development and restoration of water sources in the Province of Tugurahua. At present the Fund now finances eight Páramo management programs presented and operated by local indigenous groups.

For Peru:

Nature and Culture International (NCI) is an international NGO working in the Province of Piura promoting conservation of natural ecosystems, including wetlands, Páramos, and high mountain forests. CONDESAN has worked with NCI before (this NGO ran the Páramo Conservation Project in Piura and Pacaipamba) and understands that it is an efficient and effective organization. NCI is especially talented in institution building and promoting the development of regional and local policies related to natural resource conservation and sustainable forest and land management practices.

The “Programa de Desarrollo Económico Sostenible y Gestión Estratégica de los Recursos Naturales” (PRODERN) works in five Provinces of Peru, including Huancavelica where the

project has identified an Intervention Site. PRODERN is a development project funded by the Government of Belgium and implemented by MINAM. The project has identified two central goals: 1) improved regional and local land management planning, conservation and sustainable use of important environmental services of highland ecosystems, and 2) the active participation of rural communities in sustainable management of their natural resources.

24. Is the funding and co-financing per objective appropriate and adequate to achieve the expected outcomes and outputs?

b) The CEO endorsement document needs to clearly and concisely state the SFM funded activities and what forestland areas they are conducted on. SFM objectives apply only to existing forestland, and a reasonable broader landscape.

Furthermore, the SFM funding will be implemented through outcome 3.2 of component 3: Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands in the high Andes. Based on this component the following outputs related to forest lands will be achieved: (1) 5,000 ha of Upper Montane Forest under conservation or sustainable forest management; (2) 4,000 ha of community plantations and agroforestry systems using native tree species (85% survival rate); and (3) 2,000 ha of commercial plantations. These outcomes contribute to several indicators of the Tracking Tool for SFM (see TT-SFM for details). A fundamental aspect to accomplish these outcomes relies on the counterpart funding of the Project. The National Incentive Program for Reforestation of MAE will invest up to US\$ 3 million dollars for SFM and LD in forested lands at the wider landscape in Ecuador's intervention sites. In the same way the joint program PRODERN of MINAM and Belgium cooperation will invest up to US\$ 2 hundred thousand dollars for forest management in the Huancavelica intervention site. Finally, the Regional Government of Piura together with the local NGO NCI will contribute with own resources to implement SFM practices at the Ayabaca intervention site.

Responses to Comments from STAP

1. There is an apparent overlap in the scientific and technical content in Components 1 (science base and tools development) and 4 (project monitoring). STAP normally recommends that project monitoring and evaluation is structured as an integral part of all project components since it should be based upon carefully-chosen tracking and impact indicators from the outset and should inform the project as it progresses. This will be especially important in this project for Component 3, where there must be in place good tracking of the ecosystem restoration benefits. In this project with a component specifically to develop monitoring tools, STAP appreciates it might be sensible to keep the tools development separate from the use of the tools. Nevertheless, the full proposal should provide assurance that the project will develop suitable impact indicators that will focus on appropriate global environmental benefits appropriate to a multi-focal project across BD-CCM-LD-SFM, and that specific provision is made for these indicators to be tracked through the lifetime of the project and beyond.

Component 4 has been redefined to avoid overlapping between Component 1. Component 4 *Upscaling and outreach* now aims to promote the insertion of project findings and tools by key actors at national, regional and local levels outside the direct coverage area in their decision making processes. STAP suggestions to assess global environmental benefits through specific impact indicators have been identified and will be assessed through an integrated monitoring

system at each intervention site. These indicators were carefully chosen from the GEF Tracking Tools of each focal area and will be tracked through the lifetime of the project and beyond. Further, Project budget is now structured in a way that M&E has a proper allocation of money as well as specific activities to assess project impacts in a midterm and final evaluation (see Appendix 7: Costed M&E PLAN).

2. The expected outputs currently lack quantification and, implicitly, only have a time-frame of the project duration. During the PPG, STAP recommends that substantial attention is directed at establishing a quantified baseline of the key environmental and social variables of the project (such as land cover, carbon stocks in soil and vegetation, biodiversity status and current usage, and poverty/livelihood status of local people). These variables should then be built into the outputs with realistic quantified targets by project completion. STAP welcomes the inclusion of economic valuations and urges that the economic rationality of land use and ecosystem restoration practices be tracked with the view to their sustainability in the longer term, in what is a particularly difficult biophysical environment.

As a result of the PPG, several expected outputs have been redefined since the PIF, as well as its direct contribution to GEF indicators identified in the Tracking Tools in order to guarantee its contribution to global environmental benefits pursued ¹⁵. For instance, the expected outputs to achieve *Outcome 3.2: Biodiversity, carbon and social benefits enhanced through SLM/SFM investments and practices on forest and non-forest lands* are:

- a. 5,000 ha of Upper Montane Forest protected under conservation or managed through sustainable forest management. This output will be contributing to indicators in TT SFM (SFM.EC.1.a, SFM.EC.2.a, SFM.EC.6.c & SFM.EC.7.f; SFM.PE.1.a, SFM.PE.2.a, SFM.PE.6.c & SFM.PE.7.c), TT BD (BD.EC.3.a-3.i; BD.EC.3.a-3.i), and TT CCM (CCM.EC.1.a; CCM.PE.1.a)
- b. 10,000 ha of Páramo, Punas and Wetlands under conservation or sustainable land management, contributing to TT BD (BD.EC.3.a-3.i; BD.EC.3.a-3.i) and TT CCM (CCM.EC.1.b - d; CCM.PE.1.b - d).
- c. 3,000 ha of improved rangeland under good management practices (TT SFM.EC.2.d; SFM.PE.2.c)
- d. 4,000 ha of community plantations and agroforestry systems using native tree species with a survival rate of 85% (TT SFM.EC.2.c) (TT CCM.EC.1.c; CCM.PE.1.c)
- e. 2,000 ha of commercial plantations with a survival rate of 85% (TT SFM.EC.2.c) (TT CCM.EC.1.c; CCM.PE.1.c)
- f. 3,000 ha of degraded land under sustainable land management practices other than tree plantations (TT SFM.EC.2.d; SFM.PE.2.c)
- g. 3-5 % increase of population of ecosystem health indicator species at intervention sites (TT BD.EC.4.a-c) (TT CCM.EC.1.d; CCM.PE.1.d).
- h. 3-5% increase of tons of carbon over baseline in work areas (TT SFM.EC.5.a; SFM.EC.5.b; SFM.PE.5.a; SFM.PE.5.b) (TT CCM.EC.1a-b; CCM.EC.1.f-g; CCM.PE.1a-b; CCM.PE.1.f-g).

¹⁵ Notes in brackets are cross references to TT with indication of the focal area and line number in the respective TT.

At each intervention site a baseline has been established and will allow reporting the increment of ha under management and total Carbon stocks at the end of the project lifetime and beyond. The monitoring system established will quantify and monitor these and other relevant indicators such as land restoration and key biodiversity indicators. Nonetheless, in some cases, critical knowledge gaps have been identified (e.g. carbon stocks in key pools and fluxes, land degradation) and will be measured during the first year of the project to improve current estimations.

3. STAP was able to discern from the PIF that the project proponents recognize the importance of gender issues only in one sentence at the end of paragraph B3. A gender dimension is indeed essential. However, it must be built through the tools development, training at all levels and implementation. In land management, the distributional aspects of economic benefits between men and women, and rich and poor, have to be recognized at all levels. If the project aim of multiplying environmental and social benefits is to be achieved even if only as a downstream outcome, then stakeholder analysis and gender awareness has to be built into project design from the outset. Some of the relevant issues are discussed in the book: Food, gender, and poverty in the Ecuadorian Andes. By Weismantel, M.J. (1989) 234pp. ISBN 0-8122-8115-2.

The project recognizes that the social roles that men and women play, and the power relations between them, have a profound effect on the use and management of natural resources. During the PPG, the project expanded its gender approach and embraced gender mainstreaming (GM), which is becoming a central factor in UNEP policies and programmes. Gender mainstreaming brings the diverse roles and needs of men and women into the environmental agenda. Through GM, the project will seek to:

- Identify and address specific gender differentiated needs arising from gender imbalance in policies, decision-making and processes related to the environment.
- Foster alternative livelihood activities to reduce pressure on ecosystems with focus on disadvantaged groups, particularly women.
- Develop coherent policy approaches to gender-specific environmental governance issues.
- Integrate gender analytical tools and methods into capacity building approaches as well as in ecosystem management tools.

Additionally, during PPG several partners with expertise regarding participatory research and gender have been identified and can be involved during implementation to reinforce its application at intervention sites and on the ground activities.

4. In Component 1, STAP notes the intention to test and validate a number of methods of measuring total system carbon and GHG emissions. The GEF-financed Carbon Benefits Project is specifically mentioned. For information to the proponents, STAP itself with partners including UNEP will shortly be conducting a validation exercise of the tracking tools for carbon. It is suggested that this proposal coordinates closely with other on-going activities of a similar kind and does not attempt to duplicate their analyses.

The project regained contact with CBP's technical team during the PPG in order to avoid duplication and foster future collaboration. Different methods and tools developed by CBP have been identified (e.g. CBP Simple Assessment tool; Measurement and Monitoring Plan) to be used by the project. Actually, CBP's technical team welcomes an ambitious project such as this to validate their tools and measure carbon benefits impacts. Furthermore, the Project has established

preliminary contacts with the SWAMP Program (USAID funded research program to estimate soil carbon stocks and fluxes in High Andean peatlands) to closely collaborate and increase expected outcomes of both projects.

5. The risk analysis in Section B4 does not include climate change risks. El Niño effects are well known in the Andes already – see, for example, B.S. Orlove, J.C.H. Chiang & M.A. Cane, 2000. Forecasting Andean rainfall and crop yield from the influence of El Niño on Pleiades visibility, Nature 403: 68-71, which incidentally shows that El Niño variability is a useful and simple indicator for seasonal rainfall forecasting. Climate change in high mountain areas is normally acknowledged as a high risk.

Extreme weather and climate variations that negatively affect the conservation and the promotion of sustainable management practices have been identified among the risks that can affect project sustainability and over which the project has little or no control (Table 2). As it was well mentioned by STAP, high Andean ecosystems (particularly, montane forests and Alpine Grasslands) are among the most threatened ecosystems in the world due to climate change (see Buytaert et al. 2011; Tovar et al. 2013). In order to mitigate its impact, SLM/SFM practices promoted by the project will be designed to increase ecosystem resilient under extreme weather conditions caused by climate change, and further synergies with adaptation can also be pursued. For instance, ecosystem conservation and restoration activities can also identify and target key areas for water flow regulation (e.g. high elevation wetlands), soil productivity and fodder production at intervention sites.

Responses to Comments from Council at work program inclusion

1. The proposal considers the enhancement of multiple and social benefits in high Andean Ecosystems, which is very important for the provision of different ecosystem services. It seeks synergies between biodiversity conservation, land management and climate change, but still has a strong focus on carbon benefits. The research, assessment and monitoring of other relevant ecosystem services such as water capture, regulation, infiltration, soil fertility, etc. should also be considered.

As part of component 1, at each intervention site a research agenda and program will be discussed and agreed with key relevant stakeholders identifying local research and monitoring priorities. On that basis, the assessment and monitoring of different topics such as water capture, regulation, soil fertility, NTFP, can be incorporated within the activities executed in Component 1. However, a common set of indicators and methods to quantify and monitor changes and impacts will be applied as required at intervention sites.

2. There is a need to specify in more detail the different institutional, scientific and financial barriers that have to be overcome in order to address more specifically the required measures and activities;

A set of critical barriers to be overcome by the project have been detailed in section 2.3 *Threats, root causes and barrier analysis*. These include: a) incomplete and insufficient knowledge regarding the functions and values of the ecological services being affected by degradation and

deforestation processes; b) lack of appropriate resources, inputs and tools to support decision-making processes; c) Lack of coherence among cross-sectoral policies that undermine the conservation of high Andean ecosystems and critical environmental services; d) Unfeasible sustainable management practices promoted in the Andes; e) Limited capacity at local and national levels to endure mid-and-long term processes and upscale interventions.

3. Considering the STAP comments, there is an apparent overlap in the scientific and technical content in Component 1 (science base and tools development) and 4 (project monitoring). It would be good to integrate both parts in a form that could help to structure all project components, including Component 3, which relies on good tracking of ecosystem restoration benefits. The full proposal should assure that the project will develop suitable impact indicators that will focus on global environmental benefits to be tracked through the project life and beyond;

Comment fully addressed in response to STAP (C1).

- The expected outputs should be structured in a form that could be better quantified. For this, it is recommended to work on the construction of a good and quantified baseline;*

Comment fully addressed in response to STAP (C2).

4. It is necessary to characterize the different stakeholders in a more specific and concrete way, mentioning e.g. indigenous organizations, NGOs and other institutions, which should work closely with the project in each of the country; this includes also the consideration of existing PES schemes and Funds that are already operational in the High Andean Region (such as FONAG or Paramo Funds in Tungurahua), and which could contribute to and benefit from the project;

During PPG, further involvement of key stakeholders in the project has been identified, including existing national and local PES schemes, NGOs, local organizations, etc. Synergies and possible contributions through the project implementation are listed in Table 1: *Alliances, synergies and contributions for Ecuador* and Table 2: *Alliances, synergies and contributions for Peru*.

5. It would be useful to concretize the meaning of “decision tools” used in the proposal in a broad form to better understand which kind of models and tools are going to be supported;

The project will develop appropriate and innovative science-based tools that support decision-making, policy formulation and design more effective SLM and SFM practices. These tools are instrumental in integrating environmental monitoring, land use planning and on the ground activities (i.e. reforestation) together with strengthen technical criteria of ongoing national incentive programs as well as design better schemes to integrate efforts between levels of governance. Such tools involves a broad range of alternatives, including technical guidelines addressing critical decision-making needs, monitoring field protocols, environmental scenarios & economic valuations integrated within planning processes, or sophisticated analytical simulation software for studying carbon dynamics.

6. Gender aspects should be included in a more specific way throughout the project structure;

Comment fully addressed in response to STAP (C3).

7. It would be useful to consider ongoing discussions on Ecosystem Based Adaptation approaches and to create synergies with the corresponding communities to improve knowledge exchange.

Ongoing discussions and lessons learned based upon Ecosystem Based Adaptation (EBA) approaches will be embraced by the project. This project specifically fits into UNEP's **Sub-programme 1 Climate Change**, and particularly through the following UNEP-expected accomplishments: (a) Adaptation, including an ecosystem-based adaptation approach, is incorporated into country development planning and policymaking based on scientific assessments, policy and legislative advice and lessons learned from pilot projects supported by UNEP and adaptation experiences, including an ecosystem-based approach, showcased at the global level. Additionally, close collaboration with related on-going initiatives in the region (e.g. REGATA EBA-Peru) will offer opportunities to learn, replicate and upscale lessons learned from this valuable approach. Also, important investments in Microfinance for EBA led by UNEP in the region will represent a strategic counterpart to support project outcomes, in particular pertaining to component 3 in terms of i) innovative alternatives for sustainable livelihood strategies and key productive value chains and ii) enhancement of social and environmental benefits through SLM/SFM investments and practices.

Appendix 19: Carbon Benefits

See separate excel file: 4750 Appendix 18 Carbon_Benefits