



KEY PROJECT INFORMATION & PROJECT DESIGN DOCUMENT (PDD)

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.2**

RELATED SUPPORT

- **TEMPLATE GUIDE Key Project Information & Project Design Document v.1.2**

This document contains the following Sections

Key Project Information

SECTION A - Description of project

SECTION B - Application of approved Gold Standard Methodology (ies) and/or demonstration of SDG Contributions

SECTION C - Duration and crediting period

SECTION D - Summary of Safeguarding Principles and Gender Sensitive Assessment

SECTION E - Outcome of Stakeholder Consultations

Appendix 1 – Safeguarding Principles Assessment (mandatory)

Appendix 2 - Contact information of Project participants (mandatory)

Appendix 3 - LUF Additional Information (project specific)

Appendix 4 - Summary of Approved Design Changes (project specific)

KEY PROJECT INFORMATION

GS ID of Project	GS7607
Title of Project	Proyecto Gold Standard Agroforestal San Pablo del Lago, Ecuador
Time of First Submission Date	December 2019
Date of Design Certification	
Version number of the PDD	Version 4
Completion date of version	05/06/2023
Project Developer	South Pole
Project Representative	William Garrett
Project Participants and any communities involved	Community Mariscal Sucre Community Angla Cooperative Angla Association Plaza Pallares Association La Magdalena Foundation G. Plaza Lasso
Host Country (ies)	Ecuador
Activity Requirements applied	<input type="checkbox"/> Community Services Activities <input type="checkbox"/> Renewable Energy Activities <input checked="" type="checkbox"/> Land Use and Forestry Activities/Risks & Capacities <input type="checkbox"/> N/A
Scale of the project activity	<input type="checkbox"/> Micro scale <input checked="" type="checkbox"/> Small Scale <input type="checkbox"/> Large Scale
Other Requirements applied	
Methodology (ies) applied and version number	Gold Standard Afforestation/reforestation (A/R) GHG emissions reduction and sequestration methodology (version 1 published in 2017)

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Product Requirements applied	<input checked="" type="checkbox"/> GHG Emissions Reduction & Sequestration <input type="checkbox"/> Renewable Energy Label <input type="checkbox"/> N/A
Project Cycle:	<input type="checkbox"/> Regular <input checked="" type="checkbox"/> Retroactive

Land-use & Forest Key Project Information¹

Scope:	<input checked="" type="checkbox"/> Forestry <input type="checkbox"/> Agriculture
Silvicultural system:	<input checked="" type="checkbox"/> Conservation (no use of timber) <input type="checkbox"/> Selective Harvesting <input checked="" type="checkbox"/> Rotation Forestry
Project Area (ha):	663.1 ha
Eligible Area (ha):	563.1 ha
10% Set Aside Conservation area (ha):	N/A According to annex B of AR LUF Activity requirements smallholder projects (such as this one) this requirement is not applicable.
Evidence that Project Area Boundary is clearly distinguishable in the field:	Project areas are clearly demarcated on the ground by the physical boundaries of the plots generally surrounded by barbed wire.
Planting Area	563.1 ha

¹ Please refer to 0 for detailed information on LUF projects

<p>How many Modelling Units (MUs) are included in the eligible area:</p>	<p>There are 14 modelling units that correspond to the management systems and the planting years as follow:</p> <table border="1"> <thead> <tr> <th>year</th><th>Baseline</th><th>Plantation - Pine</th><th>Plantation - Alnus</th><th>Agroforestry</th><th>Assisted natural regeneration</th></tr> </thead> <tbody> <tr> <td>2018</td><td>Crop</td><td>X</td><td></td><td></td><td></td></tr> <tr> <td>2019</td><td></td><td></td><td></td><td colspan="2">No planting was done</td></tr> <tr> <td>2020</td><td>Shrubland</td><td>X</td><td>X</td><td></td><td></td></tr> <tr> <td></td><td>Crop</td><td></td><td></td><td>X</td><td></td></tr> <tr> <td></td><td>Native grass</td><td></td><td></td><td></td><td>X</td></tr> <tr> <td>2021</td><td>Shrubland</td><td>X</td><td></td><td></td><td></td></tr> <tr> <td>2022</td><td>Shrubland</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> <tr> <td></td><td>Native grass</td><td>X</td><td></td><td></td><td>X</td></tr> <tr> <td></td><td>Pasture</td><td></td><td></td><td>X</td><td></td></tr> <tr> <td></td><td>Mixed of trees in pasture</td><td></td><td></td><td></td><td>X</td></tr> </tbody> </table>						year	Baseline	Plantation - Pine	Plantation - Alnus	Agroforestry	Assisted natural regeneration	2018	Crop	X				2019				No planting was done		2020	Shrubland	X	X				Crop			X			Native grass				X	2021	Shrubland	X				2022	Shrubland	X	X	X	X		Native grass	X			X		Pasture			X			Mixed of trees in pasture				X
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	Mixed of trees in pasture				X																																																																			
<p>Summary of New Areas added (copy and insert as needed):</p>																																																																								
<p>Size (ha):</p>																																																																								
<p>Date Added</p>																																																																								

Table 1 – Estimated Sustainable Development Contributions

Sustainable Development Goals Targeted	SDG Impact (defined in B.6.)	Estimated Annual Average	Units or Products
06 Clean Water and Sanitation	<ul style="list-style-type: none"> - Number of hectares of assisted natural regeneration - Number of hectares of agroforestry - Number of water springs protected - Number of workshops provided 	<ul style="list-style-type: none"> - 137.4 ha natural regeneration to be planted between 2018-2022 - 172.3 ha of agroforestry to be planted between 2018-2022 - 8 water springs protected - Two workshops per year (for 10 years) 	<ul style="list-style-type: none"> - Ha - Ha - Number - Number

13 Climate Action (mandatory)	<ul style="list-style-type: none"> - Carbon sequestered in the trees - Number of workshops related to climate change and management of the commercial plantations and agroforestry systems 	<ul style="list-style-type: none"> - 3,550 - 4 per year (3 first years) and 2 per year (from year 4 to year 7) 	<ul style="list-style-type: none"> - tCO2/y - r - Number
15 Life on Land	<ul style="list-style-type: none"> - Number of ha reforested (agroforestry, commercial plantations and assisted natural regeneration) with the project activities - Number of workshops about Paramo conservation 	<ul style="list-style-type: none"> - 563.1 - Two workshops per year (for 10 years) 	<ul style="list-style-type: none"> - Ha - Number

This project is an A/R smallholder project because the participants (associations and communities) comply with the definition of smallholder as per Annex B of AR LUF Activity requirements the defines smallholders as “Smallholders are farmers that have more than 50% of farm work done by family members, cooperative members or neighbours”.

According to the Gold Standard land use and forest requirements ('Annex B – A/R Smallholder and Microscale Guidelines'), the key project information shall include additional information, as follows:

a. Organisations involved in the project (including legal details of the project developer and its relationship to the local communities of the project)

Partner for implementation	Description	Role
South Pole Carbon Asset Management Ltd.	Company specialising in the design and implementation of climate change mitigation projects. South Pole is a project developer that supports the customer in generating carbon credits and their marketing.	Project manager. Support the document preparation for the project's registration on Gold Standard. Assistance with the validation process. Liaison with the different partners.
Natura Plus S.A.	Natura Plus S.A is a company created in 2006, dedicated to the design and administration of programmes and projects that are focused on advocating sustainable development and climate change adaptation and mitigation.	Financial manager of the project. Responsible for the procurement and training of personnel and project participants. Responsible for the implementation of the budget.
WWF Switzerland	WWF is an environmental non-governmental organisation (NGO) that works for environmental conservation and considers man-nature interactions.	Insetting project portfolio manager for Coop.
Coop	Coop is a leading Swiss retail and wholesale company. Coop is financing the project as part of its greenhouse gas (GHG) emission reduction activities for the flower supply chain, purchased near the project's area and commercialised in Switzerland.	Donor

Community associations, cooperatives and foundations	Local indigenous communities that are organised and own community land for productive activities.	Owners/beneficiaries of the project. They will implement the project activities in their lands and participate actively in the monitoring.
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b. Target smallholder groups that will be invited to participate

- Community Mariscal Sucre
- Community Angla
- Cooperative Angla
- Association Plaza Pallares
- Association La Magdalena
- Foundation G. Plaza Lasso

c. Distribution of revenues

The project activities are funded by Coop. Coop's motivation to fund the project is to comply with its sustainability objectives within its cut flowers supply chain. It purchases flowers from producers near the San Pablo del Lago basin and this is the reason why this area was selected.

The project will not sell the carbon credits and thus no revenue is expected from them. Potential revenues for the participating communities will originate from the commercialisation of the wood and NTFPs produced by the project activities. The project activities include productive plantations on community land, agroforestry systems and assisted natural regeneration. Communities implementing the activities will get the revenue from the sale of their products and will use the revenues based on the agreement that each community/association will reach in consultation with their members.

Figure 2 shows the location of the flower suppliers (to Coop). Rosas del Monte is located in the San Pablo del Lago basin; Hojaverde and Ponteresa are outside of the basin but nearby.

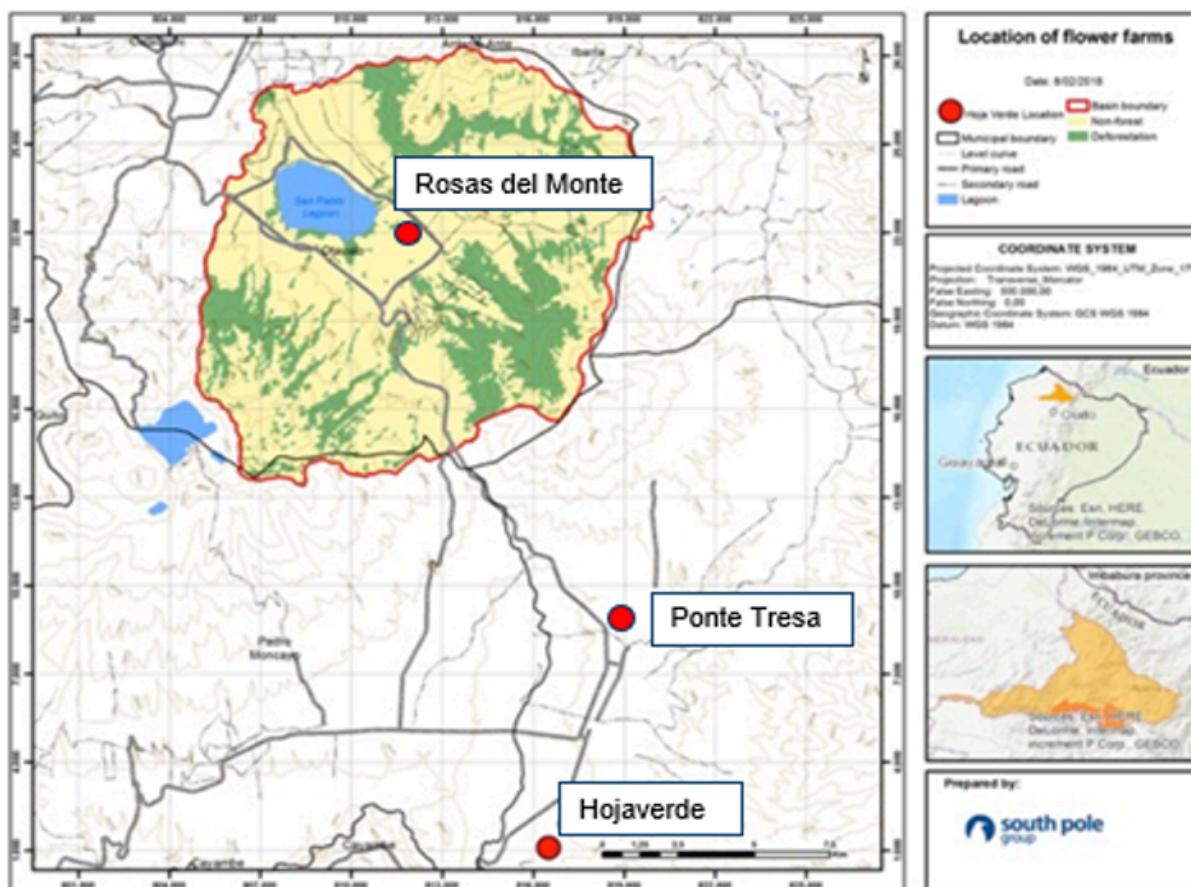


Figure 2. Flower producers in Coop's supply chain

d. Project region

The project is located within the San Pablo del Lago and basin and its impact area, in the province of Imbabura (located within the Northwestern Andean Mountains in northern Ecuador) (Figure 1).

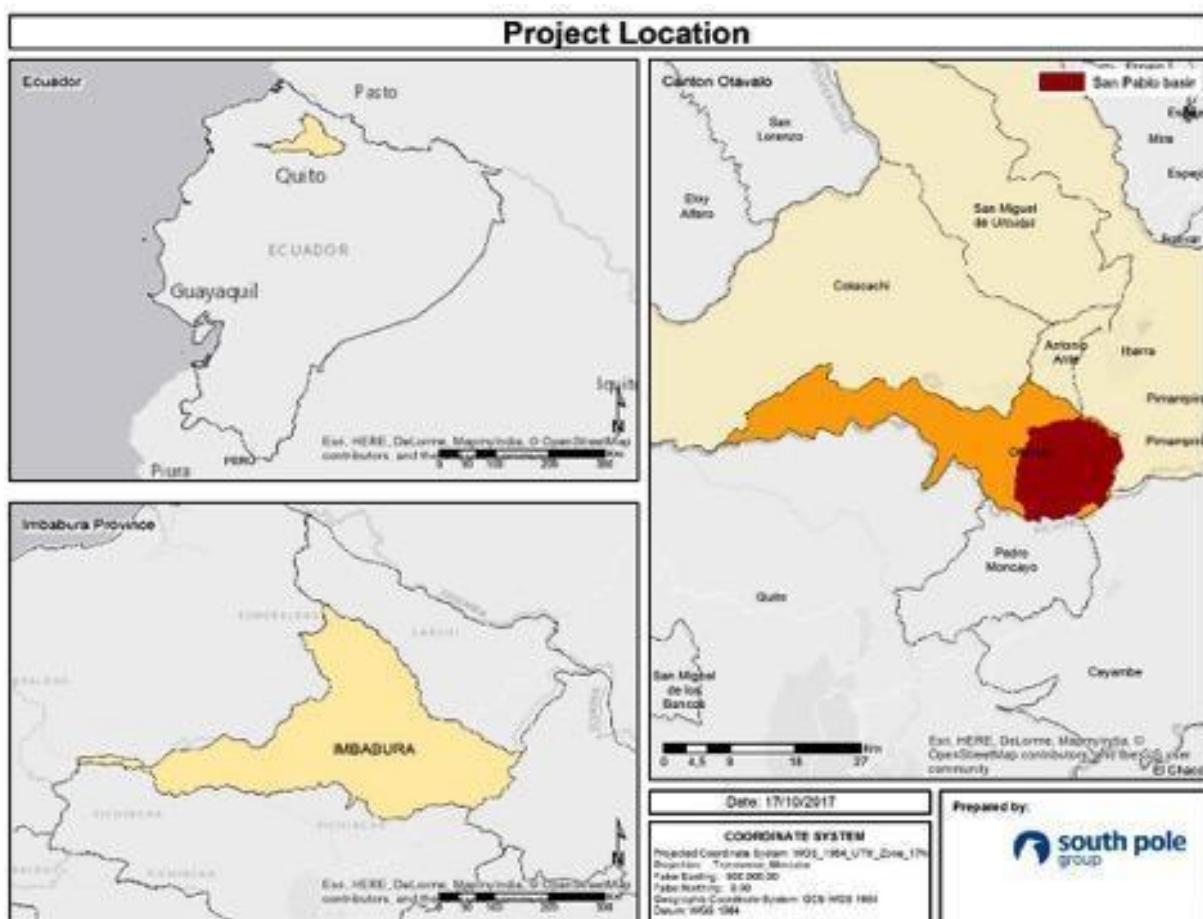


Figure 1. Project location in Ecuador

e. Size of the project area

The project area measures 663.1 hectares (ha). It consists of 563.1 ha of reforestation area and 100 ha of paramo conservation for biodiversity.

Figure 3 shows all the areas where project activities will be implemented. It differentiates the type of project activity. The digital polygons of each of the areas per project participant are available upon request.

Proyecto Gold Standard Agroforestal San Pablo del Lago, Ecuador

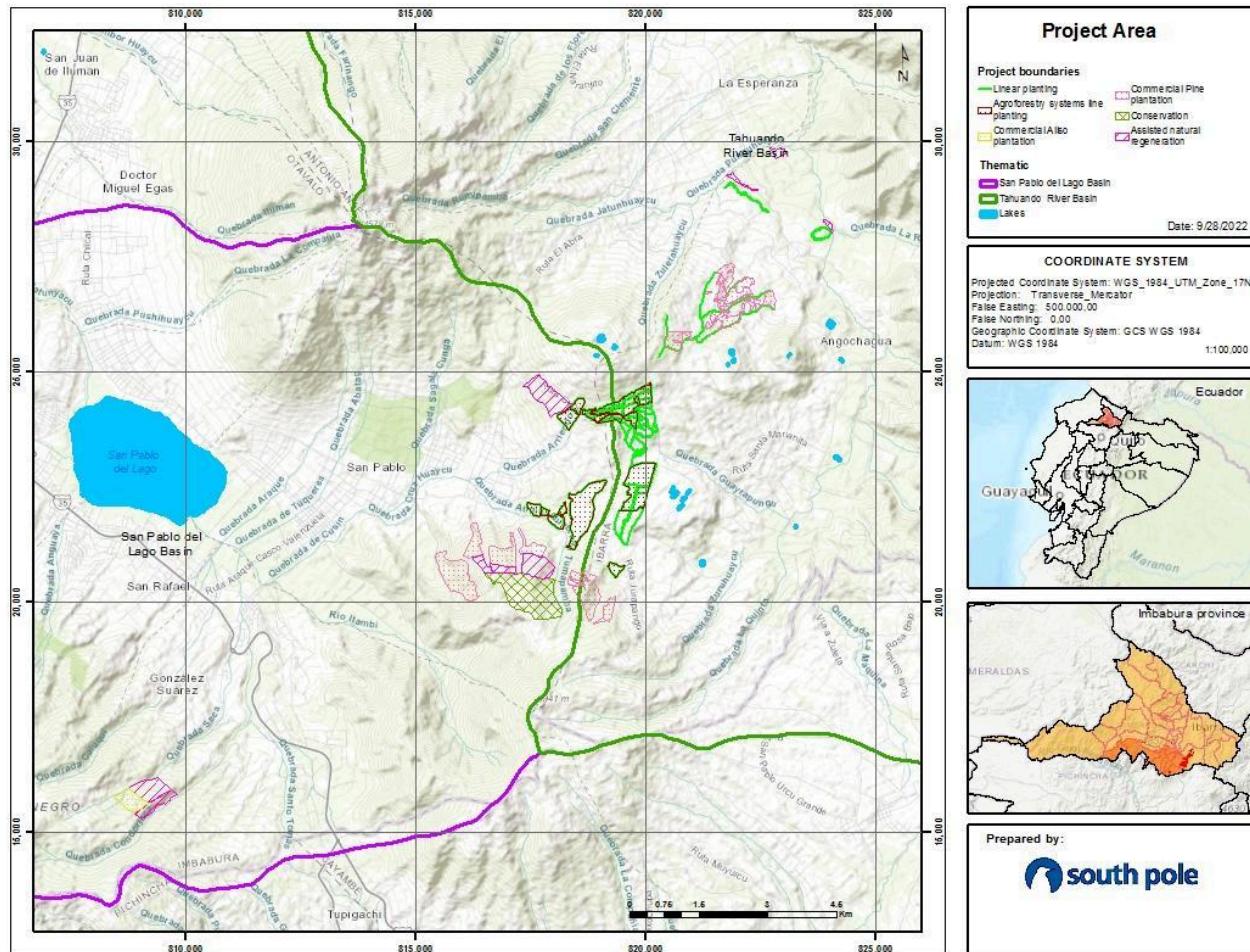


Figure 3. Areas where project activities will take place

Figure 4 shows an example of one of the associations (Plaza Pallares) included in the project. A similar map is available for all the project participants. The image shows where the agroforestry systems will be established (live fences) and where the assisted natural regeneration will take place.

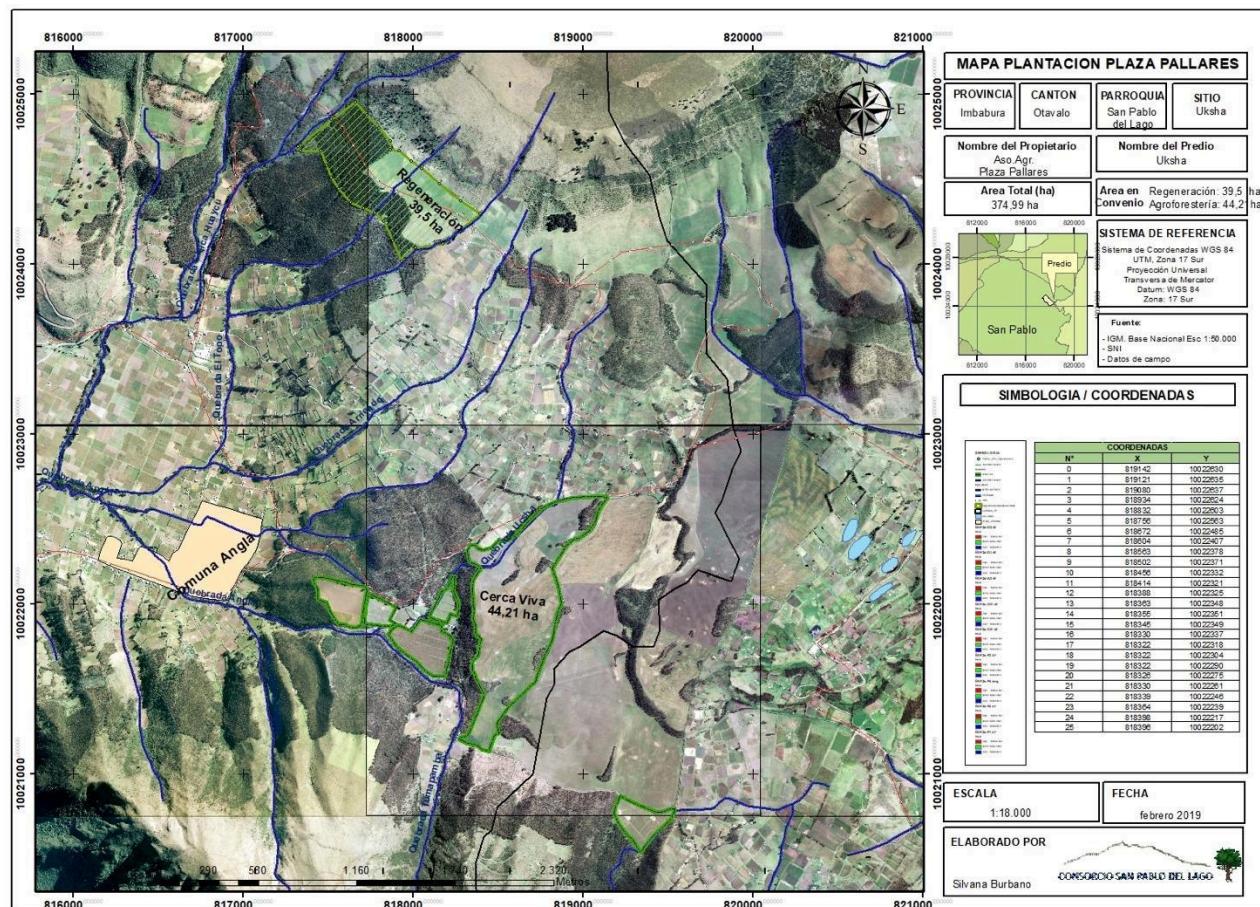


Figure 4. Project activities in association Plaza Pallares

Other requirements based on Annex B of LUF Activity requirement

a) Protected areas

Figure 5 presents the national protected areas near the project areas. The closest protected area to the project area is Cayambe Coca National Park (shown in green in the map) located 13 kilometres (km) away (in a straight line).

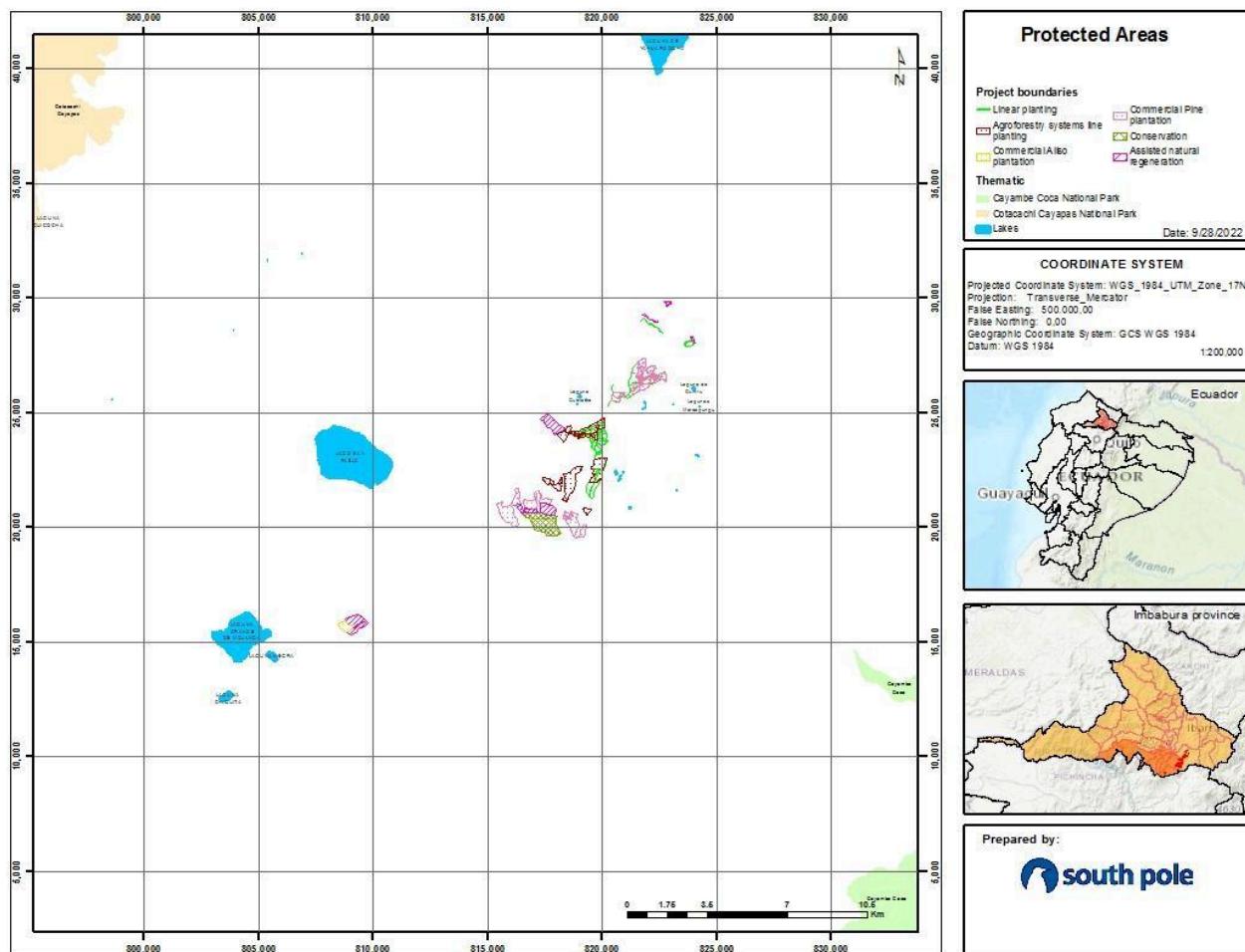


Figure 5. National protected areas

(Source: <https://www.protectedplanet.net/search?q=ecuador>)

- b) **Biodiversity areas.** The conservation area is indicated in green in Figure 3. It is a 100 ha area protecting a paramo area.
- c) **Infrastructure and permanent waterbodies**

Figure 6 shows infrastructure and permanent water bodies. Infrastructure includes villages, railways, roads and urban areas.

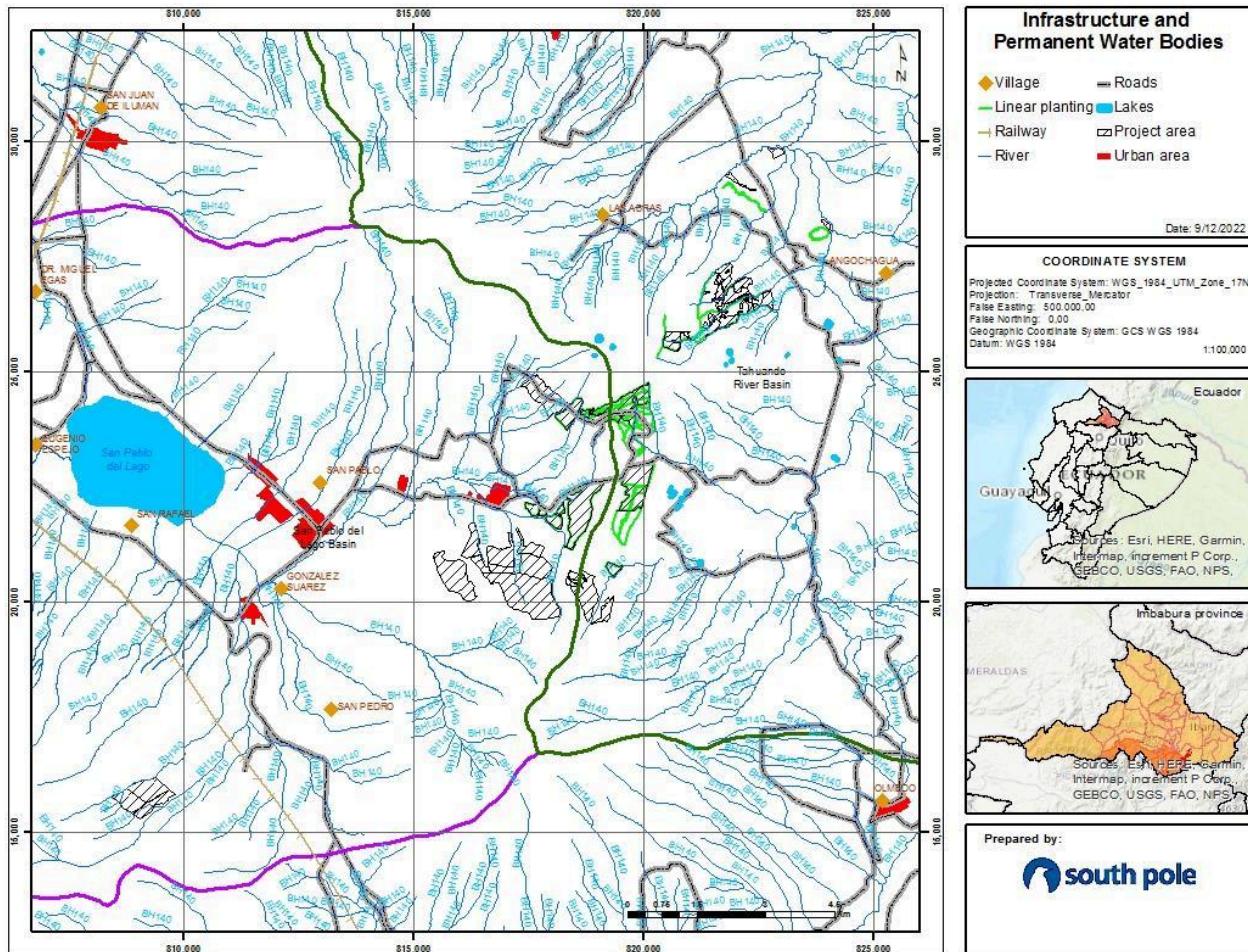


Figure 6. Infrastructure and permanent waterbodies

d) People near project areas

Figure 7 presents people in the proximity of the project areas. The project is not expected to negatively impact them as activities will take place on the private property of the communities participating in the project. The communities participating in the project are those that will benefit from the activities:

- Community Mariscal Sucre
- Community Angla
- Community Ushka (Association Plaza Pallares)
- Community La Magdalena
- Community Zuleta (Foundation G. Plaza Lasso)

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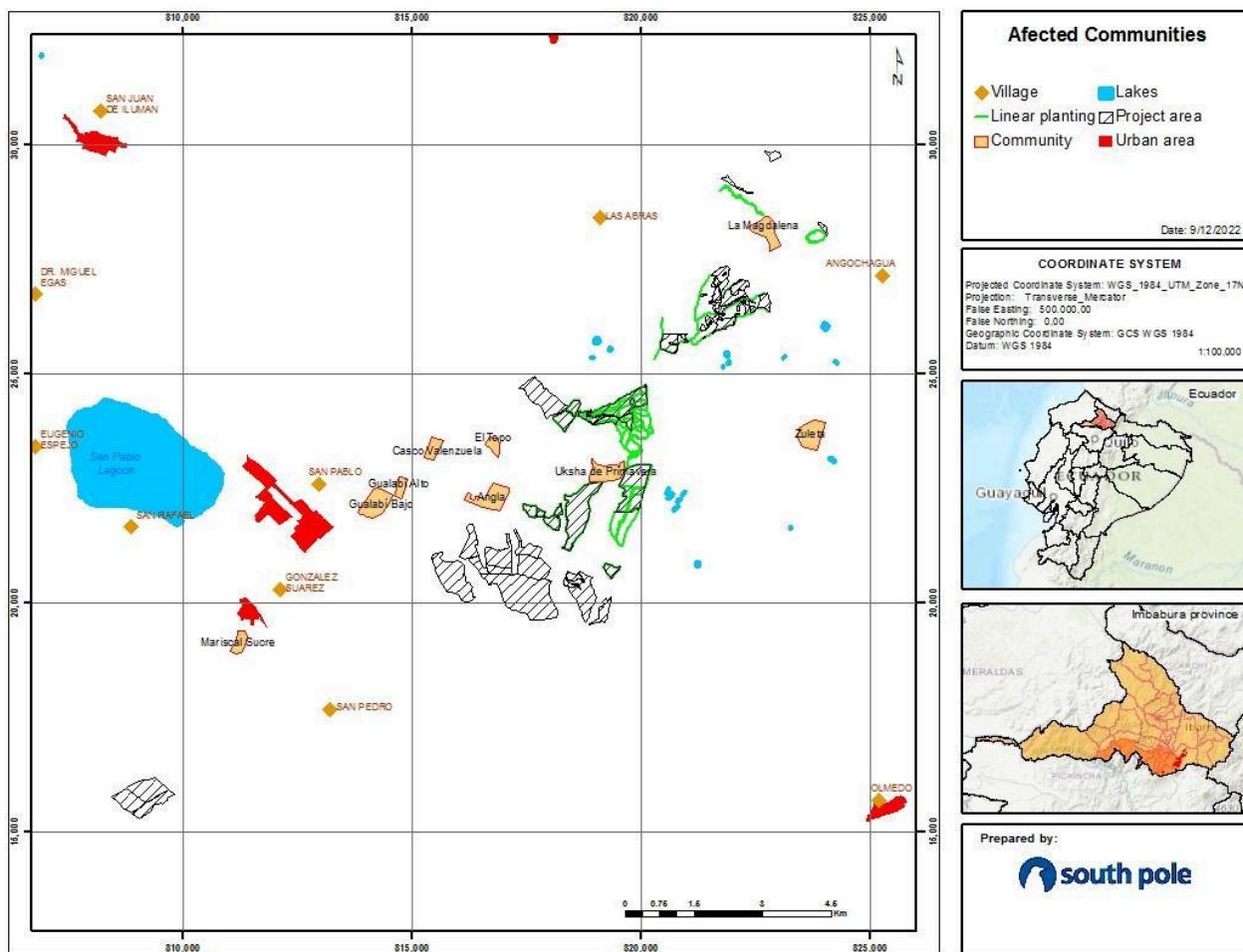


Figure 7. People in the proximity of project areas

e) Sites with special significance for indigenous peoples and local communities

Figure 8 shows the sites with special significance for indigenous people. There are three main sites:

- Hacienda La Magdalena and Hacienda Zuleta. The significance of these sites is that they are houses from the colonial period. The communities want to preserve them to attract tourists as an ecotourism activity. The project is expected to positively affect the preservation of the haciendas by generating additional sources of income that the communities need to take care of the

sites. The association La Magdalena is looking for funding to invest in the renovation of the hacienda.

- Pyramids near the Hacienda Zuleta. The significance of these sites is that they are pre-colonial constructions built by the local indigenous people. The project will not negatively affect the pyramids because reforestation activities will not take place near them.
- Rumitola and Riconada waterfall. The significance of the waterfalls is that they are a natural beauty that locals enjoy. In addition, they attract ecotourism which is supported by the local government. The project will not negatively affect the waterfall; rather, the project is expected to improve the landscape and be positive for the development of ecotourism.

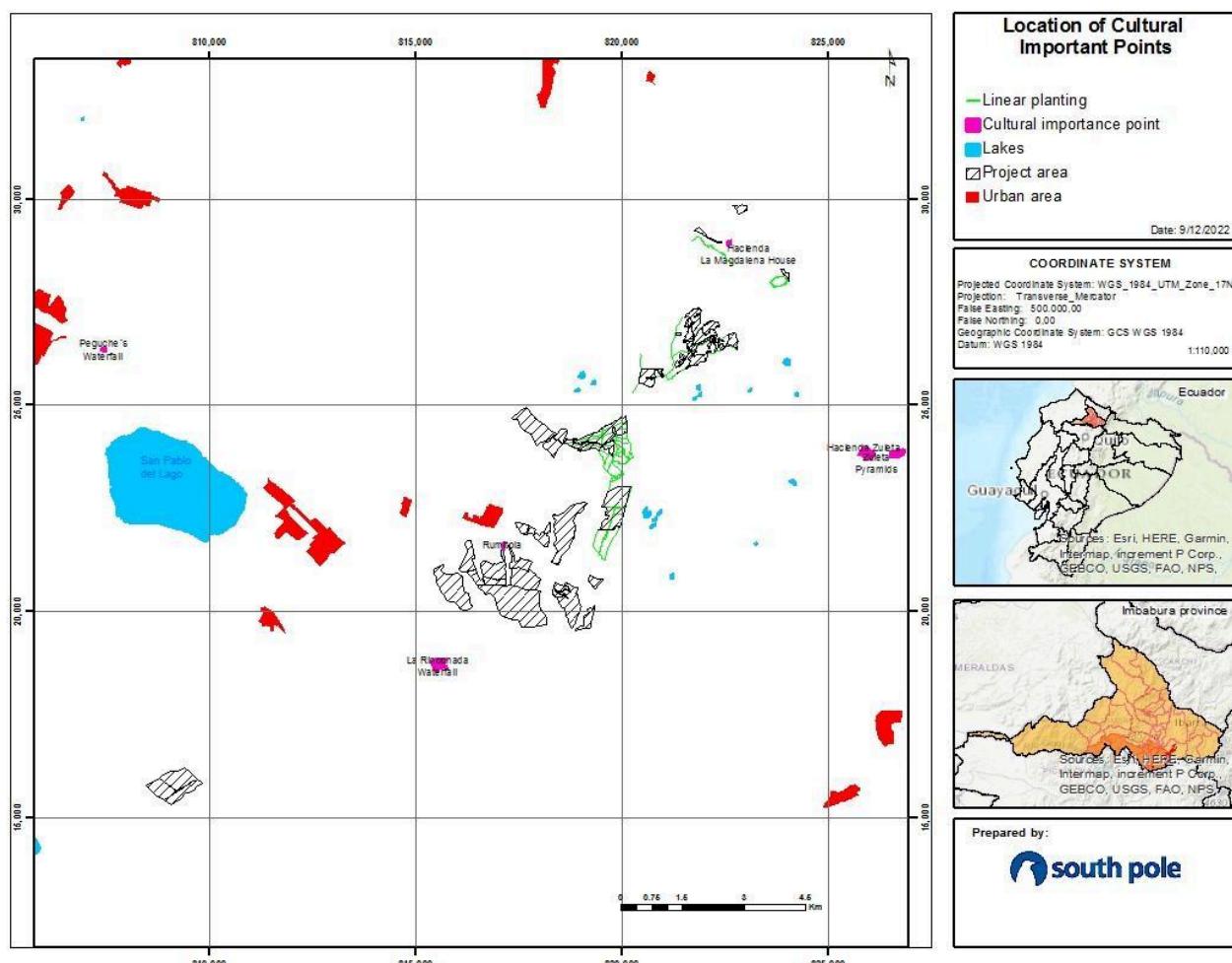


Figure 8. Sites with special significance for indigenous peoples and local communities

SECTION A. DESCRIPTION OF PROJECT

A.1 Purpose and general description of project

Location of project activities

The project will take place in San Pablo del Lago and Tahuando River basin in the north of Ecuador.

Technologies/measures to be implemented by the project

The San Pablo del Lago Agroforestry Project is funded as an insetting project by Coop Switzerland. The project intends to work with commercial flower growers, community groups and small-holding farmers located within the San Pablo del Lago basin (and its surrounding impact area) to promote new tree planting activities and improved water resource management within the basin.

The initial phase of the project will last for 10 years from 2018 to 2028, however the reforestation carried out through this project should remain in place for a minimum of 30 years after planting in compliance with the requirements of the Gold Standard. The reforestation objective is to establish 563 ha of new forest area during the period 2018–2022 which will generate a minimum of 50,000 tonnes of carbon dioxide (tCO₂) emission reductions before the end of 2028. Reforestation activities include:

- tree commercial plantations with *Pinus radiata* or *P. patula* and *Alnus spp.* on community land;
- agroforestry systems, including live fences and silvopastoral management;
- assisted natural regeneration; and
- conservation of the paramo.

Table 2 presents details of the reforestation activities.

Table 2. Description of the reforestation and conservation activities included in the project

Type of system	Description	Species	Planting density	Prop area (ha)
Plantation	Reforestation with commercial plantations	<i>Pinus radiata; P. patula.</i>	Spacing: 2.5 m x 2.5 m Density: 1,600 pt/ha	253.4
		*Alico (<i>Alnus spp.</i>)	Spacing: 3.0 m x 3.0 m. Density: 1,111 pt/ha	
Agroforestry	Tree planting on crop land boundaries, without affecting crops.	Alico, <i>laurel de cera, capulí</i> (among other see Table 5)	Line planting. 1 m spacing between trees Density: 600 pt/ha	172.3
Native forest	Assisted natural regeneration in areas with bare soils or degraded.	Alico, <i>Pumamaqui, Quishuar, Cedro, Other</i> (see Table 6)	Isolation of the area for natural regeneration and for growing native species. Density 500 pt/ha	137.4
Paramo conservation	<i>Pajonales</i>	Mixed species of native grass	-	100
Total reforestation area (ha)				663

Reforestation activities included in the project will contribute to SDG 6, 13 and 15 through the same technologies/measures. Table 1 shows the details of **Gold Standard**

the impacts that project activities will have for these 3 SDGs. Another measure included in the project is the protection of water springs for water conservation which will be done through reforestation in the surroundings of the water springs. In addition, the project will conduct workshops related to each one of the three SDGs related to (i) water management and conservation (SDG 6); (ii) climate change and management of commercial plantation and agroforestry systems (SDG 13); and (iii) paramo conservation (SDG 15). These workshops will be in person.

Project boundary

Figure 21 presents the project boundaries, which correspond to the boundaries of two basins: San Pablo del Lago and Tahuando. The project includes only CO₂ part of the baseline from above ground biomass and below ground biomass only. Soil or other emissions are not included. The project scenario accounts for CO₂ capture from above and below ground biomass and for N₂O from the application of fertilizer (organic fertilizer) used for some of the planting activities. No soil carbon capture is included in the project.

Baseline scenario. Land use in the San Pablo del Lago basin and surroundings

The land cover types in the San Pablo del Lago basin and surroundings are determined to a large extent by topography (see Figure 9). Lower elevation areas surrounding San Pablo del Lago are predominantly agricultural, with some built up areas and perennial cropland, including commercial growers of horticultural and floricultural crops which are sold to international markets. The middle elevation areas are mostly used for annual cropland by smallholding farmers and community forests. Above 3,500 masl the land cover grades into '*paramos*' (a form of upland grassland), while above approximately 4,000 masl the land cover is mostly bare.

The most recent landcover types map is from 2014 (Figure 10). The figure shows that most of the areas are agricultural land (light yellow) and shrub and grass land (light green).

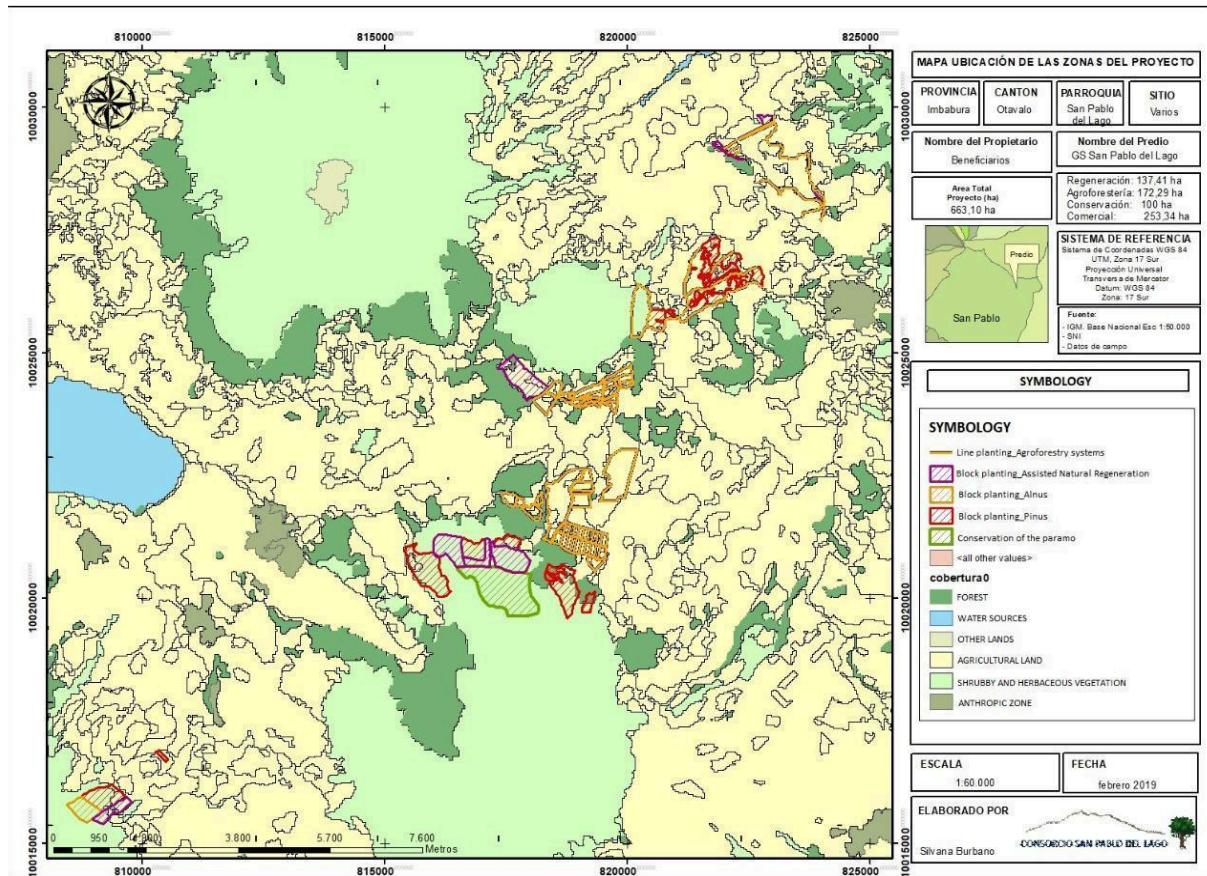


Figure 10. Land cover in 2014

(Source: Ministry of Environment Ecuador, 2019²)

A.1.1. Eligibility of the project under Gold Standard

Criteria	Demonstration of fulfillment
i) Demonstrate if project is pre identified as eligible by being referenced in Gold Standard Activity Requirements, Impact Quantification Methodologies or Product Requirements	<p><i>The Gold Standard Land-Use & Forest activity Requirements, Version 1.2.1 (April 2020) define the following General Eligibility Criteria</i></p> <p>a. <i>Eligible project types are Afforestation & Reforestation Projects (A/R) and Agriculture Projects (AGR): This project falls into the A/R Category.</i></p> <p>b. <i>No Deforestation: The eligible area shall not meet the definition of forest 10 years before the project start date and at project start date: The demonstration of the compliance of this criteria is indicated in the No Deforestation analysis, below this table.</i></p>

² <http://sua.ambiente.gob.ec>
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	<p>c. No deforestation activity took place with an intention to implement project activities. See No Deforestation Analysis, below this table.</p> <p>d. The project does not intend to issue any VER but report impacts only. There is no risk of double counting.</p>
ii) If not pre identified as eligible, provide evidence of Gold Standard approval	Does not apply, since the project falls into the A/R category and is eligible
iii) Demonstrate how the project meets the General Eligibility criteria of the applicable Activity Requirements	See first row of the table
iv) Confirm that the project is not registered with any other voluntary or compliance schemes.	The project is not registered with any other voluntary or compliance scheme. There is no intention to register the project with an other scheme in the future. This project is for reporting impacts only and will not generate any VERs.
v) Demonstrate the activity is NOT located in a host country, region, locality or state that has an emission reduction cap enforced OR has the possibility to trade emissions that include the scope of the proposed project.	Not applicable since the project is reporting only and will not issue any VERs.
vi) Demonstrate that no potential for double counting of impacts if the Project Area overlaps with that of another Gold Standard or other voluntary or compliance standard programme of a similar nature	There is no risk of double counting the project climate change (CO ₂) impacts because the project will not issue any VERs, due to legal reasons. The project is not currently part of any other scheme, nor does it intend to participate in any other [PES] scheme that may result in double counting of any other impacts.
vii) Demonstrate that the project is in compliance with applicable Host Country's legal, environmental, ecological and social regulations	All the systems to be implemented (agroforestry, assisted natural regeneration and productive plantations) have a management plan that has been submitted to the relevant authorities as required by the national legislation (these management plans are available in a separate file called "management plans")

No forest/deforestation analysis

The San Pablo del Lago Ecuador Afforestation/Reforestation project is eligible where trees are planted on land that does not meet the definition of a forest at the start of planting, and the planted area should not have been forest for at least 10 years prior to the start of planting. The forest definition used was from the Ministry of

Environment reference level for Ecuador (2001–2014) published in 2020.³ The eligibility analysis was performed based on cartographic information from the Global Forest Change 2000–2018⁴.

Global Forest Change⁵ is a global loss and gain coverage forest map for the 2000–2018 period, constructed by the Department of Geographic Sciences at the University of Maryland (United States of America). It was performed based on Landsat TM, ETM +, and OLI images with a pixel size of 30 m and a cartographic scale of 1:100,000. The results of the map are temporal series of Landsat images that characterise the forest cover and the change occurred according to the following definitions:

- **Forest cover:** trees with a minimum height of 5 m, expressed as percentage of crown density per cell for the year 2000.
- **Annual loss of forest cover:** the loss of forest area per year, from 2001 to 2018.
- **Data mask:** values represent continental areas and permanent waterbodies.

To perform the eligibility analysis, Global Forest Change information was downloaded, which is divided into 10x10 cells ranging from 180W–180E and 80N–60.⁶ The project area is located between cells 10N and 080W. Three raster layers were downloaded: the forest cover layer at the pixel level (0% to 100% of cover) for the year 2000, the annual forest loss layer for the 2001–2018 period, and the layer of permanent water bodies for the study area or data mask.

To obtain the forest/non-forest layers of 2009 and 2018 (Figure 12 and Figure 13), the following steps were followed:

- 1) Reclassification of the forest cover layer of 2000 according to Ecuador's forest definition (30% canopy cover).

³ According to Ecuador's forest definition, for A/R project activities, forest means a land with tree crown cover of more than 30 per cent and area of more than 1 ha. The trees should be able to reach a minimum height of 5 m (<http://cdm.unfccc.int/DNA/index.html>; Ministerio del Medio Ambiente. 2020. Nivel de referencia de emisiones forestales por deforestación del Ecuador period 2001-2014)

⁴ Hansen et al. 2013. High resolution global maps of 21st century forest cover change. Science. 342, 6160: 850-853. <https://www.science.org/doi/10.1126/science.1244693>

⁵ Global Forest Change (<https://earthenginepartners.appspot.com/science-2013-global-forest>)

⁶ Hansen, M. C., P. V. Potapov, R. Moore, M. Hancher, S. A. Turubanova, A. Tyukavina, D. Thau, S. V. Stehman, S. J. Goetz, T. R. Loveland, A. Kommareddy, A. Egorov, L. Chini, C. O. Justice, and J. R. G. Townshend. (2013). High-Resolution Global Maps of 21st-Century Forest Cover Change. Science, 342: 850–53. Available in: [http://earthenginepartners.appspot.com/science-2013-global-forest](https://earthenginepartners.appspot.com/science-2013-global-forest)

- 2) Reclassification of annual forest loss layer 2001–2018 to obtain layers of forest loss accumulated in 2009 and 2018.
- 3) Subtraction of forest losses to 2001 and 2018 from the forest/non-forest layer of the year 2000.

Using the forest/non-forest layers (2009 and 2018), a cartographic cross-over of both periods was made for the delimitation of the eligible areas and the information was reclassified considering eligible areas as those areas that were maintained as non-forest in the period 2009–2018, except for populated centres and permanent water bodies on a scale of 1:100,000. On the other hand, non-eligible areas were those with a stable forest or with gains or losses of forest cover over the same period.

Finally, with the resulting raster information, a post-processing was carried out, which consisted of changing the projection system of the WGS84 geographic coordinate system to the flat WGS84-UTM 17N system, transforming the resulting layer (raster) to vector format, elimination of isolated polygons smaller than 0.1 ha, construction of table of attributes with categories: eligible (1) and non-eligible (0), and cut of the layer with the boundaries of the project area.

Results

Eligibility was carried out in San Pablo del Lago, Ecuador. In summary, considering the eligibility assessment, the visits to the field and conversations with key local stakeholders, all the 563 ha where reforestation will take place are eligible. Figure 11 shows the eligible area, marked in orange (i.e. the land area that has been non-forest for more than 10 years prior to the project start date according to the analysis done using satellite imagery).

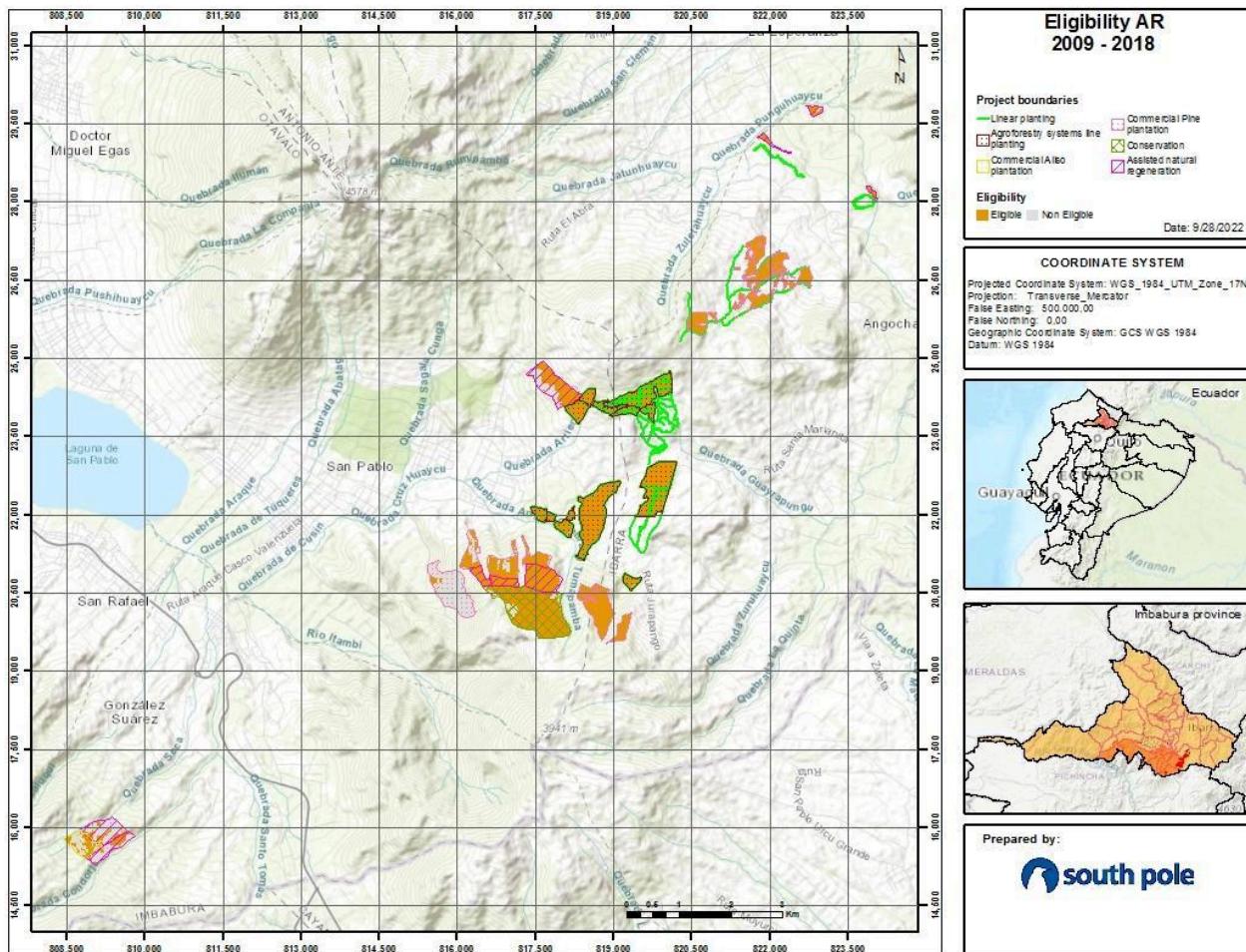


Figure 11. Eligible areas 2009–2018

The national reference level for Ecuador was considered. The results are similar to those obtained in Figure 11. However, the results are not totally comparable because the reference level only has information until 2014.

All 563 ha of the project reforestation areas are located in eligible areas. According to the eligibility assessment using remote sensing techniques, 130 ha of the project area was classified as being non-eligible. However, in reality the entire 130 ha meets the eligibility criteria (i.e. it is not currently a forest, it has not been a forest in the past 10 years and is not a wetland area). The 130 ha which show as not being eligible areas are currently covered by a mix of grasses and low shrubs which, based on the species composition, will not have the capacity to regenerate into forest. The eligibility of these areas has been evidenced through site assessment by the project team to

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determine the current land cover type (see photos in Figure 14) and interviews with local stakeholders to confirm that these areas have not been forest at any point in the past 10 years. The local forester who has been working in the area for more than 15 years communicated that the area was used for cultivation in the past, but cultivation stopped more than 10 years ago and the land has been abandoned since.

The entire project area where reforestation will be implemented (563.1 ha) is therefore considered to be eligible for reforestation activities according to the requirements of the Gold Standard.





Figure 14. Common shrubs in cooperative Angla

In addition to the considerations of GS eligibility, reforestation sites should also be selected for the purposes of bringing hydrological benefits to the basins where the project areas are located. The following factors are to be considered for hydrological purposes:

1. Target high to very high erosion susceptible locations (refer to Figure 15 for mapping of erosion susceptibility)
2. Target reforestation in riparian areas on both sides of permanent or temporary water bodies such as lakes, streams, rivers and wetlands. Riparian buffer zones should be a minimum 15 m up to 30 m wide. The Water Act requires that riparian planting extends to twice the width of the water body on either side up to a maximum of 30 m. The reforestation in riparian buffer zones should:
 - i. only plant native tree species;
 - ii. remove all invasive species;
 - iii. keep all existing vegetation (existing trees should be permanently marked); and
 - iv. not allow timber harvesting activities to take place.

3. Do not allow the use of fertiliser or chemical pesticides
4. Suitable tree species selection for all reforestation activities
5. At the micro-watershed level, target implementation of activities over minimum area of 40 ha in order to achieve impact on water regulation

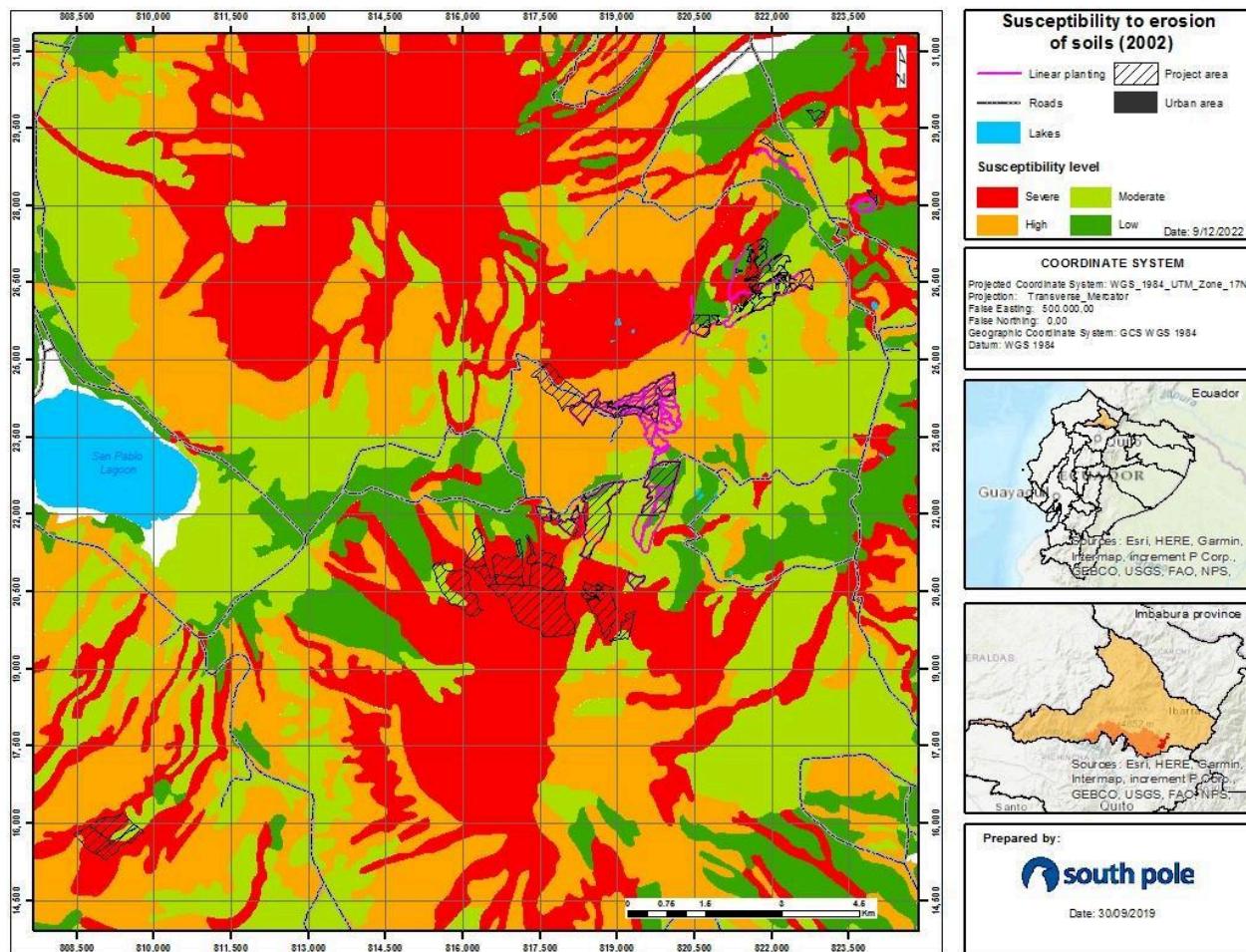


Figure 15. Soil erosion susceptibility

Safeguarding principles and requirement for smallholder projects

According to the 'Forest and Land use Requirements, October 2019, Annex B – Requirements for A/R Smallholder and Microscale Projects, 3.1.4 Safeguarding Principles & Requirements', the requirement of the 15 m buffer is NOT applicable for smallholder and microscale projects. However, the plots that will plant pine trees will respect the 15 m buffer. Only three plots will be planted with pine species (Figure 3). Below is a list of these plots and their description in relation to water bodies:

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- Community Angla (103.56 ha). There is a stream near the plantation, but a 15 m buffer will be conserved at planting.
- Cooperative Angla (50 ha). There are NO streams nearby.
- La Magdalena association (80.44 ha). There are several streams near the plantations, but they respect the 15 m buffer.

Existing vegetation in the 15 m buffer will remain and planting will not use agrochemicals.

A.1.2. Legal ownership of products generated by the project and legal rights to alter use of resources required to service the project

All the participants will sign an agreement with Natura Plus in which they commit to conduct the reforestation activities in line with the management guidelines for 20 years with the potential to extend to 15 more years. As a requirement to participate in the project, farmers were required to demonstrate that they have uncontested land title for the area where they intend to implement the project activities. Areas where the project is implemented are mainly community areas. Specific information of the land tenure for each of the communities/associations is presented below:

communities/associations	Land tenure
Community Mariscal Sucre	
Community Angla	
Cooperative Angla	Community land title (<i>escritura comunitaria</i>)
Association Plaza Pallares	
Association La Magdalena	
Foundation G. Plaza Lasso (Zuleta)	Private land title for the Foundation

Carbon certificates

According to article 74 of the Constitution of Ecuador, “persons and communities have the right to benefit from the environment and natural resources for their wellbeing”. Thus, environmental services cannot have an owner. Therefore the carbon stored in the trees (carbon certificates) can only be administered by the State. This project will

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not produce carbon certificates to trade in the market; however, Gold Standard project certification will be pursued as a requirement of the donor (Coop) for Impact Statements only.

Forest products

Project participants have ownership of their land. All the timber and NTFPs that will be produced as a result of the project activities therefore belong to the landowner. Below is a description of the ownership of the land according to the different activities to be implemented:

- Tree plantation: this will be established in land owned by the community. The timber and NTFPs produced are owned by the community. The contract will be signed between Natura Plus and the community.
- Agroforestry: this will be implemented on private land. The owner of the land owns all the timber and NTFPs produced. The contract will be signed with the owner of the land.
- Assisted natural regeneration: the assisted natural regeneration will be done on community land. The NTFPs produced are owned by the community. The contract will be signed between Natura Plus and the community.

A.2 Location of project

The San Pablo del Lago and Tahuando basins are located in the Province of Imbabura, Ecuador in the northwest part of the Andes Mountain chain (Figure 15). More specifically, the project is in the area surrounding the San Pablo del Lago basin (*Provincia de Imbabura, Cantones Otavalo e Ibarra y parroquias San Pablo, Gonzales Suarez y Angochagua*). San Pablo del Lago covers an area of 16,236 ha of which the lake at San Pablo covers 606 ha. Tahuando basin has an area of 35,141 ha. Altitude in the San Pablo del Lago basin and its surroundings ranges from 2,562 masl at the level of the lake to 4,520 masl at the highest point of the Cerro Imbabura and Cerro Negro. Figure 3 shows the location of the project areas and Figure 21 presents a map presenting San Pablo del Lago and Tahuando river basins.

The lake at San Pablo is bordered by various human settlements, cultivated land, pasture for dairy cattle and remnants of natural forests in recovery. The average annual precipitation of San Pablo del Lago and adjacent areas in Tahuando basin is

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962 millimetres (mm), and there is a variation of 100 mm between the driest month and the wettest month. The mean annual temperature is 13.5 degrees Celsius (°C) and its annual variation is 0.6 in the year⁷. The main ecosystems identified in the zone are the inter-Andean wet and dry vegetation, montane forests and *paramos*⁸.

The project areas are presented in Figure 3 (polygons). The communities that participate in the project are:

- Community Mariscal Sucre
- Community Angla
- Cooperative Angla
- Association Plaza Pallares
- Association La Magdalena
- Foundation G. Plaza Lasso (Zuleta)

A.3 Technologies and/or measures

Reforestation activities included in the project will contribute to SDG 6, 13 and 15 through the same technologies/measures (see table 1 with details of the impacts of project activities on the selected SDGs).

All tree planting (reforestation) activities should be implemented to remain in place for a minimum period of 30 years from the time of planting. During this period it is possible for farmers to perform silvicultural operations in their planted area, including pruning, thinning and even rotational harvest; however, all management operations (which includes both tree establishment and subsequent long-term management) should be done according to a management plan agreed between the participant (planting the trees) and the project implementation team (Natura Plus) before any of the tree planting begins. Project participants should be made aware of the different management systems available to them (see Table 3, Table 4, Table 5, Table 6) rather than each participant designing their own management plan. This approach will help farmers to implement reforestation systems with pre-defined outcomes and facilitate

⁷ <https://en.climate-data.org/south-america/ecuador/provincia-de-imbabura/san-pablo-del-lago-180597/>

⁸ According to Hofstede (2014), a paramo in Ecuador is a neotropical eco-region of height, between the upper forest boundary and the perpetual snows (generally located above 3,500 metres), characterised by the presence of characteristic herbaceous and shrub vegetation.

the monitoring of carbon based on modelling units⁹ and other project impacts. The project implementation team will provide training to all participants to help them select the reforestation system most suited to their livelihood needs. Participants will also be given training on all aspects of tree establishment and the subsequent management of their selected A/R system.

Three different systems of reforestation may be implemented as part of this project: community owned forest plantation, agroforestry and assisted natural regeneration.

Tree plantation (253.4 ha)

Reforestation using three different tree species (*Pinus radiata* or *Pinus patula* and *Alnus acuminata*) will be undertaken to establish community owned plantations that produce timber products to be sold into local markets. This could also provide the catalyst to develop more local processing of wood to add additional value to the wood products. This management system may also be managed to bring the benefits of NTFPs such as beekeeping. Under this management system the trees are planted in single species stands. *Pinus* species are planted at 2.5 m x 2.5 m (to establish 1,600 trees per ha). The first thinning is required in year four after planting when 30% of the crop will be removed and a second thinning will be done at age eight (20%) for a rotation of 18 years. For *Alnus acuminata*, the planting density will be 3 m x 3 m (to establish 1,111 trees per ha). Similar to pine, the thinning schedule will be at years four (30%) and eight (20%) for a rotation of 18 years.

Project participants that implement this forest management system must commit to fully replanting the entire area at the end of the first rotation to ensure that the forest remains in place for a minimum period of 30 years in line with the Gold Standard requirements.

Table 3. Management operations for community forest plantation: *Pinus radiata* or *Alnus acuminata*

Tree species	Native/exotic	Growth habit	Proportion of planting (%)	Planting density	Thinning	Rotation	Description of role

⁹ Modelling Units are distinct parts of the planting area where carbon stocks can be quantified based on applying a forest growth-model. Management Unit areas normally have homogeneous characteristics in their growth patterns, silvicultural treatment and planting date.

<i>Pinus radiata</i>	Exotic	Fast	100%	1,600 per ha	30% at year four and 20% at year eight	18 years	Timber products
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Table 4. Management operations for community forest plantation: *Alnus acuminata*

Tree species	Native /exotic	Growth habit	Proportion of planting (%)	Planting density	Thinning	Rotation	Description of role
<i>Alnus acuminata</i>	Native	Fast	100%	1,111 per ha	30% at year four and 20% at year eight	18 years	Timber products

Agroforestry systems (172.3 ha)

The agroforestry project activity includes live fences (planted in single or double line – see Figure 16) and silvopastoral systems (see Figure 17) on private land to establish approximately 600 trees per ha. The trees will not be thinned or harvested. This system does not result in the loss of any cultivated land area since crops may continue to be grown around the trees; while crop yields will increase due to improved soil conditions resulting from reduced soil erosion as a result of the establishment of windbreaks and soil stabilisation from tree roots, increased organic material available to the soil from leaf litter and increased nitrogen levels in the soil due to the nitrogen fixing characteristic of *Alnus acuminata*. Under this system, some branches of trees may be harvested and used as firewood. It may also be managed for NTFPs such as beekeeping. This system will also include planting a component of fruit trees or other trees of interest to the community, such as laurel de cera (*Morella pubescens*), capulí (*Prunus serotina*) and walnut (*Juglans neotropica*). Agroforestry systems may be adopted by all eligible farmers within the project area.

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The trees are planted 0.67 m apart in single lines which means an average of approximately 600 trees are planted per hectare. Where double lines of trees are planted, the trees are planted 1 m apart, therefore approximately 800 trees per hectare are established. The reforestation areas presented in this document are calculated on this basis. They are therefore equivalent areas rather than representing the actual area established on the ground. The actual areas (lines) established are clearly shown on Figure 3.

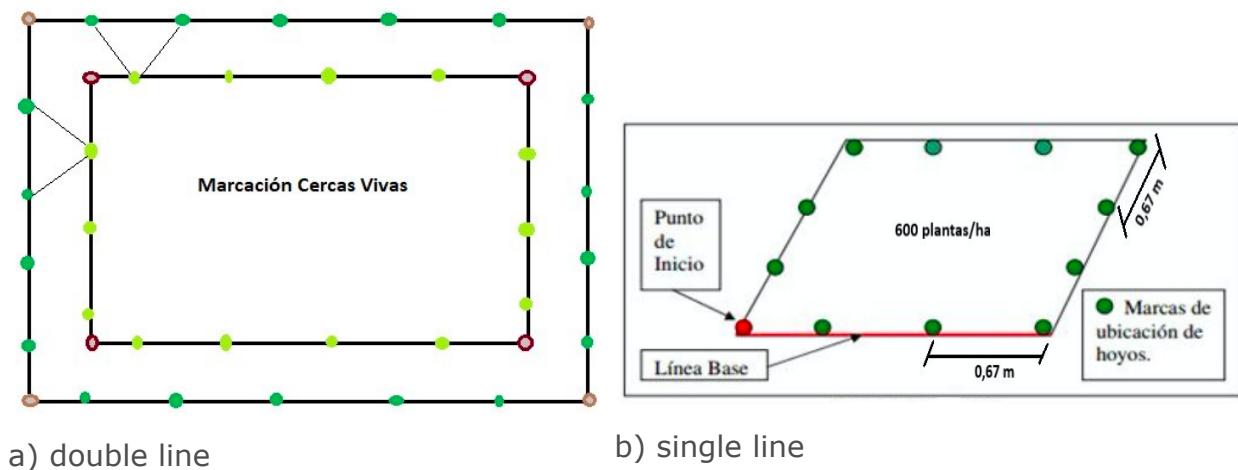


Figure 16. Agroforestry: live fences

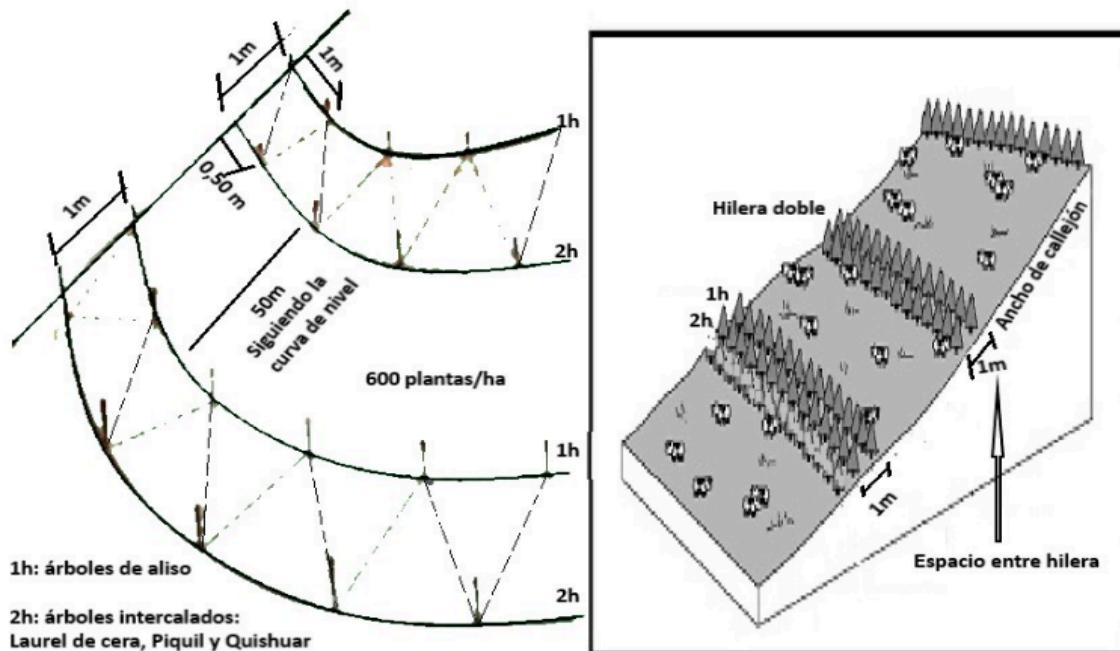


Figure 17. Agroforestry: silvopastoral system

Table 5. Management operations for agroforestry reforestation

Tree species	Native/exotic	Growth habit	Proportion of planting (%)	Thinning	Rotation	Description of role
<i>Alnus acuminata</i>	Native	Fast	39%	None	None	<ul style="list-style-type: none"> • Firebreaks • Demarcation of plots • Silvopastoral systems • Nitrogen fixation
<i>Myrica pubescens</i>	Native	Medium	38%	None	None	<ul style="list-style-type: none"> • Firebreaks • Soil erosion • Firewood • Demarcation of plots • Silvopastoral systems
<i>Prunus serotina</i>	Native	Medium	9%	None	None	<ul style="list-style-type: none"> • Fruits • Soil erosion • Silvopastoral systems • Demarcation of plots
<i>Juglans neotropica</i>	Native	Medium	8%	None	None	<ul style="list-style-type: none"> • Soil erosion • Silvopastoral systems • Demarcation of plots
<i>Myrcianthes hallii</i>	Native	Slow	1%	None	None	<ul style="list-style-type: none"> • Soil erosion • Silvopastoral systems

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Tree species	Native/exotic	Growth habit	Proportion of planting (%)	Thinning	Rotation	Description of role
						<ul style="list-style-type: none"> • Demarcation of plots
<i>Vallea stipularis</i>	Native	Fast	2%	None	None	<ul style="list-style-type: none"> • Soil erosion • Silvopastoral systems • Demarcation of plots
<i>Buddleja bullata</i> <i>Kunth</i>	Native	Slow	2%	None	None	<ul style="list-style-type: none"> • Soil erosion • Silvopastoral systems • Demarcation of plots
<i>Cedrela montana</i>	Native	Fast	0.3%	None	None	<ul style="list-style-type: none"> • Soil erosion • Silvopastoral systems • Demarcation of plots
<i>Oreopanax ecuadorensis</i>	Native	Slow	0.3%	None	None	<ul style="list-style-type: none"> • Soil erosion • Silvopastoral systems • Demarcation of plots

Assisted natural regeneration (137.4 ha)

This system is proposed for implementation in grassland and scrubland areas which are characterised as having highly degraded soils because of livestock grazing and extractive activities that have traditionally occurred in the region (i.e. not in areas that are either currently being managed for agricultural crops nor in current forest areas). The implementation of assisted natural regeneration will create micro-corridors to

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connect isolated forest fragments, to protect water sources, to prevent soil erosion, and to create favourable conditions for the establishment of native vegetation.

The system involves the planting of native species at a density of approximately 500 trees per ha (depending on the capacity of the area to regenerate naturally) and the protection of the area with fences to prevent the entry of livestock and promote the recovery of natural vegetation. Since the purpose of the system is the conservation and restoration of degraded lands, trees will not be thinned or harvested. However, NTFPs such as beekeeping and medicinal plants are included in the management of this system, which will also bring about landscape improvement which will enhance conditions for tourism. Species to plant include aliso (*Alnus acuminata*), laurel de cera (*Morella pubescens*), quishuar (*Buddleja incana*), cedro (*Cedrela montana*), arrayán (*Myrcianthes hallii*), capulí (*Prunus serotina*), romerillo (*Podocarpus sp*), lupino (*Lupinus polyphyllus*), cholán (*Tecoma stans*), piquil (*Gynoxys fuliginosa*), yagual (*Polylepis incana*), pumamaqui (*Oreopanax ecuadoriensis*), etc.

Table 6. Management operations for assisted natural regeneration

Tree species	Native/exotic	Growth habit	Proportion of planting (%)	Thinning	Rotation	Description of role
<i>Alnus acuminata</i>	Native	Fast	11%	None	None	Forest restoration Nitrogen fixation
<i>Hesperomeles obtusifolia</i>	Native	Slow	10%	None	None	Forest restoration
<i>Buddleja bullata</i>	Native	Slow	10%	None	None	Forest restoration
<i>Cedrela montana</i>	Native	Fast	11%	None	None	Forest restoration
<i>Myrcianthes hallii</i>	Native	Slow	3%	None	None	Forest restoration

<i>Prunus serotina</i>	Native	Medium	4%	None	None	Forest restoration Fruit
<i>Podocarpus sp</i>	Native	Medium	3%	None	None	Forest restoration
<i>Myrica pubescens</i>	Native	Medium	15%	None	None	Forest restoration
<i>Vallea stipularis</i>	Native	Fast	10%	None	None	Forest restoration
<i>Gynoxys fuliginosa</i>	Native	Slow	11%	None	None	Forest restoration
<i>Oreopanax ecuadorensis SI</i>	Native	Slow	12%	None	None	Forest restoration

Paramo conservation (100 ha)

The areas to conserve will be protected to avoid any type of productive activity developing, including livestock grazing. No other activity is planned for the conservation area.

Protection of water springs (8 water springs)

The project will protect eight water springs that are currently unprotected, which increases evaporation, soil erosion and contamination. The protection consists in the planting of native species in the surrounding of the water spring. This will report to SDG 6. The reforestation will improve soil water retention, reduce evaporation from the soil and increase water infiltration. The location and name of the water springs are listed in the table below:

	Canton	Parroquia	Community/association	Name of water spring	Coordinates
1	Otavalo	San Pablo	Plaza Pallares	El Canal	X (817835), Y (10024282)

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	Canton	Parroquia	Community/association	Name of water spring	Coordinates
2	Otavalo	San Pablo	Plaza Pallares	Pumamaki	X (817613), Y (10023327)
3	Otavalo	San Pablo	Plaza Pallares	El Carbón	X (817203), Y (10024568)
4	Otavalo	San Pablo	Zuleta	Urpi Sacha	X (819497), Y (10024525)
5	Otavalo	San Pablo	Zuleta	El Ariendo	X (818577), Y (10024100)
6	Otavalo	San Pablo	Angla	Toma Turu	X (818052), Y (10019120)
7	Otavalo	San Pablo	Angla	Túquerez	X (818640), Y (10019227)
8	Otavalo	San Pablo	Angla	San Francisco	X (816599), Y (10019120)

Workshops

The project will conduct workshops related to each one of the three SDGs related to (i) water management and conservation (SDG 6); (ii) climate change and management of commercial plantation and agroforestry systems (SDG 13); and (iii) paramo conservation (SDG 15). These workshops will be in person.

A.4 Scale of the project

The project is small scale according to the *Rule Update: Smallholder, Small Scale And Microscale Definitions and Requirements For Land-Use And Forestry (Luf) Projects* (published April 2021) due the average of removals units through the crediting period is 4,438 tCO₂/yr and the project area is 663.1 ha. Also it is a smallholder project because the farmers selected will have more than 50% of farm work done by family members, community members or neighbours.

A.5 Funding sources of project

The project has all the required funding guaranteed. A contract was signed with the donor for 10 years. Most of the costs are related to establishment costs and occur during the first two years. These costs are covered by the donor. The first thinning is

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at year four and the costs are covered by the communities in *minga*¹⁰. Some revenue is expected from the sale of timber from the thinning, revenue from this goes to project participants. At the end of the cycle, when the stand reaches 18 years, the pine and also trees from commercial plantations will be sold standing and the harvesting cost will be covered by the buyer. Part of the revenue that communities get from the timber will go towards replanting and complying with their commitment as per the contract. The same process will apply for the second cycle that goes beyond the crediting period (30 years). Additional revenue is expected after year five with the commercialisation of NTFPs.

All the management costs, as included in the management plans for each one of the planting systems (productive plantations, agroforestry and assisted natural regeneration), were agreed with the project participants in consultation events and they are also included in the agreement that projects participants signed with Natura Plus.

SECTION B. APPLICATION OF APPROVED GOLD STANDARD METHODOLOGY (IES) AND/OR DEMONSTRATION OF SDG CONTRIBUTIONS

B.1. Reference of approved methodology (ies)

The methodology selected for the calculation of the GHG sequestration is the Gold Standard 'Afforestation/reforestation (A/R) GHG emission reduction and sequestration methodology, Version 1' published in July 2017.

B.2. Applicability of methodology (ies)

1. Planting of trees on land that does not meet the definition of forest

According to the Gold Standard, an A/R project is eligible where trees are planted on land that does not meet the definition of a forest at the start of planting, and the planted area should not have been forest for at least 10 years prior to the start of planting. The eligibility analysis was performed based on cartographic information

¹⁰ an ancient tradition of voluntary collective work which brings together the populations of indigenous and rural areas for the execution of works for the benefit of the community

from the Global Forest Change 2009–2018¹¹ (See section A.1.1 Eligibility of the project under Gold Standard for a detailed description of the methodology). The forest definition used was from the forestry emission reference level for Ecuador (2001–2014) published in 2020, which is the same as that used for the United Nations Framework Convention on Climate Change (UNFCCC) DNA for Ecuador.¹² According to Ecuador's forest definition, for A/R project activities, forest means land with tree crown cover of more than 30 per cent and an area of more than 1 ha. The trees should be able to reach a minimum height of 5 m.

The areas selected for the establishment of reforestation activities are mainly on degraded areas that have experienced livestock grazing and intense agriculture in the past. Erosion prone areas were also selected for implementing reforestation activities to improve soil conservation.

2. Project areas shall not be on wetlands

Ecuador has 18 Ramsar sites none of which are in the Province of Imbabura where the project activities are located.¹³ No official information is available relating to the national definition of wetlands as adopted by the country, however there is information that locates wetlands in Ecuador.¹⁴ In the project area, San Pablo de Lago is the only wetland identified at a national level, as shown in Figure 18. There are some small lakes surrounding the project areas, but they are not affected by project activities because they are above 3,500 masl. Some of the project areas overlap with streams and/or rivers, this is because the project intends to plant native trees next to streams and water springs for water conservation purposes. The commercial plantations with pine and alnus will not be established in wetlands and the soils will not be drained (see section A.1.1 Eligibility of the project under Gold Standard for details). Assisted natural regeneration is expected to improve soil and water conservation. Through site visits, it was confirmed that the areas selected for the reforestation activities are not wetlands.

¹¹ Hansen et al. 2013. High resolution global maps of 21st century forest cover change. Science. 342, 6160: 850-853. <https://www.science.org/doi/10.1126/science.1244693>

¹² <http://cdm.unfccc.int/DNA/index.html>

¹³ <https://www.ramsar.org/wetland/ecuador>

¹⁴ <https://www.arcgis.com/apps/MapSeries/index.html?appid=e9bf7432a05e49f0a578c6f7e66afa3e>

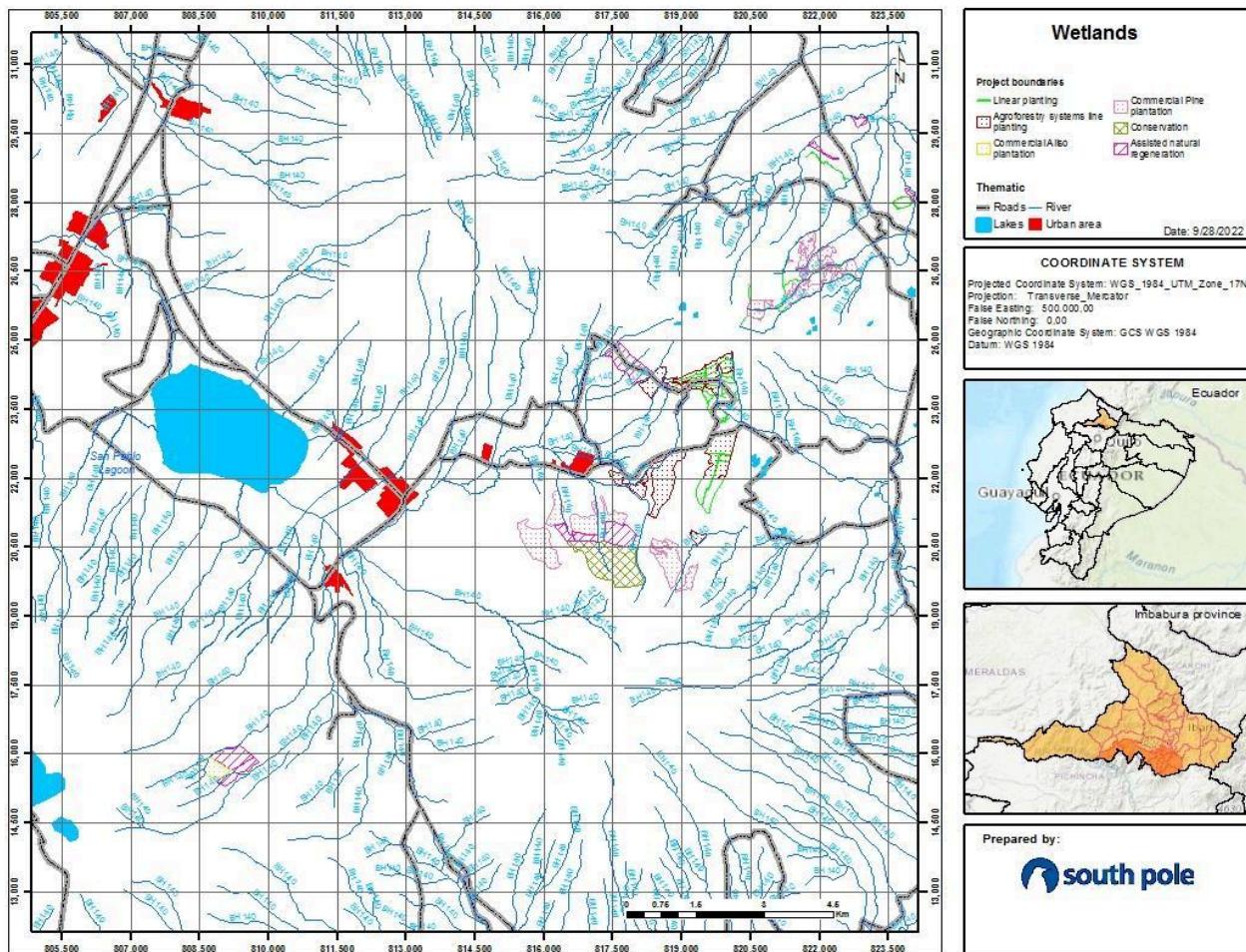


Figure 18. Wetlands in the watershed

The selection of the project areas was aligned with the local land planning of the towns (*parroquias*) where the project activities will take place. The categories of the zoning are listed in Table 7 below and correspond to the legend in Figure 19. These categories establish the zoning of permitted land uses for the parish. The categories are as follows:

Table 7. Land use categories according to the land plan in San Pablo del Lago

Type	Code	Land use categories	Analysis of spatial elements
Exclusive areas	Zn_1	Exclusive area for conservation of strategic ecosystems, environmental services and resource supply	Paramo, areas with no vegetation cover (snow), natural forest

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	Zn_2	Populated area exclusively for human development	Urban areas, towns, villages
	Zn_4	Exclusive area for the protection of water catchments	Lakes, lagoons, rivers and important water streams
	Zn_6	Area for development, road system and transportation	National and local routes
	Zn_7	Area for environmental and vegetation cover recovery and restoration	Native and intervened shrubs, forest and dry shrubs, crops, arboriculture in protected areas and natural forests
Preference areas	Zn_8	Anthropic - ecological transition area for agriculture, livestock and forestry regulation	Crops, arboriculture in protected areas and natural forests
	Zn_9	Restricted area for human settlements and human activities	Pronounced slope areas were prone to mass landslides
	Zn_10	Buffer area for the advance of the agricultural frontier	Area next to area 1, with a 200 m buffer for transition
	Zn_11	Preference areas for agriculture and livestock development	Crop and pasture areas with the capacity for land use II, III, IV
	Zn_12	Preference areas for livestock development	Pasture areas with the capacity for land use III, IV, V

(Source: Plan de Desarrollo y ordenamiento territorial de la provincia de Imbabura 2015-2035 (2018))

As shown in Figure 19, the project area is located in Zn_11, which are preference areas for agriculture and livestock development.

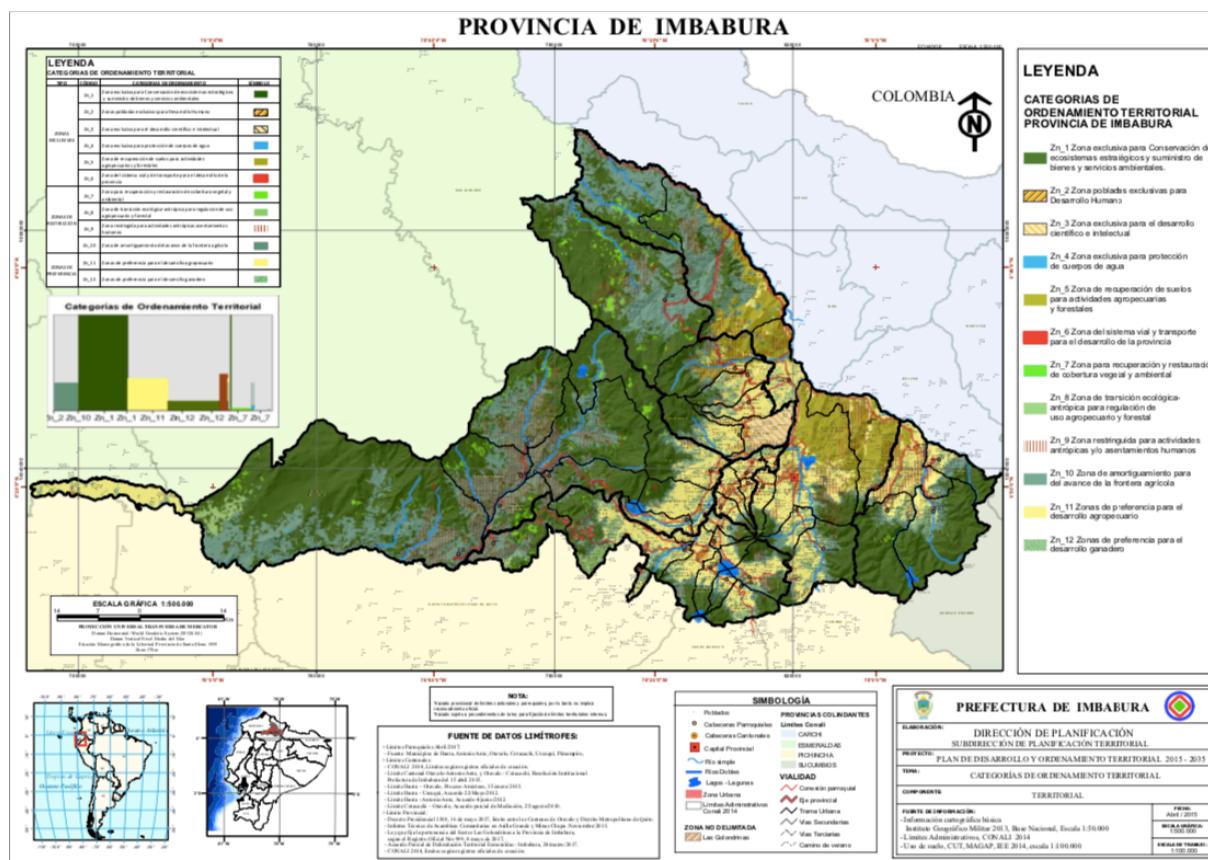


Figure 19. Land planning in the Province of Imbabura
(Source: PDOT Imbabura 2015-2035¹⁵)

For the establishment of commercial plantations, planting permits must be granted by the Ministry of Environment. These permits are granted considering the land planning map. This project has already requested the planting permits.

3. Project Areas with organic soils shall not be drained or irrigated (except for irrigation for planting)

The parent geological material in the basin consists of dacitic and andesitic lava flows, volcanic fans, lahars and pyroclasts arranged on hung and undifferentiated terraces and irregular slopes which are very steep in places. The soils in the central and northern part of the basin are deep to moderately deep, formed by mineral sediments, well drained and with good structural development. The soil fertility in these areas is high with a high content of complexes of calcium and organic matter. The southern

¹⁵ Plan de Desarrollo y ordenamiento territorial de la provincia de Imbabura
<https://www.imbabura.gob.ec/phocadownloadpap/K-Planes-programas/PDOT/PDOT%20IMBABURA%202015-2035.pdf>
Gold Standard

part of the basin is dominated by soils with altered horizons, which are typically thin, poor in organic matter and with deficiencies in some base elements, with a presence of weatherable minerals, with moderate to high contents of iron and aluminium. Figure 20 shows the soil types in the watershed.

Cultivation of these soils is often difficult due to the high stoniness (up to 30%). Current land uses typically include natural pastures, semi-permanent crops, regenerating tree and bush vegetation, and some remnants of natural forests (PDOT Imbabura 2015-2035¹⁶).

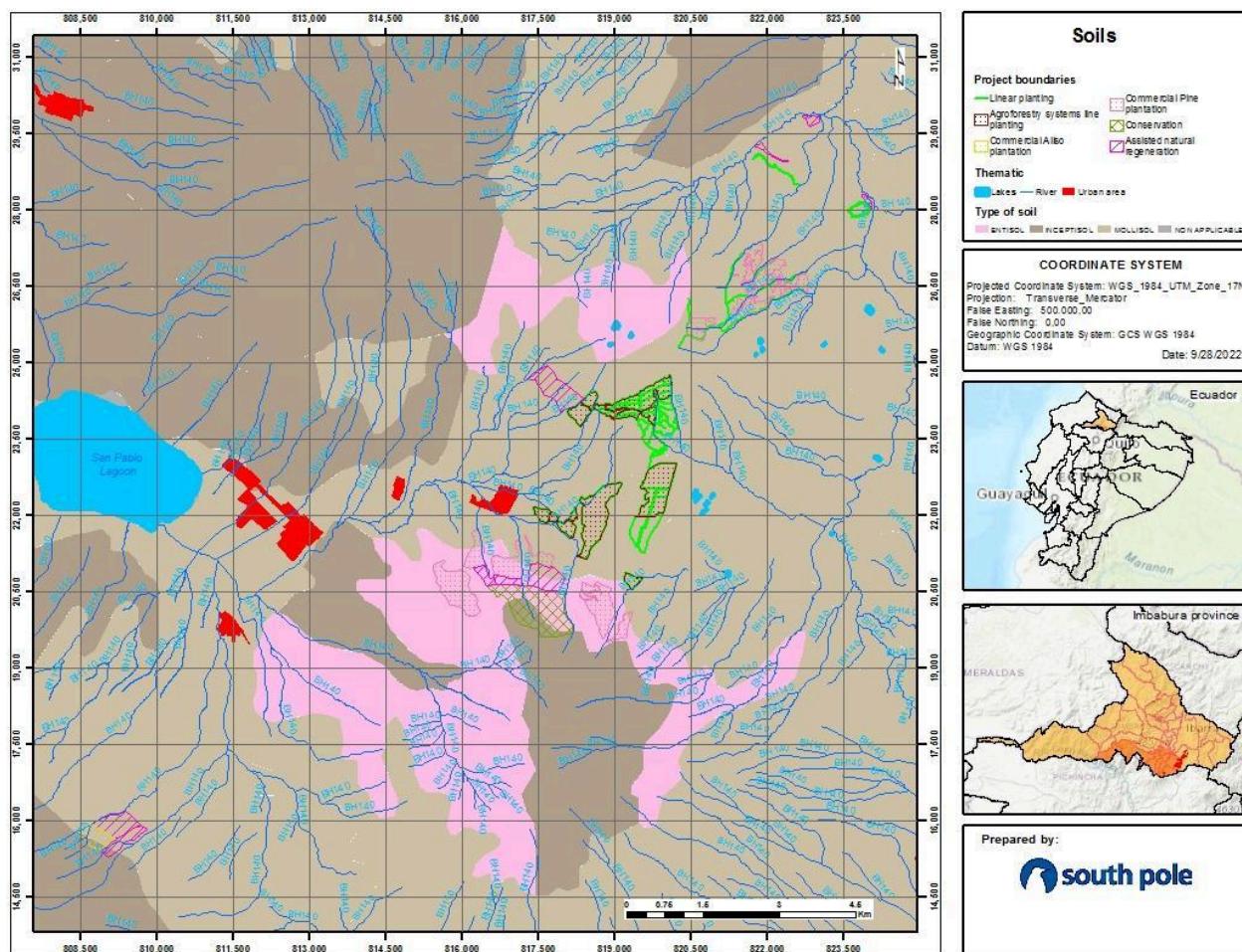


Figure 20. Soil types in the watershed

The project activities will be located mainly over entisols, inceptisols and mollisols. Entisols and inceptisols have poor organic content while mollisols have rich organic content. However, no drainage or irrigation will take place. Planting activities will be

¹⁶ Plan de Desarrollo y ordenamiento territorial de la provincia de Imbabura
<https://www.imbabura.gob.ec/phocadownloadpap/K-Planes-programas/PDOT/PDOT%20IMBABURA%202015-2035.pdf>

done during the rainy season and no machinery will be used for the preparation of soil before planting.

4. Soil disturbance (through ploughing, digging of pits, stump removals, infrastructure, etc.) on organic soils shall be in less than 10% of the area that is submitted to certification (not 10% of the entire project area)

The disturbance of the soil will be minimal. No ploughing will be done for the reforestation activity. Since the reforestation will take place on land that was previously shrubland, grassland or cropland, there are no tree stumps to remove. The digging of pits for tree planting will be done manually and no machinery will be used for soil preparation.

5. The most likely scenario without the project (baseline scenario) shall be defined for the project area. This scenario shall not show any significant increase of the baseline biomass ('tree' and 'non-tree').

In the San Pablo del Lago basin there have been significant changes in land use between 2000 and 2017. Analysis undertaken by South Pole (2019) indicates that the net area of deforestation was 347 ha during this period. Agricultural areas have increased by 335 ha between 2007 and 2017 (PDOT San Pablo 2015 - 2019¹⁷), suggesting that the land cover changes are the result of the expansion of the agricultural frontier in the last period (2007–2017). The construction of tourist infrastructure has also contributed to the loss of forest cover, especially around San Pablo del Lago, where the hotel industry has had an impact in the last 10 years. One of the reasons for the changes in land use is potentially the changes in land ownership. Some areas belonged to large landowners who previously managed grazing in the area. Local communities have since purchased land back from the large landowners and are devoting the land to develop traditional activities.

Based on the historical deforestation analysis conducted by South Pole, the land cover map, visits to project area and conversation with project participants, the potential baseline scenario is described below:

¹⁷ Plan de Desarrollo y ordenamiento territorial de la parroquia San Pablo
http://app.sni.gob.ec/sni-link/sni/PORTAL_SNI/data_sigad_plus/sigadplusdocumentofinal/1060014720001_PDOT%20SAN%20PABLO_27-10-2015_11-33-45.pdf

- Pasture is expected to remain as pasture. The area of pasture may increase under a baseline scenario depending on the demand for livestock.
- Native grasslands are expected to continue as grassland. They can potentially be degraded as a consequence of livestock feeding from them.
- Shrubland are expected to continue as shrub. They can potentially be converted into pasture for livestock or crops depending on the demand of crop and livestock production.
- Agriculture could potentially increase depending on the demand for crops.
- One plot has a mix of pasture and trees. This area is expected to remain as it is now because the soil is too degraded and difficult for trees to establish. The trees that are planted currently were planted in the past.
- Under the potential baseline scenario, **no** new tree commercial plantations are expected to be established in the project area. In the past tree plantations were established on degraded pastures as there was an economic incentive from the government for local communities to produce wood. However, this incentive was stopped and communities no longer have financial support to establish new plantations.

B.3. Project boundary

Figure 21 below presents the project boundaries, which correspond to the boundaries of two basins: San Pablo del Lago and Tahuando. These two basins are adjacent to each other and are part of the larger Ambi river basin. The reforestation and water conservation activities will benefit the two basins.

Proyecto Gold Standard Agroforestal San Pablo del Lago, Ecuador

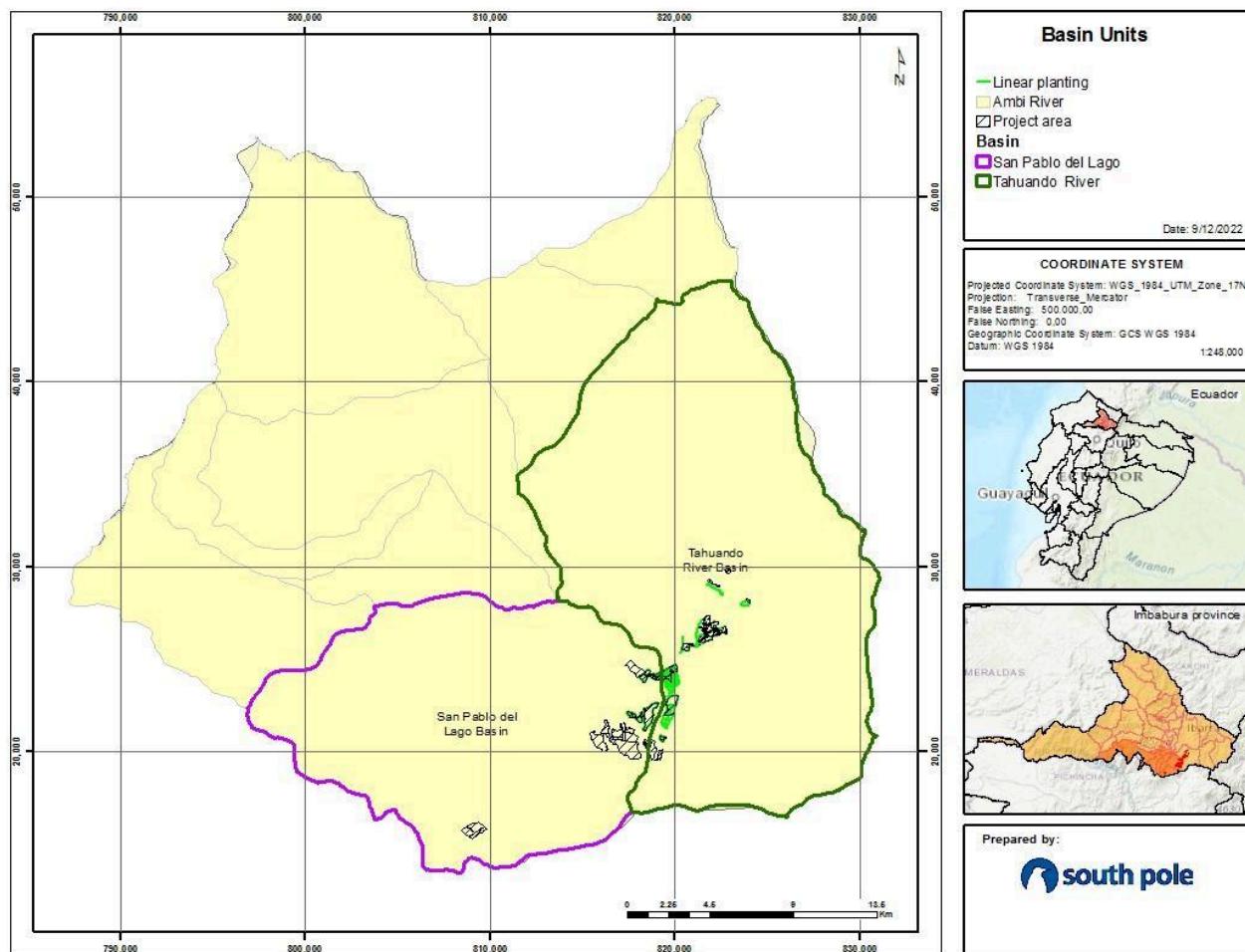


Figure 21. Diagram of project boundaries

Source	GHGs	Included?	Justification/Explanation
Baseline scenario	CO ₂	Yes	All grass and shrubs existing in the plantable area will be accounted for following the requirements for baseline carbon stocks estimation put forward by the methodology.
	CH ₄	No	N/A
	N ₂ O	No	N/A

Project scenario	Source 2: belowground biomass	CO ₂	Yes	Belowground biomass will be included in the baseline estimations in accordance with the applied methodology.
		CH ₄	No	N/A
		N ₂ O	No	N/A
	Source 3: soil	CO ₂	No	The project does not include disturbance of organic soils. Emissions are not expected in this compartment.
	Source 4: other emissions	N ₂ O	No	Using a conservative approach, it was assumed that the baseline scenario does not include the use of fertilisers. Emissions are not expected from this activity.
	Source 1: aboveground biomass	CO ₂	Yes	During each cycle, trees will grow, sequester and store carbon in their trunk, branches and leaves.
		CH ₄	N/A	
		N ₂ O	N/A	
	Source 2: belowground biomass	CO ₂	Yes	While trees are growing, they will capture and store carbon in their roots. These roots will not be removed; as a result, the carbon will remain stored.
		CH ₄	N/A	
		N ₂ O	N/A	
	Source 3: soil	CO ₂	No	Soil was not included.

Source 4: N ₂ O other emissions	Yes	The project will use organic fertiliser (1,800 kilograms [kg]). Emissions from the use of compost are estimated as 0.135 tCO ₂ as the percentage of nitrogen (N) in compost is 1.5%.
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B.4. Establishment and description of baseline scenario

The project used the methodological tool 'Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities' (v 01). The identification of the baseline scenario followed the steps suggested by the methodology. The result of applying the methodology was that the continuation of the pre-project land use is the baseline scenario. The application of the tool is in a separate document and it is called "Additionality for "Proyecto Gold Standard Agroforestal San Pablo del Lago, Ecuador". Table 8 below presents the different land use of the project areas.

Table 8. Different baseline situation in the project areas

Baseline	Description
Shrubland (<i>chaparro</i>)	(24% of the project area) areas where the dominant species are native shrubs. The average height of the dominant species is lower than 2 m.
Native grass (<i>pajonal</i>)	(24% of the project area) areas where the dominant vegetation is native grass species.
Crop (<i>cultivos</i>)	(35% of the project area) areas with crop production.
Pastures (<i>potreros</i>)	(10% of the project area) areas where livestock feed.
Mix of trees in pastures	(7% of the project area) the area is too degraded for the native species to regenerate without assistance. Some trees of <i>alnus</i> and <i>Myrica pubescens</i> were planted in the past and are scattered in the matrix of degraded pasture.

B.5. Demonstration of additionality

The project used the methodological tool 'Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities' (v 01). The application of the tool is in a separate document and it is called "Additionality for "Proyecto Gold Standard Agroforestal San Pablo del Lago, Ecuador".

As explained previously, the project is additional because without it the business-as-usual scenario would remain. Due to economic restrictions on local communities and lack of government subsidies and/or funding options appropriate for local communities, the project would not happen without the economic support that Coop is providing. Coop is funding the implementation costs for 10 years (by contract) which includes the establishment of the reforestation activities that local communities would not otherwise be able to establish. After 10 years, reforestation activities are expected to be sustainable due to the return on the investment and a reinvestment of the income. Commercial plantations are expected to generate a first income from thinning (at years 4 and 8) and then at year 18 when timber will be sold. Revenues will be partly reinvested in replanting to continue the timber production. Agroforestry systems are expected to generate income during the firsts years of establishment (depending on the species) by the development of NTFP with the tree species planted. Since the trees will not be harvested, the tree will continuously provide NTFPs. The project activities will increase income diversification of local communities, increasing their resilience and improving landscape connectivity by using native species.

B.5.1 Prior Consideration

Considering that this is a project that is registered retroactively, supporting documents are attached that demonstrate the previous consideration:

- a. Carbon Project Feasibility Study¹⁸

B.5.2 Ongoing Financial Need

Not applicable at this stage. The guidance provided in the Template guide to the PDD indicates that this section is only needed at design certification renewal and only for those projects that are required to demonstrate financial additionality. This is not the case for this project.

¹⁸ References PDD folder

B.6. Sustainable Development Goals (SDG) outcomes

Relevant Target/Indicator for each of the three SDGs

Sustainable Development Goals Targeted	Most relevant SDG Target	SDG Impact
		Indicator (Proposed or SDG Indicator)
SDG 6. Clean Water and Sanitation	6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	Number of hectares of assisted natural regeneration Number of hectares of agroforestry Number of water springs protected Number of workshops provided
SDG 13. Climate Action	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries (in the project area)	Emissions removed Number of workshops related to climate change and management of the commercial plantations and agroforestry systems

SDG 15. Life on Land	<p>15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements</p> <p>15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally</p> <p>15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development</p>	Number of ha reforested (agroforestry, commercial plantations and assisted natural regeneration) with the project activities Number of workshops about Paramo conservation
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B.6.1 Explanation of methodological choices/approaches for estimating the SDG Impact

SDG 6. Clean Water and Sanitation

There is no Gold Standard methodology for estimating the outcome of this SDG. According to the Gold Standard 'Methodology for Accreditation of Water Benefit Certificates' (WBC), monitoring must follow the procedures for sustainable development and do-no-harm impact assessment specified in the Gold Standard Foundations Requirements documents. Particular attention should be paid to ensuring the project does not conflict with the human right of access to clean water; and to maximise the equitable benefit without large disparities in WBCs generated by project population sub-groups. The indicators for this SDG are a proxy for water conservation results. By increasing tree cover on degraded land and on watersprings with native species, it is expected that water retention and filtration will improve as well as a reduction in erosion and run-off. In addition, the capacity building activities are expected to increase awareness on the importance of trees for water conservation.

The following methodology will be applied to estimate the contribution of the project to this SDG:

Indicator	Methodology for calculating the baseline	Methodology for calculating the project outcome
Number of hectares of assisted natural regeneration	<p>The baseline was calculated by inspecting all the plots in the field. The baseline found are:</p> <ul style="list-style-type: none"> • shrubs (14.5 ha), • native grass land (83.4 ha)¹⁹, and • mix of pasture and trees (39.5 ha)²⁰. 	<p>The project outcome (hectares) will be calculated based on the areas planted and survival rates.</p> <p>A local inspection at the time of planting will confirm that the areas are planted according to the planned densities and species.</p> <p>During the first six months, linear transects (agroforestry) and plots (assisted natural regeneration) will monitor the mortality of trees and replant when necessary.</p>
Number of hectares of agroforestry	<p>The baseline is calculated by inspecting all the plots in the field. The baseline found are:</p> <ul style="list-style-type: none"> • cropland (114.5 ha), and • pasture (57.8 ha). 	<p>After the first year, the trees are considered to be established and the monitoring will be done annually through linear transects. The number of transects will be calculated to obtain 95% confident level.</p>
Number of water springs protected	<p>The baseline is calculated by inspecting all the water springs in the field. It was found that water springs are not protected (they do not have native vegetation in the surrounding area to prevent evaporation).</p>	<p>The project outcome will be calculated based on the areas planted to protect the water springs and their survival rates.</p> <p>A local inspection at the time of planting will confirm that the areas are planted according to the planned densities and species.</p> <p>During the first six months, mortality rates will be estimated by counting the trees planted in the surroundings of the water spring. Replanting will be conducted if necessary. The size of the monitoring plot will guarantee a confidence level of 95%.</p> <p>After the first year, the trees are considered to be established and the monitoring will be done annually through monitoring plots.</p>
Number of workshops provided related with water management and conservation	<p>Not applicable. The baseline is the people that have not received information about water management and conservation</p>	<p>The project outcome will be calculated by the number of workshops conducted. Proof of the workshops which include the list of participants, the information material presented, pictures of the events and the results of a brief test proving the understanding of the information provided to participants.</p>

¹⁹ Areas where natural grass has now grown, used to be cultivated and pasture (for grazing) in the past. Once crops or livestock were not produced on these areas anymore, the native grass started to grow.

²⁰ This area was used for grazing in the past. It was abandoned and it is too degraded to naturally regenerate.

SDG 13. Climate action

The proposed project activity is a mechanism for raising capacity for effective climate management in the country. The suggested way of measuring the contribution of the project to this SDG and specific target is by estimating the amount of CO₂ removed by the project activities. The methodology used for its estimation is presented in the Gold Standard 'Afforestation/reforestation (A/R) GHG emissions (reduction and sequestration methodology)'. It is summarised below.

Calculation of CO₂ emission reductions

The modelling units (MU) identified in the project are marked in the table below with and X:

year	Baseline	Plantation Pine	-	Plantation Alnus	-	Agroforestry	Assisted natural regeneration
2018	Crop	X					
2019	No planting was done						
2020	Shrubland	X		X			
	Crop				X		
	Native grass						X
2021	Shrubland	X					
2022	Shrubland	X		X		X	
	Native grass	X					X
	Pasture				X		
	Mixed of trees in pasture						X

The number of CO₂ emission reductions is determined for every year (t) of the crediting period using the following formula:

The CO₂ fixation of every MU was determined, and its portion of the total baseline and total leakage was deducted.

All the MUs' CO₂ emission reductions were added to make up the total CO₂ emission reductions of the entire project.

1. Carbon fixation

The carbon fixation was calculated for each one of the MU based on the species selected, growth models and adequate conversion factors to obtain annual and cumulative values in tCO₂. Both aboveground (AGB) and belowground (BGB) biomass were considered. The equations used to calculate net benefits are presented in Table 9

Table 9. Equations used to estimate the net benefit

MU	CO ₂ fixation MU annual	Baseline MU annual	Total for the first year of establishment
Commercial pine on shrubland		AGB ²¹ * Root to shoot ratio ²² * 0.5 * 3.66	(tCO ₂ /ha fixation - (tCO ₂ /ha baseline shrubland + tCO ₂ /ha baseline crop + tCO ₂ /ha baseline native grass)) *
Commercial pine on crop	MAI * yr * BEF * density	Total biomass ²³ * 0.5 * 3.66	
Commercial pine on native grass		Total biomass ²⁴ * 0.5 * 3.66	planting area pine

²¹ Narcisa et al. (2018). Diversidad de plantas, estructura de la comunidad y biomasa áerea en un páramo del sur del Ecuador. *Bosques Latitud Cero*.

Ecuador. Bosques Lat
22 IPCC ch.6 table 6.1

²³ IPCC ch.6 section 6.3.1.2

²⁴ IPCC ch.6 table 6.4

MU	CO ₂ fixation MU annual	Baseline MU annual	Total for the first year of establishment
Commercial aliso on shrubland	<p>- AGB = (0.097332*dbh²+0.008069*dbh^{2*} ht) * BEF</p> <p>- BGB= Biomass stem * root to shoot</p> <p>- tCO₂/ha aliso = (((AGB + BGB) * 0.5 * 3.66)/1,000) * trees per ha</p> <p>Note: trees/ha = 1,111</p>	AGB ²⁵ * Root to shoot ratio ²⁶ * 0.5 * 3.66	(tCO ₂ /ha fixation – tCO ₂ /ha baseline) * planting area aliso
Agroforestry crop on	<p>- AGB = (0.097332*dbh²+0.008069*dbh^{2*} ht) * BEF</p> <p>- BGB= Biomass stem * root to shoot</p> <p>- tCO₂/ha aliso = (((AGB + BGB) * 0.5 * 3.66)/1,000) * trees per ha</p> <p>Note: trees/ha = 660</p>	Total biomass * 0.5 * 3.66	(tCO ₂ /ha fixation – (tCO ₂ /ha baseline crop + tCO ₂ /ha baseline pasture)) * planting area aliso
Agroforestry on pasture		Total biomass ²⁷ * 0.5 * 3.66	
Assisted Natural regeneration (ANR) on Shrubland	Based on Aliso's allometric equation and the biomass for evergreen Andean forest in Ecuador	AGB ²⁹ * Root to shoot ratio ³⁰ * 0.5 * 3.66	(tCO ₂ /ha fixation – tCO ₂ /ha baseline) * planting area ANR
Assisted Natural regeneration (ANR) on Native grass	<u>Aliso:</u> <p>- AGB = (0.097332*dbh²+0.008069*dbh^{2*} ht) * BEF</p> <p>- BGB= Biomass stem * root to shoot</p> <p>- tCO₂/ha aliso = (((AGB + BGB) * 0.5 * 3.66)/1,000) * trees per ha</p>	Total biomass ³¹ * 0.5 * 3.66	(tCO ₂ /ha fixation – tCO ₂ /ha baseline) * planting area ANR
Assisted Natural regeneration (ANR) on mixed of tree in pasture	<p>Note: trees/ha = 45 (average)</p> <p><u>Evergreen forest</u>²⁸:</p> <p>tCO₂/ha = total biomass (tC) * 3.66</p>	(Total biomass ³² * 0.5 * 3.66) + (aliso biomass for 10 trees per ha)	(tCO ₂ /ha fixation – tCO ₂ /ha baseline) * planting area ANR

²⁵ Narcisa et al. (2018). Diversidad de plantas, estructura de la comunidad y biomasa áerea en un páramo del sur del Ecuador. Bosques Latitud Cero.

²⁶ IPCC ch6 table 6.1

²⁷ IPCC ch.6 table 6.4

²⁸ Ministerio del Medio Ambiente del Ecuador. 2014. Evaluación Nacional Forestal Resultados

²⁹ Narcisa et al. (2018). Diversidad de plantas, estructura de la comunidad y biomasa áerea en un páramo del sur del Ecuador. Bosques Latitud Cero.

³⁰ IPCC ch.6 table 6.1

³¹ IPCC ch.6 table 6.4

³² IPCC ch.6 table 6.4

Other emissions:

The reforestation project activity will use 1,800 kg of compost in total. These associated emissions were calculated as per the Gold Standard guidance. These emissions were subtracted from the total estimated storage the first year of establishment.

$$\text{tCO}_2 \text{ compost} = 1,800 \text{ kg} * \text{emission factor fertiliser}$$

Estimated total net tCO₂ stored

The annual tCO₂ fixed per year for all the MUs was added to obtain a total per year. These annual totals were added to obtain a project total for 30 years.

2. Baseline

With the applicability conditions the methodology assumes no significant increase in the baseline, so the baseline was only deducted in year 1 ($t=1$). The baseline was calculated using values obtained from default values from the Intergovernmental Panel on Climate Change (IPCC), research papers and official governmental reports for each of the baseline categories identified in the project (see Table 8). Table 9 presents the specific equations used. Below is a summary of the parameters and the sources used for the calculations:

- Shrubland: AGB (Narcisa et al, 2018³³); Root-to-shoot ratio (IPCC ch.6 table 6.1)
- Native grass: Total biomass (IPCC ch.6 table 6.4)
- Crop: Total biomass (IPCC ch.6 section 6.3.1.2)
- Pastures: Total biomass (IPCC ch.6 table 6.4)
- Mix of trees in pastures: tCO₂ (Bare & Ashton, 2015³⁴; Riofrío et al. 2015³⁵, IPCC ch 6 table 6.4)

3. Leakage

No leakage is expected to happen as result of the implementation of the project.

³³ Narcisa et al. (2018). Diversidad de plantas, estructura de la comunidad y biomasa áerea en un páramo del sur del Ecuador. Bosques Latitud Cero.

³⁴ Bare & Ashton. (2015). Growth of native tree species planted in montane reforestation projects in the Colombian and Ecuadorian Andes differs among site and species. New Forest.

³⁵ Riofrío et al. (2015). Above ground tree additive biomass models in Ecuadorian Highland agroforestry systems. Biomass and Bioenergy.

- 24% of the project areas are shrubs and the rest are areas with no woody vegetation. Shrublands are in areas with limited access and local communities do not source firewood from there.
- 35% of the project areas are for crop production. These areas will remain for crop production; however, live fences (agroforestry) will be established surrounding the plots.
- 10% of the project area is pasture for grazing. These areas will remain for livestock; however, some trees will be planted to create a silvopastoral system (agroforestry).
- 24% of the project area is natural grass (no woody vegetation). Natural grass is in areas with limited access and local communities do not source firewood from there.
- 7% of the project area is a mix of trees (*Alnus acuminata* and *Myrcianthes hallii*) on pasture. The area is highly degraded and the communities have allocated this area for natural regeneration because it is an important area for water conservation. No firewood is extracted from this area.

4. Other emissions

- Site preparation: no burning will be conducted for land preparation. The land will be manually prepared and the plant residues will remain in the area to decompose.
- Fertiliser: it is estimated that 1,800 kg of compost (vermiculture) produced in Zuleta is used in their own planting activities. Emissions from the use of compost are estimated as 0.135 tCO₂ as the percentage of N in compost is 1.5%.

In addition to the carbon stored in the A/R activities, the following indicators will be monitored to demonstrate impact.

Indicator	Methodology for calculating the baseline	Methodology for calculating the project outcome
Number of workshops related to climate change and management of the commercial plantations and agroforestry systems	Not applicable. The baseline is the people that have not received information about climate change and sustainable management of commercial plantation and agroforestry systems.	The project outcome will be calculated by the number of workshops conducted. Proof of the workshops include the list of participants, the information material presented, pictures of the events and the results of a brief test proving the understanding of the information provided to participants.
Number of hectares of agroforestry (landscape connectivity)	<p>The baseline is calculated by inspection in the field of all the plots. The baseline found are:</p> <ul style="list-style-type: none"> • cropland (114.5 ha), and • pasture (57.5 ha). 	<p>The project outcome will be calculated based on the areas planted and survival rates.</p> <p>A local inspection at the time of planting will confirm that the areas are planted according to the planned densities and species.</p> <p>During the first six months, linear transects will monitor the mortality of trees and replanting will be carried out when necessary.</p> <p>After the first year, the trees are considered to be established and the monitoring will be done annually through linear transects. The number of transects will be calculated to obtain a 95% confidence level.</p>

SDG 15. Life on Land

There is no Gold Standard methodology for estimating the outcome of this SDG. The following methodology will be applied to estimate the contribution of the project to this SDG:

Indicator	Baseline	Project outcome
Number of hectares reforested (agroforestry, commercial plantations and assisted natural regeneration) with the project activities	The baseline is calculated by inspection in the field of all the plots. See Table 8.	<p>The project outcome will be calculated based on the areas planted and survival rates.</p> <p>A local inspection at the time of planting will confirm that the areas are planted according to the planned densities and species.</p> <p>During the first six months, linear transects (agroforestry) and plots (plantations and assisted natural regeneration) will monitor the mortality of trees and replanting will be carried out when necessary.</p> <p>After the first year, the trees are considered to be established and the monitoring will be done annually through linear transects. The number of transects will be calculated to obtain a 95% confidence level.</p>
Number of workshops paramo	Not applicable. The baseline is the people that will receive information about the importance and regulation to protect the paramo.	The project outcome will be calculated by the number of workshops conducted. Proof of the workshops include the list of participants, the informational material presented, pictures of the events and the results of a brief test proving the understanding of the information provided to participants.

B.6.2 Data and parameters fixed ex ante

SDG 6. Clean Water and Sanitation

As per the template guidance of the PDD (v. 1.2 key project information and project design document published on 14.10.2020). “Where *ex ante* parameters are used to calculate more than one SDG (for example *Installed Capacity*, numbers of technology), always include it under the SDG 13 heading first (if it is used for SDG 13) and use Additional Comment to explain which other SDGs rely on the same parameter.” The only ex-ante parameter for SDG 6 is “planting area” which is described below under SDG 13.

SDG 13. Climate Action

Gold Standard*

Data/parameter	Wood density
Unit	t/m ³
Description	The Project will plant <i>P. patula</i> or/ <i>P. radiata</i> . The IPCC has the density for <i>P. radiata</i> and this is the one used in the calculations.
Source of data	2006 IPCC Chapter 4 Forest. Table 4.14 ³⁶
Value(s) applied	0.45.
Choice of data or Measurement methods and procedures	The data was not measured. It was obtained from secondary sources.
Purpose of data	Calculation of project scenario
Additional comment	

Data/parameter	Biomass expansion factor (BEF)
Unit	Dimensionless
Description	Ratio of aboveground oven-dry biomass to the oven-dry biomass of the steam
Source of data	IPCC 2003. Table 3A.1.10 ³⁷
Value(s) applied	1.3 (pine) and 1.2 (alnus spp)
Choice of data or Measurement methods and procedures	The values correspond to values for pine and broadleaves in a temperate climate zone. The reason for selecting this climate zone when the area is in the tropics, is that the project area is in the Andes above 2,800 masl. The environmental conditions at this altitude are aligned with the description of temperate climate zone adopted by the IPCC.

³⁶ See "PDD references" folder submitted as a separate folder together with this document

³⁷ See "PDD references" folder submitted as a separate folder together with this document

Purpose of data	Calculation of project scenario
Additional comment	

Data/parameter	Root-shoot-ratio
Unit	Dimensionless
Description	Ratio of the weight of the roots to the weight of the top of the tree. Used for belowground tree biomass estimation.
Source of data	IPCC 2003 ³⁸ . Chapter 4. Forest Land. Table 4.4
Value(s) applied	<p>Pine (Temperate climate zone – conifers):</p> <p>AGB < 50 tonnes per ha = 0.4</p> <p>AGB from 50 to 150 tonnes per ha = 0.29</p> <p>AGB > 150 tonnes per ha = 0.2</p> <p>Alnus (Temperate climate zone – broadleaf):</p> <p>AGB < 75 tonnes per ha = 0.46</p> <p>AGB from 75 to 150 tonnes per ha = 0.23</p> <p>AGB > 150 tonnes per ha = 0.24</p>
Choice of data or Measurement methods and procedures	The values correspond to values for conifers and broadleaves in a temperate climate zone. The reason for selecting this climate zone when the area is in the tropics, is that the project area is in the Andes above 2,800 masl. The environmental conditions at this altitude are aligned with the description of temperate climate zone adopted by the IPCC.
Purpose of data	Calculation of project scenario
Additional comment	

Data/parameter	Carbon fraction tC/t d.m.
Unit	Percentage

³⁸ See “PDD references” folder submitted as a separate folder together with this document

Description	Percentage of the biomass of the tree that is carbon
Source of data	Gold Standard 'Afforestation/reforestation (A/R) GHG emissions reduction & sequestration methodology'
Value(s) applied	0.5
Choice of data or Measurement methods and procedures	The values is recommended in the Gold Standard 'Afforestation/reforestation (A/R) GHG emissions reduction & sequestration methodology'
Purpose of data	Calculation of project scenario Calculation of baseline scenario
Additional comment	

Data/parameter	C to CO ₂
Unit	tCO ₂ /tC
Description	Factor applied to convert the tree carbon sequestered to tree CO _{2e} sequestered
Source of data	Gold Standard Afforestation/Reforestation (A/R) GHG Emissions Reduction & Sequestration Methodology
Value(s) applied	44/12
Choice of data or Measurement methods and procedures	IPCC default value
Purpose of data	Estimation of GHG Emission Reductions and Removals and Baseline emissions
Additional comment	

Data/parameter	tCO ₂ per kg of nitrogen (N) fertilizer
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Gold Standard*

Unit	tCO2
Description	tCO2 emissions per kg of nitrogen fertiliser applied. No differentiation is made between synthetic and organic fertilizer.
Source of data	Gold Standard 'Afforestation/reforestation (A/R) GHG emissions reduction & sequestration methodology'
Value(s) applied	0.005 tCO2 per kg of nitrogen (N) fertilizer.
Choice of data or Measurement methods and procedures	Data obtained from NaturaPlus records
Purpose of data	To calculate the project emissions attributable to the application of nitrogen based fertilisers
Additional comment	

Data/parameter	Biomass baseline
Unit	tdm/ha
Description	<p>There are five main baseline scenarios (see Table 8 for details):</p> <ul style="list-style-type: none"> ● Shrubland ● Native grass ● Cropland ● Pasture ● Mix of trees in pasture

Source of data	Baseline e	AGB (tonnes dry matter/ha)	Root-to-shoot (tonnes dry matter/ha)	Total biomass per ha
	Shrubland	Narcisa et al. 2018	IPCC 2006. Chapter 6. Grassland. Table 6.1. Value for shrubs	-
	Native grass			IPCC 2006. Chapter 6. Grassland. Table 6.1. Total AGB and BGB for warm temperate-wet
	Cropland			IPCC 2006. Chapter 6. Grassland. Section 6.3.1.2 tier 1.
	Pasture			IPCC 2006. Chapter 6. Grassland. Table 6.1. Total AGB and BGB for warm temperate-wet
		tCO ₂ /ha		
Mix of trees in pastures		IPCC 2006. Chapter 6. Grassland. Table 6.1. Total AGB and BGB for warm temperate-wet; Bare & Ashton, 2015; Riofrio et al. 2015		
Note: references are in the folder "PDD references" submitted as a separate folder together with this PDD.				

Value(s) applied	AGB (tonnes dry matter/ha)	Root-to-shoot (tonnes dry matter/ha)	Total biomass per ha
	Shrubland	14.76	2.8
	Native grass		13.5
	Cropland		10
	Pasture		13.5
		tCO ₂ /ha	
Mix of trees in pasture		29.705	

Choice of data or Measurement methods and procedures		AGB (tonnes dry matter/ha)	Root-to-shoot (tonnes dry matter/ha)	Total biomass per ha		
	Shrubland	Study conducted in Ecuador in an area with similar climatic characteristics as San Pablo del Lago	Default value	-		
	Natural grass			Default value		
	Cropland			Default value		
	Pastures			Default value		
		tCO ₂ /ha				
Mix of trees in pastures		Default value for the pasture part plus 20% of tCO ₂ of aliso trees.				
Purpose of data	Calculation of baseline scenario					
Additional comment						

Data/parameter	AGB and BGB for assisted natural regeneration
Unit	tC
Description	AGB and BGB for assisted natural regeneration were obtained from the secondary source mentioned below.
Source of data	Evaluación Nacional Forestal 2014 Ecuador ³⁹

³⁹ See "PDD references" folder submitted as a separate folder together with this document

Value(s) applied	AGB = 61.2 and BGB = 14.7
Choice of data or Measurement methods and procedures	Values for the ' <i>Bosque siempre verde Andino de ceja Andina (BSVCA)</i> ' as the climatic conditions are similar to San Pablo del Lago and plant species composition is similar to those that will be planted.
Purpose of data	Calculation of project scenario
Additional comment	

Data/parameter	Mean Annual Increment Pine
Unit	m ³ /ha/yr
Description	A reduced MAI was assumed during the first 3 years (which increases incrementally in each of those 3 years) to be conservative: Year 1: 50% of MAI Year 2: 75% of MAI Year 3: 90% of MAI
Source of data	From the experience of the forester that has worked in the areas for the last 15 years with Pine plantations.
Value(s) applied	27
Choice of data or Measurement methods and procedures	Although there is no scientific paper or research to support this value, this is the best value to use because it is based on the experience of a local forester in the same area where the project takes place, also for Pine plantations.
Purpose of data	Calculation of project scenario
Additional comment	

Data/parameter	Allometric Equation (Alnus)
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Unit	kgs
Description	Weight of tree stem (for <i>Alnus acuminata</i>)
Source of data	Weight stem (Kgs)=0.097332*dbh ² +0.008069*dbh ² *ht Riofrio et al. (2015). Aboveground tree additive biomass models in Ecuadorian highland agroforestry systems
Value(s) applied	See below values for height (0.95m) and DBH (1.81 cms)
Choice of data or Measurement methods and procedures	The allometric equation selected is both tree species, country and region specific to the project. It is therefore considered to be very suitable equation to estimate <i>Alnus</i> stem weight.
Purpose of data	Used to calculate stem weight
Additional comment	

Data/parameter	MAI-values for height (<i>Alnus</i>)
Unit	Metres
Description	Tree height increment per year
Source of data	Bare et al. (2015). Growth of native tree species planted in montane reforestation projects in the Colombian and Ecuadorian Andes differs among site and species
Value(s) applied	0.95 m
Choice of data or Measurement methods and procedures	The source of data is considered to be highly suitable because it is both tree species and country specific.
Purpose of data	Tree height (required to calculate MAI)
Additional comment	

Data/parameter	MAI-values for dbh (Alnus)
Unit	Centimetres
Description	Tree diameter at breast height increment per year
Source of data	Bare et al. (2015). Growth of native tree species planted in montane reforestation projects in the Colombian and Ecuadorian Andes differs among site and species
Value(s) applied	1.81 cms
Choice of data or Measurement methods and procedures	The source of data is considered to be highly suitable because it is both tree species and country specific.
Purpose of data	Tree diameter (required to calculate MAI)
Additional comment	

Data/parameter	Eligible planting area
Unit	ha
Description	The total eligible planting area is 563.1 ha which is where project activities will take place.
Source of data	The areas were selected together with the communities and a no-forest assessment was conducted following the methodology described in section A.1.1
Value(s) applied	563.1 ha
Choice of data or Measurement methods and procedures	The no-forest analysis follows the requirements of the Gold Standard. It is a historical land use map that shows forest/no-forest changes from 2009 to 2018. See section A.1.1 for a detailed description of the methodology and procedures

Purpose of data	Project areas
Additional comment	This ex-ante parameter applies also for SDG 6 and 15.

Data/parameter	Area per strata
Unit	Hectares
Description	Project Area per strata
Source of data	GIS

Strata	Year	Baseline	Management system	Tree species	Area
1	2018	Crop	Plantation	Pine	80.44
2	2020	Shrubland	Plantation	Pine	15
3	2020	Shrubland	Plantation	Alnus	16
4	2020	Crop	Agroforestry	Alnus	55.9
5	2020	Pajonal	ANR	Mixed native	54
6	2021	Shrubland	Plantation	Pine	50
7	2022	Shrubland	Plantation	Pine	38.56
8	2022	Pajonal	Plantation	Pine	50
9	2022	Shrubland	Plantation	Alnus	3.4
10	2022	Crop	Agroforestry	Alnus	58.6
11	2022	Pasture	Agroforestry	Alnus	57.81
12	2022	Shrubland	ANR	Mixed native	14.5
13	2022	Pajonal	ANR	Mixed native	29.41
14	2022	Pasture	ANR	Mixed native	39.5
Total					563.12

Choice of data or Measurement methods and procedures	See section B.7.2 Sampling Plan
Purpose of data	Estimation of GHG Emission Reductions and Removals and Baseline emissions
Additional comment	

SDG 15. Life on Land

As per the template guidance of the PDD (v. 1.2 key project information and project design document published on 14.10.2020). “*Where ex ante parameters are used to calculate more than one SDG (for example Installed Capacity, numbers of technology), always include it under the SDG 13 heading first (if it is used for SDG 13) and use Additional Comment to explain which other SDGs rely on the same parameter.*” The only ex-ante parameter for SDG 15 is “planting area” which is described above under SDG 13.

B.6.3 Ex ante estimation of SDG Impact

SDG 6. Clean Water and Sanitation

The impact will be measured by (i) the areas where agroforestry systems and assisted natural regeneration will be established, (ii) areas planted to protect the water springs, (iii) number of workshops provided. No ex-ante calculations were required for any of the impact indicators.

SDG 13. Climate Action

Carbon estimations were developed following the A/R methodology. The process is briefly described in section B.6.2. The detailed estimations are presented in the supporting folder ‘ER estimations’. The table below shows the project estimate tCO₂ sequestered and net benefits (tCO₂) per year. The estimates do not include a deduction of the buffer.

SDG 15. Life on Land

The impact will be measured by (i) the areas reforested (agroforestry, commercial plantations and assisted natural regeneration), and (ii) workshops about paramo conservation. No ex-ante calculations were required for any of the impact indicators.

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B.6.4 Summary of ex ante estimates of each SDG Impact

SDG 6. Clean Water and Sanitation

The outcome of SDG 6 is in terms of hectares planted, raising awareness of local communities and water springs protected with native vegetation, thus no ex-ante estimation was required for this SDG.

SDG 13. Climate Action

The table below presents the summary of ex ante estimates of SDG 13.

Year	Project year	Baseline estimate	Other emissions (tCO2/yr)	Project estimate (cumulative tCO2/yr)	Net benefit (tCO2/yr)
2018	Year 1	1,472	-	1,631	158
2019	Year 2	-	-	4,076	2,446
2020	Year 3	4,702	9	7,878	-909
2021	Year 4	3,782	-	13,364	1,705
2022	Year 5	9,858	-	19,379	-3,844
2023	Year 6	-	-	30,292	10,913
2024	Year 7	-	-	41,280	10,988
2025	Year 8	-	-	51,548	10,268
2026	Year 9	-	-	57,532	5,984
2027	Year 10	-	-	67,051	9,519
2028	Year 11	-	-	75,757	8,706
2029	Year 12	-	-	83,126	7,369
2030	Year 13	-	-	88,221	5,096
2031	Year 14	-	-	93,986	5,765
2032	Year 15	-	-	100,078	6,092

2033	Year 16	-	-	106,458	6,380
2034	Year 17	-	-	112,332	5,874
2035	Year 18	-	-	118,325	5,993
2036	Year 19	-	-	122,495	4,169
2037	Year 20	-	-	126,787	4,293
2038	Year 21	-	-	130,586	3,799
2039	Year 22	-	-	134,463	3,877
2040	Year 23	-	-	137,167	2,704
2041	Year 24	-	-	139,871	2,704
2042	Year 25	-	-	142,589	2,719
2043	Year 26	-	-	145,323	2,733
2044	Year 27	-	-	147,651	2,329
2045	Year 28	-	-	149,988	2,337
2046	Year 29	-	-	151,482	1,494
2047	Year 30	-	-	152,973	1,491
Total		19,814	9		133,150
Total number of crediting years		30			
Annual average over the crediting period		4,438			
Annual average over the crediting period (with buffer deduction)		3,550.68			

SDG 15. Life on Land

The outcome of SDG 15 is in terms of hectares planted and raising awareness of local communities, thus no ex-ante estimation was required for this SDGs.

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B.7. Monitoring plan

B.7.1 Data and parameters to be monitored

SDG 6. Clean Water and Sanitation

Below parameters that are only measured for SDG 6. Those parameters that are the same for both SDG 6 and 13, are included under the section SDG 13 below. This is as per the guidance provided in the template guide PDD “Where ex ante parameters are used to calculate more than one SDG (for example Installed Capacity, numbers of technology), always include it under the SDG 13 heading first (if it is used for SDG 13) and use Additional Comment to explain which other SDGs rely on the same parameter. Do not duplicate parameter tables.”

Data/Parameter	Protected water springs
Unit	Number
Description	Monitor the number of water springs that are protected with native trees within at least 10 meters radius. Full inventory all the 8 water springs will be monitored.
Source of data	Field measurements
Value(s) applied	8 water springs
Measurement methods and procedures	The main variables to collect are: <ul style="list-style-type: none"> • Location of water springs • mapping of planted areas; and • counting of living trees to estimate mortality rates.
Monitoring frequency	Annually
QA/QC procedures	50% of the variables collected will be re-measured
Purpose of data	Report on SDG 6 (6.6)
Additional comment	

Data/Parameter	Workshops provided about water conservation
Unit	Number
Description	The implementing team will collect records of the people trained through assistance sheets. Training will be provided to raise awareness on water conservation and the importance of strengthening resilience and adaptation to climate change.
Source of data	Assistance sheets
Value(s) applied	N/A
Measurement methods and procedures	Every time that the project participants receive training, they will have to sign an assistance sheet.
Monitoring frequency	N/A
QA/QC procedures	The implementing team will do a short test after the training about the importance of water conservation
Purpose of data	Report on SDG 6 (6b)
Additional comment	

SDG 13. Climate Action

Data/Parameter	Area planted under different MU
Unit	Hectares
Description	Hectares planted in agroforestry systems, commercial plantations, and in assisted natural regeneration in comparison to the baseline land cover.
Source of data	Field measurements
Value(s) applied	N/A

Measurement methods and procedures	<p>The main variables to collect are (see "manual de procedimiento"⁴⁰ for more details):</p> <ul style="list-style-type: none"> ● mapping of planted areas; ● establishment of sampling plots/transects. The number of sampling transects or plots will guarantee a confidence level of 90%. For agroforestry (live fences and silvopastoral systems) permanent linear transects will be established. The sampling unit is a 100 m x 1 m transect. For commercial plantations (pine and alnus) and assisted natural regeneration) permanent plots will be established; ● counting of living trees to identify forest area <p>The implementing team will conduct an assessment to make sure that project participants are following the management plan.</p>
Monitoring frequency	Annually
QA/QC procedures	10% of the sampling plots are remeasured
Purpose of data	Report on SDG 6 (6.6 – i) number of hectares of assisted natural regeneration, ii) number of hectares of agroforestry), SDG 15 (15.1, 15.2, 15.4 – Number of hectares reforested)
Additional comment	

Data/Parameter	Tree species
Unit	N/A
Description	The tree species are needed to calculate the tCO ₂
Source of data	Field measurements
Value(s) applied	N/A

⁴⁰ The "manual de procedimiento" was submitted in a separate folder called "references PDD"

Measurement methods and procedures	<p>Establishment of sampling plots/transects (see "manual de procedimiento"⁴¹ for more details):. The number of sampling transects or plots will guarantee a confidence level of 90%. For agroforestry (live fences and silvopastoral systems) permanent linear transects will be established. The sampling unit is a 100 m x 1 m transect. For commercial plantations (pine and alnus) and assisted natural regeneration) permanent plots will be established.</p> <p>The data will be collected for each of the permanent plots (commercial plantations) and transects (agroforestry). Professional foresters that can identify the tree species will collect the information. The species of every tree will be recorded.</p>
Monitoring frequency	Every time there is a verification event with the standard
QA/QC procedures	10% of the plots or transects are remeasured
Purpose of data	Report on SDG 13
Additional comment	

Data/Parameter	DBH
Unit	cm
Description	The DBH will be used to calculate the tCO ₂ in the planted trees carbon stored in the trees planted as part of project activities
Source of data	Field measurements
Value(s) applied	N/A

⁴¹ The "manual de procedimiento" was submitted in a separate folder called "PDD\bibliography PDD" **Gold Standard**

Measurement methods and procedures	<p>Establishment of sampling plots/transects (see "manual de procedimiento"⁴² for more details): The number of sampling transects or plots will guarantee a confidence level of 90%. For agroforestry (live fences and silvopastoral systems) permanent linear transects will be established. The sampling unit is a 100 m x 1 m transect. For commercial plantations (pine and alnus) and assisted natural regeneration) permanent plots will be established.</p> <p>The DBH will be collected from each individual in the sampling plots or transects.</p>
Monitoring frequency	Every time there is a verification event with the standard
QA/QC procedures	10% of the plots or transects are remeasured
Purpose of data	Report on SDG 13
Additional comment	

Data/Parameter	Total height (Ht)
Unit	m
Description	Is measured in temporal sample plots, see Chapter 5.3 of this PDD for elaboration.
Source of data	Measured by the project proponent - Forest inventory
Value(s) applied	To be estimated at each performance certification
Measurement methods and procedures	The Ht will be measured using a measuring tape in each forest inventory plot
Monitoring frequency	Every Performance Certification
QA/QC procedures	See section B.7.3 Other elements of monitoring plan
Purpose of data	To assess the emission reduction potential of the project by capturing carbon through the establishment of AR
Additional comment	

⁴² The "manual de procedimiento" was submitted in a separate folder called "PDD\bibliography PDD" **Gold Standard**

Data/Parameter	Survival rate
Unit	N/A
Description	The survival will be recorded to conduct replanting of dead individuals.
Source of data	Field measurements
Value(s) applied	N/A
Measurement methods and procedures	<p>Establishment of sampling plots/transects (see "manual de procedimiento"⁴³ for more details): The number of sampling transects or plots will guarantee a confidence level of 90%. For agroforestry (live fences and silvopastoral systems) permanent linear transects will be established. The sampling unit is a 100 m x 1 m transect. For commercial plantations (pine and alnus) and assisted natural regeneration) permanent plots will be established.</p> <p>Counting of dead trees in every sampling plot/transect will be recorded in year 1 and replanting of dead trees will be conducted if needed to achieve the planned planting density</p>
Monitoring frequency	Every time there is a verification event with the standard
QA/QC procedures	10% of the plots or transects are remeasured
Purpose of data	Report on SDG 13
Additional comment	

Data/Parameter	Above ground biomass (AGB) for <i>Pinus radiata</i>
Unit	kgs
Description	Weight of tree above ground biomass

⁴³ The "manual de procedimiento" was submitted in a separate folder called "PDD\bibliography PDD" **Gold Standard**

Source of data	$AGB = \text{EXP}(-4.7483 + 1.7395 * \ln(D * TH))$ Arcelio Martínez-Domínguez , Faustino Ruiz-Aquino , Wenceslao Santiago-García , Pablo Antúnez , Miguel Ángel López-López , Cesar Valenzuela-Encinas & Rossy Feria-Reyes (2020): Allometric equations to estimate aboveground and belowground biomass of <i>Pinus patula</i> Schiede ex Schltdl. & Cham, Forest Science and Technology, DOI: 10.1080/21580103.2020.1801526. To link to this article: https://doi.org/10.1080/21580103.2020.1801526
Value(s) applied	To be obtained at each performance certification
Measurement methods and procedures	Allometric equations will be used to quantify the AGB of <i>Pinus radiata</i> trees planted in the project. The equation is applicable for Ecuador for the climate region where the San Pablo del Lago project is located, and are based on the measurement of the diameter at breast height and the total height.
Monitoring frequency	Every Performance Certification
QA/QC procedures	See section B.7.3 Other elements of monitoring plan
Purpose of data	To assess the emission reduction potential of the project by capturing carbon through the establishment of forest plantations
Additional comment	

Relevant SDG indicator	Number of workshops related to climate change and management of the commercial plantations and agroforestry systems
Data/Parameter	Number of workshops provided
Unit	Number
Description	The implementing team will collect records of the people trained through assistance sheets. Training will be provided to train project participants on management of the commercial plantations and agroforestry systems and raise awareness about climate change potential impact.

Source of data	Assistance sheets
Value(s) applied	N/A
Measurement methods and procedures	Every time that the project participants receive training, they will have to sign an attendance sheet.
Monitoring frequency	N/A
QA/QC procedures	The implementing team will do a short test after the training about the importance of water conservation.
Purpose of data	Report on SDG 13 (13.1)
Additional comment	

SDG 15. Life on Land

Below are the parameters that are only measured for SDG 15. Those parameters that common for SDG 15 and 13, are included under the section SDG 13 above. This is as per the guidance provided in the template guide PDD “Where ex ante parameters are used to calculate more than one SDG (for example Installed Capacity, numbers of technology), always include it under the SDG 13 heading first (if it is used for SDG 13) and use Additional Comment to explain which other SDGs rely on the same parameter. Do not duplicate parameter tables.”

Data/Parameter	Number of workshops provided
Unit	Number
Description	The implementing team will collect records of the people trained through attendance sheets. Training will be provided to raise awareness on water conservation and the importance of strengthening resilience and adaptation to climate change.
Source of data	Assistance sheets
Value(s) applied	N/A
Measurement methods and procedures	Every time that the project participants receive training, they will have to sign an attendance sheet.

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Monitoring frequency	N/A
QA/QC procedures	The implementing team will do a short test after the training about the importance of water conservation
Purpose of data	Report on SDG 15 (15.4)
Additional comment	

Other indicators (including those to comply with the safeguard requirements)

1. Indicator: Adequate use of agrochemicals

Data/Parameter	Training on the use of agrochemicals and security uniforms and tools
Unit	Number
Description	Personnel that will be in contact with the agrochemicals will be trained in the adequate dosage and use. This will only be necessary at the tree nursery. This is a mitigation measure to the safeguards assessment related to principles 3, 6.1, 9.4, 9.5 and 9.6 (Appendix 1)
Source of data	Attendance sheets and confirmation that the personnel received the protective tools and uniforms
Value(s) applied	N/A
Measurement methods and procedures	N/A
Monitoring frequency	Depending on the time schedule of the nursery
QA/QC procedures	The forester working for the project has frequent visits to the project areas and she will make sure that all personnel use adequate protective equipment and tools when handling any agrochemicals. The implementing team will do a short test after the training.

Purpose of data	Comply with the mitigation measure for safeguard question 3f of the environmental and ecological section
Additional comment	

2. Indicator: Communities/associations participating in the project demonstrate clear property rights

Data/Parameter	Property rights
Unit	Number
Description	This is a mitigation measure to the safeguards assessment related with the principle 4.4 (Appendix 1)
Source of data	Communities/associations
Value(s) applied	N/A
Measurement methods and procedures	The communities and associations have their property rights in case they are required by the auditors
Monitoring frequency	It has already been confirmed that the communities/associations participating in the project have the property rights of the land included in the project. This was a requirement to participate. No more monitoring is planned.
QA/QC procedures	Natura Plus reviewed the documents
Purpose of data	Comply with the mitigation measure for the safeguard question 4e of the socio-economic section
Additional comment	

3. Indicator: All contracts of personnel follow the national legislation

Data/Parameter	Contracts and payments to personnel (staff and external)
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Unit	Number
Description	This is in response to the safeguards assessment related with principle 6.1 (Appendix 1)
Source of data	Contracts and payments to personnel
Value(s) applied	N/A
Measurement methods and procedures	Natura Plus will keep the contracts signed with staff and external personnel as well as proof of payment to any person contracted
Monitoring frequency	At the moment the contract and/or payment happens
QA/QC procedures	Natura Plus will make sure that the contracts and payments are in line with the national work regulation. Natura Plus has an external legal advisor.
Purpose of data	Comply with the mitigation measure for the safeguard question 6b of the socio-economic section
Additional comment	

4. Indicator: Sustainable management of commercial plantations

Data/Parameter	Forest management plans, establishment and harvesting permits
Unit	Number
Description	This is a mitigation measure of the safeguards assessment related to principle 9.7 (Appendix 1)
Source of data	Forest management plans and establishment and harvesting permits
Value(s) applied	N/A
Measurement methods and procedures	Each MU of the commercial plantation will have a forest management plan developed by a forester that will include sustainability actions and will be compliant with the national requirements for timber production.

Monitoring frequency	Before the planting starts, the forest management plan should be developed. The monitoring of the forest management plan and establishment permits will be before planting. The monitoring of the harvesting permits will be done before the harvesting.
QA/QC procedures	
Purpose of data	Comply with the mitigation measure for safeguard question 3a of the environmental and ecological section
Additional comment	

Indicator 5: Actions towards obtaining additional resources to diversify productive activities

Data/Parameter	Actions
Unit	Number
Description	Participating communities showed interest to access funds (on top to this project), to develop productive activities using some of the non-timber forest products from the tree species planted with this project. NaturaPlus will share details of any fund raising actions such as proposal to get access to funds, attending events, or other relevant communication as required.
Source of data	NaturaPlus
Value(s) applied	N/A
Measurement methods and procedures	N/A
Monitoring frequency	N/A
QA/QC procedures	N/A
Purpose of data	Demonstrate the level of effort made by NaturaPlus to obtain additional funding for the diversification of livelihood activities in participating communities in San Pablo project

Additional comment

This indicator was included as a gesture from the project to collaborate with them and prove genuine interest towards local communities

B.7.2 Sampling plan

As per the template guidance of the PDD, this section presents only those parameters in section B.7.1 that will be estimated by a sampling approach. These parameter include: tree species, DBH and tCO₂ related to SDG 13 only.

The data sampling will be designed according to strata defined for the project according to the planting date and to the different forest stand models. Therefore, the sample plots will be established in each stratum (Table 10).

Table 10. Modelling units

MU	Planting year	Baseline	Management system	Area (ha)
1	2018	Crop	Commercial plantations – pine	80.44
2	2020	Shrubland	Commercial plantations – pine	15
3		Shrubland	Commercial plantations – aliso	16
4		Native grass	Assisted natural regeneration	54
5	2021	Crop	Agroforestry	55.9
6		Shrubland	Commercial plantation – pine	50
7		Shrubland		38.56
8	2022	Native grass		50
9		Shrubland	Commercial plantation – aliso	3.4
10		Shrubland	Assisted natural regeneration	14.5
11		Native grass		29.41
12		Mix trees in pasture		39.5

MU	Planting year	Baseline	Management system	Area (ha)
13		Pasture	Agroforestry	57.81
14		Crop		58.6
Total				563.12

Plot type and size

Permanent plots (commercial plantations) and permanent transects (agroforestry) will be used for sampling carbon stock in all the areas. The sample transects will be used to take measurements including diameter at breast height (DBH), tree height and tree species. For all trees, the DBH measurement will be taken at a height of 1.3 m. For seedlings below 1.3 m the height will be measured. For woodlots, permanent plots of 250 m² will be used for collecting data. For agroforestry, permanent transects of 2 m by 100 m will be measured before each performance certification and recorded and kept in a plot file. The plots will be geo-referenced.

Number of sample plots

The number of sampling transects for the forest inventory will meet a MU precision with minimum errors of +/-20% with a 95% confidence level. To do so, a sampling error will be estimated using the following equation⁴⁴:

$$E^2 = \left[\frac{\left(\sum_{h=1}^L N_h * S_h \right)^2}{n} - \left(\sum_{h=1}^L N_h * S_h^2 \right) \right] * \frac{t^2}{N^2}$$

Where:

E = allowable error. Calculated by multiplying the mean carbon stock by the desired precision (0.2 as per Gold Standard rules)

T = the sample statistic from the t-distribution for the 95% confidence level

N_h = Number of sampling units for stratum h (=area of stratum in hectares or area of the plot in hectares)

N = Number of sampling units in the population

⁴⁴ Pearson, T., Walker, S., & Brown, S. (2005). Sourcebook for land use, land-use change and forestry projects. Winrock International and the BioCarbon Fund of the World Bank, 57.

S_h = Standard deviation of stratum h

Where the error is above 20%, the additional difference shall be deducted as per the Gold Standard A/R methodology.

B.7.3 Other elements of monitoring plan

The monitoring plan will be implemented by NaturalPlus through a team of local technicians under the lead of the main local forester who oversees the implementation of the project in the field. Local technicians (3-4) have been working in the plant nursery established by the project and have been trained by the local forester. For more information about the standard operational procedures about data collection and processing see the document "manual de procedimiento"⁴⁵.

SECTION C. DURATION AND CREDITING PERIOD

C.1. Duration of project

C.1.1 Start date of project

01 September 2018. This date was decided based on the guidelines in the 'Land use and forest activity requirements' version 1.1. Specifically, for A/R projects the guidance says, "The project start is considered the same as the tree planting start, that is the date when the first trees are planted". This is evidenced by the record in the forestry register of the Ministerio de Agricultura y Ganadería. Please note that the AR activity is recorded as having started in September 2018, whilst no specific date has been given. We have therefore assumed that the planting started on 01 September 2018.

C.1.2 Expected operational lifetime of project

30 years

C.2. Crediting period of project

C.2.1 Start date of crediting period

01 September 2018. This date was decided based on the guidelines in the "Land use and forest activity requirements" version 1.1. Specifically, for A/R projects the

⁴⁵ The "manual de procedimiento" was submitted in a separate folder called "PDD\bibliography PDD" **Gold Standard**

guidance says "The project start is considered the same as the tree planting start, that is the date when the first trees are planted".

C.2.2 Total length of crediting period

The crediting period will be 30 years.

SECTION D. SUMMARY OF SAFEGUARDING PRINCIPLES AND GENDER SENSITIVE ASSESSMENT

D.1 Safeguarding Principles that will be monitored

A completed Safeguarding Principles Assessment is in [Appendix 1](#), ongoing monitoring is summarised below.

Principles	Mitigation Measures added to the Monitoring Plan
3 – Community health, safety and working conditions; 9.4 – Release of pollutants, 9.5 – Hazardous and non-hazardous waste and 9.6 – Pesticides and fertiliser	See section B 7.1 indicator 'Adequate use of agrochemicals'.
4.4 – Indigenous people	See section B 7.1 indicator 'Communities/associations participating of the project demonstrate clear property rights'
6.1 – Labor rights	See section B 7.1. indicator 'All contracts of personnel follow the national legislation'
9.7 – Harvesting forest	See section B 7.1 indicator 'Sustainable management of commercial plantations'

D.2. Assessment that project complies with GS4GG Gender Sensitive requirements

Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as	Ecuador has several policies related to equity and discrimination, and the project supports gender equality (see detailed description in question two). In the communities participating in the project, culturally, the person who is available will participate in the community meetings irrespective of their gender. Women and men have equal opportunities to give their opinion and vote. No
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outlined in the Gender Policy?	<p>gender discrimination issues were found during the safeguards assessment (see Appendix 1).</p> <p>The project guarantees gender equality by making sure the project information is posted in common areas where both men and women have access to information, by encouraging women to participate during the meetings, and by ensuring equal attendance of both men and women at the meetings. The percentage of women participating in the consultation meetings was 52%.</p> <p>In line with the National gender policy framework NaturaPlus:</p> <ul style="list-style-type: none">- Encourage working conditions with a gender perspective, enabling the balance between personal and working time of staff, ensuring the elimination of all gender-based discrimination;- Hiring using selection tools and systems based on the knowledge and skills of the candidates. This reduces gender bias hiring;- Ensure there is not salary inequalities between gender for NaturaPlus staff;- support women in Leadership positions. Currently the administrative manager and the forestry consultant are women- Ensure the education and training of each employee in the knowledge and skills required for the proper development of their work regardless of the gender;- Protect pregnancy, childbirth and postpartum as specific situations for female professionals, preventing any negative repercussions on their professional careers
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	(during Naturaplus' business performance, we have witnessed 8 pregnancies, and supported mothers during the breastfeeding period).
Question 2 - Explain how the project aligns with existing country policies, strategies and best practices	<p>The Constitution of Ecuador guarantees the principles of equity and no discrimination for all people (article 11 number 2; article 66 number 4; article 203 number 4 and article 330, among others). In addition, Ecuador signed the Universal Declaration of Human Rights (10 December 1948) where Art. 1 states that "all human beings are born free and equal in dignity and rights"; Art. 2 states that "every person has rights and freedom" and Art. 3 establishes equality in the law and protection rights as well as the right for equal protection against any discrimination and against provocation to discriminate. Ecuador is also part of the <i>Convencion sobre la eliminacion de todas las formas de discriminación contra la mujer</i> (CEDAW). In 2018, Ecuador published the <i>Ley orgánica integral para prevenir y erradicar la violencia contra las mujeres</i>.</p> <p>The project promotes gender equality and the empowerment of women. Culturally, in most cases, decision making is in the hands of men, women do not participate in decision making and their roles are less prominent. However, due to high migration rates in the area, women are currently playing a greater role. In community consultation meetings, female participation was 52%. Here women can provide their opinion and vote. One special example of no gender discrimination is Pallares Plaza Association, where there is an all-female council that was elected by the members of the community. In addition, the leader of the fieldwork is a woman (but not part of the community). This provides an incentive for</p>

	women in the community and promotes greater female participation.
Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	<p>There is no need for an expert for the Gender and Safeguarding Principles and requirements because the project complies with the gender equality and women's rights requirements. The gender-related questions asked during the stakeholder consultation as part of the safeguards assessment produced the following summarised answers:</p> <ul style="list-style-type: none"> ● Both men and women have equal opportunities to participate in project activities. ● The benefits of the project are expected to be equal for women and men. Benefit sharing will be decided in an assembly where the participation of women and men is equal. ● There may be a potential risk that the implementation of the reforestation interferes with daily activities because it demands work; however, this can be mitigated by having an appropriate planned scheduled. ● There was no risk for women and girls with the implementation of the project activities.
Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	<p>Stakeholder consultations have already been conducted. There was no need for an expert because women and men have equal rights to participate in the consultation, have their voices heard, and make decisions. According to a socio-economic survey conducted by Natura Plus, it was observed that in the sample of 119 people (older than 18 years old), about 50% were women, of which 81% have decision-making power at home. In community consultation meetings, female participation was 52%.</p>

	A good example of how women participation and leadership is not an issue in the project, is Pallares Plaza Association, where there is an all-female council elected democratically by members of the community for several election periods. Similar to the assemblies, women can vote and give their opinion.
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SECTION E. SUMMARY OF LOCAL STAKEHOLDER CONSULTATION

Below is a summary of the two-step GS4GG Consultation for monitoring purposes. Please refer to the separate Stakeholder Consultation Report for a complete report on the initial consultation and stakeholder feedback round.

E.1 Summary of stakeholder mitigation measures

The stakeholder consultation was conducted according to the stakeholder procedure requirements and guidelines. The first round of consultations, with participating communities/associations physically present, has been concluded. One meeting was held with each one of the communities/associations participating in the project.

Regarding gender, the invitation to the consultation was done through the head of the councils for each community/association. Both men and women are invited to participate in the meetings, and the opportunity to participate and vote is equal for men and women. There is no gender discrimination in the participation or voting. A summary of the main discussions and mitigation measures are presented below.

1. Species to be used for commercial plantations

Many of the comments received by local actors related to the species chosen for the commercial plantation system and concern that the eucalyptus is a species that demands a lot of water and dries the soil.

At the beginning, the sowing of exotic species such as eucalyptus and pine had been considered for their rapid growth and demand in the local market; however, thanks to the recent experiences of commercial alnus plantations and increased demand in the market, the communities decided to replace the planting of eucalyptus with that of alnus, thus including the option of planting native species for commercial plantations.

In addition, it is worth noting that for the planting of pine plantations, a technical zoning has been done, restricting its use near water sources.

2. Importance of communicating the project

Another recurring comment was that the actors were satisfied with the communication that took place in each of the participating communities, as well as the importance of receiving training workshops. For this reason, it has been planned to hold dissemination and training meetings periodically, at least twice per year in each community.

3. Economic incentives for the sale of CO₂

In the Plaza Pallares and La Magdalena Associations, several partners stated that they would like their participation in the sale of carbon credits to be delivered in cash to cover the debts they hold with the bank for the purchase of land.

Although the project cannot offer financial resources to pay the debts that the two Associations hold with the bank, the Consortium has committed to develop projects and seek funds to finance them, to support the payment of the debt.

4. Sustainable wood harvesting

In the Mariscal Sucre community there was concern that the wood harvesting activity could cause a negative impact if it is carried out in a disorderly manner. The mitigation action was that the design of the plantations include roads that facilitate the harvest while also developing sustainable management plans for wood harvesting. An indicator has been included in the monitoring plan to monitor the development of sustainable management plans. The indicator is "sustainable management of commercial plantations" (see section B.7.1)

5. Linkage with public and private sector companies

At the Plaza Pallares Association, the importance of the project being disseminated with the key actors at the local level was mentioned. Although most key actors participated in community consultation meetings, visits to public and private institutions have been considered in order to present project activities and seek synergies with other existing initiatives.

6. Language used in the project's presentation meeting

During the meeting with authorities there was a comment that stated that the language used could be difficult for the community members to understand.

For improving the comprehension during the meetings in the communities, the presentation was made in Spanish and, if necessary, the community representative was asked to translate some of the key concepts into the local language. Additionally, informational materials were provided in both languages. The materials provided during the meetings were submitted to the standard as part of the supporting documentation of the local stakeholder consultations.

E.2 Final continuous input/grievance mechanism

Method	Include all details of Chosen Method (s) so that they may be understood and, where relevant, used by readers.
Continuous Input/Grievance Expression Process Book (mandatory)	Location: House of the Communal Communities Registry format and complaint management
GS Contact (mandatory)	help@goldstandard.org
NaturaPlus contact	Silvana Burbano (silbgsidenor@hotmail.com) Oswaldo Yáñez
Telephone	For urgent matters, project participants can contact NaturaPlus to the following telephone numbers: 0979431582 (Oswaldo Yáñez) 0999347311 (Fidel López)
Community representative	All participating communities or associations selected one person (who is part of one of the communities and who works as part of the local team in the project) to be the contact person between the project and project participants. His name is Oswaldo Yáñez

APPENDIX 1 - SAFEGUARDING PRINCIPLES ASSESSMENT

Complete the Assessment below and copy all Mitigation Measures for each Principle into [SECTION D](#) above. Please refer to the instructions in the [Guide to Completing](#) this Form.

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Principle 1. Human Rights			
1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights	No	<p>The Project is committed to respecting the rights of the local ethnic groups that comprise it and the generation of the appropriate means for the improvement of their life quality.</p> <p>The mission of NaturaPlus is to implement innovative and sustainable programs to achieve positive improvements in the face of the impacts caused by climate change, having as main axes the conservation of natural resources, social wellbeing and economic sustainability.</p>	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		(http://naturaplus.com.ec/quienes-somos)	
2.The Project shall not discriminate with regards to participation and inclusion	No	<p>There is no discrimination as the project provides the opportunity for all communities settled in the San Pablo del Lago basin to participate. In addition, the participation of women is promoted within the communities. According to a socio-economic survey, it was observed that in a sample of 119 people (older than 18 years old), about 50% were women, of which 81% have decision-making power at home. It should be clarified that, culturally, men make the decisions at home; however, due to high rates of migration of men looking for work in other areas, women are taking a leading role.</p>	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		<p>In the assemblies, decisions are made by voting from participants. In the associations there are generally more women than men. All the people that participate in the assembly have the right to vote. For the assembly to be approved the majority of the participants have to vote (half plus one) for it to be approved. Participation in the assembly depends on the availability of a family member to attend regardless of the gender. Generally there is equity of gender participation in the assemblies. The call to participate in the assemblies are made in written and audio</p>	
Principle 2. Gender Equality			

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
<p>1. The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women</p>	<p>No</p>	<p>The project promotes gender equality and the empowerment of women. In community consultation meetings, female participation was 52%. An example of leadership by women is Pallares Plaza Association, where there is an all-female council. In the same way, in the assemblies, women can vote and give their opinion. In addition, the leader of the fieldwork is a woman (but not part of the community). This provides an incentive for women in the community and promotes greater female participation. The best role they can play in the project will be identified.</p> <p>The project provides the opportunity for women and men to participate in meetings. In addition, the project will always look for adequate spaces and</p>	<p>Not required</p>

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		<p>methods to guarantee the participation of both men and women. In the same way, in the assemblies, women can vote and give their opinion. As much as possible the project activities (meetings/workshops/tours, etc.) will encourage the participation of women.</p> <p>Culturally, in most cases, decision making is in the hands of men; women do not participate in decision making and their roles are less prominent. However, due to high migration rates in the area, women are currently playing a greater role.</p> <p>The project will not promote gender discrimination against women. In the process of distribution of benefits, the socio-environmental projects for</p>	

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		<p>the community will be selected by approval of an assembly, where women will have a voice and vote regardless of their marital status.</p> <p>In the assemblies, decisions are made by voting from participants. In the associations there are generally more women than men. All the people that participate in the assembly have the right to vote. For the assembly to be approved the majority of the participants have to vote (half plus one) for it to be approved.</p> <p>Participation in the assembly depends on the availability of a family member to attend regardless of the gender.</p> <p>Women are fully engaged and included in the entire project process. The project does not limit the ability of women to use and</p>	

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		<p>protect natural resources, it also provides the opportunity for men and women to participate in meetings and seek appropriate spaces and methods to ensure their participation. In the same way, in the assemblies, women can vote and give their opinion.</p> <p>The designation of activities will be done by assembly, with the participation of men and women. This will avoid any type of slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.</p>	
2. Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work	No	Communities will decide the assignment of tasks required for the project through the assemblies, where there is female and male participation.	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		<p>In the case of participation during community <i>mingas</i>, for the establishment or maintenance of the plantation, the same communities will plan their time and activities so as not to increase the workload of women.</p> <p>The coordination of on-the-ground activities by Natura Plus is carried out by a woman, whose role is respected by the men of the community. In the long term, this will promote the recognition of technical and managerial skills, independently of gender.</p>	
3. The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks	No	The Constitution of Ecuador guarantees the principles of equity and no discrimination for all people (article 11 number 2; article 66 number 4; article 203 number 4 and article 330, among others). In	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		<p>addition, Ecuador signed the Universal Declaration of Human Rights (10 December 1948) where Art. 1 states that “all human beings are born free and equal in dignity and rights”; Art. 2 states that “every person has rights and freedom” and Art. 3 establishes equality in the law and protection right as well as the right for equal protection against any discrimination and against provocation to discriminate. Ecuador is also part of the ‘Convencion sobre la eliminacion de todas las formas de discriminación contra la mujer’ (CEDAW). In 2018, Ecuador published the ‘Ley orgánica integral para prevenir y erradicar la violencia contra las mujeres’.</p> <p>The project promotes gender equality and the empowerment of</p>	

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		<p>women. Culturally, in most cases, decision making is in the hands of men; women do not participate in decision making and their roles are less prominent. However, due to high migration rates in the area, women are currently playing a greater role. In community consultation meetings, female participation (where they provide their opinion and vote) was 52%. On the other hand, in the council of the participating organisations, there is female representation, especially in the Pallares Plaza Association where there is an all-female council. In the same way, in the assemblies, women can vote and give their opinion. In addition, the leader of the fieldwork is a woman (but not part of the community). This provides an incentive for women in the</p>	

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		community and promotes greater participation. The best role they can play in the project will be identified.	
4. where required) Summary of opinions and recommendations of an Expert Stakeholder(s)	No	An expert Stakeholder is not required because as per national legislation and evidenced in the assemblies of the communities, man and women can equally participate and can vote to make decisions. Evidence of this are the minutes and list of attendees of the assemblies in which decisions related to the project have been made.	Not required
Principle 3. Community Health, Safety and Working Conditions			
1. The Project shall avoid community exposure to increased health risks and shall not adversely affect the	Yes	For the management of commercial plantations and agroforestry at the nursery, use of agrochemicals may cause some	Training. Explain the necessary precautionary measures. EPP acquisition

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
health of the workers and the community		<p>damage due to exposure. However, pesticides would only be used if needed.</p> <p>Likewise, working tools will be used if needed.</p>	support and personnel delivery record
Principle 4.1 Sites of Cultural and Historical Heritage			
Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture?	Yes	The project area does not include these types of sites. However, there are places of traditional and cultural value in the area of influence. The implementation of the project is expected to have a positive impact on these zones since the interventions, through the restoration of areas, will promote the protection of natural resources in the adjacent areas and the wider basin.	Not required since the impact on these sites is positive.

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		Important sites: La Cascada, Rumitola, Hda. Zuleta, Tolas, Pirámides, Hda. La Magdalena.	
The Project shall not involve or be complicit in the alteration, damage or removal of any sites, objects or structures of significant cultural heritage.	No	Project activities do not involve any alteration, damage or removal of any sites, objects or structures of cultural heritage. However, there are places of traditional and cultural value in the area of influence. The implementation of the project is expected to have a positive impact on these zones since the interventions, through the restoration of areas, will promote the protection of natural resources in the adjacent areas and the wider basin.	Not required
Where a Project proposes to utilise Cultural Heritage, including the knowledge, innovations, or practices of	No	The project does not plan to utilise Cultural Heritage, including the knowledge, innovations, or practices of local communities.	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
<p>local communities, affected communities shall be informed of:</p> <ul style="list-style-type: none"> a) their rights under Applicable Law, b) the scope and nature of the proposed commercial development; and c) the potential consequences of such development. 		<p>Project activities are related to reforestation and the production of timber and NTFPs.</p>	
<p>The Project shall provide for equitable sharing of benefits from commercialisation of such knowledge, innovation, or practice, consistent with their customs and traditions.</p>	No	<p>As mentioned before, the project does not plan to utilise Cultural Heritage.</p>	Not required
<p>The opinions and recommendations of an</p>	No	<p>An expert Stakeholder is not required because as per national</p>	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Expert Stakeholder(s) shall be sought and demonstrated as being included in the project design.		legislation and evidenced in the assemblies of the communities, man and women can equally participate and can vote to make decisions. Evidence of this are the minutes and list of attendees of the assemblies in which decisions related to the project have been made.	
Principle 4.2 Forced Eviction and Displacement			
Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The designated areas are private, and project participants have property rights and are categorised as productive zones. Therefore, physical housing zones are not affected.	Not required
Principle 4.3 Land Tenure and Other Rights			
Does the Project require any change, or have any	No	Each community has land title deeds and will follow the	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
uncertainties related to land tenure arrangements and/or access rights, usage rights or land ownership? For Projects involving land use tenure, are there any uncertainties with regards to land tenure, access rights, usage rights or land ownership?		pre-established and internally agreed norms for land management and land use.	
Principle 4.4 - Indigenous people			
Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	Yes	The Project is located in areas of indigenous communities, whose tenure is collective and the right to use is clear and all documentation is available. There is no risk of third-party land claims.	Arrange the enabling documents that demonstrate land tenure for each project community/association.
The Project Developer shall recognise and respect the indigenous people's	No	The designated areas are private, and project participants have property rights. Project	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
collective rights to own, use, and develop and control the lands, resources and territories that they have traditionally owned, occupied or otherwise used or acquired, including lands and territories for which they do not yet possess title.		participants decided what reforestation activity they wanted to implement on their land.	
The Project Developer shall respect, protect, conserve and shall not take the cultural, intellectual, religious and spiritual property of indigenous peoples without their free, prior and informed consent (FPIC).	No	The project was designed in partnership with local communities and respects, protects, conserves and does not take the cultural, intellectual, religious and spiritual property of indigenous peoples.	Not required
The Project Developer shall ensure that the indigenous people are provided with the	No	The indigenous peoples of the participating communities are the owners of the products and	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
<p>equitable sharing of benefits to be derived from utilisation and/or commercial development of natural resources on lands and territories or use of their traditional knowledge and practices by the Project. This shall be done in a manner that is culturally appropriate and inclusive and that does not impede land rights or equal access to basic services including health services, clean water, energy, education, safe and decent working conditions and housing.</p>		<p>benefits provided by the project. They have an internal system to allocate benefits in their communities through decisions made in communal meetings. All the members of the communities are invited to the meetings, and they participate in the decision-making process. Both men and women are equally welcome to participate and vote about the distribution of benefits for communal land. For private land, each household would receive the benefits that they produce.</p>	
<p>The opinions and recommendations of an Expert Stakeholder(s) shall be sought and demonstrated</p>	<p>No</p>	<p>An expert Stakeholder is not required because as per national legislation and evidenced in the assemblies of the communities,</p>	<p>Not required</p>

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
as being included in the project design.		man and women can equally participate and can vote to make decisions. Evidence of this are the minutes and list of attendees of the assemblies in which decisions related to the project have been made.	
Principle 5. Corruption			
1. The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.	No	<p>The different sources of funding for the project to date have arisen from private resources. Any potential risk of corruption is minimised through transparent reporting, frequent accounting and clear definition of roles and responsibilities among all partners.</p> <ul style="list-style-type: none"> • Natura Plus has considered corruption risks in its operations based on the commitments of the member countries of the Interamerican convention against 	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		<p>corruptions. A document “<i>analisis corrupcion NaturaPlus</i>” describing the risk assessment and mitigation measures is included in the folder “supporting documentation CAR □ safeguards □ analisis anticorrupcion”</p> <ul style="list-style-type: none"> ● South Pole has a Code of Conduct policy that includes a section about “bribery and corruption” in which it is stated that country anti-bribery or anti-corruption law apply to South Pole staff worldwide and lists the basic rules that must be followed by South Pole staff 	
Principle 6.1 Labour Rights			

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
1. The Project Developer shall ensure that all employment is in compliance with national labour occupational health and safety laws and with the principles and standards embodied in the ILO fundamental conventions.	No	<p>The field personnel that will provide services to Natura Plus will be hired under the modality of services and will have contracts and orders according to the current contracting laws.</p> <p>For the project, planting activities has been done mainly in Minga. Even though Minga is communal voluntary work, the project provided economic benefits for community members who participated in the planting activities. Only when communities don't want to work in Minga, the project hires group of workers only to do the planting activities (temporary contract). The management of the systems planted are done exclusively in Minga.</p>	Natura Plus will keep the contracts and proof of payments to all the direct staff and contractors

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		Natura Plus hired two local personnel that have temporary contracts. Office personnel consist of two people both of them with permanent contracts. In both cases, the contracts comply with the national regulation.	
2. Workers shall be able to establish and join labour organisations.	No	<p>Traditionally there has been no need, as the community works for its own benefit and on its own land.</p> <p>The contracts for field personnel are temporal, office personnel are permanent, planting activities are generally done in minga, when this is not the case a temporal contract is done with the workers until the planting is finished.</p>	Not required
3. Working agreements with all individual workers shall	No	Some of the project activities will be carried out through community <i>mingas</i> , an ancient tradition of voluntary collective work which	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
<p>be documented and implemented and include:</p> <ul style="list-style-type: none"> a) Working hours (must not exceed 48 hours per week on a regular basis), AND b) Duties and tasks, AND c) Remuneration (must include provision for payment of overtime), AND d) Modalities on health insurance, AND e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND f) Provision for annual leave of not less than 10 days per year, not 		<p>brings together the populations of indigenous and rural areas for the execution of works for the benefit of the community.</p> <p>The contract stipulates the following points: working hours (not exceeding 48 hours per week), duties and tasks to be fulfilled, remuneration, and modalities for terminating the contract.</p>	

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
including sick and casual leave.			
4. No child labour is allowed (exceptions for children working on their families' property requires an <u>Expert Stakeholder</u> opinion).	No	All community members participate in the <i>minga</i> . It allows them to collectively collaborate with the community and is part of their culture and of building a network of trust. Children are also allowed to participate if it does not interfere with their education.	Not required
5. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.	Yes	<p>Activities planned to be conducted in the project include:</p> <ul style="list-style-type: none"> o Planting o Management of planted systems o Training o Monitoring (including communication with main stakeholders) o Administrative activities 	Personnel that will be in contact with the agrochemicals will be trained in the adequate dosage and use. This will only be necessary at the tree nursery.

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		<p>People that work in the plant nursery receive training on the adequate use of agrochemicals (including PPE). They have received training from the Ministry of Agriculture on the use of pesticides. In addition, the plant nursery is visited by the Ministry of Agriculture to ensure that it follows the regulation mandated by the Ministry. This visit is done every three months. Evidence of the training events and the report of the visit from the Ministry can be found in the folder "Supporting documentation CARs □ safeguards □ training agrochemicals</p>	
Principle 6.2 Negative Economic Consequences			

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Does the project cause negative economic consequences during and after project implementation?	No	<p>No negative economic consequences are expected. The project has all the required funding guaranteed. A contract was signed with the donor for 10 years. Most of the costs are related to establishment cost and occur during the first two years. These costs are covered by the donor. The first thinning is at year four and the costs are covered by the communities in <i>minga</i>. Some revenue is expected by the sale of timber from the thinning. At the end of the cycle, at year 18, the pine and aliso trees from commercial plantations will be sold standing and the harvesting cost will be covered by the buyer. Part of the revenue that communities get from the timber will go towards replanting and complying with their commitment as per the</p>	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		contract. The same process will apply for the second cycle that goes beyond the crediting period (30 years). Additional revenue is expected after year five with the commercialisation of NTFPs. Monitoring costs are covered by Natura Plus for the 30 years.	
Principle 7.1 Emissions			
Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The goal of the project is to reduce GHG emissions. Land preparation will not cause GHG emissions, as burning will not be used.	Not required
Principle 7.2 Energy Supply			
Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as	No	The project does not require energy to be implemented.	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
wood, biomass) that provides for other local users?			
Principle 8.1 Impact on Natural Water Patterns/Flows			
Will the Project affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	<p>Water sources will not be adversely affected; on the contrary, it will have benefits related to the protection of water sources, and the regulation of this service throughout the basin is one of the project's priorities.</p> <p>Project sites for commercial plantations and agroforestry are not close to water sources. In any case, the plantations will keep a minimum buffer of 15 m from water bodies as required by the environmental regulation (sometimes more than 15 m).</p>	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		<p>Sensitive areas will be identified so that they are not included.</p> <p>Interventions that may be close to these areas will be done with native species and without affecting the pre-existing native vegetation. The intervention will be minimal and its objective will be to accelerate the restoration process in those areas.</p>	
Principle 8.2 Erosion and/or Water Body Instability			
<p>Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion?</p> <p>Is the Project's area of influence susceptible to excessive erosion and/or water body instability?</p>	No	<p>No negative effects are expected since the preparation and management of all areas will be done manually. In addition, sensitive areas will be identified for non-intervention. Interventions that may be close to these areas will be done with native species and without affecting the</p>	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		<p>pre-existing native vegetation. The intervention will be minimal and its objective will be to accelerate the restoration process in those areas.</p> <p>Project areas where agroforestry systems will be established are not susceptible of erosion as they are mainly flat areas. Some areas where assisted natural regeneration and productive plantations will be established could present some inclination. If the land remains bared (pasture) there might be a risk of erosion. However, the project intents to reduce this risk</p> <p>The project area is not susceptible to water body instability</p>	
Principle 9.1 Landscape Modification and Soil			

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Does the Project involve the use of land and soil for production of crops or other products?	Yes	<p>The project includes the production of timber and NTFPs.</p> <p>However, the establishment of the reforestation plots will be carried out on degraded soils and there will be no risk of damage to the ecosystem. In addition, the project includes the restoration of ecosystems and landscape connectivity.</p>	Not required
The Project shall identify the functions and services provided by the landscape and demonstrate no net degradation in existing landscape function and services.	No	<p>Reforestation activities will take place in degraded areas.</p> <p>Reforestation with native species is intended to recover soil and protect water resources. In addition, 100 ha of paramo will be protected as agreed with the communities in the surrounding areas</p>	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
<p>To ensure healthy soils the following aspects shall be identified, and appropriate measures shall be put in place to protect them:</p> <ul style="list-style-type: none"> a) Soil types, AND b) Biota, AND c) Erosion. 	No	<p>The PPD includes a map with the soil types and areas susceptible to erosion. Reforestation activities include the use of native tree species to promote landscape connectivity.</p>	Not required
<p>Measures shall be incorporated to minimise soil degradation (e.g. through crop rotation, composting, no use of heavy machinery, use of N-fixing plants, reduced tillage, no use of ecologically harmful substances).</p>	No	<p>Reforestation activities will take place in degraded areas. Reforestation with native species is intended to recover soil and protect water resources. No heavy machinery will be used, there is no need to conduct tillage and no chemicals will be used (e.g. fertiliser, pesticides and herbicides).</p>	Not required
<p>Projects that involve the production, harvesting,</p>		<p>Project activities are led by participating communities. They</p>	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
and/or management of living natural resources by small-scale landholders and/or local communities shall adopt the appropriate and culturally sensitive sustainable resource management practices.		voted on which reforestation actions to implement in their properties through a participatory process. For private plots, the owners decided which reforestation activity they wanted to implement. The project developer gave technical guidance, providing information and advising on the most adequate system to choose.	
Principle 9.2 Vulnerability to Natural Disaster			
Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	The project will improve the physical conditions of the soils, reducing the vulnerability of the areas to the risk of extreme climatic conditions.	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Principle 9.3 Genetic Resources			
Could the Project be negatively impacted by or involve genetically modified organisms or GMOs (e.g. contamination, collection and/or harvesting, commercial development, or take place in facilities or farms that include GMOs in their processes and production)?	No	<p>The project does not use GMOs. Only the pine seeds have a certificate (first 1,000 seedlings). Now the nursery supported by the project is collecting seed from seed trees.</p> <p>The seeds of the other species used were collected from the surrounding forests.</p>	Not required
Principle 9.4 Release of pollutants			
Could the Project potentially result in the release of pollutants to the environment?	Potentially	The use of pollutants shall be kept to a minimum at the nursery.	The risk will be mitigated through training and adequate handling of agrochemicals, as well as permanent monitoring of the project (e.g. visits by technicians who will verify

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
			the adequate management).
Principle 9.5 Hazardous and Non-hazardous Waste			
Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	Potentially	The use of pollutants shall be kept to a minimum at the nursery.	The risk will be mitigated through training and adequate handling of agrochemicals, as well as permanent monitoring of the project (e.g. visits by technicians who will verify the adequate management).
Principle 9.6 Pesticides & Fertilisers			
Will the Project involve the application of pesticides and/or fertilisers?	Yes	Agrochemicals will only be applied in minimum doses in the tree nurseries. Fertiliser used at the time of establishment will be compost and applied according to	The risk will be mitigated through training and proper handling of agrochemicals, EPP acquisition support and registration of delivery to personnel, as well as

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		the availability of the product in the community.	permanent monitoring of the project (e.g. visits by technicians who will verify that proper management is taking place).
Projects involving pest management, the integrated pest management (IPM) and /or integrated vector management (IVM) approaches shall be adopted and aim to reduce reliance on chemical pesticides.	No	<p>The project will not conduct pest management actions. Commercial plantations are not expected to be attacked by pests since the project area has never reported pests attacking pine species.</p> <p>Reforestation in agroforestry systems is with various native species planted in low densities which pests are not expected to significantly affect. At the nursery, pesticides will be used only if there is a pest attack.</p> <p>when the plantations are monitored, pests events are registered (if any). In addition, the</p>	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		personnel that conducts the monitoring are trained on how to monitor for pests.	
The health and environmental risks associated with pest management should be minimised with support, as needed, to institutional capacity development, to help regulate and monitor the distribution and use of pesticides and enhance the application of integrated pest management.	No	Integrated pest management actions would be the preferred option; however, if chemical pesticides are to be used, the potential risks associated with their use will be minimised by implementing safety actions, and training personnel in the adequate use and storage of the chemical.	Not required
When Projects include pest management or the use of pesticides, pesticides that are low in human toxicity, known to be effective against the target species	No	If pesticides were required, the project will prioritise the use of pesticides that are low in human toxicity and that are known to be effective against the target species and have minimal effects on	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
and have minimal effects on non-target species and the environment shall be selected.		non-target species and the environment.	
<p>There shall be a 'Chemical Pesticides Policy' that is documented, implemented and regularly updated. This policy shall include at a minimum:</p> <ul style="list-style-type: none"> a) provisions for safe transport, storage, handling and application, AND b) provisions for emergency situations. 	No	<p>If pesticides were required and they are chemical pesticides, a "chemical pesticide policy" will be designed including</p> <ul style="list-style-type: none"> a) provisions for safe transport, storage, handling and application, AND b) provisions for emergency situations. 	Not required
The Project Developer shall not purchase, store, manufacture, trade or use products that fall in Classes	No	If pesticides are required, the project will not purchase, store, manufacture, trade or use products that fall in Classes IA	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
IA (extremely hazardous) and IB (highly hazardous) of the World Health Organization Recommended Classification of Pesticides by Hazard.		(extremely hazardous) and IB (highly hazardous) of the World Health Organization Recommended Classification of Pesticides by Hazard.	
Fertilisers shall be avoided, or their use shall be minimised and justified. If the aerial application of fertiliser is used, then measures shall be put in place to prevent drift.	No	Only compost will be used if there is availability.	Not required
Principle 9.7 Harvesting of Forests			
Will the Project involve the harvesting of forests?	Yes	Only commercial plantations will be harvested in line with sustainable management based on a forest management plan, which will be supervised by the Forest Engineer of the project, who will	Management plans, training, monitoring

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
		also train the communities for the maintenance of the plantations. Restoration of natural ecosystems will be carried out for the other systems.	
Principle 9.8 Food			
Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The implementation of agroforestry systems is expected to increase the productivity of agricultural systems.	Not required
Principle 9.9 Animal husbandry			
Will the Project involve animal husbandry?	No	The project does not include animal husbandry. Project activities are only about planting trees in different management systems.	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Principle 9.10 High Conservation Value Areas and Critical Habitats			
Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	The project's area of influence is home to endangered species and strategic ecosystems such as the <i>paramos</i> . The implementation of the project is expected to have a positive impact on these zones since the interventions, through the restoration of areas, will promote the protection of natural resources in the adjacent areas and the wider basin.	Not required
Principle 9.11 Endangered Species			
Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)?	Yes	The project's area of influence is home to endangered species such as the condor (<i>Vultur gryphus</i>). The implementation of the project is expected to have a positive impact on these zones since the interventions, through the	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
Does the Project potentially impact other areas where endangered species may be present through transboundary affects?		restoration of areas, will promote the protection of natural resources in the adjacent areas and the wider basin.	
Under no circumstances shall the Project lead to the reduction or negative impact of any recognised Endangered, Vulnerable or Critically Endangered species.	No	The project will conserve the areas that the condor inhabit. Communities committed to conserving 100 ha of <i>paramos</i> .	Not required
Habitats of endangered species shall be specifically identified and managed to protect or enhance them.	No	The project will conserve the areas that the condor inhabit. Communities committed to conserving 100 ha of <i>paramos</i> .	Not required
The opinions and recommendations of an Expert Stakeholder shall be sought and demonstrated as	No	The project will conserve the areas that the condor inhabit.	Not required

Assessment Questions/ Requirements	Justification of Relevance (Yes/potentially/no)	How Project will achieve Requirements through design, management or risk mitigation.	Mitigation Measures added to the Monitoring Plan (if required)
being considered and incorporated into the project design.		Communities committed to conserving 100 ha of <i>paramos</i> .	

APPENDIX 2- CONTACT INFORMATION OF PROJECT PARTICIPANTS

Organization name	Natura Plus
Registration number with relevant authority	
Street/P.O. Box	Panamericana Sur, km 288, Sector San Carlos - Alóag.
Building	N/A
City	Quito
State/Region	Quito
Postcode	N/A
Country	Ecuador
Telephone	593 99 9347 311
E-mail	flopez@naturaplus.com.ec
Website	www.naturaplus.com.ec
Contact person	Fidel López Diego Paredes
Title	
Salutation	Mr
Last name	López
Middle name	N/A

First name	Fidel
Department	N/A
Mobile	593 99 9347 311
Direct tel.	N/A
Personal e-mail	N/A

Organization name	South Pole
Registration number with relevant authority	
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State/Region	Zurich
Postcode	8005
Country	Switzerland
Telephone	+41 43 501 35 50
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Contact person	William Garrett
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Salutation	Mr
Last name	Garrett
Middle name	N/A
First name	William
Department	Sustainable Supply Chain

Mobile	+41 43 501 35 50
Direct tel.	N/A
Personal e-mail	w.garrett@southpole.com

APPENDIX 3- LUF ADDITIONAL INFORMATION

Risk of change to the Project Area during Project Certification Period:	There is no risk for the project area to change during project certification period. The project area was agreed with communities and Natura Plus and communities signed agreements to keep project activities for the project duration. The agreements and addendum are included in the folder “supporting documentation CAR ☐ agreements beneficiaries” submitted together with this document
Risk of change to the Project activities during Project Certification Period:	There is no risk of change to the project activities during Project Certification Period. The activities are only tree planting activities and once they are established, they will be kept in line with the agreements signed between project participants and Natura Plus.

Land-use history and current status of Project Area:	<p>The land cover types in the San Pablo del Lago basin are determined to a large extent by topography. Lower elevation areas surrounding San Pablo del Lago are predominantly agricultural with some built up areas and perennial cropland including commercial growers of horticultural and floricultural crops which are sold to international markets. The middle elevation areas are mostly used for annual cropland by smallholding farmers and community forests. Above 3,500 masl the land cover grades into 'paramos' (a form of upland grassland), whilst above approximately 4,000 masl the land cover is mostly bare. Natural forests are mainly restricted to the valleys. In the last 10 years, there has been some agricultural land converted to commercial plantations</p>
Socio-Economic history:	<p>The first settlements by Otavalean communities around San Pablo del Lago occurred up to 28,000 years ago. San Pablo del Lago became an important location for commerce due to its strategic location. Nowadays the main activity in the area is agriculture both for subsistence and commercially for crops including; corn, potato, strawberry, oat, wheat, barley, onion and garlic. Other commercial activities include livestock grazing and forestry. More recently this area has also become an important tourist destination due to the attractiveness of the area and its proximity to Quito.</p>

<p>Forest management applied (past and future)</p>	<p>There was no forest in the past in the project areas. The forest management that will be implemented during the project is described below:</p> <ul style="list-style-type: none"> ● Tree plantation (253.4 ha) (<i>Pinus</i> spp. and <i>Alnus</i> spp.) will be managed for wood production planted with a tree density of 1,600 tree per hectare for Pine and 1,111 tree per hectare for Alnus. Two thinnings, one at year four and the second at year eight. The rotation for both tree species will be 18 years. ● Agroforestry systems (181.7 ha) planted with a mix of native species to be planted as live fences and in silvopastoral systems. The tree species used will be for fruit production or fodder, with NO rotational harvest. ● Assisted natural regeneration (128 ha). A variety of native species will be planted in order to regenerate natural forest. These areas will be used for the production of non-timber forest products and no harvesting will be conducted. <p>Conservation of the paramo (100 ha). This area will be protected from livestock activities.</p>
<p>Forest characteristics (including main tree species planted)</p>	<ul style="list-style-type: none"> ● Commercial forestry with Pine and <i>Alnus</i> ● Agroforestry systems with various native species (<i>Alnus acuminata</i>, <i>Myrica pubescens</i>, <i>Prunus serotine</i>, <i>Juglans neotropica</i>, <i>Myrcianthes hallii</i>, <i>Vallea stipularis</i>, <i>Buddleja bullata</i> Kunth, <i>Cedrela montana</i>, <i>Oreopanax ecuadorensis</i>) ● Assisted natural regeneration: same as agroforestry systems plus other native species (<i>Hesperomeles obtusifolia</i>, <i>Podocarpus</i> sp, <i>Gynoxys fuliginosa</i>)

Main social impacts (risks and benefits)	The project will benefit the communities/associations by providing them wood resources to sell in the future and this will be a source of income. No social risks are expected as communities/associations participated actively in the design of the project and they have already signed contract agreements to implement the project for 20 years.
Main environmental impacts (risks and benefits)	The project will have environmental benefits because the commercial plantations will be established in degraded soils, agroforestry systems will be established in crop land as live fences and silvopastoral systems. These arrangements will increase the connectivity of the landscape. The assisted natural regeneration will help establish natural forest to improve water conservation and landscape connectivity. No environmental risks are expected.
Financial structure	The project has all the required funding guaranteed. A contract was signed with the donor for 10 years. Most of the cost are related with establishment cost and occur the first two years. These costs are covered by the donor. The first thinning is at year four and the costs are covered by the communities in Minga ⁴⁶ . Some revenue is expected by the sale of timber from the thinning. At the end of the cycle, at year 18, the pine and Alnus trees from commercial plantations will be sold standing and the harvesting cost will be covered by the buyer. Part of the revenue that communities get from the timber will go for replanting and comply with their commitment as per the contract. The same process will apply for the second cycle that goes beyond the crediting period (30 years). Additional revenue is expected after year five with the commercialization of NTFPs. Monitoring costs are covered by Natura Plus for the 30 years.

⁴⁶ Minga is an ancient tradition where members of the community/association participate, in a voluntary basis, to conduct work that needs to be done for the benefit of the community/association.

Infrastructure (roads/houses etc):	There is no big infrastructure in the project plots. The roads that pass nearby are unpaved secondary roads. The houses of the members of the communities benefitting from the project are near the reforestation plots. They are rural family houses.
Water bodies:	The project areas are located in two adjacent basins (San Pablo del Lago and Tahuando river) that are part of the larger Ambi river basin. There are several streams in the areas as it is a mountainous area. Some of these streams dry out during the dry season. Figure 18 shows a map with the water bodies in the project area. Some of the areas to be planted with Pine are near water bodies and in this case the project will make sure that the 15 m buffer to both sides of the water body is respected. In addition, existing native vegetation will remain in buffer areas, exotic species will be removed, and no agrochemicals will be used during the establishment or maintenance of the plantations.
Sites with special significance for indigenous people and local communities - resulting from the Stakeholder Consultation:	Rumitola and Riconada waterfall, Hacienda Zuleta, Pirámides, Hacienda La Magdalena.
Where indigenous people and local communities are situated:	Imbabura province, cantones Otavalo e Ibarra, parroquias San Pablo, Angochagua y Gonzales Suarez, where the communities/associations participating in the project are located.
Where indigenous people and local communities have legal rights, customary rights or sites with special cultural, ecological, economic, religious or spiritual significance:	All the project participants are indigenous people that have clear property rights of the areas included in the Project.

APPENDIX 4-SUMMARY OF APPROVED DESIGN CHANGES

Please refer to Design Change [Requirements](#) for more information on procedures governing Design Changes

Revision History

Version	Date	Remarks
1.2	14 October 2020	Hyperlinked section summary to enable quick access to key sections Improved clarity on Key Project Information Inclusion criteria table added Gender sensitive requirements added Prior consideration (1 yr rule) and Ongoing Financial Need added Safeguard Principles Assessment as annex and a new section to include applicable safeguards for clarity Improved Clarity on SDG contribution/SDG Impact term used throughout Clarity on Stakeholder Consultation information required Provision of an accompanying Guide to help the user understand detailed rules and requirements
1.1	24 August 2017	Updated to include section A.8 on 'gender sensitive' requirements
1.0	10 July 2017	Initial adoption