

**CCBA**  
**PROJECT DESIGN DOCUMENT FORM FOR PROJECT ACTIVITIES (CCBA-PDD)**  
**Version 01**

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**I. Basic Data:**

1) The title of the CCB Standards project activity:

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Reforestation with native commercial species on degraded lands for timber and carbon purposes in Campo Verde, Ucayali - Peru

2) The version number of the document:

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01

3) The date of the document:

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October 21, 2008

**II. General Section:**

**G1 Original Conditions at Project Site (Required)**

G.1.1 Describe the location of the project and basic physical parameters (e.g., soil, geology, climate).

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The project is located in the District of Campo Verde, Province of Coronel Portillo, in the Region of Ucayali (in the central east of the country).

The region is part of the Peruvian Amazon Rainforest, with an average rainfall of 1862 mm per year. The area is low lying with a maximum height of 220m above sea level.

Further information about climate, relief, soils, physiographic characterization, hydrology, biodiversity, ecosystems and vegetal coverage can be found in Annex R: Chapter 1.7 and Annex D: Environmental Impact Assessment.

G.1.2 Describe the types and condition of vegetation at the project site:

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Since the 1980's, the area was cleared in successive stages for cattle ranching. By the middle of 1990's, active production on the Project land ceased. Continuous fires from neighbouring smallholdings plots and soil degradation resulting from overgrazing and soil fragility typical of these areas precluded the regeneration of the original forest cover.

Until reforestation activities commenced, the predominant vegetation cover consisted of various grasses, predominantly the invasive grass, *Brachiaria decumbens*, covering 62% of total area. *B. decumbens* is a highly competitive species which is difficult to eliminate.

Further information can be found in Annex R: Chapter 1.7.

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G.1.3 Current carbon stocks at the project site(s), using methodologies from the Intergovernmental Panel on Climate Change's Good Practice Guidance (IPCC GPG) or other internationally approved methodologies (e.g. from the CDM Executive Board):

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See Annex R: Chapter 4.2.

G.1.4 Description of communities located in and around the project area, including basic socioeconomic information (using appropriate methodologies such as the livelihoods framework).

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The Project area is private property located 12 km from Campo Verde on the Campo Verde to Tournavista road. Campo Verde is located 34 km from the city of Pucallpa which is the capital of the Ucayali Region of Peru.

There are 7 small rural settlements located through the axes of Campo Verde-Tournavista road within the Ucayali zone. The largest has 80 families and the smallest has only 8 families, who predominantly work on agriculture and cattle raising activities to cover their subsistence needs. As a result of the present project activity, almost 100% of the families will have some family member working and receiving a stable monthly income from the Project.

A survey of 147 families was undertaken in 2004 in order to characterize these settlements from a socioeconomic perspective. In 2006, a new survey was undertaken with the goal of gauging the local communities' perception of the reforestation project activities. In 2008, a further survey was undertaken to ascertain the impacts and relationship between the Project and the neighbouring communities. These surveys create a comprehensive social assessment (See Annex E: Social Surveys and Annex I: Stakeholder Consultation Process).

The principal characteristics of the typical family from these communities are the following:

- 4.6 members per family (the couple, 1.5 sons and 1 daughter)
- 33% are married, while 56% are living together and 6% are single.
- 51% of the fathers have only a primary level of education, while 33% have achieved the secondary level. Only 6% have some kind of advanced education. For mothers, 68% have primary level education and 24% have secondary level. For children, there is significant change, with 44% of male children and 41% of female children with secondary levels of education.
- A significant percentage of families are migrants from other parts of Ucayali and other regions of Peru: 26% come from the near district capital of Campo Verde; 21% come from the Pucallpa; and 44% come from other regions of Peru. The average age of migrants coming to the region is approximately 24 years old.
- 100% of the families grow agricultural crops (with an average of 3 crops per family, mainly rice, corn, yucca), while 1 in 3 families has cattle. Other activities are marginal.

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- About half of the agricultural produce is for self-consumption and the other half is sold in markets.
- On average, each family has a monthly income of US\$123, which is just above the national level of poverty.
- The average size of each family's plot is 28 hectares, a typically sized plot in the Peruvian Amazon. Almost half the plot is dedicated to agriculture or cattle raising (43%). A similar amount (46%) is covered by degraded or secondary forest, and the remaining (11%) are degraded lands, abandoned after a few years of intensive agriculture use or cattle ranching.
- Importantly, 72% of the plots are as yet untitled.
- See Annex E and Annex I for further information about the public services available in each community.

G.1.5 A description of current land use and land tenure at the project site.

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Until the onset of the current activity, the Project area has been abandoned since the early 1990s. The area is private property and the owners decided not to develop any activities within its boundaries since the cessation of cattle ranching and fish farming businesses at the beginning of 1990s. Since then, the area has not been used intensively for any activity.

Since the mid and late 1990s, neighbours adjacent to the Project area were allowed by the owners to graze their cattle in order to maintain good neighbour relations. Approximately 500 head of cattle owned by 7 individual farmers grazed pastures within an area of 250 ha.

G.1.6 Description of current biodiversity in the project area and threats to that biodiversity, using appropriate methodologies (e.g., key species habitat analysis, connectivity analysis), substantiated with reference (evidence) where possible.

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A biophysical survey (see Annex C) was carried in the Project and surrounding areas in January 2005 which identified no more than 15 grass and shrub species in the pasture area. Following the baseline survey, only a few trees were found to occur in the pasture area in comparison to the surrounding forests (primary and secondary forests) where 86 different tree species were found. In the entire forest area owned by the company (around 14,000 hectares), more than 10 different strata and 100 forest species were identified.

Regarding fauna, the same survey in 31 sample plots (of which 12 were pasture lands), 62 different species of birds, reptiles and mammals were recorded. Compared with the original forest habitats present before the land was cleared, these results show that a very significant loss of biodiversity has already taken place and the current biodiversity in the project area is very low. Due to the current degraded nature of the project area and other neighbouring lands, the forested areas directly adjacent to the project area have become highly fragmented, threatening the viability of species populations within these forested regions.

G.1.7 List of all IUCN Red List threatened species (which encompasses endangered and vulnerable species) and species on nationally recognized list (where applicable) found within the Project boundary.

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The biophysical research (see Annex C) also included a fauna survey. Of the 62 animal species observed, 25 fall under the of IUCN Red List category. Of these, 17 were found in the pasture plots. 13 of them are classified as Least Concern (LC); 1 as Data Deficient (DD); and 3 under Least Risk (LR). The project area contains no LC, DD, or LR species that require pasture lands as their habitat. In contrast, the species listed below and found in the Project area during the survey are species dependent on the nearby forest ecosystem for their existence.

<b>Nombre común</b>	<b>Nombre científico</b>	<b>Category</b>
Zorro negro	<i>Atelocynus microtis</i>	<b>DD</b>
Carachupa	<i>Dasyus novemcinctus</i>	<b>LC</b>
Víctor Díaz	<i>Pitangus lictor</i>	<b>LC</b>
Paucar	<i>Cacicus cela</i>	<b>LC</b>
Torcasa	<i>Columba plumbea</i>	<b>LC</b>
Locrero	<i>Crotophaga major</i>	<b>LC</b>
Manacaraco	<i>Ortalis guttata</i>	<b>LC</b>
Loro shamiro	<i>Amazona festiva</i>	<b>LC</b>
Guacamayo	<i>Ara macao</i>	<b>LC</b>
Pihuicho	<i>Brotogeris cyanoptera</i>	<b>LC</b>
Pedrito	<i>Aratinga weddellii</i>	<b>LC</b>
Huanchaco	<i>Ramphocelus nigrogularis</i>	<b>LC</b>
Shihuango	<i>Milvago chimachima</i>	<b>LC</b>
Vaca muchacho	<i>Crotophaga ani</i>	<b>LC</b>
Caimán negro	<i>Melanosuchus niger</i>	<b>LR</b>
Choshna	<i>Potos flavus</i>	<b>LR</b>
Majaz, samaño	<i>Agouti paca</i>	<b>LR</b>

The detailed list of species and its classification under different schemes can be found in the EIA and the list of species that were found in each plot (pasture and forest lands) can be found in the Biophysical Surveys.

<b>G2 Baseline Projections (Required)</b>
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G.2.1 Description of the most likely land-use scenario in the absence of the Project activity. Identify whether the scenario assumes that existing laws or regulations would have required that project activities be undertaken anyway:
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See Annex R, Chapter 2.4 for a description of the most likely land-use scenario in the absence of the project.

These lands are typical of central Peruvian Amazon lands in the final stage of the cycle of land degradation which starts with selective timber extraction, followed by burning, cattle

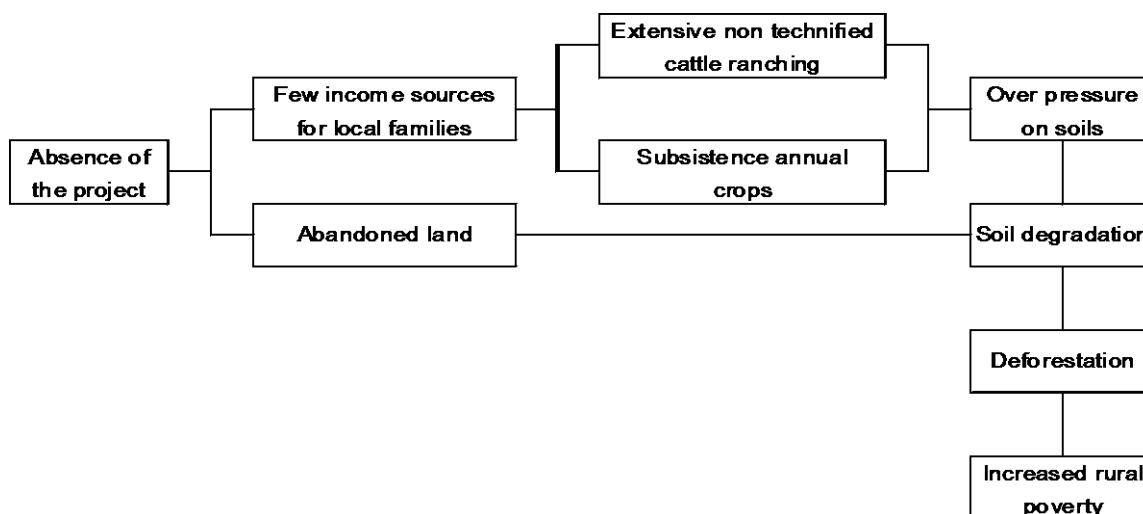
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ranching, and abandonment once lands have been depleted. As such, no commercial use is possible except low-density cattle ranching. As the land is owned by a private company, the most probable use of the land without the project will be to keep the land “as is” until a profitable use can be found. The area under this scenario will continue to be affected by fire, encroachment by cattle, subsistence crops and new settlements from neighbouring areas, which will further increase degradation.

The “without” Project scenario and unsustainable land use activities would result in increasing degradation on soils, forcing farmers to search for new areas and generating new deforestation. Each year 150 to 250 thousand hectares are deforested in the Peruvian Amazon, more than 80% of which is caused by small rural farmers. This sequence, by reducing the amount of natural resources available, only accelerates the poverty and forecloses legal opportunities to reverse this vicious circle.

The sequence can be drawn as follows:



G.2.2 Provide a projection of future carbon stock changes in the absence of the project, based on the land-use scenario described above. The timeframe for this analysis can be either the project lifetime or the project accounting period, whichever is more appropriate.

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See Annex R, Chapters 4 and 9 for information regarding carbon stocks estimations in baseline and project scenarios.

The timeframe has been established in 30 years, according with the project lifetime.

G.2.2a If there is evidence that non-CO<sub>2</sub> greenhouse gas (GHG) emissions such as CH<sub>4</sub> or N<sub>2</sub>O are more than 15% of the baseline GHG fluxes at the project site (in terms of CO<sub>2</sub> equivalents), they must be estimated.

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The only non-CO<sub>2</sub>e GHG emissions that will be caused by the Project result from biomass burning and fertilizer use (see Annex R, Chapter 4.3.1.3). However, in accordance to

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paragraph 35 of EB 42 meeting report, emissions from fertilizers have been neglected. Over the life of the project, it is estimated that these actions will result in 5.54 t CO<sub>2</sub>e, less than 1% of total expected net GHG removals. These emissions will be monitored as part of the Project. Additionally, the Project will plant nitrogen fixing trees. An analysis was conducted that estimated a highly conservative and maximum possible N<sub>2</sub>O emissions resulting from the additional nitrogen fixed by the N-fixing trees. It was determined from this analysis that the maximum amount of N<sub>2</sub>O emissions (341 t CO<sub>2</sub>e year<sup>-1</sup>) would equal about 8% of the total expected net GHG removals (see Annex N).

G.2.3 Description of how the “without-project” scenario would affect local communities in the project area.

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As noted previously, the without-project scenario would accelerate the soil degradation, which implies fewer opportunities for local communities to develop profitable productive activities and would thus exacerbate their current situation of poverty.

In the absence of the project, local communities will be excluded from the potential to earn income from activities in the project area. There is no assurance that any future economic development in the area will provide local communities with the same level of labour requirement as this project (an average of 200 workers per day).

In addition, without the Project, local communities would not benefit from technical knowledge and new agricultural techniques developed as a result of project activities. These include areas such as soil recovery, weed management, fertilisation, reforestation, nursery production, and disease control.

G.2.4 Description of how the “without-project” land-use scenario would affect biodiversity in the project area.

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The degradation of soils compels rural families to a further expansion of agricultural frontier, in a phenomenon known as migratory agriculture, which is very common in this region. This will encroach into remnant forest areas still in existence near the project area. This will result in a reduction in the animal biodiversity of the project area as forest species may enter the project area occasionally, as indicated in the biophysical research (Annex C) conducted. The “without-project” land use scenario may cause further land degradation, thus further reducing the number of plant species seen in the grazing lands however, since the land is already highly degraded, it can be conservatively assumed that the biodiversity of plant species in the project area would remain stable.

Additionally, 2800 ha of the adjacent forest comprises the ‘aguajal’, which is a typical wetland from the Amazon Rainforest (so named because of the high presence of Aguaje “*Mauritia flexuosa*”). Wetlands contain high carbon stocks and are also one of the most threatened ecosystems in the world. In the “without-project” scenario no activities would be taking place by the land owners in the area and therefore, other individuals would most likely illegally deforest the remaining forests overtime. Wildfires would then enter the wetlands causing large quantities of greenhouse gas emissions. This land use conversion trajectory is common and dominant in the region.

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G.2.5 Description of how the “without-project” land-use scenario would affect water and soil resources.

The soil, already acidic as reported in soil analysis carried by the project through the Agrarian University of La Molina Laboratory, would likely remain acidic or become more acidic during the degradation process.<sup>1</sup>

The watershed is part of the Amazon Basin. Small streams within the project area flow into nearby rivers which flow into the Pachitea River which in turn joins the Ucayali River – one of the main tributaries of the Amazon River. The ‘without-project’ land-use scenario of further land degradation in the project area is likely to have no positive impacts and possible negative impacts both on water quantity or quality. The expected continued deforestation in the surrounding forested lands in the ‘without-project’ land use scenario would cause an increase in surface runoff water resulting in increased streamflow and decreased water quality. Cattle activity causes soil compaction and damages river banks. The population growth rate surrounding the project area in the ‘without-project’ land use scenario is not known; however, it is unlikely to result in any positive impacts on water or soil resources.

**G3 Project Design & Goals (Required)**

G.3.1 Provide a description of the scope of the project and a summary of the major climate, community and biodiversity goals.

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The scope of the project encompasses the reforestation of degraded pasture lands in order to increase the CO<sub>2</sub> density, rehabilitate degraded lands and enhance biodiversity.

The principal goal of the project is to develop a forest management system which accelerates the natural successional stages of forest regeneration from pioneer to secondary and finally climax species. In line with this goal, all the species chosen were native species, with a combination of fast-growth species and mid-growth hard wood species.

The decision to use many species (instead of a monoculture plantation) and to use only native species (instead of exotic ones) has the goal of trying to replicate the original forest of the area as the main biodiversity goal.

This goal is linked with the community goal that highlights the importance to develop local capabilities in neighbouring families not only as a way to generate a more equitable economic development but also as a strategy to change current unproductive agriculture practices

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<sup>1</sup> For more information see: Analisis Comparativo de Carbono en el suelo en el fundo Campo Verde.doc, Analisis de suelo SFM BAM con Carbono por hectarea\_english\_v.xls

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G.3.2 Describe each major project activity (if more than one) and its relevance to achieving the project's goals.

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See Annex R, Chapter 1.9 for a description of the major field activities and technical details about each of them.

The designed structure of the project has the following sequence:

- *Biophysical diagnosis* of soils, vegetation and fauna. This site classification and evaluation stage has the objective to establish possible sustainable forest management regimes for the Project
- *Socioeconomic diagnosis of the influence zone*. The goal is to enhance the knowledge of the core characteristics and aspirations of the villages and settlements located in proximity to the project area
- *Technical proposal design*. Based upon infield biophysical surveys and analyses, literature review and experts' opinion, the staff of AIDER in conjunction with SFM prepared the main components of the proposal (species, spacing, management regimes etc.)
- *Rehabilitation of degraded pasture lands*. The first step which entails the planting of the nitrogen-fixing species *Inga edulis* with the purpose of ameliorating the soil, suppressing weed growth and providing shade and protection for the timber species. This step is done in advance of the establishment of the timber species plantation and is documented in the Management Plan.
- *Production and establishment of forest plantation*. - Four tree species were identified and two management regimes combining fast, medium and slow growing species adopted. Regime 1: *Simarouba amara*, *Dypterix odorata* and *Swietenia macrophylla*. Regime 2: *S. amara*, or *Tabebuia serratifolia* and *S. macrophylla*). Species composition, silvicultural practices and management regimes are documented in the Management Plan.
- A 550,000 capacity seedling nursery using appropriate technology has been established. Furthermore, seedlings are sourced from two additional 110,000 capacity nurseries.
- *Maintenance and silvicultural practices*. Designed to reduce the mortality level, maximise growth and yield and mitigate the risk of pests and diseases.
- *Research*. A set of issues has been defined for research interest. The research will be done directly or through partnerships with other acknowledged research organisations.
- *Monitoring*. The monitoring area is a core focus of the project as it is critical not only for carbon marketing purposes (carbon stocks, leakages, emissions), but also for management needs of the company in order to assess 'just-on-time' fundamental indicators such as survival, growth rates and unit costs. The monitoring will also include the monitoring of environmental and social impacts of the project, based in a set of key indicators.
- *Social issues*. Included are different activities and areas related with stakeholders, including project workers, local communities and private and public regional institutions. More detail about this item will be found in Section IV of this document.

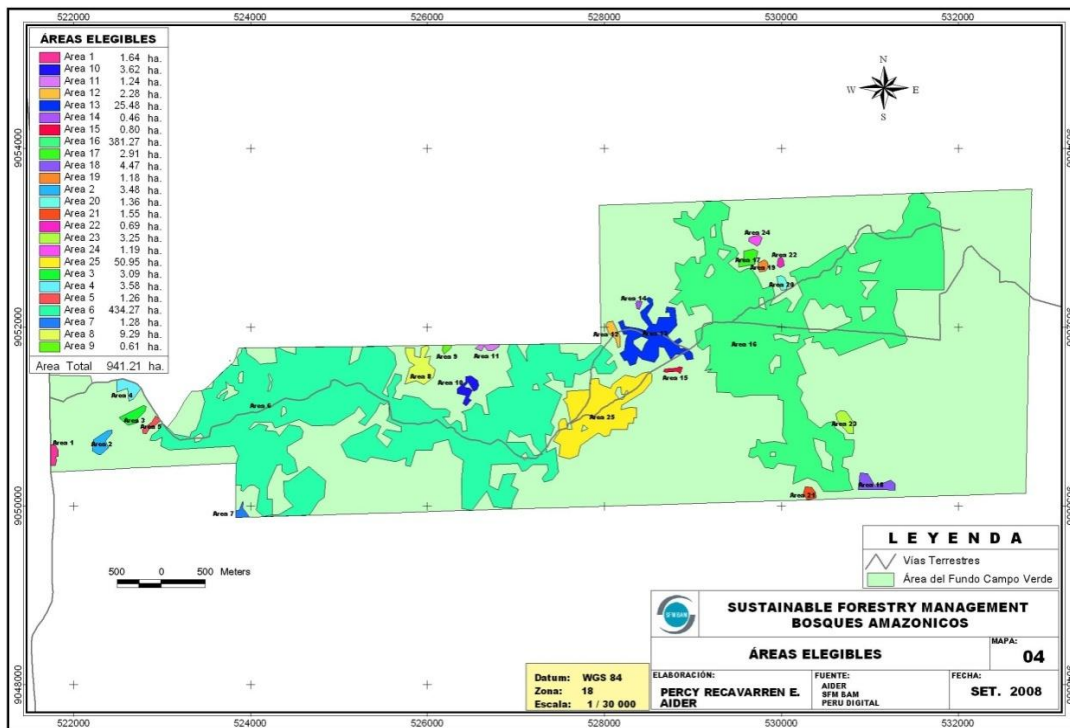
G.3.3 Provide a map identifying the project location, where the major project activities will occur, geo-referenced boundaries of the project site(s).

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The Project is located in the District of Campo Verde, Coronel Portillo Province at the Ucayali Region. See Annex H for the Project GPS borders

The specific eligible areas of the carbon project are presented below:



G.3.4 Provide a timeframe for the project's duration. Describe the rationale used for determining the Project lifetime. If the accounting period for carbon credits differs from the project lifetime, explain.

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From growth curves for all the species used in the project, it was established that, for medium-growth species, 30 years would be the optimal rotation; therefore, the accounting period for carbon credits was established for the same period. It should be noted that the field establishment of the forest species will be in year 2 as the first year will be used to allow the establishment of the nitrogen-fixing species, *I. edulis*. The company plans to replant the plantation after the first harvesting cycle. The carbon credit accounting will estimate the long-term average carbon stocks from the plantation as the maximum amount of credits that can be produced.

G.3.5 Identify likely risks to climate, community and biodiversity benefits during the project lifetime. Outline measures that the project plans to undertake to mitigate the risks.

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The EIA carried out for the project by an independent consultant identified the following potential risks of the project:

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- The availability of water for nursery irrigation
- The quality of water
- Soil stability

*Water Availability* - Uncontaminated, borehole water is required to mitigate the introduction and spread of pathogens within the nursery. A borehole was sunk and water of sufficient quality and quantity was located. However, due to the relatively low water requirements of the nursery, the use of ground water will not lead to a degradation of groundwater supplies.

*Water Quality* - With approximately 200 workers present each day, another risk is contamination of watercourses which could lead to the spread of infectious diseases. Consequently, management has installed outhouses in different points far from the watercourses. Lime is used as a disinfectant. Additionally, at the beginning of the project, samples of river water have been taken and sent for analysis in an independent, acknowledged laboratory. The results will be used as the baseline of water quality. Periodical analysis will be done in order to monitor this impact.

*Soil stability* - this risk is related to soil compaction by machinery and vehicles during different phases of site preparation and road building. It has been mitigated through the choice of the machinery (a criteria of selection being a minimum impact on the soil) and through road design.

*Risk of Deforestation* - finally, a potential impact not considered by the research is the risk that extra labour demand in the zone will push migration to habitable areas adjacent or near to the property. As most of these areas are forests, there could be a risk of deforestation. To mitigate this risk, the company has established a hiring policy that favours the employment of local families already living in the area at the beginning of the Project. Any additional labour is brought from Campo Verde or Pucallpa each day and returned back at the end of the workday - thus not allowing them to stay in the adjacent areas of the property. Additionally, for any workers who need to stay in the project area for a longer period of time, temporary camps have been built. With these procedures in place, the project is absolutely committed to avoid any kind of unexpected deforestation. After plantation establishment, workers brought in from other areas will not be required and plantation employment will be based on existing populations.

There are no expected likely risks to the community as a result of the project. There were no populations living within the project area prior to the start of the project and as stated the project will be bringing additional jobs and skills to the community. The company is committed to hiring members of the surrounding communities over the life of the project.

There are no likely risks to biodiversity benefits during the project lifetime. The biodiversity at the start of the project is very low and will increase as a result of the project activities.

G.3.6 Document and defend how local stakeholders have been or will be defined.
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No communities live within the boundaries of the project. However, a number of communities will have members employed by the project both in the short and long-term. There are 7 small villages, including 1 native community, along the road from Campo Verde to Tournavista that reaches the border between Ucayali and Huánuco Regions. These communities are linked with the Project in that most of the families living there work for the Project, directly or indirectly. These communities, therefore, are considered the main stakeholders of the Project. Within these communities, 3 socioeconomic surveys were carried out. Both authorities from the communities and random local families were considered in the surveys. Most of them, at the same time, are employed in some capacity by the project.

The larger town of Campo Verde, which is the capital of the district with the same name, can be considered to have a relationship with the project as some of the workers come from the town. But as Campo Verde has a much larger population, the level of impact of the Project on its economy is relatively low.

Finally, the SFM BAM property borders two native communities on its eastern side. This side, however, is covered by forest and the company is undertaking no work at this time. Therefore, these communities do not have much knowledge nor do they experience any impact from the project activities. Even though they were considered in one of the surveys, they should be considered as non-stakeholders for the scope of this project.

G.3.7 Demonstrate transparency by: making all project documentation publicly accessible at, or near, the project site; only withholding information when the need for confidentiality is clearly justified; informing local stakeholders how they can access the project documentation; and making key project documents available in local or regional languages, where applicable.

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The company's policy is to share relevant and non-confidential project information in a variety of ways: disclosure on its webpage, availability of documentation in SFM BAM offices, participation in conferences, workshops, meetings and other types of public presentations. All project documentation will be available at the project site and at SFM-BAM offices in Pucallpa and Lima. Local stakeholders were informed of where documentation could be found during consultations with the local community. Additionally, signs are posted at the project site stating that Project information is available on request in the company's offices. Documents will be available in both Spanish and English.

**G4 Management Capacity (Required)**

G.4.1 Document the management team's experience implementing land management projects. If relevant experience is lacking, the proponents must demonstrate how other organizations will be partnered with to support the project.

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SFM BAM is the result of a joint venture between the Peruvian company Bosques Amazónicos (owner of the Project land since the 1980s) and the Bermudan company Sustainable Forestry Management Limited, a company specialising in rural land use development and the trading and marketing of carbon offsets.

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SFM BAM has long-term agreement with AIDER, a well-established Peruvian NGO with more than 20 years of experience of developing projects in rural areas. Aider's focus is to promote the sustainable use of natural resources from the forests between local communities and rural producers as a strategy to improve their life conditions. Its work scope includes the Amazon Rainforest (Ucayali, Huánuco, Pasco and Madre de Dios) and North Coast Dry Forest (Piura).

AIDER has developed projects incorporating sustainable forest management and FSC certification with indigenous Amazonian communities, reforestation projects with peasant communities and also is working in the conservation of Natural Protected Areas.

AIDER has specialized in the design and implementation of forest carbon projects, including carbon stock and baseline estimations, Project Design Document formulation for reforestation as well as for avoided deforestation projects. It has partnerships with organizations such as Conservation International, WWF, and FONAM, among others.

Aider's staffs include forest engineers, social specialists, economists, and others working together under an inter-disciplinary approach.

The role of AIDER is to provide technical assistance to SFM BAM regarding the plantation establishment and in the fieldwork regarding VCS and CCB PD development (baseline, monitoring, etc.).

Winrock International (USA) is providing technical support and assisted in the development of the VCS and CCB PD. Winrock is a non-profit organization, whose goal is to empower the disadvantaged, increase economic opportunities and sustain natural resources. Its Ecosystem Program is well known and respected in the academic world; Winrock's work with carbon issues is internationally recognised.

G.4.2 Demonstrate that management capacity is appropriate to the scale of the project.

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There are 15 professionals working permanently in SFM BAM offices in Lima and Pucallpa. Additionally, there are 8 professional from AIDER team supporting the activities of the project. Finally, SFM Ltd has 6 professionals involved in the Project. The curriculum vitae of the management staff are available in Annex G.

This total does not include the number of workers that, in a permanent or temporary basis, are involved in the project. It is estimated that an average of 300 people are participating in the activities of the project. This number will be reduced after plantation establishment, as maintenance activities demand less labour.

G.4.3 Document key technical skills that will be required to successfully implement the project and identify members of the management team or project partners who possess the appropriate skills.

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Several technical skills are required for the implementation of the Project:

- General manager
- Field manager

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- Nursery specialist
- Silvicultural specialist
- Research chief
- Carbon marketing specialist
- Forest carbon developer
- Economic Analyst
- EIA expert
- Social and Community Relationships Manager
- Administrative
- Logistics Manager

Some positions may be consolidated as they correspond to some overlapping areas within the organization. As mentioned above, the policy of SFM BAM is to employ these people “in house” as opposed to contracting with third parties (see Annex G).

G.4.5 Document the financial health of the implementing organization(s).

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SFM BAM is a joint venture company formed in April 2007 established through a shareholders’ agreement between Sustainable Forestry Management Ltd and the Peruvian company Bosques Amazonicos. Under the terms of the Shareholders Agreement, SFM Ltd. acquired a 30% interest in SFM BAM. Bosques Amazonicos contributed the land assets to the Joint Venture Company. At the same time, SFM Ltd. entered into an Assignment Agreement with SFM BAM. The Assignment Agreement specifies that SFM Ltd pre-purchase the carbon rights from the project area. The consideration paid by this pre-purchase of carbon rights provides the financing necessary for the project to undertake its operations. SFM Ltd funding is internally resourced. SFM Ltd shareholder funds have financed the initial investments in plantation establishment by SFM BAM. Longer term funding will be generated by a combination of internally sourced shareholder funds and through the monetisation of carbon credits from the project. Once the project is established, other forms of finance will be sought, including local debt funding if available.

**G5 Land Tenure (Required)**

G.5.1 Guarantee that the project will not encroach uninvited on private property, community property, or government property.

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The lands are private property of SFM BAM in 3 different titles as registered in SUNARP, the national office for ownership and recorded under the following references:

Name	Date	File	Area	Code
Campo Verde	Sep. 14, 1992	00566-R	1.474 ha	40011349
Mirianita	Mar. 08, 1985	9684	2.289 ha	40000584
Selva Maestra	Nov. 14, 2000	000076-R	12.730 ha	40010854

G.5.2 Guarantee that the project does not require the relocation of people or any relocation is 100% voluntary and fundamentally helps resolve land tenure

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problems in the area.

>>

Although development of the Project is on private property that has been without any productive use for many years, some farmers from neighbouring communities allowed their cattle to graze inside the Project area temporarily throughout the year. For this reason, the Project conducted a survey (see Annex J) about the level and intensity of grazing. Based on the results of the survey, individual agreements were established with the farmers in order to move the animals to their own pasture lands. The survey showed that, in terms of potential leakage, the existing pasture lands owned by the farmers are large enough to accommodate the displaced animals without clearing new forest lands.<sup>2</sup> This result will be monitored until the first verification process of the project.

Agreements with the farmers were reached without negative reactions and voluntarily. There were no disagreements about the ownership of the lands on which the animals were feeding, as documented in the stakeholder consultation process report (see Annex I).

G.5.3 Describe potential “in-migration” of people from surrounding areas, if relevant, and explain how the project will respond.

>>

One of the main risks of the project is related to the increasing labour demand that exceeds the local supply from the families settled in the nearby communities. Workers coming from the town of Campo Verde and the city of Pucallpa cover this excess labour demand. As the Project’s hiring policy gives preference to local families, there could be an incentive for new families to come and settle near the project area, which could pose a risk to existing forests near the Project area.

For this reason, workers from the other cities (Campo Verde and Pucallpa) meet at specified points and are transported to the project area each day, and are returned at the end of the day. When project work requires that these labourers remain in the area for a period longer than a day, temporary camps have been built with basic living conditions. Additionally, surrounding areas (including forest areas) are already owned by existing families who are attaching increasing value to their lands in the anticipation that future productive projects will be developed in the area. This will make it difficult for newcomers to establish in neighbouring settlements or create new ones.

**G6 Legal Status (Required)**

G.6.1. Guarantee that no laws will be broken by the project.

>>

The project works under the area’s legal framework, which requires that the plantation be registered with INRENA and that the project has developed a management plan. The company is also fulfilling all the national requirements related to labour laws and taxation.

G.6.2. Document that the project has, or expects to secure, approval from the appropriate authorities.

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<sup>2</sup> For more information see: Inventario Físico de Ganado Existente en el Fundo Campo Verde.doc, Leakage - Grazing calculations.xls

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>>

It is expected that the Management Plan developed will be approved by INRENA and that the VCS PDD will get a letter of approval from CONAM, even though CONAM approval is not mandatory for projects developed for the voluntary markets.

**G7 Adaptive Management for Sustainability (1 Point)**

**G.7.1 Demonstrate how management actions and monitoring programs are designed to generate reliable feedback that is used to improve project outcomes.**

>>

AIDER has developed a monitoring system that includes different components (carbon stocks, plantation, impacts, accounting, among others). SFM BAM is implementing the monitoring plan directly and through its relationship with AIDER.

See Annex R, Chapters 3 and 10 for details of the proposal. They can also be found in Aider's internal documentation of the monitoring proposal.

Schematically, the monitoring system includes following areas and issues:

- Carbon
  - o Removals
  - o Emissions
  - o Boundaries
  - o Leakages
- Forest Management
  - o Nursery
  - o Plantation
- Costs
  - o Labour
  - o Others
- Impacts
  - o Environmental
  - o Socioeconomic

The monitoring plan develops specific indicators and criteria and the methodology describes how the information will be collected (frequency, tool, format, responsible) and processed. The plan describes how actions will be taken based on the outcomes of the monitored indicators to ensure that the benefits of the project activities are maximized.. The results of monitoring will be used to adjust project research and development priorities and action. The monitoring proposal also describes the flow of information between different areas of the involved institutions.

**G.7.2 Describe a management plan for documenting decisions, actions and outcomes and sharing this information with others within the project team, so experience is passed on rather than being lost when individuals leave the project.**

>>

Standard operating procedure manuals (see Annex F) have been developed for all components that require monitoring over time. These manuals inform newer team

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members of the procedures required for implementation of all project activities. Where needed, these manuals will be updated based on lessons learned during the project.

Periodically, reports will be generated and archived in several formats as a way to protect the knowledge acquired through field experience. This will also avoid the loss of information and its over-concentration in specific individuals.

Nursery and plantation reports are submitted monthly as part of carbon leakage and emissions monitoring. Environmental and socioeconomic impacts will be assessed once a year.

Complementary to the management plan, additional surveys have been developed according to the need of information on specific issues.

G.7.3 Demonstrate how the project design is sufficiently flexible to accommodate potential changes and that the project has a defined process in place to adjust project activities as needed.

>>

The AIDER-SFM BAM-SFM team uses an adaptive management strategy. Regularly held meetings will take place with Project staff to discuss the status of the Project. When needed, additional meetings will be held to resolve unforeseen issues as a result of the Project. The management plan will include procedures to incorporate changes as a result of lessons learned during the project.

Based on these results, the staffs of AIDER, SFMBAM and SFM have periodically held meetings about general and specific issues in order to adapt the characteristics of the project to changing circumstances in either project design or implementation. Since the plantation model is using new species, technologies, and plantation models, flexibility and adaptation is an essential and integral part of the project design.

G.7.4. Demonstrate an early commitment to the long-term sustainability of project benefits once initial project funding expires, including e.g. a new project; securing payments for ecosystem services; promoting micro-enterprise; and establishing alliances to continue sustainable land management.

>>

The project is a joint venture between SFM Ltd and Peruvian company Bosques Amazonicos, which created the new company SFM BAM. SFM Ltd agreed to finance the project activity in April 2007 through the Joint Venture Company SFM-BAM. Under the terms of the Shareholders Agreement, SFM Ltd. acquired a 30% interest in SFM BAM. Bosques Amazonicos contributed the land assets to the Joint Venture Company. At the same time, SFM Ltd. entered into an Assignment Agreement with SFM BAM. The Assignment Agreement specifies that SFM Ltd pre-purchase the carbon rights from the project area. The consideration paid by this pre-purchase of carbon rights provides the financing necessary for the project to undertake its operations. The Assignment Agreement specifies that SFM Ltd. will provide the funding for establishment costs of the project over two years. SFM BAM will repay this funding over a period of ten years in the form of carbon or other environmental rights. In this regard, the long-term sustainability of the project benefits are incentivised by the underpin of carbon finance. The cash flow projections of the business can be found in Management Plan of the company.

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In addition, SFM BAM is continuing to develop additional carbon projects in the region. Specifically in Ucayali Region, SFM BAM is considering the purchase of 7,000 hectares of forests (mainly wetlands) located next to the Campo Verde forest area to put under forest protection. SFM BAM constantly monitors the availability of new pasture lands in the region for expansion of the Project, either directly or through agreements with other landowners. In addition, an REDD project is currently being developed by AIDER in the Madre de Dios area of Peru in conjunction with SFM BAM.

**G8 Knowledge Dissemination (1 Point)**

G.8.1. Describe how they will document the relevant or applicable lessons learned.

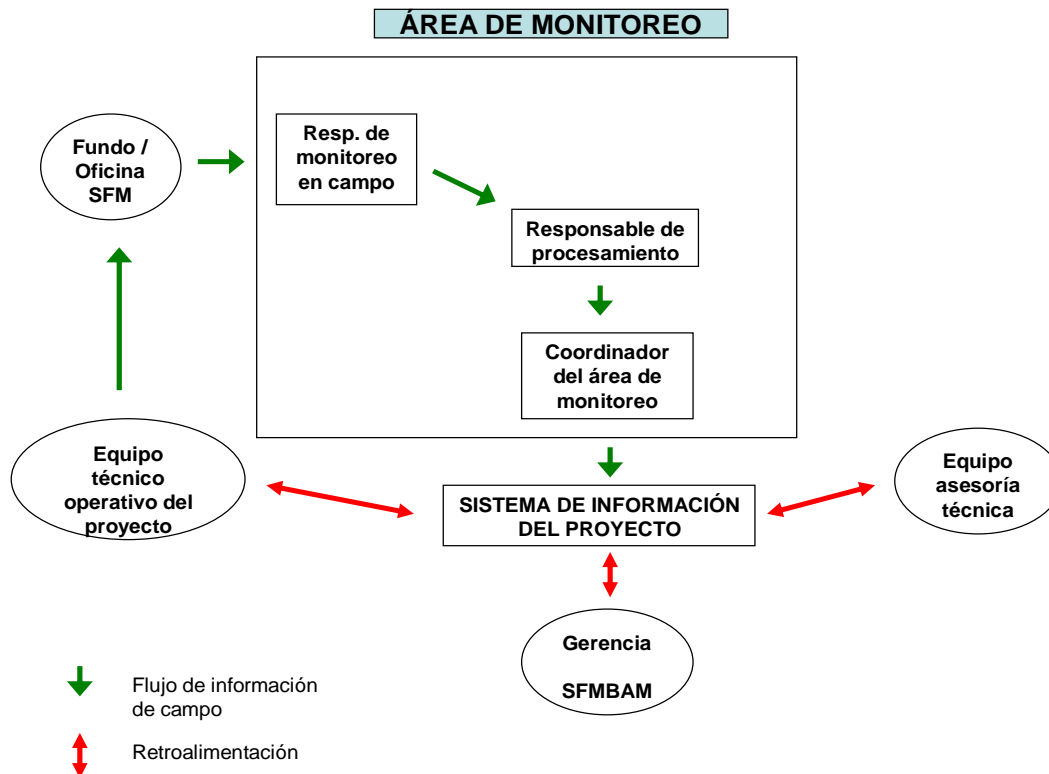
>>

As explained in the management plan, there is an organized flow of information and feedback that guarantees that relevant information is being documented completely and permanently, and guarantees this information is known in a timely manner and communicated to the decision levels required.

Periodical internal workshops are regularly convened to discuss issues that arise during the implementation of the Project. These workshops will allow knowledge dissemination and “lessons learned” from on the ground experience in the project and will be used to introduce changes in the implementation of the Project.

A schematic of the flow of information is shown below:

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G.8.2. Describe how they will disseminate this information in order to encourage replication of successful practices. Examples include: undertaking and disseminating research that has wide reaching applications; holding training workshops for community members from other locales; promoting “farmer to farmer” knowledge-transfer activities; linking to regional databases; and working with interested academic, corporate, governmental or non-governmental organizations to replicate successful project activities.

>>

The main results of the field experiences from the implementation of the project will be shared with local population through different workshops and site visits to the plantation. Recently, SFM BAM staff is providing technical assistance to a farmers’ organization interested in replicating the project activities. SFM BAM has provided technical training and has made site visits to their plots. In addition, SFM BAM staff has trained an organic producers association to provide guaba plants from their own nursery.

Additionally, as noted above, relevant technical information is publicly available and transparent through the webpage of the company ([www.sfmbam.com](http://www.sfmbam.com)) and is also shared in regional, national and international conferences, workshops and articles.

**III. Climate Section**

**CL1 Net Positive Climate Impacts (Required)**

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CL.1.1 Estimate the net change in carbon stocks due to the project activities. The net change is equal to carbon stock changes with the project minus carbon stock changes without the project (G2). Alternatively, any methodology approved by the CDM Executive Board may be used. Define and defend assumptions about how project activities will alter carbon stocks over the duration of the project or the project accounting period.

>>

See Annex R, Chapter 4.4 for calculations of net CO<sub>2</sub>e sequestration due to project activities.

The methodology used is AR-AM003, “Afforestation and reforestation of degraded lands through tree planting, assisted regeneration and control of animal grazing”, one of the methodologies approved under the Clean Development Mechanism by the UNFCCC for forest projects. An analysis of conditions of applicability was done to assure that the project met the criteria specified in the methodology. The project area is composed of degraded land that was under a low level of grazing activity. This was the only pre-project activity occurring in the area.

As the area is a pasture land mostly covered by invasive grass that degrades and increases the acidity level of the soil, and considering that annual uncontrolled fires from neighbouring plots preclude any possibility of natural tree regeneration, the success of the forest establishment proposal will undoubtedly increase the carbon stock level sequestered as a result of the implementation of the planned activities compared with the scenario without project.

CL.1.2 Factor in the non-CO<sub>2</sub> gases CH<sub>4</sub> and N<sub>2</sub>O to the net change calculations (estimated in CL.1.1.) if they are likely to account for more than 15% (in terms of CO<sub>2</sub> equivalents) of the project’s overall GHG impact.

>>

The non-CO<sub>2</sub>e GHG emissions resulting from biomass burning caused by the project will be monitored over the life of the project (see Annex R, Chapter 4.3.1.3). Over the life of the project, it is estimated that these actions will result in only 5 t CO<sub>2</sub>e or less than 1% of total expected net GHG removals.

Additionally, the project will plant some nitrogen fixing trees. An analysis was conducted that estimated a highly conservative and maximum possible N<sub>2</sub>O emissions resulting from the additional nitrogen fixed by the N-fixing trees. It was determined from this analysis that the maximum amount of N<sub>2</sub>O emissions (341 t CO<sub>2</sub>e year<sup>-1</sup>) would equal about 8% of the total expected net GHG removals.<sup>3</sup> Actual N<sub>2</sub>O emissions are expected to be significantly lower than this upper bounds estimate because of the extremely low carbon content of the soil (<1% Carbon). Therefore, N<sub>2</sub>O emissions resulting from nitrogen fixing tree are assumed to be insignificant and ignored.

CL.1.3 Demonstrate that the net climate impact of the project (including changes in carbon stocks, and non-CO<sub>2</sub> gases where appropriate) will give a positive result in terms of overall GHG benefits delivered.

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<sup>3</sup> Annex A Evidence to support applicability of methodology

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See Annex R, Chapter 4.4 for the net climate impact (including non-CO<sub>2</sub> gases) of the project.

**CL.2 Offsite Climate Impacts (“Leakage”) (Required)**

CL.2.1 Estimate potential offsite decreases in carbon stocks (increases in emissions or decreases in sequestration) due to project activities.

>>

The estimate of CO<sub>2</sub>e emissions from leakage mainly associated with fuel consumption related to the transportation of people and materials from outside the Project area (see Annex R, Chapter 4.4). Also, an estimation of wood volume consumed in the production of stakes and fencing will be considered.

Emissions from grazing displacement are estimated to be zero. The field survey found that existing grazing lands outside the project area could support the displacement of animals from within the project area. However, to ensure this is the case, the animals displaced will be monitored for the first five years of the project.

CL.2.2 Document how negative offsite impacts resulting from project activities will be mitigated and estimate the extent to which such impacts will be reduced. Estimate the extent to which the negative offsite impacts will be reduced adequately.

>>

In relation to potential emissions caused by displaced grazing, the Project has developed guidance to train local farmers to improve grazing techniques. This guidance will be implemented if monitoring shows that forest clearing is occurring. As mentioned above, however, no deforestation is expected from the displacement of animals.

To reduce emissions from fuel consumption, a more efficient transportation network is being developed, utilising motorcycles and vans for individuals and groups, respectively.

In respect of wood demand, the company purchasing policy requires that all wood comes from managed, legal forests. Eventually, if a suitable supply of wood can be sourced from certified forests, the company will direct its purchases to these sources.

CL.2.3 Subtract any likely project-related unmitigated negative offsite climate impacts from the climate benefits being claimed by the project. The total net effect, equal to the net increase in onsite carbon stocks (calculated in the third indicator in CL1) minus negative offsite climate impacts, must be positive

>>

As previously noted, the net emissions caused by leakage activities are considered in the calculation of net CO<sub>2</sub> reductions (see Annex R, Chapter 4.4).

**CL.3 Climate Impact Monitoring (Required)**

CL.3.1a Describe the initial plan for how they will select carbon pools and non-CO<sub>2</sub> GHGs to be monitored.

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>>

Only above ground biomass (trees, shrubs) and below ground biomass (roots) will be considered as pools. In the baseline, deadwood, litter, and soil carbon levels are very low. As a result of the project activity, these pools will either stay the same or increase and therefore can conservatively be neglected. The increase in dead wood, litter and carbon in soil as a result of the project is expected to small in comparison with increases in tree biomass. AR-AM0003 specifies that only above ground and below ground biomass carbon pools can be monitored and therefore this project is in line with the applicability conditions.

Regarding non-CO<sub>2</sub> GHG considered, as indicated in AR-AM0003, the following non-CO<sub>2</sub> GHG will be monitored as potential emission sources (see Annex R, Chapter 4.2.1):

- N<sub>2</sub>O from use of fertilizers
- CO<sub>2</sub> from combustion of fossil fuel
- CH<sub>4</sub> from burning of aboveground biomass
- N<sub>2</sub>O from burning of aboveground biomass
- CO<sub>2</sub> from change of aboveground biomass

See Annex R for a more detailed explanation of the choice of greenhouse gas sources. Additionally, it should be noted that CO<sub>2</sub> emissions from burning of aboveground biomass has been considered as biomass loss in the net removals calculation.

CL.3.1b State if the corresponding measurements and the sampling strategy (including monitoring frequency) are set in the monitoring plan.

>>

The monitoring plan specifically addresses each issue related to the monitoring methodology and includes variables, indicators, frequency, sampling method, SOPs and formats (see Annex R, Chapters 3 and 10 and Annex K). The monitoring methodology is based on AR-AM0003, an approved CDM methodology. SOPs have been developed by AIDER with the assistance of Winrock International.

CL.3.1c Show that all potential pools are included (above ground biomass, litter, dead wood, below ground biomass and soil carbon). Pools to monitor must include any pools expected to decrease as a result of project activities.

>>

Only AGB & BGB have been included. Other potential pools are not considered to materially affect the carbon balance of the project. Litter and dead wood are not significant pools as described in the baseline report (see Annex J). A specific soil analysis was conducted in the project area and nearby forest area<sup>4</sup>. The analysis concluded that there were no significant differences between the two areas and that soil carbon will likely remain constant over the project period and could therefore be excluded from the carbon balance of the project.

CL.3.1d Describe if relevant non-CO<sub>2</sub> gases are monitored if they account for more than 15% of the project's net climate impact expressed in terms of CO<sub>2</sub> equivalents.

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<sup>4</sup> Analisis Comparativo de Carbono en el suelo en el fundo Campo Verde

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The non-CO<sub>2e</sub> GHG emissions resulting from biomass burning and fertilizer use caused by the project will be monitored over the life of the project (see Annex R: Chapter 4.3.1.3).

N<sub>2</sub>O emissions resulting from nitrogen fixing tree are assumed to be insignificant and ignored and therefore are not monitored.

**CL.4 Adapting to Climate Change & Climate Variability (1 Point)**

**CL.4.1 Identify likely regional climate change and climate variability impacts, using available studies.**

>>

The IPCC Fourth Assessment Report<sup>5</sup> predicts that South America is likely to experience elevated temperatures and reduced precipitation. The warming of the Amazonia region predicted in the various models is 30% above the mean global temperature increases, although on a yearly basis there is a large amount of variability. Changes in precipitation for the Amazonia are highly spatially variable and model results show some increase in precipitation for Peru. Results between models are variable. Spatial and temporal variability is also great, therefore, the exact result of climate change is not highly known.

**CL.4.2 Demonstrate that the project has anticipated such potential impacts and that appropriate measures will be taken to minimize these negative impacts.**

>>

The planted tree species are able to grow successfully within the range of predicted climate change expected during the life of the project. By planting a sequence and mix of species, the risk of climate change reducing the positive impacts of the project is minimized. Additionally, the regeneration of the forest will improve local water and nutrient cycling, buffering potential climate change experienced in the region.

**CL5 Carbon Benefits Withheld from Regulatory Markets (1 Point)**

**CL.5.1 Demonstrate that at least 10% of the total carbon benefits generated by the project into regulated GHG markets will not be sold. Projects can sell these carbon benefits in a voluntary market or retire them.**

>>

The project is being developed in accordance with the Voluntary Carbon Standard. Therefore, the carbon credits generated will be sold into the voluntary markets. Credits will not be generated for the regulatory markets.

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<sup>5</sup> <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter11.pdf>

#### **IV. Community Section**

##### **CM1 Net Positive Community Impacts (Required)**

CM.1.1a Describe the appropriate methodologies used (e.g. the livelihoods framework) to estimate the net benefits to communities resulting from planned project activities.

>>

Two socioeconomic surveys and a stakeholder consultation (see Annex E and Annex I) were carried out to establish the benefits to local communities resulting from project implementation.

AIDER carried out the first survey in October 2004 at the start of the pilot project. The survey was designed to characterize the social and economic conditions of the buffer area around the proposed project activities. Questionnaires were completed by 147 families from seven neighbouring villages and interview conducted with local authorities of these settlements. The survey helped collect information about several different areas:

- Family composition
- Educational level
- Place of birth
- Productive activities (crops & grazing, area dedicated, time dedicated, produce destination)
- Type of tenure and vegetable coverage of plots

In this first survey, 100% of families living in the area were interviewed.

The second survey was carried in January 2007 by Social Capital Group, a British-based company commissioned as part of the social due diligence requirement of SFM Ltd during the negotiation process in the creation of SFM BAM. This survey was designed:

- To discover and analyze the perceptions of local families about the Project and the institutions involved
- To evaluate the potential conflicts for land tenure or for natural resources use
- To analyze the risks associated with the local population's expectations about the potential benefits from the project

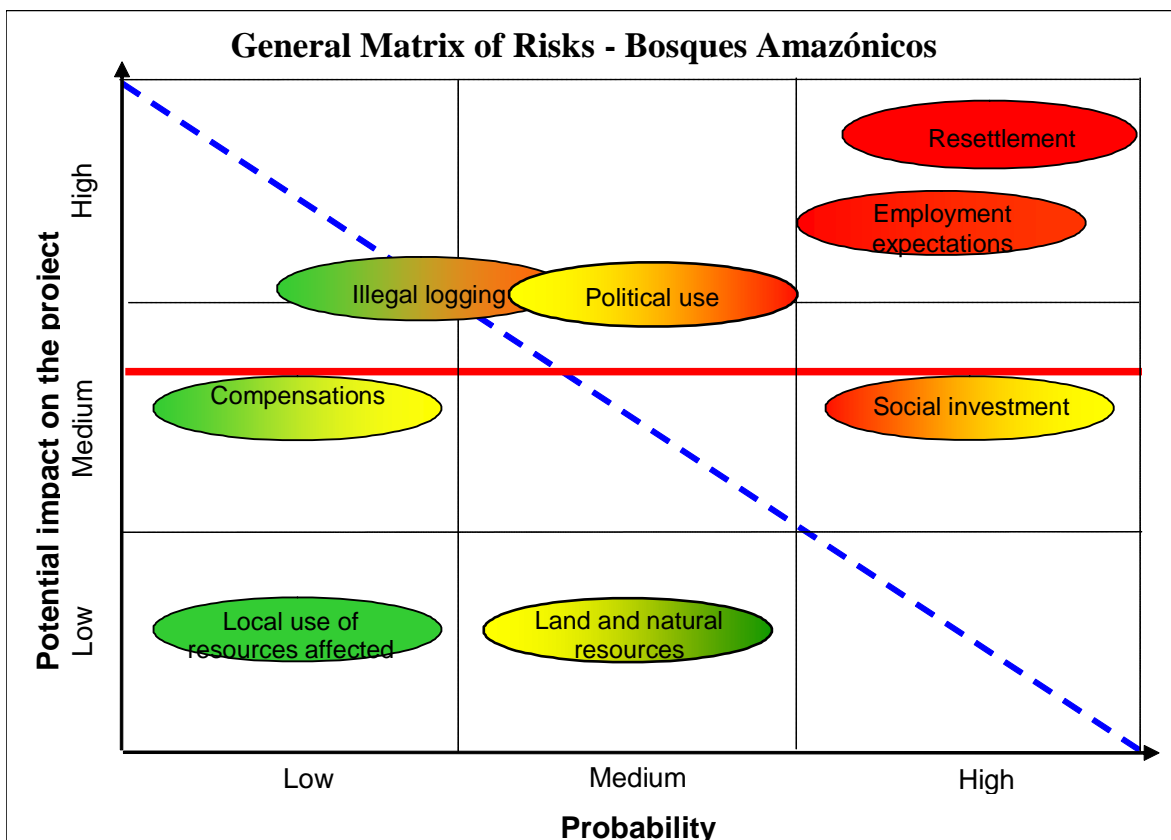
The methodology designed to achieve the above outputs was a social risk evaluation and included the questions to determine the following:

- Core risk issues
- Sources of risk per issue
- Probability of occurrence of each risk
- Potential impact of the risk
- Expected total impact
- Management measures to alter positively the context

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The evaluation focused on nine settlements (including, from the first survey, the seven settlements, located near the Project on the western side of the property) and 2 new ones, located in the east side of the property, that are indigenous communities.

Additional interviews were conducted in Pucallpa with a representative from the Regional Government and two leaders from indigenous organizations.



Based on this methodology, the survey developed the above general risk matrix for the project.

The results of these two surveys informed the final consultation process led by the SFM BAM team based on the methodology developed by Winrock and adapted by AIDER. For this process, a wider area was included:

TYPE OF SETTLEMENT	NAME OF SETTLEMENT	QUANTITY OF FAMILIES	
		TOTAL	INTERVIEWED
Rural settlements	Agua Blanca	35	5
	Tierra Roja	50	8
	Pucallpillo	100	15
	Belen	40	6
	Tupac Amaru	120	18
	Señor de los Milagros	20	3

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	José Olaya	60	9
	Nuevo Eden	30	5
Indigenous communities	Nuevo Paraíso	80	12
	Santa Teresita (Shirambari)	20	3
Large private lands (larger than 500 hectares)	Virgen de Guadalupe (1, 2 y 3)**	1	1
	Santa Graciela****	1	
Small landowners association	Nuevo Amanecer	30	5
	Agua Blanca	25	4
	San Cristobal de Agua Blanca	50	8
	Flor de Camu Camu	20	3
	Renacer	25	4
	Nuevo Eden	20	3
TOTAL		727	112

The consultation process consisted of two questionnaires: one was given to local families and who were interviewed directly and asked to respond to three specific topics: first, general demographic information; second, economic information; and third about their relationship to the project. 20% of local families were interviewed. The second questionnaire was directed to other stakeholders, including local authorities and leaders from social organizations.

The goal of the consultation process was to discover the extent of knowledge of the local population about the project, and to discover from the local population, regional leaders, and authorities any perceived benefits and threats to them from the implementation of the Project.

CM.1.1b Include a credible estimate of net benefits changes in community wellbeing given project activities. This estimate must be based on clearly defined and defensible assumptions about how project activities will alter social and economic wellbeing over the duration of the project.

>>

The consultation process included questions about that socioeconomic status of families in proximity to the Project area. Results showed that the typical rural family has an annual income of 1,453 Nuevos Soles (around US\$0.31 per capita per day). According with INEI (the National Institute of Statistics and Informatics), the poverty line in 2004<sup>6</sup> was at the following levels:

INTENSITY OF POVERTY	Annual income per capita in rural areas	In US\$/daily/person
Extreme Poverty <sup>7</sup>	NS/. 108.30	0.10
Poverty <sup>8</sup>	NS/. 169.80	0.16

<sup>6</sup> <http://www1.inei.gob.pe/Sisd/index.asp>

<sup>7</sup> Extreme poverty defined as the level of income that does not satisfy the minimum nutritional intake recommended

<sup>8</sup> Poverty defined as the level of income that does not satisfy basic needs (food and non-food)

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As the Peruvian Consumer Price Index has increased at a rate of 12.33% according with BCRP, the Peruvian Central Bank<sup>9</sup>, the estimated level of poverty and extreme poverty has increased as follows:

INTENSITY OF POVERTY	Annual income per capita in rural areas	In US\$/daily/person
Extreme Poverty <sup>10</sup>	NS/. 121.65	0.11
Poverty <sup>11</sup>	NS/. 190.73	0.17

Compared to these estimates, the average family in the Project area is slightly over the poverty line, with a per-capita annual income of 336.29 Nuevos Soles – this, however, represents a very low income and is below the national average. In the analysis it is assumed an average of 4.32 persons per family. This will be used as the socioeconomic baseline of project.

Economic Activities	Annual (NS/.)			Daily (NS/.)			In %	In US\$
	Total	Per family	Per person	Total	Per family	Per person		
Fishery	8,700	95.60	22.13	0.02	0.02	0.02	0.02	0.02
Timber	26,150	287.36	66.52	0.06	0.06	0.06	0.06	0.06
Rural worker	39,754	436.86	101.12	0.09	0.09	0.09	0.09	0.09
Transportation	28,800	316.48	73.26	0.07	0.07	0.07	0.07	0.07
Commerce	13,600	149.45	34.60	0.03	0.03	0.03	0.03	0.03
Agriculture	14,958	164.37	38.05	0.03	0.03	0.03	0.03	0.03
Farming	242.21	2.66	0.62	0.00	0.00	0.00	0.00	0.00
TOTAL	132,204	1,452.79	336.29	0.31	0.31	0.31	0.31	0.31

Therefore, this income level would have been the “without project” scenario. To calculate the “with project” scenario, two sources of income are considered:

- The salaries paid to workers by the Project
- The incomes received from other activities that SFM BAM will support

The daily salary paid to workers is 5 dollars and it is planned that 50,110 work-days will be required during 2008, which implies that the project will generate 250,550 dollars of contribution to local economy. Compared with annual income from traditional activities, this amount is substantially higher. The survey doesn't take into account that some of the workers possess additional qualifications such that their daily income is around 25 Nuevos Soles (about 67% higher).

CM.1.1c Compare the “with project” scenario with the baseline scenario of social and economic wellbeing in the absence of the project. The difference (i.e., the net community benefit) must be positive.

<sup>9</sup> <http://estadisticas.bcrp.gob.pe/resultados.asp?sIdioma=1&sTipo=1&sChkCount=138&sFrecuencia=M>

<sup>10</sup> Extreme poverty defined as the level of income that do not allow to satisfy the minimum nutritional intake recommended

<sup>11</sup> Poverty defined as the level of income that do not allow to satisfy the basic needs (food and non-food)

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As noted in the previous section, the net economic benefit for families working in the project (around 300 people) will be positive as their income will increase from less than 1500 Nuevos Soles per year to 4800 Nuevos Soles, an increase of over 300%

CM.1.2a Document local stakeholder participation in the project's planning. If the project occurs in an area with significant local stakeholders, the project must engage a diversity of stakeholders, including appropriate sub-groups, underrepresented groups and women living in the project vicinity.

>>

Even though, this is a project developed in a private property, the company is committed to maintain good relations with neighbours. In that sense, the consultation process has included local authorities and leaders and representatives from social organizations in the surrounding area. The following people and institutions were considered in the stakeholder list:

Name	Function	Address
Segundo Guierena	Teniente Gobernador	C. Túpac Amaru
Cesar Vásquez Pacaya	Agente Municipal	C. Túpac Amaru
Luis Alberto Herrero	Teniente Gobernador	C. Belén
Rodolfo Lozano Shuña	Agente Municipal	C. Belén
Enrique Tananta Garcia	Teniente Gobernador	C. Señor de los Milagros
Raul Ochavano Villasis	Agente Municipal	C. Señor de los Milagros
Emérita Pizango Shuña	Teniente Gobernador	C. Pucallpillo
Josué Perez Panduro	Agente Municipal	C. Pucallpillo
Rocío Canayo Silvano	Teniente Gobernador	C. José Olaya
Grover Torres Sanchez	Teniente Gobernador	CC.II. Santa Teresita
Daniel Santamaría Garcia	Agente Municipal	CC.II. Santa Teresita
Cecilio Huayta Galán	Teniente Gobernador	C. Agua blanca
René Perez	Agente Municipal	C. Agua blanca
Vital Simón Fatama	Teniente Gobernador	C. Tierra Roja
Rubén Ayachi Chujandama	Agente Municipal	C. Tierra Roja
Julver Lapeire Rivera	Teniente Gobernador	C. Nuevo Edén
Moisés Paya Quispe	Agente Municipal	C. Nuevo Edén
Wilson Cárdenas Amasifuén	Teniente Gobernador	C. San Cristóbal de Agua Blanca
Jesús Sanchez	Agente Municipal	C. San Cristóbal de Agua Blanca

CM.1.2b Describe how stakeholders in the project's area of influence will have an opportunity before the project design is finalized, to raise concerns about potential negative impacts, express desired outcomes and provide input on the project design. Project developers must document stakeholder dialogues and indicate if and how the project proposal was revised based on such input.

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The consultation process included specific questions addressed to the local population and authorities regarding the concerns and the potential benefits of the project. See Annex I for detailed questionnaires used for families and stakeholders. The results of the consultation process will be shared in a workshop with managers of SFM BAM and its principal recommendations will be included in specific company policies. This process will be documented appropriately.

Additionally, there is a company policy to address decisions about social impacts in a participative manner based on dialogue and consensus without ignoring technical considerations. The hiring policy has been designed to achieve equity between different settlements and families by establishing a weekly hiring rotation per village. In this way, each local community has the same opportunity to benefit from the Project.

Decisions regarding future project type and scope will be developed in consultation with the local population, taking into consideration the opinions, perceptions and needs of the families.

SFM BAM has recently created a department in charge of social relationships. They are writing their policies about how to deal with concerns.

CM.1.3a Formalize a clear process for handling unresolved conflicts and grievances that arise during project planning and implementation.
---

>>

An office dedicated to community relations is being incorporated in SFM BAM structure. This area will have the responsibility to manage potential conflicts that could arise with local communities during the implementation of the Project.

The process for handling conflicts will follow the procedure below:

- Step 1. Community will be informed of the process of how comments and grievances can be delivered to the project. The community can communicate through letters, a comment box at the company's offices, or can speak directly to the Project management.
- Step 2. Community will be informed of the procedures to handle conflicts that arise.
- Step 3. Being informed of the problem
- Step 4. Identify all parties (or representatives thereof) involved in the conflict to establish their demands and/or grievances
- Step 5. Determine the origin of the problem and the responsibility of each part. This step must be done by a person or entity agreed by all the actors involved
- Step 6. Quantify the extent (how many people) and intensity (how much money) of the conflict
- Step 7. Compile and present information to all the agents involved and try to establish a consensual solution
- Step 8. Try to promote an arrangement acceptable and equitable for all participants to the conflict
- Step 9. Define a deadline for the implementation of the agreed solution and assign a person from each party to monitor that any actions implemented are carried out.

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CM.1.3b Include a process for hearing, responding to and resolving community grievances within a reasonable time period. This grievance process must be publicized to local stakeholders.

>>

An official comment period for hearing, responding and resolving any comments (both local and non-local comments) will commence when the draft version of the VCS PD is posted for public comment and will take last until the validation of the VCS PDD and CCB PDD.

As most local people do not have access to the Internet, physical executive summaries (in Spanish and English) will be accessible to any person in SFM BAM's offices (in Pucallpa, Campo Verde, and Lima). In addition, the English-version full VCS PD will be posted on the TUV SUD web page.

Moreover, following the official comment period for the PDD, a grievance procedure will be instituted. Information about submitting a grievance will be communicated to the community and will be posted at all SFM BAM offices. Any comment may be sent by email, regular mail, or direct delivery to one of the offices or SFM BAM staff member. Within 30 days after receiving the comment, SFM BAM must reply to the person in respect of the grievance. Also, SFM BAM must register any comments and responses for TUV SUD review and analysis.

CM.1.3c Describe how the project management will attempt to resolve all reasonable grievances raised, and provide a written response to grievances within 30 days. Document Grievances and project responses.

>>

SFM BAM has created a position to manage community relationships whose responsibility is to respond to and resolve grievances from local communities.

Every three months, the community relations manager will meet with local authorities to explain the Project's development and to address any concerns that workers and local communities might have in relation to the project. Any solutions to these concerns or problems related to the Project will be achieved on a consensual basis. Meetings will be recorded and there will be a follow up in the next scheduled meeting.

In additional, the community relations manager will be responsible to inform company employees about the grievance and comment procedures. See Annex O for a detailed description of the policy.

**CM2 Offsite Community Impacts (Required)**

CM.2.1 Identify potential negative offsite community impacts that the project is likely to cause.

>>

The project will be developed on private property where neither communities nor families are settled. The seven communities included in previous analysis should be considered the offsite community.

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Also, as described above, the principal potential negative impacts from the project are related with the following:

- Migration of external families to existing villages (pressure on lands, forests and resources and social conflicts)
- Social conflicts between foreign workers and local workers
- Displacement of grazing animals from project area

CM.2.2 Describe how the project plans to mitigate these negative offsite social and economic impacts.

>>

As described above, SFM BAM has already established a policy that gives employment preference to local people and not hiring people who could migrate to nearby settlements. The company has taken a census to determine those who have lived in the local communities villages before the beginning of the project. This information is regularly crosschecked with local families and authorities in order to ensure that temporary migration do not positively or negatively affect any villager. To prevent internal migration, the Project has organizing workers from outside the local area into temporary camps within the project area. Trucks are used to take these workers to and from their towns of residence.

The office of community relations will manage any potential conflicts that arise between community members and non-local staff. All parties will be informed of how grievances can be submitted.

The analysis conducted in relation to grazing concluded that the displaced animals can easily be moved to existing grazing lands outside the Project boundary. Displacing the grazing animals from the Project area to grazing land outside the Project area will not cause the grazing lands to exceed the maximum capacity of the lands to support the animals and therefore will not result in further land degradation. The individual farmers who own the animals grazing within the project area own additional grazing lands outside the Project area that are of sufficient size to maintain the same number of animals.

CM.2.3 Evaluate likely unmitigated negative offsite social and economic impacts against the social and economic benefits of the project within the project boundaries. Justify and demonstrate that the net social and economic effect of the project is positive.

>>

There are no human settlements inside the boundaries of the project as it is private property since the 1980s. The net impact of the project is positive according to survey results, even though it is difficult to quantify non-monetary impacts of the Project such as increased training. The results of surveys taken in the local communities suggest that families feel the Project will deliver net benefits to the communities.

**CM3 Community Impact Monitoring (Required)**

CM.3.1 Define the initial plan for how they will select community variables to be monitored, and the frequency of monitoring. Potential variables include income, health, roads, schools, food security, education and inequality. Include in the

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monitoring plan, community variables at risk of being negatively impacted by Project activities.

>>

Variable	Indicator	Frequency	How will be collected
Income	USD monthly income per family	Yearly	Processing information of labors project records.  Surveys to local families by town.
Food security	Number of hectares per family for agricultural production  % of monthly income destined to alimentation	Triennial	Surveys to local families by town.
Wild fauna availability	Increase of frequency of wild fauna meat on familiar alimentation  Increase of diversity of fauna species on familiar alimentation	Triennial	Surveys to local families by town.
Firewood availability	Reduction of distance traveled for firewood collection.	Triennial	Surveys to local families by town.
Housing	Number of families which have replace their rustic houses with improved materials	Triennial	Surveys to local families by town.
Community organisation	Organization level of the local direction boards, committees, etc.  Number of local official petitions to local governments attended.	Triennial	Surveys to local families by town.  Participatory workshops.

**CM4 Capacity Building (1 Point)**

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CM.4.1 Explain how the capacity building is structured to accommodate the needs of communities, not only of the project.

>>

The project will hold formal technical training for plantation employees who make up the majority of the surrounding communities. Through employment of the local community and through employee training, the community will increase its understanding of plantation development and implementation. Additionally, the lessons learned from Project employment are directly applicable to the community since the land in these communities suffers from the same problems as the project area (poor soils, invasive grasses, difficulties for weeding control, etc.). However, the technical support provided to the local population is not limited to these issues, but also includes other activities of interest to them. Incorporating the concerns of local families in the design and decision process is useful not only as a way to ensure that decisions are directly responding to community needs, but also helps to promote participative and negotiation practices between all players, and thus contributes to a higher level of involvement in by both the Project management and the local population.

The project proponents also plan to develop additional plantations in the area surrounding the project area in concert with the local populations. The development of these additional plantations will require the integration of the needs of the project proponents and the local communities who will work with the project proponents. By engaging in this participatory process, the risk of deforestation will be lessened and degraded lands will be more likely recover their original forest cover. In addition, families could potentially participate and benefit from the carbon markets.

CM.4.2 Explain how the capacity building is targeted to a wide range of groups, not just elites.

>>

There are no clearly identifiable elites in the local communities. As large percentage of population are migrants from other Amazonian or Andean regions and as such, no significant socioeconomic differences have been found within their communities. Despite this relatively flat demographic, SFM BAM's policy for community support is based on two levels of support: one targets individual families, the other existing organizations within the communities. In this sense, the risk of appearing to favour one group over the other within the communities is minimised. Also, the SFM BAM field team participates in various community activities and festivities in order to gain a more informal, yet significant, understanding of community dynamics.

CM.4.3 Explain how the capacity building is targeted to women to increase their participation.

>>

The company's hiring practices are non-discriminatory in regard to gender. Even though there are no specific policies targeted towards women, internal company records show that around 40% of the total workforce is female. The participation of women from local communities is naturally high (because of the demand for labour from the Project) and tends to be concentrated in certain of the Project's activities. For example, there are many women employed in the nursery operations.

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CM.4.4 Explain how the capacity building is aimed to increase community participation in project implementation.

>>

Periodic workshops have been held with individuals and organizations of local communities during design of the social action plan of the company. The participation of communities was not limited to this initial stage of the process, but will be extended to annual workshops that will evaluate the results of the previous year's capacity building efforts and that will introduce any changes to improve these efforts in the future.

**CM5 Best Practices in Community Involvement (1 Point)**

CM.5.1 Demonstrate that the project was developed with a strong knowledge of local customs and that, where relevant, project activities are compatible with local customs.

>>

The success of the project is strongly correlated to local knowledge about soils, species interaction, and the appropriateness of species selection for the Project area. In addition, much of the information about biodiversity has been collected based on local knowledge of the areas flora and fauna.

Specifically, the selection of timber species was based on local consultation with technical specialists such as INIA, and as a result of site visits to surrounding areas. Information about successful tree species from these sources informed the company's decisions about species selection. The selection process was in a large part based on local knowledge about *alelopaties*, which inform about species interaction, and thus provided information regarding the Project's interplanting regime. Accordingly, information regarding growth rates, spacing, and other inputs were strongly influenced by local knowledge about behaviour of these species in local conditions. The modelling developed for the project was based on replicating this observed local behaviour.

Local knowledge is also utilised in daily field decisions regarding issues such as weed and pest control among others.

Lastly, the decision to plant five native species instead of a monoculture was based on the principle of attempting to restore and replicate the natural forest cover that existed in this area prior to its degradation.

CM.5.2 Show that local stakeholders will fill all employment positions (including management) if the job requirements are met. Explain how stakeholders will be selected for positions and where relevant, must indicate how traditionally underrepresented stakeholders and women, will be given a fair chance to fill positions for which they can be trained.

>>

100% of SFM BAM personnel (including the staff team) hired for the development of the project lived in the region before joining the company. This suggests that the company understands that it makes good business sense to hire locally, as these people are undoubtedly more informed about local conditions and practices, and can therefore contribute positively in the decision making process.

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As mentioned above, the company does not have an explicit policy regarding the employment of women or minority representatives (indigenous communities). Company records show that women made up 40% of the in 2007 and 20% in 2008 (this percentage decreased as women are usually concentrated in nursery phase of operations which slowed in 2008 but is expected to increase in 2009). One of the seven neighbouring settlements close to the Project is an indigenous community, with a population that represents 10% of the total population of the seven settlements. The percentage of SFM BAM workers coming from this community is 8.5%, a significant number when one considers the labour shortage in the area, evidenced by the fact that the project needed to source labour from the cities of Campo Verde and Pucallpa.

**CM.5.3 Demonstrate that the project complies with international rules on worker rights.**

>>

According with Forestry Law 1090, a reforestation project must be registered within 3 years after the establishment of plantation. The project is currently preparing the registration documentation for the register of first 20 hectares installed in 2005.

According to national laws, a plantation that applies for registration must be registered in INRENA, the national office for natural resources. Also, a management plan should be developed and sent to INRENA for their approval. At this time, the management plan is being worked by an AIDER-SFMBAM team and will be concluded soon and submitted to INRENA.

SFM BAM was established in 2006 and complies with the national legal framework regarding labour laws. Such laws require that permanent workers are registered in the records of the company and that the company contributes to: national social security, compensation for time working (a sort of unemployment fund), and a retirement fund for permanent workers.

For temporary workers, the company has signed cooperation agreements with health centres in nearby villages which will provide medical assistance, if necessary, to these temporary workers.

Finally, the company has a permanent program for their workers, which includes activities for the integration of personnel and their families.

The company complies with laws regarding safety conditions for different activities within the Project area which includes the use of personal protection equipment.

Respect for local festivities is an important issue for the company. The company traditionally organizes activities in celebration of San Juan Day, a regional holiday widely recognised in the Ucayali area.

**CM.5.4 Comprehensively assess situations and occupations that pose a substantial risk to worker safety**

>>

As mentioned above, the company is committed to the personal safety of its workers by equipping them with and monitoring the use of personal protection equipment (PPE). In addition, workers are periodically trained about labour risks, first aid procedures and the

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importance of using PPE. Guidelines are printed and prominently displayed and are spread between workers. These guidelines are viewable in different area of the company.

There are no important high-risk activities in the project as most tasks are labour intensive and are usually undertaken manually. In order to minimize risk, one policy criterion of the company requires that tasks must be done in couples, thus avoiding the situation that any individual worker performs tasks alone, especially when these tasks occur in remote areas of the Project.

CM.5.5 Describe the plan in place to inform workers of risks and to explain how to minimize such risks. Where worker safety cannot be guaranteed, project proponents must show how the risks will be minimized using best work practices.
---

>>

As above, there is no critical task that can be considered high risk. Even so, personal safety and first aid manuals have been printed, explained, and given to all workers, both permanent and temporary.

**V. Biodiversity Section**

**B1. Net Positive Biodiversity Impacts (Required)**

B.1.1 Describe the appropriate methodologies used to estimate changes in biodiversity as a result of the project. Base this estimate on clearly defined and defensible assumptions. Compare the “with project” scenario with the baseline “without project” biodiversity scenario completed in G2. The difference (i.e., the net biodiversity benefit) must be positive.

>>

The project fundamentally reverses a typical pattern of habitat loss, soil degradation and biodiversity impacts with a new management regime that recovers soils, regenerates forest habitats, enhances biological corridors and therefore improves the overall biodiversity conditions of the region. Furthermore, and given that the project is expected to be replicable and sustainable because of its positive financial features, the positive biodiversity impacts are expected to be gained over a very large area of the Peruvian Amazon where similar projects can take place.

Specifically, the methodology used in EIA is based on the Leopold Matrix, a qualitative environmental impact assessment method used to identify the potential environmental impact of a project on the environment. The matrix considers 5 criteria to be considered: magnitude, duration, accumulation, extent and fragility, according with the following formula:

$$\text{Índice de Significación} = [(2m + d + e + a)/20]*f.$$

The choice of independent variables (actions of the project) and dependent variables (effects on the environment) was made in a participative workshop with the field team and EIA consultants.

The results described in G.3.5 were obtained from the application of this tool and includes the positive and negative impacts such that a net balance can be determined. According to the Matrix, the project has a net positive impact on biodiversity, including biotic and non-biotic components.

It is important to note that 2 biophysical surveys were done in different years (January 2005 and October 2007) including a fauna record in plots. The results show that in the first survey, the average of wildlife recorded (not necessarily seen but their presence verified) was 5.47 animals per pasture plot, which is below the average number of animals found in secondary forest plots (7.71) and remnant primary forest plots (7.29). It is therefore likely that the project will contribute to the recovery of wildlife in the project and surrounding areas.

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This methodology will be repeated over time to monitor the changes in biodiversity resulting from the project activities.

B.1.2 Describe possible adverse effects of non-native species on the area's environment, including impacts on native species and disease introduction or facilitation. If these impacts have a substantial bearing on biodiversity or other environmental outcomes, the project proponents must justify the necessity of using non-native species over native species.

>>

N/A. The Project is using only native species

B.1.3 Identify all IUCN Red List threatened species and species deemed threatened on nationally recognized lists that may be found within the project boundary. Project proponents must document how project activities will not be detrimental in any way to these species.

>>

As mentioned above in Chapter G.1.7, the EIA classified species in the Project and surrounding area into IUCN categories; no species were identified that are considered in a high threat category. In addition, the project will contribute positively to the recovery of biodiversity not only because it will replicate the original natural forest but also because it will help the growth of remnant gallery forests as they will be protected from annual burns and invasive grass.

Finally, the project intends to establish mahogany which is under serious risk of extinction (included in CITES list) because of its over exploitation for many years. It cannot be found in areas surrounding the Project, only in remote and difficult to access forests.

SFM BAM will monitor the impacts of the project activities on biodiversity on an annual basis as described in the monitoring proposal designed by AIDER.

B.1.4 Identify all species to be used by the project and show that no known invasive species will be used.

>>

The species that will be established are all native:

Scientific Name	Common name
<i>Swietenia macrophylla</i> King	Mahogany
<i>Tabebuia serratifolia</i> (Vahl) Nichols.	Ipe
<i>Simarouba amara</i> Aubl.	Marupa
<i>Dipteryx odorata</i> (Aubl.) Willd.	Cumaru
<i>Inga edulis</i> Mart.	Guaba

All seeds will be collected from natural forests near the Project area, except mahogany which must be sourced from other areas because it was completely harvested many years ago.

B.1.5 Guarantee that no genetically modified organisms will be used to generate carbon credits.

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>>

The project is using only native species. There is no, nor are there any plans, to use any GMOs in any aspect of the project.

**B2 Offsite Biodiversity Impacts (Required)**

B.2.1 Identify potential negative offsite biodiversity impacts that the project is likely to cause.

>>

As indicated in Section 1, the main risks to biodiversity are related to deforestation or degradation caused by local migration and the quality of river water affected by the presence of people working and living near the river over a long period. The Project has developed specific strategies designed to minimize these risks as explained in Chapter G.3.5.

B.2.2 Describe how the project plans to mitigate these negative offsite biodiversity impacts.

>>

The project has installed residue disposal systems that prevent the contamination of water, people and soils. To mitigate the risk of deforestation, the project has a policy to hire individuals currently living in the local communities. Any additional workers that are required are transported to and from the project area daily. These additional workers are housed in temporary camps and are not allowed to permanently settle in the area surrounding the project.

B.2.3 Evaluate likely unmitigated negative offsite biodiversity impacts against the biodiversity benefits of the project within the project boundaries. Justify and demonstrate that the net effect of the project on biodiversity is positive.

>>

It is expected that the policy to prevent migration to the project area will successfully prevent any deforestation that would be caused by migration.

**B3 Biodiversity Impact Monitoring (Required)**

B.3.1 Describe the initial plan for how they will select biodiversity variables to be monitored. Potential variables include species abundance and diversity, landscape connectivity, forest fragmentation, habitat area and diversity, etc. Clarify the frequency of monitoring. Include in the monitoring plan, biodiversity variables at risk of being negatively impacted by project activities.

>>

A biophysical analysis was conducted prior to implementation of the project<sup>12</sup>. This research estimated the number of species found within the project area. This analysis will be repeated over time. The number of IUCN Red List species will be calculated.

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<sup>12</sup> More details about the survey can be found in the document named as 'Diagnóstico biofísico 2006.doc'.

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The survey included the following analysis for the eligible and surrounding area (12,200 hectares):

- Stratified land cover. Including two stratification criteria:
  - o Physiographic: 2 strata (floodable valley and low slope terrace)
  - o Actual use of land: (agriculture, remnant primary forest, adult secondary forest, young secondary forest, pasture, soils, water)
- Soil characterization: The following analysis were done:
  - o Physical parameters (as apparent density, stress point, water content among others)
  - o Chemical parameters (as pH level, weight of arable cape, organic matter, organic nitrogen, mineral nitrogen, potassium, phosphorus, among others)
- Wild life characterization. Included two analysis:
  - o Fauna
  - o Micro fauna

Results showed that the biodiversity grade (measured by number of different species found per plot) in pasture was low and less than the average found in primary and secondary forests. The Project plans biodiversity monitoring and will undertake a similar survey every 3 years in order to evaluate the project's impact on the level of biodiversity in the Project and surrounding area. More details about the survey can be found in the document cited above.

**B4. Native Species Use (1 Point)**

B.4.1 Show that the project will only use species that are native to the region, or justify that any non-native species used by the project are superior to native species for generating concrete biodiversity benefits.

>>

The species selected in B.1.4 are native to the region. No non-native species will be used. Additionally, the species will be combined in groups of 4 species per hectare, not monocultures, in order to replicate the naturally biodiverse composition of the natural forest.

**B5 Water & Soil Resource Enhancement (1 Point)**

B.5.1 Identify project activities that are likely to enhance water and soil resources.

>>

In regard to soil resources, a critical aspect of the proposal is *Inga edulis*, which is a leguminous fruit tree that produces guaba, a locally consumed fruit with high demand. This tree was included because of its nitrogen-fixing characteristic in order to enhance the soils in the highly degraded lands in the Project area. The species will be eliminated as it is outcompeted by the shadow of subsequently planted timber species. The trees will be incorporated as dead biomass to the soil, adding a new nutrient to the soil.

No activities have been designed to enhance water resources, except those described above that address the diminishing availability and quality of the water resources.

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B.5.2 Credibly demonstrates that these activities are likely to improve water and soil resource compared to the baseline, using justifiable assumptions about cause and effect, and relevant studies.

>>

Soils in the project area and the remaining forest surrounding the project area were sampled and analyzed<sup>13</sup>. Soil carbon levels in the forest and the project area were found to be statistically similar. However, the pH of the soil in the pasture lands was extremely acidic (pH 3.45) while the forest soils were less acidic (pH 4.61). As the project lands move from pasture to forest cover, it can be predicted that soil pH would increase over time.

The introduction of trees assists to stabilize system nutrient levels. System nutrient stocks are held in the trees themselves, but trees also reduce leaching and erosion rates. The growing of trees in the project area will produce a large amount of leaf biomass. Conservatively estimating that 5% of tree biomass is leaves, after five years 8 t CO<sub>2</sub>e/ha of leaf biomass will be produced. This will increase to over 20 t CO<sub>2</sub>e/ha after 20 years. This leaf litter will be deposited in the project area, adding large amount of organic matter. Since a proportion of this leaf litter will be derived from nitrogen fixing trees, the amount of soil nitrogen is expected to increase over time.

There is a large volume of literature showing that leguminous plants have nitrogen-fixing properties, including the Inga tree species planted in this project<sup>14</sup>. The planting of Inga at the end of an agricultural cycle in the Peruvian Amazon was found to increase soil nitrogen levels by 10% after four years<sup>15</sup>. In the same study, soil phosphorus levels increased by more than 45% and potassium levels increased over 10%. It can be expected that the degraded soils in the project area will respond in a similar way, thus soil nitrogen levels will most likely increase in the project area as a result of the project, along with other soil nutrient levels.

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<sup>13</sup> Analysis Comparativa de Carbono en el suelo en el fundo Campo Verde

<sup>14</sup> Frioni, L., R. Dodera, et al. (1998). An assessment of nitrogen fixation capability of leguminous trees in Uruguay. *Applied Soil Ecology* 7(3): 271-279.

<sup>15</sup> Szott, L. T. and C. A. Palm (1996). Nutrient stocks in managed and natural humid tropical fallows. *Plant and Soil* 186(2): 293-309.

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**ANNEXES**

Annex A. Evidence to support applicability of methodology

Annex B. Management Plan

Annex C. Biophysical Surveys

Annex D. Environmental Impact Assessment

Annex E. Social Studies

Annex F. Standard Operating Procedure Manual

Annex G. Key Personnel CV's

Annex H. GPS Points Boundaries

Annex I: Stakeholder Consultation Forms and Reports

Annex J: Baseline Reports

Annex K: Literature referred

Annex L: Peru National Communication

Annex M: Monitoring Forms and Procedures

Annex N: Calculation spreadsheets

Annex O: Community Relationship Plan

Annex P: SFM BAM Internal Procedures

Annex Q: Additionality Documents

Annex R: Voluntary Carbon Standard Project Document