I. Basic Data:

1) The title of the CCB Standards project activity:

>>

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:

>>

03

3) The date of the document:

>>

September 02, 2010

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).

>>

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 U: Campo Verde VCS PD Section 1.7 and Annex D: Environmental Impact Assessment.

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

>>

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 U: Campo Verde VCS PD Section 1.7.
The owner of the forestry plantation shall register the project before the Regional Authority for Forestry and Fauna three years after the plantation project has started. A management plan, a special permit and payment of the corresponding fee are required in case the holder intends to commercialize wood grown within the plantation.

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):

>>
The total carbon stocks are dominated by the existing tree biomass. For more details see Annex U: Campo Verde VCS PD, Section 4.2.

<table>
<thead>
<tr>
<th>Table 1 Baseline carbon stocks at the project site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shrubs (tCO₂e/ha)</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>2008</td>
</tr>
</tbody>
</table>

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).

>>
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. No communities or people live within the project boundary.

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.
- 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$40, 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.

The independent entity Social Capital Group carried out a study and reported that five families were living inside the project area. In response, SFM BAM carried out a new investigation to verify the actual status and location of these families. The new study also determined whether relocation had been agreed upon with them and if the displacement of cattle grazing had caused the clearing of new forest areas.

As confirmed by the GPS coordinates of the original home sites of the families, the study concluded that these families did not live inside the project area but only on the property of SFM BAM in areas not eligible for project activities. Only two families used eligible areas for grazing, and the animals have been accounted for in the baseline study. The study included monitoring of actual households of these families.

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

>> 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.

The surrounding areas of the project are primary and secondary forests where 86 different tree species were found, according to the biophysical survey (see Annex C) carried out in January 2005. The technical – economic viability survey of the Social Property Company (EPS) Tierra Roja, completed in 1983, mentions that the original vegetation of the project zone is high forest, exuberant, thick and with presence of orchids, “lianas”, “bromeliáceas, helechos and epifitas plants”. According to the Evaluation of Permanent Production Forests of the Ucayali Region, elaborated by INRENA on 2003, the forests of the project zone are catalogued as “Terraza baja”, with an average of 52 trees per hectare.

The results of the 2005 biophysical survey show that a very significant loss of biodiversity has already taken place and the current biodiversity in the project area is very low, compared with the original forest habitats present before the land was cleared. No more than 15 grass and shrub species were identified in the pasture area, and only a few trees were found in the pasture area in comparison to the surrounding forests. Regarding fauna, in the same survey in 31 sample plots (of which 12 were pasture lands), 62 different species of birds, reptiles and mammals were recorded.

Other threats to biodiversity in the project area identified during the development of the biodiversity monitoring plan were illegal hunting in the property and fires. These threats as well as methods to monitor and mitigate them are further described in the biodiversity monitoring plan.

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.

The biophysical research (see Annex C) also included a fauna survey. Of the 62 animal species observed, 40 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.

Table 2 Fauna existing in project area

<table>
<thead>
<tr>
<th>Common name</th>
<th>Scientific name</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zorro negro</td>
<td>Atelocynus microtis</td>
<td>DD</td>
</tr>
<tr>
<td>Carachupa</td>
<td>Dasypus novemcinctus</td>
<td>LC</td>
</tr>
<tr>
<td>Víctor Díaz</td>
<td>Pitangus lictor</td>
<td>LC</td>
</tr>
<tr>
<td>Paucar</td>
<td>Cacicus cela</td>
<td>LC</td>
</tr>
</tbody>
</table>
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.

The biophysical research of 2005 (see Annex C), shows that no flora species within the project area are in the IUCN Red List or the nationally recognized list (Supreme Decree N° 034-20004-AG of 2004).

The area within the project boundary is not the habitat of threatened fauna species. According to the biophysical research, all fauna species found in the project area ecosystem (17 species of 62 founded in the entire survey, including surrounding forests) were there only temporally because of the availability of water.

None of the 62 fauna species registered in the biophysical research are considered endangered or vulnerable by the IUCN Red List. According to the nationally recognized list, 3 species are considered as Vulnerable and 4 species are considered as Almost Threatened, but their habitat is in the surrounding forests and not within the project boundary.

### G2 Baseline Projections (Required)

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:

See Annex U, Campo Verde VCS PD Section 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 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:
There are no laws in Peru that require reforestation activities. Although there is a national reforestation plan, there are insufficient funds for implementation. Therefore the project activities would not have taken place anyway in the absence of the project.

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.

See Annex U, Campo Verde VCS PD Sections 4 and 9 for information regarding carbon stocks estimations in baseline and project scenarios. Under the baseline situation the project area contains degraded lands that are currently being grazed at a low level.

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

**Table 3 Ex ante baseline net GHG removals by sinks**

<table>
<thead>
<tr>
<th>Year</th>
<th>Shrubs (t CO₂e/ha)</th>
<th>Saplings (t CO₂e/ha)</th>
<th>Existing trees (t CO₂e/ha)</th>
<th>Total Carbon Stocks (t CO₂e/ha)</th>
<th>Annual estimation of baseline net anthropogenic GHG removals by sinks in tons of CO₂ e</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>0.74</td>
<td>0</td>
<td>3.9</td>
<td>4.61</td>
<td>310.1</td>
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<tr>
<td>2009</td>
<td>0.74</td>
<td>0</td>
<td>4.2</td>
<td>4.96</td>
<td>321.8</td>
</tr>
<tr>
<td>2010</td>
<td>0.74</td>
<td>0</td>
<td>4.6</td>
<td>5.32</td>
<td>333.2</td>
</tr>
<tr>
<td>2011</td>
<td>0.74</td>
<td>0</td>
<td>5.0</td>
<td>5.70</td>
<td>344.4</td>
</tr>
<tr>
<td>2012</td>
<td>0.74</td>
<td>0</td>
<td>5.3</td>
<td>6.09</td>
<td>355.4</td>
</tr>
<tr>
<td>2013</td>
<td>0.74</td>
<td>0</td>
<td>5.7</td>
<td>6.48</td>
<td>366.2</td>
</tr>
<tr>
<td>2014</td>
<td>0.74</td>
<td>0</td>
<td>6.2</td>
<td>6.89</td>
<td>376.8</td>
</tr>
<tr>
<td>2015</td>
<td>0.74</td>
<td>0</td>
<td>6.6</td>
<td>7.32</td>
<td>387.3</td>
</tr>
<tr>
<td>2016</td>
<td>0.74</td>
<td>0</td>
<td>7.0</td>
<td>7.75</td>
<td>397.5</td>
</tr>
<tr>
<td>2017</td>
<td>0.74</td>
<td>0</td>
<td>7.5</td>
<td>8.19</td>
<td>407.6</td>
</tr>
<tr>
<td>2018</td>
<td>0.74</td>
<td>0</td>
<td>7.9</td>
<td>8.65</td>
<td>417.6</td>
</tr>
<tr>
<td>2019</td>
<td>0.74</td>
<td>0</td>
<td>8.4</td>
<td>9.11</td>
<td>427.3</td>
</tr>
<tr>
<td>2020</td>
<td>0.74</td>
<td>0</td>
<td>8.8</td>
<td>9.59</td>
<td>436.9</td>
</tr>
<tr>
<td>2021</td>
<td>0.74</td>
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<td>9.3</td>
<td>10.07</td>
<td>446.4</td>
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<td>10.57</td>
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<td>10.8</td>
<td>11.59</td>
<td>473.9</td>
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<tr>
<td>2025</td>
<td>0.74</td>
<td>0</td>
<td>11.4</td>
<td>12.11</td>
<td>482.8</td>
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<tr>
<td>2026</td>
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<td>11.9</td>
<td>12.65</td>
<td>491.6</td>
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<tr>
<td>2027</td>
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<td>12.5</td>
<td>13.19</td>
<td>500.3</td>
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<tr>
<td>2028</td>
<td>0.74</td>
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<td>13.0</td>
<td>13.75</td>
<td>508.8</td>
</tr>
<tr>
<td>2029</td>
<td>0.74</td>
<td>0</td>
<td>13.6</td>
<td>14.31</td>
<td>517.2</td>
</tr>
<tr>
<td>2030</td>
<td>0.74</td>
<td>0</td>
<td>14.1</td>
<td>14.88</td>
<td>525.5</td>
</tr>
<tr>
<td>2031</td>
<td>0.74</td>
<td>0</td>
<td>14.7</td>
<td>15.46</td>
<td>533.7</td>
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<tr>
<td>2032</td>
<td>0.74</td>
<td>0</td>
<td>15.3</td>
<td>16.05</td>
<td>541.8</td>
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<tr>
<td>2033</td>
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<td>0</td>
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</tr>
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<td>2034</td>
<td>0.74</td>
<td>0</td>
<td>16.5</td>
<td>17.25</td>
<td>557.6</td>
</tr>
</tbody>
</table>

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1 For more information see: PLAN NACIONAL DE REFORESTACION.pdf
CCBA
PROJECT DESIGN DOCUMENT FORM FOR PROJECT ACTIVITIES (CCBA-PDD)
Version 02

<table>
<thead>
<tr>
<th>Year</th>
<th>CO₂</th>
<th>N₂O</th>
<th>Baseline GHG Removals (t CO₂-e)</th>
<th>Crediting Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>2035</td>
<td>0.74</td>
<td>0</td>
<td>17.1</td>
<td>565.4</td>
</tr>
<tr>
<td>2036</td>
<td>0.74</td>
<td>0</td>
<td>17.8</td>
<td>573.0</td>
</tr>
<tr>
<td>2037</td>
<td>0.74</td>
<td>0</td>
<td>18.4</td>
<td>580.6</td>
</tr>
</tbody>
</table>

Total estimated baseline net GHG removals by sinks (tonnes of CO₂-e) 13,651

Total number of crediting years 30

Annual average over the crediting period of estimated baseline net GHG removals by sinks (tonnes of CO₂-e) 455

G.2.2a If there is evidence that non-CO₂ greenhouse gas (GHG) emissions such as CH₄ or N₂O are more than 15% of the baseline GHG fluxes at the project site (in terms of CO₂ equivalents), they must be estimated.

The only non-CO₂e GHG emissions that will be caused by the Project result from biomass burning and fertilizer use (See Annex U, Campo Verde VCS PD Section 4.3.1.3). However, in accordance to 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 CO₂e, less than 1% of total expected net GHG removals. Additionally, the Project will plant nitrogen fixing trees. However, pursuant of EB 44², Nitrous oxide (N₂O) emissions from decomposition of litter and fine roots from N-fixing trees are insignificant in A/R CDM project activities and may therefore be neglected.

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

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.

² http://cdm.unfccc.int/EB/044/eb44rep.pdf
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, and it can be conservatively assumed that the biodiversity of plant species in the project area would remain stable.

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.3

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 on water quality. 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. 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.

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.

>>

The mission of SFM-BAM is to support the conservation of the environment, to contribute directly to the development of local communities in the Amazon and to offer an investment model that encourages the sustainable development of the rainforest while obtaining high economic returns.

Regarding the scope of the Campo Verde project specifically, it encompasses the reforestation of degraded pasture lands, rehabilitation of degraded areas, and supporting biodiversity. In addition, the project aims to build local capacity in sustainable forestry management, low impact logging techniques as well as nursery and plantation management. The importance of developing capacity of families neighbouring the project

3 For more information see: Analysis Comparative de Carbono en el suelo en el fundo Campo Verde.doc, Analisis de suelo SFM BAM con Carbono por hectarea_english_v.xlxs
is not only to generate a more equitable economic development but also to change current unproductive agricultural practices.

The main 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 in order to recover the original rainforest as much as possible and the fauna of the area (by attracting the fauna that had to migrate given the loss of their natural habitat.)

Finally, with this project, the company is also proud to contribute to local development and community goals by increasing monetary incomes, developing technical skills and changing unsustainable agriculture for agroforestry systems in neighbouring communities.

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

See Annex U, Campo Verde VCS PD Section 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.** For this issue, we must include the promotion of productive projects with neighbouring communities such as the replication of plantation model in 20 thousand hectares in plots of rural families, and other crops. With these activities, we think that we could contribute to community goals including: increasing monetary incomes, developing technical skills and changing unsustainable agriculture for agro forestry systems. More detail about this item will be found in Section IV of this document.

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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).

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.

>>

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.

>>

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

- The availability of fauna
- The availability and quality of water
- Soil stability
Water Quality and 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. 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.

Availability of Fauna - finally, a potential impact not considered by the research is the risk that extra labour demand in the zone will press on wildlife resources, especially fauna caused by illegal fishing and hunting. To mitigate this risk, the company has established prohibition to hunt and fish in neighbouring forests and daily food to personnel is provided by the company.

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 two Native Communities neighbouring the project: Santa Teresita de Agua Blanca and Nuevo Paraiso. Neither presents a conflict risk to the project. The Native Community Santa Teresita (Asháninca background) has a rural structure rather than that of a typical native community. In that sense, the project activity is not a negative influence, i.e. it does not cause migration given that the community members work in the project. On the other hand, the Native Community has been strengthened given the new source of jobs that the project has created.

The Native Community of Nuevo Paraiso (Shipibo background) follows its own communal laws, customs and decisions. They live close to the sources of water due to their dependence on collecting items for daily subsistence. The Project has no contact with them given their location on the banks of the Ucayali River (6 hours from Pucallpa). The administration and activities of the project are located far away from the location of the community. In order to have contact with them, the community would have to pass through Pucallpa. In that context, the project has no positive effect to the Community but also it does not represent a risk.

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.
Nonetheless the project is taking the following specific measures to minimize the risks to biodiversity caused by temporary workers:

- Hunting and fishing is completely forbidden to workers in surrounding forests. Daily food is provided by the company.
- Trash cans have been installed for the collection of trash and other wastes. This material is collected and transported to the city for disposal.
- Herbicides used in the plantation are stored offsite in a secure location to prevent contamination.
- Wells are used to provide water for consumption by plantation activities instead of exploiting the river.
- Sanitary latrines have been installed for the workers to prevent contamination of water sources and workers have been instructed on their proper use.

G.3.6 Document and defend how local stakeholders have been or will be defined.

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, one on its eastern side (behind the forest area of the property). This side, however, is covered by forest and the company is undertaking no work in the area at this time, so this is the reason why this community has not been considered as a relevant stakeholder as they 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. There are around 20 kilometres of distance between Nuevo Paraiso Community and the project area. In the other case, the Santa Teresita Community, it is located near the project and it is considered as one of the most involved with the project activities as most of their families work directly or indirectly for the project.

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4 For more information see: Plan de manejo de riesgos ambientales.docx
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.

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.
SFM BAM is a joint venture between the Peruvian company Bosques Amazónicos (owner of the Project land since the 1980s) and international investors.

SFM-BAM has a strong management team that has ample experience in the development of projects in the Peruvian rainforest. This team is led by Mr. Jorge Cantuarias, a well-recognized project developer in the Peruvian Amazon region with 25 years of relevant experience.

The management team includes Gonzalo Castro, a recognized international figure in the environmental field with senior experience leading international organizations and scientific and environmental processes. He was the Head of the Biodiversity Unit at the Global Environment Facility (GEF), the largest multilateral environmental fund at the global level, where he was ultimately responsible for a portfolio of over 500 projects with a combined investment of US$ 4 billion in 150 countries.

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.

The structure of the project management team is further described in the Project Management Plan.\(^5\)

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\(^5\) For more information see: Plan de Manejo.docx
G.4.2 Demonstrate that management capacity is appropriate to the scale of the project.

There are 15 professionals working permanently in SFM BAM offices in Lima and Pucallpa. Additionally, there are 8 professionals 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.

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

- General manager
- Field manager
- 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.4.4 Document the financial health of the implementing organization(s).

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.

The Assignment Agreement was updated in October 2008 (Restated and Amended Assignment Agreement) and further includes an investment commitment of about $10 millions for the first 10 years of the implementation of the project.

Extensive financial modeling has been undertaken by both SFM Ltd and SFM-BAM both of which support the economic base of the agreement.

**G5 Land Tenure (Required)**

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

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:

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<th>File</th>
<th>Area</th>
<th>Code</th>
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<td>9684</td>
<td>2.289 ha</td>
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<td>Nov. 14, 2000</td>
<td>000076-R</td>
<td>12.730 ha</td>
<td>40010854</td>
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</tbody>
</table>

**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 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. 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).

New research was done to monitor the actual status of families living inside the SFM-BAM property as reported by Social Capital Group in their study of the relocation process. The new research, carried out by the company, shows that no families lived inside the project.

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6 For more information see: Inventario Físico de Ganado Existente en el Fundo Campo Verde.doc, Leakage - Grazing calculations.xls
area. Four families lived on property of SFM BAM but outside of the project area. These families have moved voluntarily as the boundaries of SFM Bam property were always clear. Only in two cases was there any confusion about boundaries.

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 legal framework established by the Supreme Decree N° 002-2009-AG, which set the Guidelines of the Legislative Decree N° 1090. The Law requires that the plantation be registered with the Regional Authority for Forestry and Fauna (INRENA). The legal framework includes the following Laws:

- Legislative Decree N° 1090 (New Forestry and Fauna Law)
- Law N° 29317 – Law that modifies and incorporates diverse articles to the Legislative Decree 1090.

Also, there is a Law that promotes the activities undertaken by the project:

- Law of Promotion of Private Investment in Reforestation and Agro-Forestry (N° 28852)

The abovementioned regulations allow activities involving forestry resources in forestry plantation projects. For that purpose, the holder of the forestry plantation shall register the project before the Regional Authority for Forestry and Fauna three years after the plantation project has started. A management plan, a special permit and payment of the corresponding fee are required in case the holder intends to commercialize wood grown within the plantation.

The company is also fulfilling all the national requirements related to labor laws and taxation.
G.6.2. Document that the project has, or expects to secure, approval from the appropriate authorities.

>>
The Law requires that the plantation be registered with the Regional Authority for Forestry and Fauna (INRENA) three years after plantation’s establishment.

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 U, Campo Verde VCS PD Section 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
  - Removals
  - Emissions
  - Boundaries
  - Leakages
- Forest Management
  - Nursery
  - Plantation
- Costs
  - Labour
  - Others
- Impacts
  - Environmental
  - 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.

As it is explained in G.8.1, one of the roles of the monitoring plan is to generate on time information that can be used and is being used to adjust the field work. Periodical meetings between SFMBAM and AIDER teams are planned to discuss lessons learned. Some proofs of this usefulness are listed in section G.8.1.
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 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
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.

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:
As prescribed in Nyberg 1999, the six steps of adaptive management are applied to document and apply relevant lessons learned.\(^7\) The six steps are problem assessment, design, implementation, monitoring, evaluation and adjustment. Problem assessment occurs during the course of the workshops described above. At the same workshops, a management plan and monitoring program for addressing problems is designed. Monitoring is implemented by a field team to assess the effectiveness of the management solution and data on the specific relevant indicators is processed and archived in the project information system so that outcomes can be evaluated at the next internal workshop and where new adjustments to project management will be designed based on the evaluation of the results of monitoring, and the process continues in an iterative fashion.

The continuous research is helping the project to learn lessons. A list of the relevant lessons learned is:

- The use of Guaba to recover degraded areas has proved a success in the plantation area.
- The use of fertilizers to improve the quality of the stems can be appreciated when comparing the sample plot to the actual plantation.
- The use of mechanic systems reduces costs.

- The stems planted in plots with less tree density per hectare are growing better than those planted following the original model.

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 guava plants from their own nursery. During this phase of the project technical support was provided by Technology Institute of the Agraria University, Lima. Winrock International provided support to project design and development.

Additionally, SFM BAM is planning to expand the project by reforesting up to 20,000 ha of private land. Land owners will be responsible for the plantation’s establishment while SFM-BAM will provide them with know-how, seedlings, tools, equipment, etc. The following actions are being taken to promote this “replica model”:

- Meetings with local authorities and land owners are been undertaken individually.
- Working meeting in the Nueva Esperanza to explain the project.
- Guide visits to the plantation for people interested in the model.
- The creation of a program to establish sample plots in different towns.

Additionally, as noted above, relevant technical information is publicly available and transparent through the webpage of the company (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)

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 U, Campo Verde VCS PD Section 4.4 for calculations of net CO$_2$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.
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<th>Estimation of actual net GHG removals by sinks (tonnes of CO$_2$ e)</th>
<th>Estimation of actual net GHG removals by sinks (tonnes of CO$_2$ e) Up to long term average</th>
<th>Estimation of leakage (tonnes of CO$_2$ e)</th>
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<td>2027</td>
<td>500</td>
<td>24,277</td>
<td>0</td>
<td>23,777</td>
<td>164,399</td>
</tr>
<tr>
<td>21</td>
<td>2028</td>
<td>509</td>
<td>26,456</td>
<td>0</td>
<td>25,947</td>
<td>190,346</td>
</tr>
<tr>
<td>22</td>
<td>2029</td>
<td>517</td>
<td>28,672</td>
<td>0</td>
<td>28,154</td>
<td>218,500</td>
</tr>
<tr>
<td>23</td>
<td>2030</td>
<td>526</td>
<td>30,921</td>
<td>0</td>
<td>30,396</td>
<td>248,896</td>
</tr>
<tr>
<td>24</td>
<td>2031</td>
<td>534</td>
<td>33,199</td>
<td>0</td>
<td>32,666</td>
<td>281,562</td>
</tr>
<tr>
<td>25</td>
<td>2032</td>
<td>542</td>
<td>35,502</td>
<td>0</td>
<td>34,960</td>
<td>316,522</td>
</tr>
<tr>
<td>26</td>
<td>2033</td>
<td>550</td>
<td>37,825</td>
<td>0</td>
<td>37,276</td>
<td>353,797</td>
</tr>
<tr>
<td>27</td>
<td>2034</td>
<td>558</td>
<td>40,166</td>
<td>0</td>
<td>39,608</td>
<td>393,405</td>
</tr>
<tr>
<td>28</td>
<td>2035</td>
<td>565</td>
<td>42,519</td>
<td>0</td>
<td>41,954</td>
<td>435,359</td>
</tr>
<tr>
<td>29</td>
<td>2036</td>
<td>573</td>
<td>44,883</td>
<td>0</td>
<td>44,310</td>
<td>479,669</td>
</tr>
<tr>
<td>30</td>
<td>2037</td>
<td>581</td>
<td>47,254</td>
<td>0</td>
<td>46,673</td>
<td>526,342</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13,653</td>
<td>539,993</td>
<td>0</td>
<td>526,342</td>
<td>169,971</td>
</tr>
</tbody>
</table>

CL.1.2 Factor in the non-CO$_2$ gases CH$_4$ and N$_2$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$_2$ equivalents) of the project’s overall GHG impact.

>>
The non-CO\textsubscript{2}e GHG emissions resulting from biomass burning caused by the project will be monitored over the life of the project (See Annex U, Campo Verde VCS PD Section 4.3.1.3). Over the life of the project, it is estimated that these actions will result in only 5 t CO\textsubscript{2}e or less than 1% of total expected net GHG removals. Pursuant to paragraph 35 of EB 42 meeting report, losses from herbaceous vegetation burned have been neglected.

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

The figures in Table 3 demonstrate that the net climate impact of the project will give a positive result in terms of overall GHG benefits delivered. The net climate impact considers carbon stock changes within the project area as well as carbon stock changes outside the project area as a result of leakage. As explained in CL.1.2 non-CO\textsubscript{2} gases are neglected as allowed by paragraph 35 of EB 42.

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.

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.

136 animals of neighbours were found in the leakage analysis, between cows and lambs grazing in 302 hectares of the project area in the baseline, with an average of 0.45 animals per hectare. The survey found that the farmers have 220 ha of free lands to allocate the animals displaced and this area is enough based on grazing capacity in a traditional system. These free areas were located and will be monitored during the first 5 years of project implementation.

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, no negative offsite impacts (leakages) are expected to occur as proofed with leakage calculation therefore no mitigation measures are necessary. To reduce emissions from fuel consumption, a more efficient transportation network is being developed, utilising motorcycles and vans for individuals and groups, respectively. Respecting wood demand, the company purchasing policy required that all wood comes from managed legal forests. Eventually, if a suitable supply of wood can be sources from certified forests, the company will direct its purchases to theses 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 CO₂ reductions in section CL.1.1 demonstrating that the net increase in onsite carbon stocks minus negative offsite climate impacts is positive.

CL.3 Climate Impact Monitoring (Required)

CL.3.1a Describe the initial plan for how they will select carbon pools and non-CO₂ GHGs to be monitored.

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-CO₂ GHG considered, as indicated in AR-AM0003, the following non-CO₂ GHG will be monitored as potential emission sources (See Annex U, Campo Verde VCS PD Section 4.2.1):

- CH₄ from burning of aboveground biomass
- N₂O from burning of aboveground biomass
- CO₂ from change of aboveground biomass

See Annex U for a more detailed explanation of the choice of greenhouse gas sources. Additionally, it should be noted that CO₂ 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 U, Campo Verde VCS PD Sections 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 and 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\(^8\). 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.

<table>
<thead>
<tr>
<th>CL.3.1d</th>
<th>Describe if relevant non-CO(_2) gases are monitored if they account for more than 15% of the project’s net climate impact expressed in terms of CO(_2) equivalents.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;&gt;</td>
<td>The non-CO(_2)e GHG emissions resulting from biomass burning caused by the project will be monitored over the life of the project (See Annex U: Campo Verde VCS PD Section 4.3.1.3).</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>CL.4.1</th>
<th>Identify likely regional climate change and climate variability impacts, using available studies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;&gt;</td>
<td>The IPCC Fourth Assessment Report(^9) predicts that South America is likely to experience elevated temperatures and reduced precipitation. The warming of the Amazonia region predicted in the various models(^10) 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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CL.4.2</th>
<th>Demonstrate that the project has anticipated such potential impacts and that appropriate measures will be taken to minimize these negative impacts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;&gt;</td>
<td>The planted tree species are able to grow successfully within the range of predicted climate change expected during the life of the project because they are native species that occur naturally in the nearby forests of Campo Verde.(^11) Mahogany is also native to the project area(^12) but natural regeneration does not occur due to heavy logging of this species. 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.</td>
</tr>
</tbody>
</table>

---

\(^8\) Analysis Comparative de Carbono en el suelo en el fundo Campo Verde
\(^10\) WRI Climate Analysis Indicators Tool http://cait.wri.org
\(^12\) Proyecto técnico económico de la empresa de propiedad social “Luchadores Tierra Roja” 1983
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.
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. |

The project is being developed on private land of SFMBAM SAC where neither families nor communities live within the project area. In that sense, the present chapter considers stakeholders in neighbouring communities.

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

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:

Table 5 Interviews applied to stakeholders

<table>
<thead>
<tr>
<th>TYPE OF SETTLEMENT</th>
<th>NAME OF SETTLEMENT</th>
<th>QUANTITY OF FAMILIES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>TOTAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.

As a result of the stakeholder consultations, a positive relationship was developed between SFM BAM and the communities surrounding the project area. SFM BAM has provided support to the local communities through the implementation of activities that have mutual benefit such as the improvement of roads in Agua Blanca\textsuperscript{13}. SFM BAM has also provided technical support to public works in the communities\textsuperscript{14}. Invitations to SFM BAM to participate in community events further demonstrate the positive relationship that has developed between the company and local stakeholders.\textsuperscript{15}

\textsuperscript{13} For more information see: Solicitud de Maquineria Agua Blanca.jpg and Road Improvement Agua Blanca.jpg
\textsuperscript{14} For more information see: Solicitud Mejoramiento de Plaza Pimental.jpg
\textsuperscript{15} For more information see: Invitacion Aniversario Agua Blanca.jpg, Invitacion Aniversario Manco Capac.jpg
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 defendable 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\(^\text{16}\) was at the following levels:

### Table 6 Poverty and Extreme poverty levels in Peru

<table>
<thead>
<tr>
<th>INTENSITY OF POVERTY</th>
<th>Annual income per capita in rural areas</th>
<th>In US$/daily/person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme Poverty(^\text{17})</td>
<td>NS/. 108.30</td>
<td>0.10</td>
</tr>
<tr>
<td>Poverty(^\text{18})</td>
<td>NS/. 169.80</td>
<td>0.16</td>
</tr>
</tbody>
</table>

As the Peruvian Consumer Price Index has increased at a rate of 12.33% according with BCRP, the Peruvian Central Bank\(^\text{19}\), the estimated level of poverty and extreme poverty has increased as follows:

### Table 7 Poverty and Extreme poverty levels in Peru (updated)

<table>
<thead>
<tr>
<th>INTENSITY OF POVERTY</th>
<th>Annual income per capita in rural areas</th>
<th>In US$/daily/person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme Poverty(^\text{20})</td>
<td>NS/. 121.65</td>
<td>0.11</td>
</tr>
<tr>
<td>Poverty(^\text{21})</td>
<td>NS/. 190.73</td>
<td>0.17</td>
</tr>
</tbody>
</table>

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.

### Table 8 Income level in neighbouring families

<table>
<thead>
<tr>
<th>Economic Activities</th>
<th>Annual (NS/.)</th>
<th>Daily (NS/.)</th>
<th>Daily per-capita in US$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Per family</td>
<td>Per person</td>
</tr>
<tr>
<td>Fishery</td>
<td>8,700</td>
<td>95.6</td>
<td>22.13</td>
</tr>
</tbody>
</table>

\(^{16}\) [http://www1.inei.gob.pe/Sisd/index.asp](http://www1.inei.gob.pe/Sisd/index.asp)

\(^{17}\) Extreme poverty defined as the level of income that does not satisfy the minimum nutritional intake recommended

\(^{18}\) Poverty defined as the level of income that does not satisfy basic needs (food and non-food)


\(^{20}\) Extreme poverty defined as the level of income that do not allow to satisfy the minimum nutritional intake recommended

\(^{21}\) Poverty defined as the level of income that do not allow to satisfy the basic needs (food and non-food)
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).

Additionally, non economic benefits must be highlighted, for instance:

- Health care for workers, including the hiring of a nurse and the implementation of a medical area in each camp for workers, who have been trained in first aid, sanitary tips
- This medical services is also used by neighboring families, who have also participated in workshops about health issues
- Workers have private insurance against risks and labor accidents, specific for the level of risk of each activity, in one of the most well known insurance companies in Peru.
- Benefits for workers include the celebration of holidays such as Workers’ day, Mother’s day, Forestry Week and Christmas. In each holiday, gifts and sports are organized to integrate SFM personnel and their families.

Reports from the medical center are available for review.

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**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.

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%

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**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:

**Table 9 Local leaders interviewed**

<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segundo Guierena</td>
<td>Teniente Gobernador</td>
<td>C. Túpac Amaru</td>
</tr>
<tr>
<td>Cesar Vásquez Pacaya</td>
<td>Agente Municipal</td>
<td>C. Túpac Amaru</td>
</tr>
<tr>
<td>Luis Alberto Herrero</td>
<td>Teniente Gobernador</td>
<td>C. Belén</td>
</tr>
<tr>
<td>Rodolfo Lozano Shuña</td>
<td>Agente Municipal</td>
<td>C. Belén</td>
</tr>
<tr>
<td>Enrique Tananta Garcia</td>
<td>Teniente Gobernador</td>
<td>C. Señor de los Milagros</td>
</tr>
<tr>
<td>Raul Ochavano Villasis</td>
<td>Agente Municipal</td>
<td>C. Señor de los Milagros</td>
</tr>
<tr>
<td>Emérita Pizango Shuña</td>
<td>Teniente Gobernador</td>
<td>C. Pucallpillo</td>
</tr>
<tr>
<td>Josué Pérez Panduro</td>
<td>Agente Municipal</td>
<td>C. Pucallpillo</td>
</tr>
<tr>
<td>Rocío Canayo Silvano</td>
<td>Teniente Gobernador</td>
<td>C. José Olaya</td>
</tr>
<tr>
<td>Grover Torres Sánchez</td>
<td>Teniente Gobernador</td>
<td>CN Santa Teresita</td>
</tr>
<tr>
<td>Daniel Santamaria Garcia</td>
<td>Agente Municipal</td>
<td>CN Santa Teresita</td>
</tr>
<tr>
<td>Cecilio Huayta Galán</td>
<td>Teniente Gobernador</td>
<td>C. Agua blanca</td>
</tr>
<tr>
<td>René Pérez</td>
<td>Agente Municipal</td>
<td>C. Agua blanca</td>
</tr>
<tr>
<td>Vital Simón Fatama</td>
<td>Teniente Gobernador</td>
<td>C. Tierra Roja</td>
</tr>
<tr>
<td>Rubén Ayachi Chujandama</td>
<td>Agente Municipal</td>
<td>C. Tierra Roja</td>
</tr>
<tr>
<td>Julver Lapeire Rivera</td>
<td>Teniente Gobernador</td>
<td>C. Nuevo Edén</td>
</tr>
<tr>
<td>Moisés Paya Quispe</td>
<td>Agente Municipal</td>
<td>C. Nuevo Edén</td>
</tr>
<tr>
<td>Wilson Cárdenas Amasifuen</td>
<td>Teniente Gobernador</td>
<td>C. San Cristóbal de Agua Blanca</td>
</tr>
<tr>
<td>Jesús Sánchez Sánchez</td>
<td>Agente Municipal</td>
<td>C. San Cristóbal de Agua Blanca</td>
</tr>
</tbody>
</table>

In all rural settlements, a representative of national government (teniente gobernador) and
a representative of local government (agente municipal) are chosen becoming their formal
leaders. These leaders were chosen by the settlements living in the vicinity of the property
and, in some cases, even far away. These leaders could not be found and interviewed in
all cases but most of them were. Documentation of stakeholder meetings (attendance
sheets) and impact on project design including photographs of community improvement
activities is found in Stakeholder Relationship Report\(^{22}\) and accompanying documents.

\(^{22}\) For more information see: Informe Relaciones Comunitarias.docx
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.

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.

Information on how stakeholders and families were chosen for the interviews is found in CM.1.2.a and CM.1.1.a, respectively.

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.

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.

This procedure is stated in the Community Relations Office Guidelines. This office was created in April, 2009 to serve as the link between the Company and the local communities. The relevant document is included in Annex O.

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 addition, 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)**

<table>
<thead>
<tr>
<th>CM.2.1 Identify potential negative offsite community impacts that the project is likely to cause.</th>
</tr>
</thead>
</table>

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.

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

<table>
<thead>
<tr>
<th>CM.2.2 Describe how the project plans to mitigate these negative offsite social and economic impacts.</th>
</tr>
</thead>
</table>

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.

<table>
<thead>
<tr>
<th>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.</th>
</tr>
</thead>
</table>
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 monitoring plan, community variables at risk of being negatively impacted by Project activities.

The variables selected and the frequency of monitoring is shown in the following table:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Indicator</th>
<th>Frequency</th>
<th>How will be collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>USD monthly income per family</td>
<td>Yearly</td>
<td>Processing information of labors project records. Surveys to local families by town.</td>
</tr>
<tr>
<td>Wild fauna extraction</td>
<td>Increase of frequency of wild fauna meat on familiar alimentation. Increase of diversity of fauna species on familiar alimentation</td>
<td>Yearly</td>
<td>Surveys to local families by town.</td>
</tr>
<tr>
<td>Firewood extraction</td>
<td>Reduction of distance traveled for firewood collection.</td>
<td>Yearly</td>
<td>Surveys to local families by town.</td>
</tr>
<tr>
<td>Housing</td>
<td>Number of families which have replaced their rustic houses with improved materials</td>
<td>Yearly</td>
<td>Surveys to local families by town.</td>
</tr>
<tr>
<td>Community organisation</td>
<td>Organization level of the local direction boards, committees, etc. Number of local official petitions to local governments attended.</td>
<td>Yearly</td>
<td>Surveys to local families by town. Participatory workshops.</td>
</tr>
</tbody>
</table>

**CM4 Capacity Building (1 Point)**

It is expected that 5 variables will be positively impacted and 1 variables is at risk of being negatively impacted by the project activities. A new economic flow will occur in local communities where there are contracted workers, so delinquency is a possible negative impact that has to be monitored.

The respective monitoring plan is included in Annex F.
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.

CM.4.4 Explain how the capacity building is aimed to increase community participation in
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. These trainings are not focused on increasing the participation in the project design but on the learning of technical aspects, which is explained by the fact that this is a private project, even though the stakeholder comments will be considered in SFMBAM SAC decisions.

### 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.

There are no constraints to local families to filling employment positions of the company if they meet technical requirements.
Furthermore, 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.

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.**

SFM-BAM has developed a document that delimits the rights and obligations of the company and workers that will be published in May.

There are two types of employment contracts:

**Permanent Employment:**

Workers employed on a permanent basis are those who work in the nurseries. The working conditions are as follows: Wages are paid by days worked, and workers are provided with transportation to their working place. Also, workers are provided with accident and health insurance. Also, for each permanent employee, the company contributes to the national social security and pension fund (AFP). Additionally, workers received all benefits required by Law: compensation for working time (a kind of unemployment fund), “gratificaciones” (in July and December), and annual leave days (vacations), among others.

**Temporary Employment:**

Workers employed on a temporary basis are those who work on the plantation only during the planting season. They are hired for land preparation, planting, etc. according to the company’s working plan. For temporary workers, the company has signed cooperation agreements with health centres in nearby villages which will provide medical assistance, if necessary. SFM-BAM has also hired Rimac insurance company in order to have an accident insurance for employees that perform risky tasks.

The working conditions are as follows: Wages are paid by days work, workers stay in base camps during the working days and are provided with transportation to the base camps. Also, workers receive meals (3 meals per day) and housing facilities in the base camp. Workers are also provided with tools to develop their work.
Additionally, the company complies with laws regarding safety conditions for different activities which include the use of personal protection equipment.

Lastly, the company has a permanent program for their workers, which includes activities for the integration of personnel and their families. Respect for local festivities is important to the company. The company traditionally organizes activities in celebration of San Juan Day, a regional holiday widely recognized in the Ucayali area.

Two workshops on workers’ rights were implemented to inform workers of their rights. The attendance sheets are included in the supplementary documents.23

| 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 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.

In order to minimize risk, one policy 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.

List of risky activities:

1. Seed collection (HIGH)
   Seed collection is done in a virgin field, so the collector should be provided with personal protective equipment. This activity can never be done by one person alone, must be carried out by teams of workers, where one of them must be trained to administer the anti-venom serum and to intervene in other health emergencies.

2. Phytosanitary control (HIGH)
   Work to be done in teams, with personnel in optimal health conditions

3. Moving plants (HIGH)
   It should be done in strict carrying capacity of the vehicle

4. Preparation of fire short, controlled burning (HIGH)
   The area should be delineated for burning and the activity should be performed when the weather is appropriate (no wind). It must be done in the early hours of the day before the sun is full, using the tools of personal safety. It needs to be ensured that there is no plastic waste inside the burn perimeter.

5. Stump removal with chainsaw, removal of shrubs, sticks and cleaning (HIGH)

23 For more information see: Attendance Workers’ Rights Workshop I.jpg and Attendance Workers’ Rights Workshop II.jpg
Activity to be carried out in groups, with strict security rules. Workers should make sure that the chainsaw is in optimal conditions for the work to be done.

6. Transportation of plants, fertilizer (dolomite, poultry litter and water) (HIGH)
   This task should be done adhering strictly to the carrying capacity of the vehicle.

7. Chemical and manual weed control and mechanized land preparation (HIGH)
   Activity must be done with personal protective equipment as required.

8. Manual control of weeds with machetes, hoes and clearance machining (HIGH)
   Activity must be done with personal protective equipment as required.

9. Phytosanitary control (HIGH)
   Work to be done in teams, with personnel in optimal health conditions.

10. Fire Prevention and Control (HIGH)
    Activity to be carried out strictly in groups, led by trained personnel to extinguish the blaze.

11. Ring plant (MED)
    Activity that must be done with personal protective equipment as required.

12. Packing and dispatch plants (MED)
    Work to be carried out in groups, the number of people is directly related to the quantity of plants to be moved.

13. Delineation of plots, out of stakes, and paint removal (MED)
    Activity to be carried out in groups.

14. Construction of secondary roads and road maintenance (MED)
    Activity to be carried out in groups.

15. Manual and mechanical drill holes for plants (MED)
    Activity to be carried out in groups.

16. Cleaning plots, collection of waste (MED)
    The activity must be done using protective personal equipment.

17. Pruning and thinning (MED)
    The activity must be done using protective personal equipment.

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 defendable 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.

A biophysical diagnosis has been done to establish a baseline for existing fauna and flora in the project area, measuring abundance and diversity, and soil quality. Based on that and with the monitoring plan proposed in the BMR, the monitoring will demonstrate that the restoration of this degraded will have positive impacts on biodiversity indicators proposed by BMR, shown in Tables 11 and 12, below.

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.

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

The identification and quantification of impacts is done commonly through structured methodologies that extrapolate and characterize the expected environmental conditions in the implementation of the action. These ones include simple lists to analyze causality relationships and mathematical models for simulation. Methodologies are always focused on discovering the significance of potential impacts and vary depending on analyzed elements.

There are many ways and methods to analyze the capacity of the environment and environmental impacts. For this reason, choosing the appropriate one is crucial for the results of the assessment. That is why it is not recommended to work only with one because of the limited time horizon and the level of complexity of interactions.

**MAIN METHODS TO IDENTIFY ENVIRONMENTAL IMPACTS**

24 Leal 1997, modified
a) Peer review. Only recommended to analyze a very specific and focused impact. If not, the analysis will be neither complete nor efficient, because of interdisciplinary interactions. Delphi method has been very useful in these cases.

b) Check lists. They are exhaustive lists that allow impacts to be identified quickly. There are “simple” and “quantitative” lists that use standards to define the main impacts (for instance, the air contamination based on amount of houses).

c) Simple cause-effect matrixes. Limited to establishing the relationship between the affected environmental variable and the human activity that causes it.

d) Flow diagrams and graphs. Used to illustrate the chains of direct and underlying impacts including all the existing interactions. They allow defining the expected impacts.

e) Environmental maps or overlapping maps. Maps with environmental aspects, considered important are prepared and then overlapped to obtain synthesis maps that allow defining the potential capacity of the area for alternative uses, considering legal restrictions.

f) Networks. Flow diagrams that include until a third level of impacts.

g) GIS. These computer programs are very elaborate, and are supported in system definitions. They are hard to use in the identification of impacts because they need to be integrated in the model. They are more relevant when assessing the importance and magnitude of impacts.

h) Matrixes. Double-input charts, one for environmental characteristics and impacts; and the other one, with planned activities. In the intersection, impacts are identified. Leopold Matrix is a good example of this method. In more complex matrixes, chains between primary and secondary impacts can be inferred.

To provide complementary evidence, new research has been done to develop a more detailed plan to monitor biodiversity. The following chart includes variables that will be monitored, methods, frequency and type:

### Table 11 Biodiversity Monitoring Plan

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Measurement Unit</th>
<th>Method and Description</th>
<th>Type</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity Alpha Mammals</td>
<td>Diversity (α)</td>
<td>King Method (census in transects) Observation by 3 hours / 2 times per day / 2 km lines 1 sample per zone (3 zones in forested areas / 1 in non forested area)</td>
<td>Direct observation, audio record and counting of individual per specie</td>
<td>3 times / year</td>
</tr>
<tr>
<td>Biodiversity Alpha Flora</td>
<td>Diversity (α)</td>
<td>Plots of 50x20, 20x5, 5x2 y 2x1 12 samples (3 / zone) (3 zones in forested area / 1 in non forested area)</td>
<td>Growth measurement, new species record, per type (shrubs, trees)</td>
<td>2 times / year</td>
</tr>
<tr>
<td>Biodiversity Alpha Birds</td>
<td>Diversity (α)</td>
<td>Fixed Observation Points Method (observations by 15 minutes in 5 points in 1 km transects) 2 samples per zone (3 zones in forested areas / 1 in non forested area)</td>
<td>Direct observation, songs record and counting of individuals per specie</td>
<td>3 times / year</td>
</tr>
</tbody>
</table>

Additionally, the research proposes to monitor other climatic variables in order to control any bias that can be introduced by external factors and that could affect the behaviour of biodiversity variables selected. These variables are shown in following chart:

### Table 12 Climate Monitoring Plan

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25 For more information see: Campo Verde Biodiversity Monitoring Plan.docx
The results of the biodiversity monitoring will be used to modify project activities in order to mitigate any unforeseen negative impacts on biodiversity in the project area.

Additionally, a connectivity analysis was completed for the property containing the project area as part of the development of the project biodiversity monitoring plan\textsuperscript{26}. The analysis indicated that forest cover in the project area is insufficient to establish a corridor for wildlife between the project area and the surrounding forests and three State protected areas, representing a threat to biodiversity in the project area.

\begin{table}[h]
\centering
\begin{tabular}{|l|l|l|l|l|}
\hline
\textbf{Indicator} & \textbf{Measurement Unit} & \textbf{Method & Description} & \textbf{Type} & \textbf{Frequency} \\
\hline
Temperature & Measurement, max & min temperature & Central Climatologic Station & Automatic & Daily \\
Moisture & Measurement & Central Climatologic Station & Automatic & Daily \\
Rainfall & Measurement, mm/m2 & Pluviometer & Automatic & Daily \\
\textbf{Speed and direction of wind} & \textbf{Wind direction, Wind speed (km/h)} & \textbf{Pluviometer} & \textbf{Automatic} & \textbf{Daily} \\
\hline
\end{tabular}
\end{table}

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.

\begin{itemize}
\item N/A. The Project is using only native species
\end{itemize}

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.

\begin{itemize}
\item 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.

According to the environmental impact survey (see Annex D) there are no species within the project boundary considered in a high threat category in the IUCN Red

\textsuperscript{26} For more information see: Campo Verde Biodiversity Monitoring Plan.docx
List and in the nationally recognized list, defined in the Supreme Decree N° 034-20004-AG of 2004.

40 fauna species from the surrounding forests outside the project area are considered in low threat category of the IUCN Red List and the nationally recognized list. The list is included in the Biodiversity Monitoring Plan.

No species registered in the biophysical survey are catalogued as threatened in the UICN Red List. Only as reference, 3 species registered in the surrounding forests, outside the Project boundaries, are classified in a low threat category in the nationally recognized list.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Status (DS N° 043-2006-AG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huicungo</td>
<td>Astrocaryum huicungo</td>
<td>Almost Threatened (NT)</td>
</tr>
<tr>
<td>Mashonaste amarillo</td>
<td>Clarisia racemosa</td>
<td>Almost Threatened (NT)</td>
</tr>
<tr>
<td>Tahuari</td>
<td>Tabebuia serratifolia</td>
<td>Vulnerable (VU)</td>
</tr>
</tbody>
</table>

The project will not be detrimental to these species because instead of promoting the forest fragmentation, it will recover the original natural forest by reforestation with native species, replicating the habitat of these species and ensuring landscape connectivity.

The project protection activities will help the growth of remnant gallery forests, protecting these species from annual neighbor burns and invasive grass.

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.

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:

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swietenia macrophylla</td>
<td>Mahogany</td>
</tr>
<tr>
<td>Tabebuia serratifolia</td>
<td>Ipe</td>
</tr>
<tr>
<td>Simarouba amara</td>
<td>Marupa</td>
</tr>
<tr>
<td>Dipteryx odorata</td>
<td>Cumaru</td>
</tr>
<tr>
<td>Inga edulis</td>
<td>Guaba</td>
</tr>
</tbody>
</table>

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.

>> 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 and the quality of river water affected caused by temporary workers that comes from Pucallpa and Campo Verde. The Project has developed specific strategies designed to minimize these risks as explained in Chapter G.3.5 and in the Environmental Risk Management Plan. Additionally, the hypothetical risk of hunting is not expected to happen as the company has strict rules that forbid wildlife hunting by their personnel.

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.

>>

27 For more information see “Plan de manejo de riesgos ambientales.docx” in the supplementary documents.
A biophysical analysis was conducted prior to implementation of the project. 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 determined.

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)

- Wildlife 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.

The Project area is located in a much degraded ecosystem, where no species can be found and used as health indicator of this ecosystem. For this reason, it is not possible now to establish the variables to be monitored. To identify these variables, the following criteria will be considered: food type, refugee, nesting, reproduction, issues that only can be known after a certain time of the beginning of the project activities.

The permanent evaluation will be the procedure to apply to identify the species and variables to monitor. It will be done once the project starts with the goal to look how the project area will be attracting natural wildlife species. According to this evaluation, biological indicators will be chosen and a monitoring plan will be designed.

The permanent evaluation includes fauna watching, which will be done by a field team. No specific flora specie has been pre-selected as an indicator, considering that the technical management of the plantation could probably limit the growth of species not promoted by the project. For this reason, flora is not an appropriate indicator in this kind of project (reforestation projects).

Operational boss and 3 field technicians will be trained in wildlife watching techniques, including the use of (i) binoculars, (ii) guides to identify wildlife species, (iii) watching

More details about the survey can be found in the document named as 'Diagnóstico biofísico 2006.doc'.
record forms. Personnel have been selected considering that they will frequently be in field because of their daily activities. Annex M shows the form that will be used to record this watching.

After a period of time when enough records have been taken, we will be ready to establish the definitive indicator species and biological monitoring plan that will be used for the life of the project. Risk monitoring will also be included.

Regarding risk monitoring, a plan to evaluate the incidence of fires and illegal hunting, based on actions that are already being developed in the field has been designed. The following chart gives details on it:
Control of Hunting and Fires through patrolling. Incidents will be reported and mitigated, including: fires, hunting, entrance to project area, resources harvesting. Traces, footprints and disposals will be analyzed.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Measurement Unit</th>
<th>Method and Description</th>
<th>Type</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control of Hunting and Fires through patrolling</td>
<td>- # of special patrolling / year</td>
<td>a) Social Sensibilization: oriented to educate neighbors in the importance of a rational and controlled use of fire, avoiding risk situations, through campaigns and trainings as &quot;forest week&quot;, training workshops and permanent communication. A registry of neighbors and land uses is implemented.</td>
<td>Regular Patrolling and Special Patrolling (when a threat is detected)</td>
<td>3 regular patrolling per month (36 per year) and non programmed special patrolling when necessary</td>
</tr>
<tr>
<td>- # of non authorized persons found in the area</td>
<td>b) Protection of forest biomass: with fire belts in critical points identified as dangerous areas where periodical clearing is done (3 times per year) and by doing preventive burnings during low risk periods (rainy season)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- # of fires or risk of fires detected</td>
<td>c) Establishment of adequate control and rapid detection policy, with forest guards and vigilance of forested and neighbor areas (patrols), in order to mitigate as fast as possible fire situations at their starting moment before it turns uncontrollable. Forest guards will be trained about how to deal with fires and will be equipped with radios and horses to patrol the whole frontier of the property periodically (3 times per month) all the year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Quality of fences and fire belts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- # of burned areas in neighbor plots</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

**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**
Soils in the project area and the remaining forest surrounding the project area were sampled and analyzed\(^{29}\). 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\(_2\)e/ha of leaf biomass will be produced. This will increase to over 20 t CO\(_2\)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\(^{30}\). 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\(^{31}\). 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.

\(^{29}\) Analysis Comparative de Carbono en el suelo en el fundo Campo Verde
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 G Key Personnel Curriculum Vitae
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 Risk Assessment Documents
Annex S Sensitive Documents
Annex T Legislation Referenced
Annex U Voluntary Carbon Standard Project Description