

‘FORTEKO’ AFFORESTATION ON DEGRADED GRASSLANDS UNDER EXTENSIVE GRAZING



Document Prepared By



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1 SUMMARY OF PROJECT BENEFITS

1.1 Unique Project Benefits

Outcome or Impact Estimated by the End of Project Lifetime	Section Reference
1) Provide experience of forest planting and sustainable forest management in degraded grasslands in connection to HCV areas	5.2.3
2) Improve the ecological environment of the planted areas and the native forest surrounding the forest plantations	5.2.1
3) Create positive benefits on the community and stakeholders of the project based on a comparison with the baseline scenario.	4.2.1
4) Create an economic activity with exceptional community communication and participation throughout the Project lifetime while playing leading role in forestry sector.	4.2.1

1.2 Standardized Benefit Metrics

Category	Metric	Estimated by the End of Project Lifetime	Section Reference
GHG emission reductions or removals	Net estimated emission removals in the project area, measured against the without-project scenario	5,596,531tnCO ₂ e	3.2
	Net estimated emission reductions in the project area, measured against the without-project scenario	N/A	-
Forest ¹ cover	For REDD ² projects: Estimated number of hectares of reduced forest loss in the project area measured against the without-project scenario	N/A	-

¹ Land with woody vegetation that meets an internationally accepted definition (e.g., UNFCCC, FAO or IPCC) of what constitutes a forest, which includes threshold parameters, such as minimum forest area, tree height and level of crown cover, and may include mature, secondary, degraded and wetland forests (VCS Program Definitions)

² Reduced emissions from deforestation and forest degradation (REDD) - Activities that reduce GHG emissions by slowing or stopping conversion of forests to non-forest land and/or reduce the degradation of forest land where forest biomass is lost (VCS Program Definitions)

	For ARR ³ projects: Estimated number of hectares of forest cover increased in the project area measured against the without-project scenario	16,181.5 ha	2.1.5
Improved land management	Number of hectares of existing production forest land in which IFM ⁴ practices are expected to occur as a result of project activities, measured against the without-project scenario	Not applicable	-
	Number of hectares of non-forest land in which improved land management practices are expected to occur as a result of project activities, measured against the without-project scenario	Not applicable	-
Training	Total number of community members who are expected to have improved skills and/or knowledge resulting from training provided as part of project activities	666	2.3.1 4
	Number of female community members who are expected to have improved skills and/or knowledge resulting from training as part of project activities	27	2.3.1 4
Employment	Total number of people expected to be employed in project activities, ⁵ expressed as number of full-time employees ⁶	666	2.3.1 4
	Number of women expected to be employed as a result of project activities, expressed as number of full-time employees	27	2.3.1 4
Livelihoods	Total number of people expected to have improved livelihoods ⁷ or income generated as a result of project activities	1,036	4.2.1
	Number of women expected to have improved livelihoods or income generated as a result of project activities	45	4.2.1

³ Afforestation, reforestation and revegetation (ARR) - Activities that increase carbon stocks in woody biomass (and in some cases soils) by establishing, increasing and/or restoring vegetative cover through the planting, sowing and/or human-assisted natural regeneration of woody vegetation (VCS Program Definitions)

⁴ Improved forest management (IFM) - Activities that change forest management practices and increase carbon stock on forest lands managed for wood products such as saw timber, pulpwood and fuelwood (VCS Program Definitions)

⁵ Employed in project activities means people directly working on project activities in return for compensation (financial or otherwise), including employees, contracted workers, sub-contracted workers and community members that are paid to carry out project-related work.

⁶ Full time equivalency is calculated as the total number of hours worked (by full-time, part-time, temporary and/or seasonal staff) divided by the average number of hours worked in full-time jobs within the country, region or economic territory (adapted from the UN System of National Accounts (1993) paragraphs 17.14[15.102];[17.28])

⁷ Livelihoods are the capabilities, assets (including material and social resources) and activities required for a means of living (Krantz, Lasse, 2001. The Sustainable Livelihood Approach to Poverty Reduction. SIDA). Livelihood benefits may include benefits reported in the Employment metrics of this table.

Health	Total number of people for whom health services are expected to improve as a result of project activities, measured against the without-project scenario	666	4.2.1
	Number of women for whom health services are expected to improve as a result of project activities, measured against the without-project scenario	27	4.2.1
Education	Total number of people for whom access to, or quality of, education is expected to improve as result of project activities, measured against the without-project scenario	500	4.2.1
	Number of women and girls for whom access to, or quality of, education is expected to improve as result of project activities, measured against the without-project scenario	244	4.2.1
Water	Total number of people who are expected to experience increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	N/A. However, forestry practices applied in Forteko are the latest available technology and practices that prevents the laminar erosion or diminishes the leakage of fertilizers, preventing the translocation of sediments or nutrients into the river, which are used as drinkable water.	5.2
	Number of women who are expected to experience increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	Not applicable	-
Well-being	Total number of community members whose well-being ⁸ is expected to improve as a result of project activities	12,558	4.2.1
	Number of women whose well-being is expected to improve as a result of project activities	6,529	4.2.1
Biodiversity conservation	Expected change in the number of hectares managed significantly better by the project for biodiversity conservation, ⁹ measured against the without-project scenario	16,181.5 ha	5.2.1

⁸ Well-being is people's experience of the quality of their lives. Well-being benefits may include benefits reported in other metrics of this table (e.g. Training, Employment, Livelihoods, Health, Education and Water), and may also include other benefits such as strengthened legal rights to resources, increased food security, conservation of access to areas of cultural significance, etc.

⁹ Managed for biodiversity conservation in this context means areas where specific management measures are being implemented as a part of project activities with an objective of enhancing biodiversity conservation, e.g. enhancing the status of endangered species

	Expected number of globally Critically Endangered or Endangered species ¹⁰ benefiting from reduced threats as a result of project activities, ¹¹ measured against the without-project scenario	No potential CR or E IUCN's species identified, but yes species regionally prioritized.	5.2.1
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¹⁰ Per IUCN's Red List of Threatened Species

¹¹ In the absence of direct population or occupancy measures, measurement of reduced threats may be used as evidence of benefit

2 GENERAL

2.1 Project Goals, Design and Long-Term Viability

2.1.1 Project Proponent(s) (G1.1)

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2.1.2 Project Objectives (G1.2)

The main objectives of the project activity are wood production, land restoration and carbon sequestration through afforestation, under a sustainable forest management plan, by following FSC standard practices. At the same time, seeks to enhance biodiversity conservation by increasing the connectivity of forests and generating income and job opportunities for local communities/rural areas of Uruguay while working together with communities in order to identify needs and mitigate risks.

2.1.3 Physical Parameters (G1.3)

The project area is located in a topography characterized by rolling hills with less than 300 m altitude, abundant water streams and sandy grasslands. The soils that cover 99.3% of Forteko's project effectively planted area are classified as CONEAT (Uruguayan classification, composed mainly by different types of litosols, brunosols, regosols, luvisols, inceptisols, argisols and acrisols)¹² Groups 2 (12,854 ha) and 8 (1,460 ha). The soil groups CONEAT 2 show emerging rocks of variable density, with slopes ranging from 5-10%

¹² The CONEAT index has been structured by the Ministry of Livestock, Agriculture and Fisheries (MGAP) and the National Commission of Agro-economic Study of the Soil (CO.N.E.A.T); <http://www.renare.gub.uy> (Route of access: Soil and water/CONEAT/Grupos CONEAT)

to 20-30 %. CONEAT 8 presents sandy soils of low fertility, developed on sedimentary rocks. Only 0.7% (100.7 ha) of Forteko's project area have been reclassified by the Ministry of Livestock, Agriculture and Fisheries (MGAP) of Uruguay as CONEAT Group G. These soil groups are flooded and soaked, respectively.¹³

Annual precipitation in the project area ranges from 1,100 to 1,300 mm, homogeneously distributed along the year, although periods of severe drought and severe water excess are rather frequent. Mean annual temperature is 18 °C, varying from 12 °C (July) to 25 °C (January). Night frosts occur during the winter (from mid-May to early October), with an average of 30 days with frost per year, with temperatures seldom falling below -5 °C.

Soils depths are reduced, of medium-to-coarse texture, with low natural fertility and high limitations for agricultural production. Dominant land cover in the area is grassland, with predominance of herbaceous vegetation (mainly grass species) with scattered and scarce shrubs. The vegetation is highly determined by land use (grazing of cattle and sheep). Native grass and other herbaceous species were abundant before cattle were introduced in the XVII Century, and then land was richer in shrubs and small trees. Native trees appear naturally only at the side of rivers and streams, covering only 3 to 5 percent of the land area. This has been attributed to the natural occurrence of frequent droughts which prevented slow growing trees from becoming established against an aggressive competition by grasses.

A general survey of the area¹⁴, carried out through photo interpretation, topographic charts and field trips allowed the detection of different types of vegetation, which correspond to different environments within the project zone:

A) With predominance of trees. This may be natural to the bioregion, like serrano forests, river forests, and permanent or transitory floodplain forests; or cultivated, mostly monospecific crops.

B) With a predominance of shrub species. In this case, areas with a clear highlight of woody shrubs coexisting together with a grassland matrix or shrubs with a prevalence of woody-based shrubs and subshrubs (suffrutices), generally coexisting with grasslands.

C) With a predominance of herbaceous species. In this case natural fields are included, with a predominance of grasses, legumes and composites that generate high diversity. Others can include uliginous fields, located in temporarily flooded soils, and hydrophilic formations characterized by soils with permanent waterlogging.

The project area consists basically of grassland altered by many years of grazing. This would have caused a significant change in species, as well as some soil loss due to laminar erosion due to frequent overgrazing. Due to the change in the regime of precipitation observed in recent years, with an increasing trend in both total precipitation and storm intensity, combined with the effects of overgrazing, particularly in dry periods, the soils in the project area would be subjected to increasing erosion and degradation pressures.

¹³ CO.N.E.A.T. groups of soils description.
https://www.mgap.gub.uy/sites/default/files/descripcion_de_grupos_de_suelos_CONEAT.pdf

¹⁴ Documentación pública_estudios de flora in shared Google Drive folder

At a regional level, land use management within the departments where the project takes place can be seen in table 1, where grassland (both natural and cultivated where cattle breeding activities occur) represent more than 70% of the region's land use.

Table 1. Land use and land use management for the project's region (Cerro Largo, Treinta y Tres, Florida, Lavalleja and Durazno).

Land use	Area (ha)	Percentage (%)
Native forest	153,293	2.9
Planted forest	351,647	6.7
Grassland (cultivated or fertilized)	570,681	10.9
Grassland (natural)	3,518,179	67.5
Cropland (cereal)	313,078	6.0
Other cropland (fodder crop)	147,940	2.8
Others (water body, urban areas, other)	158,859	3.0
TOTAL	5,213,677	100

Source: Agriculture general census 2011, DIEA

This pasture land covers virtually all the project area. Associated with this, there are lowlands and wetlands, with richer biodiversity and higher conservation value. The forests within the project area will be planted on grazing lands, and it was designed with the objective of preserving the most valuable areas of the project zone outside the project area boundaries. These conservation areas include natural forests alongside the rivers and minor water streams, composed by hydrophilic species close to the streams, and xerophytic species of shrubs and tall grasses surrounding them in a transition to the grasslands.

These ecosystems have suffered alterations in the past, due to human intervention. Valuable tree species include *Salix humboldtiana*, *Sebastiania schottiana*, *Sapium* sp., *Pouteria salicifolia* and *Erythrina crista galli*. Also, in the most humid areas *Lueha divaricata*, *Quillaja brasiliensis*, *Cupania vernalis*, *Ocotea acutifolia*, *Allophylus edulis*, *Sebastiania klotzschiana* and *Citharexylum montevidense* appear frequently. In intermediate zones, it is common to find *Schinus longifolius* and *Acanthosyris spinecens*, whereas the most common species in the drier zones are *Gochnatia malmei*, *Aloysia gratissima* and *Lithraea molleoides*.

Natural meadows found in this area are developed on hilly landscapes with shallow soils and a topography that determines a good drainage and runoff. Thus, meadows were affected by water deficit so vegetation

is dominated by species with summer cycles; such as *Paspalum notatum*, *Setaria geniculata*, *Paspalum dilatatum* and *Axonopus compressus*. It can be found associated with species providing forage in the rest of the year (*Stipa papposa*, *Stipa charruana*, *Briza minor*, *Aristida sp.*). Some larger sized species with more than 30 cm (*Baccharis trimera*, *Baccharis coridifolia*, *Eryngium paniculata* and *Eupatorium buniifolium*) could also be found.

On the other hand, favoured by overgrazing, appears *Cynodon dactylon* which has been naturalized and has progressively colonized the soil, occupying the spaces left by species less resistant to trampling. Once established it gives no place, being considered as a noxious weed and as a sign of land degradation (decreased site productivity). Forteko project will be established with a long-term perspective, with the ultimate purpose of achieving long-term sustainability and improving soil quality. Sustainable timber and cattle production and climate change mitigation are part of Forteko's objectives. The selection of forest management practices based on uneven length rotation cycles in a region far from timber markets is only possible with the additional carbon financing.

2.1.4 Social Parameters (G1.3)

Land use in the project zone is predominantly natural grasslands for extensive livestock production. Other land uses are cropland (rice fields) and native forest. Main settlements in the area are listed in 2.1.5 belonging to Cerro Largo, Treinta y Tres, Durazno, Lavalleja and Florida departments (Tacuarembó is represented partially in the project area and with no settlements so is not further described in this section although stakeholders are identified within the area).

Cerro Largo Department is among the lowest degrees of development, together with the departments of the north of the country (Veiga, 2016¹⁵), while the central east region follows, presenting high values of population with at least one basic need uncovered (over 41%, with the exception of Florida department with 32.2% of population, but when analysed at a censal level, the value for the project zone is above 35%)¹⁶.

In Cerro Largo the distribution by geographical area although mostly urban (87%), it is lower than the total number of the country and also of the interior; with a rural population that was approximately 10,481 people (remaining 12%) according to the result of the 2004 Census. Although low, the important parameter to take into consideration is the percentage of population in localities with population below 5,000, as studies have shown to be the ones affected by greater poverty level than net rural areas¹⁷. For the case of Cerro Largo, only Melo and Rio Branco are above this threshold, where 72% of the population of the department live. For the case of Florida, Treinta y Tres, Lavalleja and Durazno the percentage of people living in less than 5000 localities is 43.7%, 36%, 28.3% and 31% respectively.

One education indicator is the literacy rate which, according to the General Census of 1996, reached 93.4% in Cerro Largo. This means 6.6% of the population of 15 or more years who do not know how to read in Cerro Largo, while the country's average is 96.8% and for the interior 95.6% (Barrenechea et al., 2008).

Life expectancy at birth is one of the demographic indicators that measures achievements in health matters. According to INE, Cerro Largo has one of the lowest values of this indicator, with an index of life expectancy

¹⁵ http://columnistas.montevideo.com.uy/ucimprimir_302409_1.html

¹⁶ General Census 2011.

¹⁷ ANUARIO 2012 - OPYPA (Paolino, 2012) "Reducción de la indigencia y la pobreza rural" Available at: <http://www2.mgap.gub.uy/OpypaPublicaciones/ANUARIOS/Anuario2012/material/pdf/24.pdf>

at birth of 75.4 years (2006), which places the department in the national context in 15th place in this area (out of 19), with a value lower than the national average (75.7 years).

In terms of Human Development Index (HDI)¹⁸, it consists of "a synthetic measure of the achievements of society in terms of human development", and "seeks to quantify and combine in an aggregate index the achievements average that registers a country in three fundamental dimensions: to achieve a long and healthy life (health dimension), to acquire useful knowledge (education dimension) and to have the necessary resources to enjoy a decent standard of living (standard of living or access to resources)". In 2005, considering the order of the departments according to this HDI, Cerro Largo was located (with data for the year 2002) in the 15th place. This is if we consider an approximation to the level of living dimension through GDP per capita; since if this approach is considered through the income of households, it descends to the 16th position. Therefore, it's among the departments of least relative human development in the country (in previous HDI calculations, for 1991 and 1999 it held the 17th and 14th position, respectively).

In terms of economy, the generation of value in Cerro Largo denotes a high primary specialization, higher than the average of the interior, centered on livestock (cattle and sheep), rice forestry and dairy cattle to a lesser extent, which do not contribute to the boost of local development. The main activities in the department of Cerro Largo are beef cattle ranching (62% of establishments declare cattle ranching as the main source of income, occupying 85% of the area of the department according to the 2000 Agricultural Census), and the sheep (15% of establishments, occupying just over 4% of the departmental area). In addition, they are responsible for 64% of rural employment.

Employment in agriculture is concentrated in beef cattle, which represent 64% of employment (5,800 jobs). However, cattle ranching is one of the activities that have the lowest rates of people employed per thousand hectares (employs five people per thousand hectares).

When referring to Treinta y Tres, the distribution by geographical area is mostly urban (89.7%), lower than the total of the country but higher than the interior; with a rural population that includes a total of 5,079 inhabitants (remaining 10.3%)¹⁹. Literacy indicator, according to the General Census of 1996, reached in Treinta y Tres to 94.7% of the population aged 15 or more, being below the average of the interior (95.6%) and that of the total country (96.8%).

According to the HDI, Treinta y Tres is located in 13th place (out of 19), remaining at low average level with respect to previous years (also 13th in 1999). In terms of life expectancy at birth, one of the demographic indicators that measure achievements in health, Treinta y Tres has one of the lowest values of this indicator according to INE. With an index of life expectancy at birth of 75.4 years for 2006, which places the department in the national context in 15th place in terms of life expectancy at birth, with a value somewhat below the national average (75.7 years).

In the department of Treinta y Tres, the main activities are livestock (cattle and sheep) and rice. The dairy must also take into account the involvement of a number of producers that are not negligible and that make it a way of life without visualizing different alternatives to that activity (some 60 families).

¹⁸ PNUD (2005) Parte I. Desarrollo Humano y pobreza en Uruguay. Graph 4 in Section I

¹⁹ Barrenechea, P., y Troncoso, C. (2008), El Índice de Competitividad Regional. ¿Qué cambios tuvo la competitividad por departamentos en una década?, Programa de las Naciones Unidas para el Desarrollo (PNUD), Programa de Desarrollo Local ART Uruguay, Montevideo.

In summary, communities in the area are not diverse, they share the same language, religious belief, livelihood system, history or culture. Their relationship with natural resources is through the main responsible of the economy, beef cattle breeding.

Rural poverty is the origin of the main social problems in Uruguay. The region where Forteko has developed its project is particularly affected by a lack of development. Rural poverty has caused the internal migration from rural towns to precarious urban settlements in Montevideo and other cities, increasing marginality, criminality, lack of education, drug-addiction and other social problems. The region around the project site has a dominance of an extensive livestock system of production, which is characterized with a very low productivity level, very low employment, and precarious working conditions and reduced opportunities for women and youth, among other problems. 'Forteko' forest activity is expected to increase the gross value of production per unit area of land by six to eight folds, besides promoting a number of new activities which will multiply this impact.

The social parameters are summarized in table 2 for the Departments where the project takes place.

Table 2. Socio-economic parameters summary for each department

	Cerro largo	Treinta y Tres	Florida	Durazno	Lavalleja
Total population	88,903	49,318	68,181	58,859	60,925
Settlements >5,000 people (% of total department population) ²⁰	Melo (56.9%) & Río Branco (15.1%)	Treinta y Tres (52%), suburban Treinta y Tes (12%)	Florida (47%) Sarandí Grande (9.3%)	Durazno (57%), Sarandí del Yi (12%)	Minas (62%), Varela (8.8%)
Population living in cities <5,000 people	28%	36%	43.7%	31%	28.3%
HDI ²¹	0,804	0,807	0,842	0,839	0,838

²⁰ General Census 2004; available at: <https://www.ine.gub.uy/censo-2004-fase-i> ; Anuario estadístico 2007

²¹ PNUD (2005) Desarrollo Humano en Uruguay 2005. Available at: http://archivo.presidencia.gub.uy/web/noticias/2005/06/pnud/04_parte1-1-2-3.pdf Graph 4 in Section I

Economic activities ²²	-Services and tertiary sector -Primary sector (corn, rice, other) and livestock	-Primary sector agriculture (rice) and livestock, -Tertiary sector	-Primary sector: animal grazing, agriculture and mineral deposits (iron)) -Tertiary sector	-Primary sector - agricultural livestock- -Secondary sector: meat and wheat industry	-Secondary sector: meat and wheat industry -Primary sector: agricultural livestock
Life expectancy at birth (years)	75.3	75.4	77	77.8	77.2

2.1.5 Project Zone Map (G1.4-7, G1.13, CM1.2, B1.2)

The map below (Figure 1) shows the exact location of the project, and the cadastral units owned by BDU III and II Trust Fund and part of Forteko project, where the project will be located²³. As it can be seen, the properties are located within the departments of Cerro Largo and Treinta y Tres entirely. The area for the project is 16,181.5ha of productive area to be planted not present in the without project scenario as will be planted over degraded grassland.

²² Statistical information for 2011 from Territorial Observatory of Uruguay available at: <https://www.opp.gub.uy/observatorio-territorio-uruguay>

²³ KML files with the coordinates of each land are provided to the validation entity.

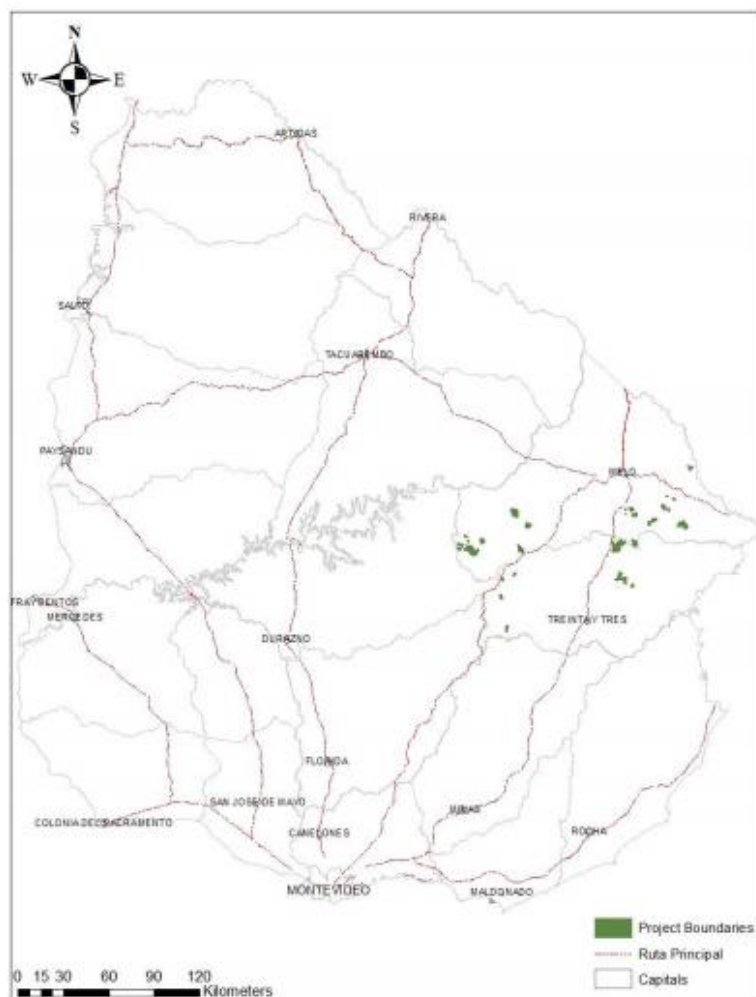


Figure 1: Map of Uruguay showing the location of the areas included in the proposed project activity.

Table 3: Properties' unique geodetic coordinates

Properties	Latitude	Longitude
Pesadilla	-54,879613	-32,843058
Manolete	-55.186477	-32,860535
Las Mimadas	-55,000160	-32,999848
El Enzo	-54,997109	-33,120374
Los Condores	-54,076646	-32,774885
El Chuncho	-53,759063	-32,649083
Santa Mariana	-53,731703	-32,641681
El Nacho	-53,943433	-32,639056
La Hacienda	-54,086460	-32,580314
La Loma	-54,148503	-32,994603

For the purpose of project area has been which are shown in homogeneous in terms land use history and conditions. The division entirely based on

Carricoche	-53,849297	-32,497303
Quiebra Yugo	-55,261895	-32,838695
Las Flacas	-55,318759	-32,809483
Italiano	-54,173493	-32,971565
Santa Hildara	-54,930094	-32,602918
El Ombú	-54,218982	-32,786487
Mique Mique	-54,076564	-33,028931
Los Teros	-53,836266	-32,576564
Los Azules	-53,969551	-32,651964
Las Palmas	-53,676918	-32,325000
La Roja	-53,806162	-32,512506
La Gordi	-54,913232	-32,979052
El Pudú	-55,282061	-32,824159
Jotape	-55,253800	-32,761136
El Chico	-55,245309	-32,794134
Canito	-54,126382	-32,983834
Tronco Perez	-53,861587	-32,570453
Matador	-54,957786	-33,291158
Huaso	-55,134788	-32,780785
Cerros del Chircal	-54,815739	-32,698516

defining the strata, the divided into 4 regions, Figure 2. The areas are of soil types, climate, socio-economic into four regions is geographic location.

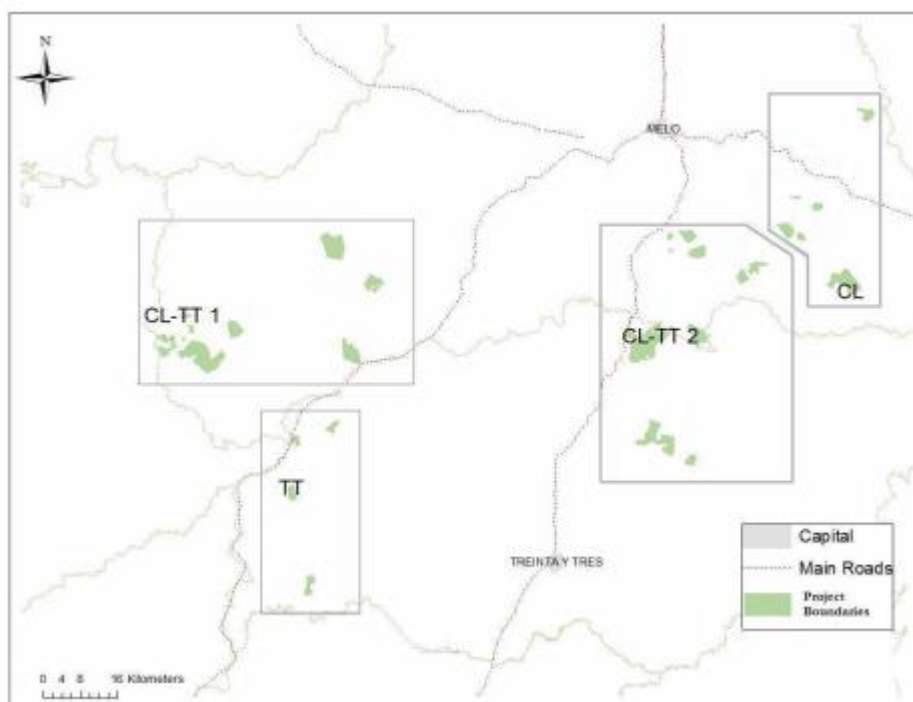


Figure 2. Map indicating the four project regions.

These points are connected by a larger area of influence related to socio-economic conditions and connectivity (see figure 3). Population in project area is of 12,558. Regarding the methodology, the area was defined by a radius of 30k surrounding each farm. Further analysis included the identification of those communities more impacted by transportation activities, where settlements close to the farms within a 30km radius, were adjusted for the layout of truck routes and exits (i.e. adjusted for the possible impacts of each farm's activity).

National route N° 7, N° 8, N° 38, N°6 and N°18 forms the structure of the area of influence and connects most of the communities identified below.

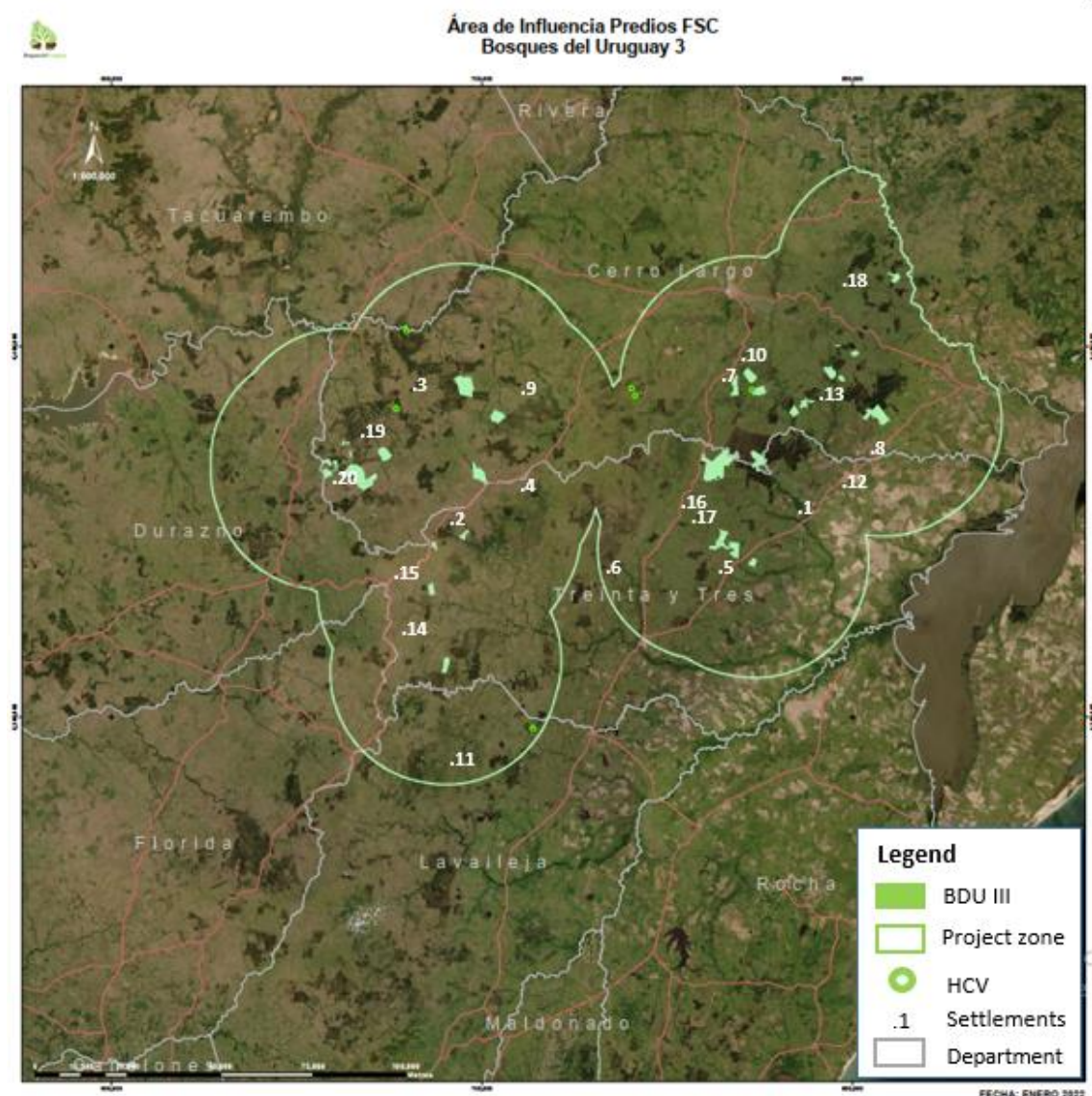


Figure 3: Project zone, main settlements and HCV identified within it

Location of communities

The project is in a rural area with very low population density. Communities in the project area or local communities are understood as communities of any size that are adjacent to the project management unit (farm), and also those that are close enough to have a significant impact on the economy or environmental values of the management unit or as that their economies, rights or environments are significantly affected by management activities or by the biophysical aspects of the management unit (Source: FSC-STD-01-001 V5-0, adapted). Anyway, large cities are not considered as part of the community analysis given that the population is big enough not to be affected by the project. All other communities that are within Treinta y Tres, Cerro Largo, Lavalleja, Florida, Durazno and Tacuarembó - and close enough to be affected by the project-, is part of the analysis.

In Uruguay there are no indigenous communities, nor any type of communities living in the forest. Communities reside in rural areas, towns, villages or even cities in the project area of influence.

Land use

Figure 4 shows land use for La Loma property, the same maps are available for every farm in the project area, as well as those properties by the same company in the project zone. These maps show land use, including conservation and high conservation areas identified and defined based on the methodology explained in sections 2.3 and 4. Figure 5 shows land use map for property “La Hacienda” elaborated from previous forest manager Cambium Forestal Uruguay S.A.

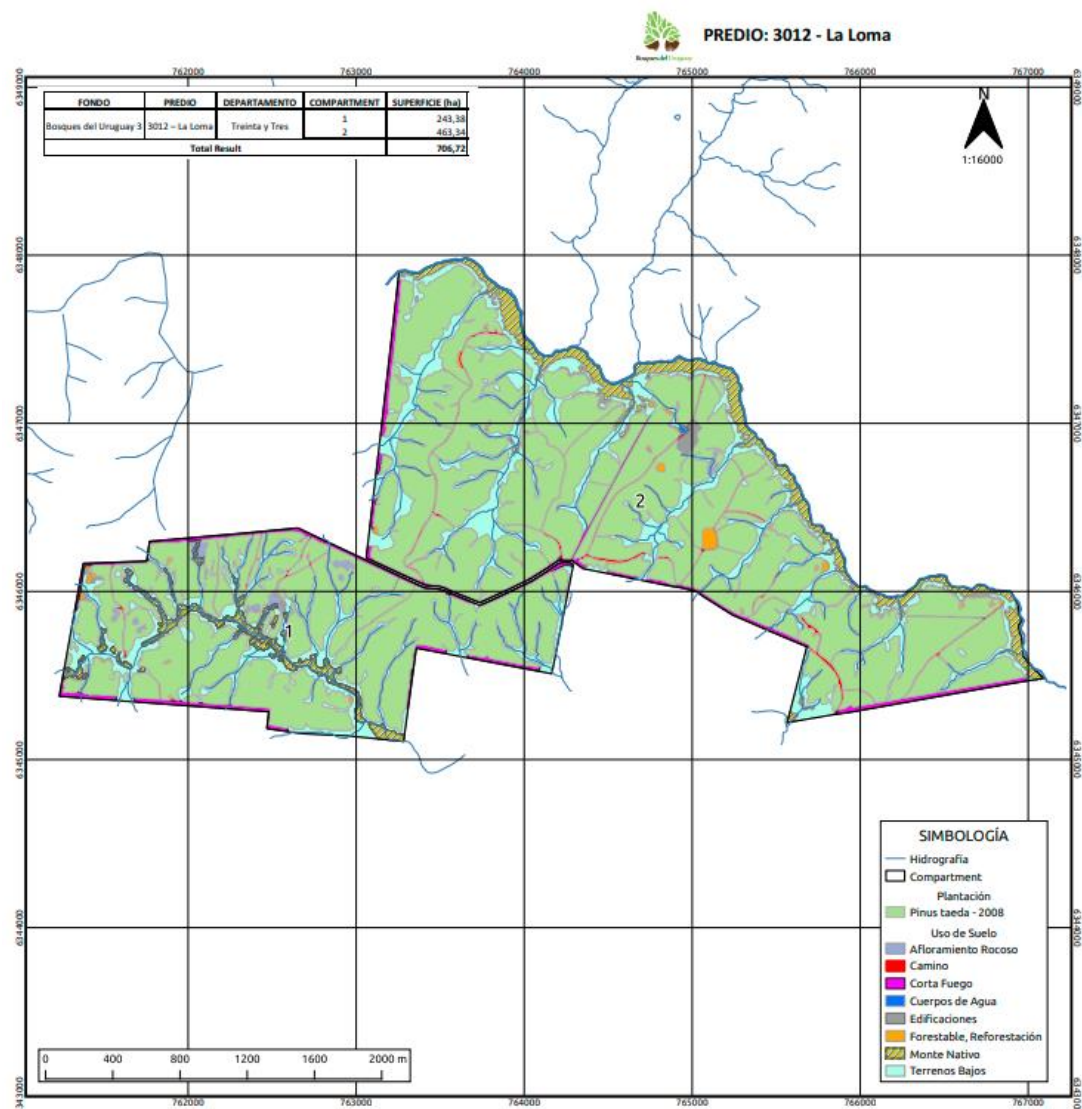


Figure 4: Land use for 'La Loma' property, one of the farms within the project area²⁴

²⁴ Maps of land use for the farms available at validation to VVB

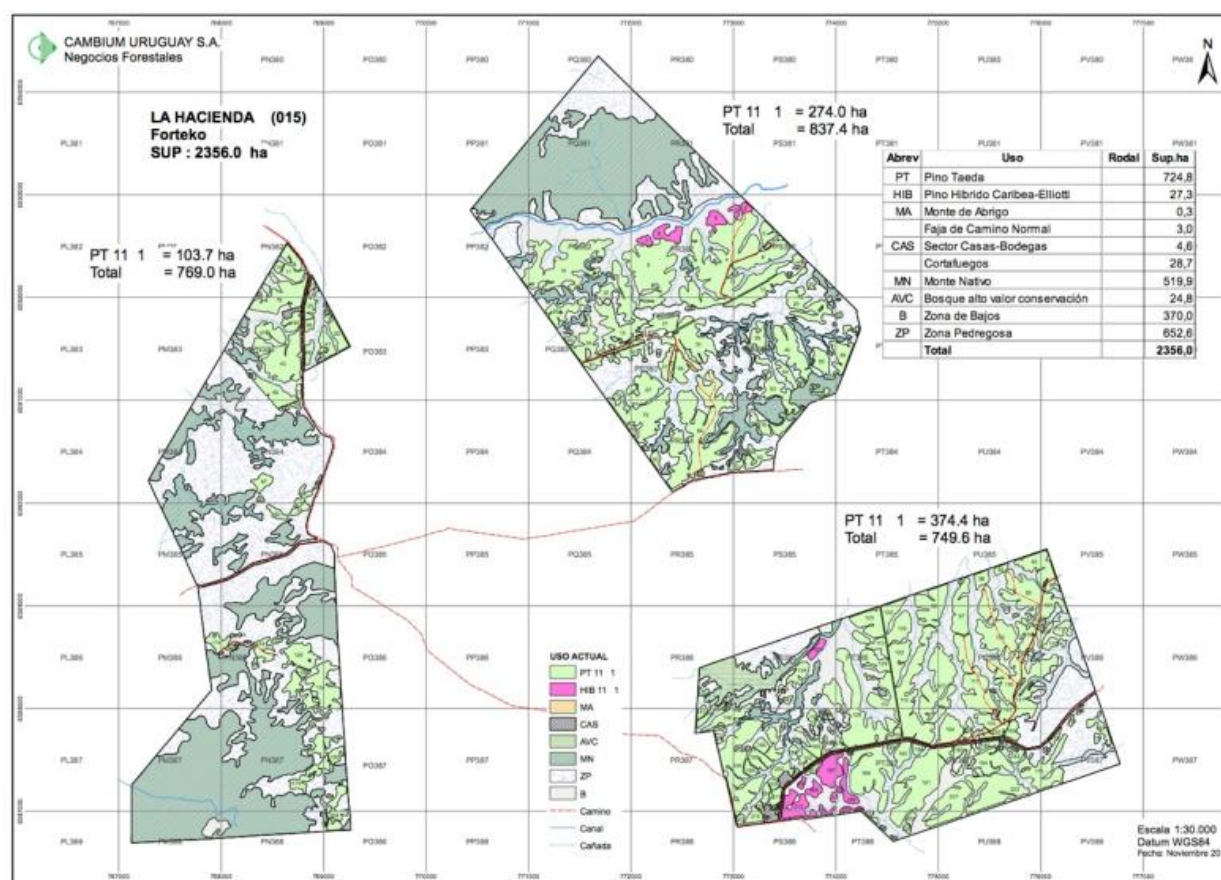


Figure 5. Land use for 'La Hacienda' property, one of the farms within the project area²⁵

2.1.6 Stakeholder Identification (G1.5)

Definition of stakeholder under this analysis is a person, group or organization that has interest or concern in the Forteko project. Stakeholders can affect or be affected by the organization's actions, objectives and policies. But not all stakeholders are equal. Primary stakeholders, which are essential for the operation of the organization, that is, all those who have a direct economic relationship with the company. Secondary stakeholders, which are those who do not participate directly in the company's activities, but who are nevertheless affected by it.

Stakeholders can be further divided into communities, community groups and other stakeholders based on different characteristics and relations with the project.

In order to identify all stakeholders, a group of AF supervisors and managers analysed different stakeholders (localities, towns, cities). A list of stakeholders was developed, identified and prioritized according to the following criteria:

0- It is not from the area of Forteko's influence.

²⁵ Maps of land use for the farms available at validation to VVB under reference 24

1- Occasionally, services were used or measures were taken, but there are no Forteko's fields in the area (for example: once a contractor lived there or the Mayor (Alcalde) was contacted.

2- It is in Forteko's area of influence, that is, there are nearby fields or services used assiduously or negotiations are carried out (whether or not there are operations in the area)

3- Location affected or potentially affected by Forteko's activities: very close to Forteko's farms. Services are used regularly or procedures (tramites) are carried out, it is affected by the transit of trucks or vehicles.

"Base" - Departmental Cities / Capitals: there is no direct impact, but services are used and interested parties are known

The project is located in the Center-east region of Uruguay, with the project area in the departments of Cerro Largo and Treinta y Tres, but the project zone extended to Durazno, Lavalleja, Florida and Tacuarembó (this last in a lesser extent and with no settlements in the area). Excluding major cities, Melo, Treinta y Tres, Durazno and others with a population higher than 4,000 people, there are 20 small to medium size populated centers in the project zone and 18 identified as being directly connected with transport activities, so all the population in these cities/towns are identified as *communities*.

Communities can be further divided into *community groups* based on the economic activity: forestry groups, cattle breeders²⁶ (like "Sociedad Fomento Treinta y Tres" or "Sociedad Fomento Cerro Largo"), beekeepers, as well as tasks and place they occupy within the community organization: rural community, education authorities, political authorities, first responders, among others.

As *other stakeholders*, private and public organizations are identified. For example, forest plantations need to be approved by the government of Uruguay and by the local government (in the case of Cerro Largo), so the Uruguayan forestry bureau (Dirección General Forestal) and the Ministry of Environment²⁷ are also identified as stakeholders. In addition, private consultant are identified as well as regional NGOs, and education and research facilities.

Part of the actions taken includes the visit, once a year or as demanded, of Forteko employees to neighbour communities living close to the project area. During these visits, Forteko's employees must complete the form shown in Figure 10.

As a summary, stakeholders are identified in five groups:

- Public Sector: National Government, Local Government, Uruguayan General Forestry Bureau (Dirección General Forestal- DGF), National Directorate of Quality and Environmental Assessment²⁸, Environmental Ministry²⁹, Firefighters, public health centers, among others

²⁶ These social organizations are characterized by being groups constituted voluntarily by the community for self-management of their economic development

²⁷ Since 1991, the legal environmental competence was given to the National Directorate of the Environment (DINAMA) within the Ministry of Housing, Land Use and Environment. Recently, in July 2020, the Ministry of Environment was created, replacing those competences. Environmental impact assessments review and approval are now competence of the National Directorate of Quality and Environmental Assessment.

²⁸ Recently, July 2020, replaced the National Directorate of the Environment (DINAMA)

²⁹ Created in July 2020, replacing the Ministry of Housing, Land Use and Environment.

- Private Sector: Society of Forest Producers (SPF), forest contractors' companies, other forest companies, cattle breeders
- Civil Society: communities in small cities, towns and villages as well as BDU workers
- ONG's
- Education/ Research: INIA, FAGRO, Rural Schools, LATU

Agroempresa Forestal S.A. (AF) is now the property manager of Forteko. The company is in charge of the project administration and overall management. Their activities also include the certification of the forest plantation against FSC, ISO and VCS. As a consequence of knowing their responsibilities against any stakeholders, they have formed an internal team with standardized procedures to manage and attend to all stakeholders' concerns.

Their first step is the detection and permanent actualization of the stakeholders to Forteko farms. This list is permanently consulted for communication with them. For the case of Cerro Largo, Durazno, Florida, Treinta y Tres, Lavalleja and Tacuarembó there are 242 identified actors, distributed in eight categories: public sector, police, NGOs, teaching centers, firefighters, commerce, clinic, neighbours. Full list of stakeholders with contact information is available during validation or verification processes³⁰.

2.1.7 Stakeholder Descriptions (G1.6, G1.13)

As it is presented in the text above, stakeholders are grouped in five major categories and in primary or secondary stakeholders. This categorization will be used for stakeholder's description.

The public sector is present in the project lifetime at different levels. Identification of stakeholders such as the National Government (tax agency, etc.), local government, Uruguayan General Forestry Bureau (Dirección General Forestal- DGF), National Directorate of Quality and Environment Assessment (DINACEA), Environmental Ministry is elemental for the establishment of the project. General Forestry Bureau and National Directorate of the Environment are the agencies that give the approvals for the forest establishment. The approval is given by complying with multiple requirements, the most important one is the accomplishment of national decree N° 349/005 "Environmental Impact Assessment".

The environmental approval also needs to be maintained through the project lifetime and DINACEA is always present in Forteko's daily work. Local governments are also an important stakeholder in the public category. After the recent law N°18.308, local governments, (the Intendencias of the departments where the project is located), have the legal authority over the national government for territorial order. Intendencias has the power to allocate or not new areas for forestry production. In the case of Forteko, very good relations are maintained with the public sector, for the professional work applied to comply with all regulations and for the proactive effort done to promote good forestry practices. Firefighters are also part of the public sector stakeholders, and their involvement in the project is permanent, given the constant interaction to monitor forest and awareness work on civil society about forest fires. But also, when disturbances events take place, firefighters and army make a presence to combat and mitigate fires.

³⁰ List available in Google Drive shared folder

Following is a list of stakeholders identified by AF in Cerro Largo, Durazno, Treinta y Tres, Florida, Tacuarembó and Montevideo. This last, given it corresponds to the nation's capital and AF headquarters.

Table 4. Stakeholders from public sector identified by AF in project zone

Category	Scope	Organization	Contact name	Department	Contact detail
Public	Clinic	Policlínica Arévalo		Cerro Largo	Confidential
Public	Clinic	Hospital Ceibal Artigas (C.Chato)	Jorge Tarrech	Treinta y Tres	Confidential
Public	Clinic	Policlínica Piraraja		Lavalleja	Confidential
Public	Clinic	policlínica Valentines		Treinta y Tres	Confidential
Public	Clinic	Hospital Cerro Chato		Durazo	Confidential
Public	Clinic	Policlínica	Zona "la Calavera" Enfermera Daniela Avila	Treinta y Tres	Confidential
Public	Clinic	Centro de salud de Vergara		Treinta y Tres	Confidential
Public	Clinic	Policlínica Plácido Rosas		Cerro Largo	Confidential
Public	Clinic	Policlínica Treinta y Tres		Treinta y Tres	Confidential
Public	Clinic	Hospital (Vergara)		Treinta y Tres	Confidential
Public	Clinic	Policlínica: Camcel	Dr. José Luis Cunha	Cerro Largo	Confidential
Public	Clinic	Hospital Melo		Cerro Largo	Confidential
Public	Clinic	Policlínica Arbolito	Enfermera	Cerro Largo	Confidential
Public	Clinic	Hospital Plácido Rosas		Cerro Largo	Confidential
Public	Clinic	Policlínica Vergara	Centro de salud de Vergara	Treinta y Tres	Confidential
Public	Clinic	Hospital Río Branco		Cerro Largo	Confidential
Public	Clinic	Policlínica	Mutualista Vergara	Treinta y Tres	Confidential
Public	Clinic	Hospital Treinta y Tres		Treinta y Tres	Confidential
Public	Clinic	Policlínica Arévalo		Cerro Largo	Confidential
public	Clinic	Policlínica La Micaela		Cerro Largo	Confidential
Public	clinic	Policlínica	Norberto Paiva	Cerro Largo	Confidential
Public	clinic	Policlínica Santa Clara		Cerro Largo	Confidential
Public	Clinic	Policlínica Arévalo	Fernanda Lopetegui (Enfermera)	Cerro Largo	Confidential
Public	Clinic	Policlínica Tupambae		Cerro Largo	Confidential
Public	Clinic	Policlínica	Nelga Cigales	Treinta y Tres	Confidential
Public	Clinic	Hospital de Santa Clara	Encargada	Treinta y Tres	Confidential

Public	Education/research	Facultad de Agronomía del Uruguay – departamento Forestal	Carolina Sans	Montevideo	Confidential
Public	Education/research	INIA La Estanzuela		Colonia	Confidential
Public	Education/research	Facultad de Agronomía	Ing. Agr. Pablo Boggiano	Montevideo	Confidential
Public	Education/research	Universidad de la República (Centro regional)	Luis Sancho (Coordinador)	Cerro Largo	Confidential
Public	Education/research	Polo Tecnológico (UTU)	Gabriel García (Coordinador)	Montevideo	Confidential
Public	Education/research	Centro Universitario Tacuarembó	Daniel Cal (Director)	Tacuarembó	Confidential
Public	Education/research	Centro Universitario Tacuarembó	Alejandro Olivera (Coordinador)	Tacuarembó	Confidential
Public	Education/research	Universidad de la República (Centro regional)	Marcela Ibañez (Coordinador)	Lavalleja	Confidential
Public	Firefighters	Bombero		Treinta y Tres	Confidential
Public	Firefighters	Bomberos Vergara		Treinta y Tres	Confidential
Public	Firefighters	Bomberos Fraile Muerto		Cerro Largo	Confidential
Public	Firefighters	Bomberos		Cerro Largo	Confidential
Public	Firefighters	Bomberos Melo		Cerro Largo	Confidential
Public	Government	Alcalde Arévalo	Eduardo Lucas	Cerro Largo	Confidential
Public	Government	Centro Caif	Claudia Amaral	Montevideo	Confidential
Public	Government	Cerro Chato	Nestor Cabana	Durazno	Confidential
Public	Government	Dirección General Forestal (MGAP)	Director Carlos Faroppa	Montevideo	Confidential
Public	Government	Dirección General Forestal (MGAP)	Adj. director Daniel San Román	Montevideo	Confidential
Public	Government	Servicios Agronómicos Regionales del MGAP		Montevideo	Confidential
Public	Government	MGAP	Ing Agronomo Patricia Puente	Montevideo	Confidential
Public	Government	Oficina Planeamiento y Presupuesto	Sergio Labarthe	Montevideo	Confidential
Public	Government	Congreso Nacional de Intendentes	Presidente rotativo	Montevideo	Confidential
Public	Government	M.V.O.T.M.A.	Alejandro Naro González (Director)	Montevideo	Confidential
Public	Government	Red Temática de Medio Ambiente (RETEMA)	Daniela Guerra (Coordinadora)	Montevideo	Confidential
Public	Government	Ministerio de Trabajo y Seguridad Social	Inspectora General de Trabajo y Seguridad Social	Montevideo	Confidential
Public	Government	Ministerio de Interior	Director Nacional de Policía	Montevideo	Confidential
Public	Government	Ministerio de Turismo y Deporte del Uruguay	Ministro/ Encargado de Turismo	Montevideo	Confidential
Public	Government	Ministerio de Ganadería, Agricultura y Pesca	Ing. Agr. Mariana Hill (Directora General)	Montevideo	Confidential
Public	Government	Ministerio de Ganadería, Agricultura y Pesca	Ing. Pedro Soust (Ricectoir General)	Montevideo	Confidential
Public	Government	OPP	Araceli Acosta-Contadora Tania Isasa (Coordinadora del Programa)	Montevideo	Confidential

Public	Police	Seccional 8va Cerro Chato (Durazno)		Durazno	Confidential
Public	Police	4ta sección de Treinta y Tres Comisario Morles		Treinta y Tres	Confidential
Public	Police	9 na sección de Destacamento EL Oro	Franco	Treinta y Tres	Confidential
Public	Police	Seccional 13 Placido Rosas		Cerro Largo	Confidential
Public	Police	Seccional Policial 3era de Treinta y tres (Rincon)		Treinta y Tres	Confidential
Public	Police	Seccional Policial, seccional 8° Tupumbae		Cerro Largo	Confidential
Public	Police	Seccional 10a de Arbolito		Cerro Largo	Confidential
Public	Police	Seccional de Vergara		Treinta y Tres	Confidential
Public	Police	Policia seccional 13°de Cerro Largo		Cerro Largo	Confidential
Public	Police	9na Arévalo		Cerro Largo	Confidential
Public	Police	Jefatura Melo		Cerro Largo	Confidential
Public	Police	Policia Cerros de Amaro		Treinta y Tres	Confidential
Public	Police	Seccional 9ª Cerro Largo		Cerro Largo	Confidential
Public	Police	Seccional Policial 12ª Camino Perinetti.		Treinta y Tres	Confidential
Public	Police	Secc. 8va (Treinta y Tres) Sta Clara	Javier Techera	Treinta y Tres	Confidential

Private sector is another stakeholder group identified by AF for its projects. The “Sociedad de Productores Forestal - SPF” (Society of Forest Producers) is the entity that nucleates the private forestry sector. Francisco Bonino, CEO of AF, is vice president of the SPF (2020-2023). There are also other primary stakeholders in the private sector identified by AF. All forest contractor companies that have been hired by the project developer are a part of the groups with direct incidence. Small to medium enterprises providing services for land preparation, ant control, pruning, thinning or clear-cuts are identified stakeholders. Other forestry companies are present in the project area of influence. The relation between them is formally happening through the Sociedad de Productores Forestales, but also informally on the field. Uruguayan culture in isolated areas includes the assistance to colleagues in any matter, which is the case of forestry workers (or other sector workers) among themselves.

Table 5. Private sector stakeholders identified by AF in project zone.

Category	Scope	Organization	Contact name	Department	Contact detail
Private	Commerce	Comercio	Ignacio Saravia	Cerro Largo	Confidential
Private	Commerce	Comercio (Almacén)	Melgar	Cerro Largo	Confidential
Private	Commerce	Jefe de UPM	Andrés Barbosa	Cerro Largo	Confidential
Private	Commerce	Oficina UPM	Mariana Andrade	Cerro Largo	Confidential
Private	Commerce	Supervisor de UPM	Federico Álvarez	Cerro Largo	Confidential
Private	Commerce	Supervisor de UPM	Carlos Méndez	Cerro Largo	Confidential
Private	Commerce	Supervisor de UPM	Dyango Rivero	Cerro Largo	Confidential
Private	commerce	Comercio	Ignacio Saravia	Cerro Largo	Confidential
Private	Commerce	Comercio (Almacén)	Melgar	Cerro Largo	Confidential
Private	Commerce	Nuevo Manantial	Francisco Castell (Encargado de Cultivo)	Treinta y Tres	Confidential
Private		Sociedad de productores forestales.	Alvaro Molinari	Montevideo	Confidential
Private		Sociedad de productores forestales	Diego Mora	Montevideo	Confidential
Private		Consultor en Fauna	Juan Carlos Rudolf		Confidential
Private		Consultor en Flora	Carlos Antonio Brussa		Confidential
Private		Ing. Independiente	Andrés Berrutti		Confidential
Private		Ing. Agrónomo (Experto en Flora).	Carlos Antonio Brussa		Confidential
Private		Cambium Forestal Uruguay S.A	Simón Berti Sanhueza	Montevideo	Confidential

Civil society is the third detected group of stakeholders to the project. Civil society are residents in small towns in the area of incidence of the project and neighbours to the project site. Neighbours are key actors for the project development. Their continued presence in the area of influence makes this group a relevant player when project impact is assessed. Many positive but also negative facts are being monitored in such neighbours. Civil society has claimed/complaint forms that can be used to express their concerns about any activity implemented by Forteko (more detail in section 2.3.7 and 2.3.8).

Table 6 shows the identified actors of the civil society that are part of the permanent consultation group.

Table 6. Civil society stakeholders list

Category	Scope	Organization	Contact name	Department	Contact detail
Civil society	Cattle breeder	Pastoreante Las Mimadas	Mario Piriz	Treinta y Tres	Confidential
Civil society	Cattle breeder	Pastoreante Las Flacas	Raul Saravia	Cerro Largo	Confidential
Civil society	Cattle breeder	Pastoreante cercano	Nicolas Baru	Cerro Largo	Confidential
Civil society	Cattle breeder	Pastoreante cercano	Bruno Vergara	Cerro Largo	Confidential
Civil society	Cattle breeder	Pastoreante cercano	Alexis Arismendi	Cerro Largo	Confidential
Civil society	Cattle breeder	Pastoreante cercano	Yamil Abisab	Cerro Largo	Confidential
Civil society	Cattle breeder	Pastoreante cercano	Tono Zito	Treinta y Tres	Confidential
Civil society	Cattle breeder	Pastoreante Manolete	Eduardo Pereda	Cerro Largo	Confidential
Civil society	Cattle breeder	Pastorante cercano	La Azotea S.C -Eduardo Javier Saravia	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante cercano	Darwin Eguren	Treinta y Tres	Confidential
Civil society	Cattle Breeder	Pastorante cercano	Mauricio Rodríguez	Durazno	Confidential
Civil society	Cattle Breeder	Pastorante cercano	Jesús Gastón de La Puente Núñez	Durazno	Confidential
Civil society	Cattle Breeder	Pastorante cercano	Juan Cantera	Durazno	Confidential
Civil society	Cattle breeder	Pastoreante cercano	Green Miraballes	Treinta y Tres	Confidential
Civil society	Cattle Breeder	Pastoreante cercano	Coromina	Treinta y Tres	Confidential
Civil society	Cattle Breeder	Pastoreante cercano	Pablo Patron	Durazno	Confidential
Civil society	Cattle Breeder	Pastorante cercano	"Maria del Rosario Magallanes	Treinta y Tres	Confidential
Civil society	Cattle Breeder	Pastorante Los Teros	Assis Brasil Souza Alves	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante Santa Mariana	Enrique Alis Rivero Pereira.	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante Cerro del Chircal	Jesus Rael	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante Cerro del Chircal	Carlos Cesar Jorge	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante cercano	Raul Saravia	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante cercano	Antonio Martinez	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante cercano	Javier Secadas	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante El Ombú	Arides Jose TEJERA MOREIRA	Treinta y Tres	Confidential
Civil society	Cattle Breeder	Pastorante El Ombú	Ileto Marcelo LUGO SOTO	Treinta y Tres	Confidential
Civil society	Cattle Breeder	Pastorante El Ombú	Gabriel bardanca	Treinta y Tres	Confidential
Civil society	Cattle Breeder	Pastorante El Ombú	Juan Eduardo MARTINEZ PEREIRA	Treinta y Tres	Confidential
Civil society	Cattle Breeder	Pastorante La Hacienda	Dardo Leodan Silva Tabarez	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante La Hacienda	Sebastian Lopez Mescoleta	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante La Hacienda	Susana Esteves Araujo	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante La Hacienda	Nair Antunez Victoria	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante La Hacienda	Angel Ricardo Andrade	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante La Loma	Sebastian Lopez	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante Los Azules	German Martinez	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante Los Cóndores	Jorge Fabian Leites	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante Manolete	Nalerio Tabarez	Cerro Largo	Confidential
Civil society	Cattle Breeder	Pastorante Manolete	Eduardo Pereda	Cerro Largo	Confidential

Civil society	Neighbour	Vecino cercano	Lisandro Lain	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Abel Acosta	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Mauricio Acosta	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Juan Romero	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Mabel Fernandez / Huber Alvarez	Durazno	Confidential
Civil society	Neighbour	Vecina cercana	Leticia Costa	Durazno	Confidential
Civil society	Neighbour	Vecina cercana	Yaqueline Prate	Durazno	Confidential
Civil society	Neighbour	Vecina y Pastoreante	Lola González	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino Las Flacas	Carlos Morales	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Las Flacas	Hugo Gadea	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Italiano	"Establecimiento El Rancho" de Wilson Irigoin	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino Italiano	Predio La Loma	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino Italiano	Darci Ramirez	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino Italiano	"Establecimiento Leoncho", encargado Wilson Savarey	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino La Loma	Predio AF "El Italiano"	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino La Loma	Sr. Fontes	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino cercano	José Carlos Izaza	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Juan Carlos	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Predio Carballo AF	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Luis Barboza	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Juan Antonio Gordiño	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Gustavo Cejas	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Enrique Marin	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Sandra Fernández	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Guillermo Escoto	Cerro Largo	Confidential
Civil society	Neighbour	Vecino La Hacienda	Felipe Perdomo	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Gonzalo Macio	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	María Lezica (Pereira Capataz)	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Predio Regis AF	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Predio El Chuncho AF	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Predio Da Rosa AF	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Predio Cordeiro AF	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Santa Mariana	predio Cordeiro AF	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Santa Mariana	Bruno Vergara	Cerro Largo	Confidential

Civil society	Neighbour	Vecino Santa Mariana	predio Cordeiro AF	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Santa Mariana	Predio Casas AF	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Santa Mariana	Predio Casas AF	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Los Cóndores	"Establecimiento Los Paraísos" de Martin Cesar	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino Los Cóndores	Establecimiento del Sr. Gadea: Encargado Morao	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino Los Cóndores	Establecimiento el paraíso, capataz: Jorge González	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino Los Azules	Gustavo Fernández	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Los Azules	Carballo AF BDU IV	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Los Azules	Santa Sofía AF BDU IV	Cerro Largo	Confidential
Civil society	Neighbour	Vecina cercana	Yaqueline Sosa	Treinta y Tres	Confidential
Civil society	Neighbour	Vecinos cercanos	Diego de Souza	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino cercano	José González	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino cercano	Cabaña doble ZZ (Camilo)	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	AF BDU3	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	AF BDU3	Cerro Largo	Confidential
Civil society	Neighbour	Vecinos cercanos	Barros	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Las Mimadas	Green Miraballes	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino Las Mimadas	Marcelo Coromina	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino Manolete	Alcides Pereda	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Manolete	UPM (Andres Barbosa)	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Manolete	Lumin	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Manolete	Eduardo Pereda	Cerro Largo	Confidential
Civil society	Neighbour	Vecino Manolete	Hugo Gadea	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Gustavo Saravia	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Raul Lopetegui	Cerro Largo	Confidential
Civil society	Neighbour	Vecino cercano	Darwin Eguren	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino cercano	Silvia Godoy	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino cercano	Daniel Alberico Robaina	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino cercano	Sr. Almeida	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino cercano	Narciso de la Puente	Durazno	Confidential
Civil society	Neighbour	Vecino cercano	Alberto Anastasia	Durazno	Confidential
Civil society	Neighbour	Vecino cercano	Bernardo Verdaguer	Durazno	Confidential
Civil society	Neighbour	Vecino cercano	Jorge Perugorria	Durazno	Confidential
Civil society	Neighbour	Vecino cercano	Carmen Zabaleta	Durazno	Confidential
Civil society	Neighbour	Vecino cercano	Juan Magallanes	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino cercano	Manuel Carbone	Treinta y Tres	Confidential
Civil society	Neighbour	Vecino cercano	Willy	Treinta y Tres	Confidential
Civil society		SOIMA (Sindicato obrero de la industria de la madera y afines)	Delegado ante el PIT CNT Fernando Oyanarte – Suplente Nestor Estevez	Montevideo	Confidential

NGOs are present in that region. There is no formal method to identify NGO because they are very well known and with strong activity when referring to forestry in Uruguay, especially environmental NGOs. Forteko also has a list of NGOs that have been in contact with the company and to which AF has interest to be present in any organized activity. The following table shows the identified NGOs mainly in Montevideo.

Table 7. List of NGOs identified

Category	Organization	Contact name	Department	Contact detail
NGO	Cofoar	Oficina Arévalo	Cerro Largo	Confidential
Ngo	World Rainforest Movement	Ricardo Carrere	Montevideo	Confidential
NGO	Raikatu	Técnico en gestión de RN Sistema Nacional de Áreas protegidas Marció Rodríguez	Montevideo	Confidential
NGO	Movimiento mundial por los bosques tropicales	Sr. Wilfredo Overbeck (Coordinador internacional)	Montevideo	Confidential
NGO	Asociación rural del Uruguay	Ing. Agr Ricardo Reilly (Presidente)	Montevideo	Confidential
NGO	Federación Rural	Sr. Carlos María Uriarte (Presidente)	Montevideo	Confidential
NGO	Camara de Industrias del Uruguay	Washington Corallo (Presidente)	Montevideo	Confidential
NGO	Red Uruguaya de ONG's Ambientalistas	Lic. Rafael Tejera	Montevideo	Confidential
NGO	Centro Latino Americano de Ecología Social - CLAES	Viviana Basanta	Montevideo	Confidential
NGO	PIT-CNT / SOIMA	Secretario Gral. y Asesor	Montevideo	Confidential
NGO	Red de ONGS Ambientalistas	Sra. Karin Nansen	Montevideo	Confidential
NGO	CEUTA	SR. Alberto Gómez Perazzoli	Montevideo	Confidential
NGO	REDES Amigos de la Tierra	Sra. Karin Nansen	Montevideo	Confidential
NGO	SPF	Atilio Ligrone (Presidente)	Montevideo	Confidential
NGO	Centro de Competitividad Empresarial	Marina Bengoechea, (Coordinador)	Montevideo	Confidential
NGO	Instituto para el desarrollo territorial rural y aguas (INDRA)	Ing. Agr. Aler Donadio,	Tacuarembó	Confidential

The last group of stakeholders are the investigation institution and educational centers. Many rural schools are present in the area of influence and both Cambium and AF have a strong commitment to support their activities.

Table 8 List of educational centers in project zone

Public	Teaching center	Escuela N° 68 Durazno (Cerro Chato)		Durazno	Confidential
Public	Teaching center	Escuela 48 Treinta y Tres (Cerro Chato)	Directora Julia Larrosa	Treinta y Tres	Confidential
Public	Teaching center	Liceo Enrique Alzugaray Nro 1 (Cerro Chato)	Directora Ma. José	Florida	Confidential
Public	Teaching center	Escuela N°76 Cañada B	Paola Rodriguez	Cerro Largo	Confidential
Public	Teaching center	Escuela N° 12 La Calavera		Treinta y Tres	Confidential
Public	Teaching center	Escuela 29 Placido Rosas		Cerro Largo	Confidential
Public	Teaching center	Escuela Rural n° 61		Treinta y Tres	Confidential
Public	Teaching center	Escuela rural Nro 79-	Directora Yelsi Olivera	Cerro Largo	Confidential
Public	Teaching center	Liceo Rural	Prof. Soledad Olivera	Cerro Largo	Confidential
Public	Teaching center	N°71 Paso Campamento		Cerro Largo	Confidential
Public	Teaching center	Escuela	Zona: "la lata"	Treinta y Tres	Confidential
Public	Teaching center	Escuela n° 46 Cuchilla de Olmos		Treinta y Tres	Confidential
Public	Teaching center	Escuela n° 61		Cerro Largo	Confidential
Public	Teaching center	N°72 La Micaela (Diego)		Cerro Largo	Confidential
public	Teaching center	Escuela N° 19	Sandra Gómez	Treinta y Tres	Confidential
Public	teaching center	N°67 Cerros de Amaro		Treinta y Tres	Confidential
Public	Teaching center	Liceo	Directora Raquel Ruiz	Treinta y Tres	Confidential
Public	Teaching center	Escuela N° 33. Cno. Perinetti	Laura Richeri	Treinta y Tres	Confidential
Public	Teaching center	Escuela N° 34	Anelia Zunino	Treinta y Tres	Confidential
Public	Teaching center	Escuela N°47	Director José Arismendi	Treinta y Tres	Confidential
Public	Teaching center	Escuela N° 19	Sandra Gomez	Treinta y Tres	Confidential
Public	Teaching center	Escuela Cañada Brava	Monica Saravia	Cerro Largo	Confidential
Public	Teaching center	Escuela N°134 El cordobes	Monica Saravia	Cerro Largo	Confidential
Public	Teaching center	Escuela 4	Elsa Lauz (Maestra Directora)	Treinta y Tres	Confidential

2.1.8 Project Activities and Theory of Change (G1.8)

The theory of change or causal model approach is implicit to the project, as it is presented in the appendix 2. The project activity is introducing positive changes to the landscape with permanent benefits to the community well-being. The 'with project' scenario is compared with the 'without project' scenario of social and economic well-being in the absence of the project, is presented in a study prepared by an independent firm Ferrere (see section 2.1.13). Project activities have outputs, outputs to outcomes, and outcomes to impacts in the appendix 2.

The main contribution of Forteko project activity is the eradication of rural poverty through the generation of high quality and stable employment, in a region of Uruguay with elevated levels of poverty. Creation of employment is one of the main social benefits of the project. Typically, an extensive livestock production system employs 1.4 persons every 1,000 ha. Forteko project is expected to multiply that figure by more than 10.

Project activity consists in the establishment of forest on land that had previously been under grassland for more than 50 years. It was developed under the VCS scope 14: “Agriculture, Forestry and Other Land Use” as “Forteko Afforestation on degraded grassland under extensive grazing” project. Forteko is a single GHG Project.

The project comprises a total area of 16,181.5 ha with a long history of grazing by beef cattle, activity that has caused soil erosion and land degradation. Forest plantations for obtaining pulp and saw wood and removing carbon dioxide from the atmosphere have been established since 2007.

The project activity is implemented on degraded land, which is expected to continue to degrade in the absence of the project and hence the land cannot be expected to revert to a non-degraded state without human intervention.

Forests consist of *Pinus taeda* managed with a rotation length of 22. The plantations are established on land previously used for cattle grazing. The implementation of the project activity will not cause any displacement of cattle³¹.

The main objectives of the project activity are wood production, land restoration and carbon sequestration through afforestation. Forest plantation has been completed and forest will be replanted after clear-cut harvest. Project crediting period is 100 years. All practices will be compatible with FSC standards for sustainable forest management. Planted forests will remove carbon dioxide from the atmosphere and store it in different carbon pools (living above-ground and below-ground biomass, soil organic carbon, litter and dead wood). All these carbon pools will be accounted towards issuance of VCUs. However, due to methodology provisions, only above-ground biomass will be monitored.

In the fields where the project takes place, environmental assessments and impact surveys are carried out by a team of experts. Based on the results obtained in these studies, management and monitoring plans are developed for the restoration of natural systems which may have been affected by previous practices (agricultural, farming, or other activities), the conservation of natural resources and values in the influence areas (flora, fauna, soils and hydric resources) and the prevention or mitigation of environmental impact caused by forestry operations. Moreover, surveys on project impacts are conducted yearly resulting in information on the community's impression over the project and actions to be taken.

2.1.9 Climate, Biodiversity and Community Benefits Assessment Period (G1.9)

The time period over which changes in GHG emissions, climate change adaptive capacity and resilience, biodiversity and community well-being resulting from the project activities are monitored is 31 July 2007 to 31 July 2107, 100 year period.

2.1.10 Differences in Assessment Periods (G1.9)

There is no difference between the GHG emissions accounting, climate adaptive capacity and resilience, community and biodiversity assessment periods.

³¹ Example of cattle breeders contract in project area available for VVB during validation

2.1.11 Implementation Schedule (G1.9)

Date	Milestone(s) in the project's development and implementation
Jan-Dec 2006	Forest projects presented to the Forest Directorate and EIA to the Environment Office
July 2007	First forest plantation were established over degraded grassland
Sep 2008	First environmental characterization of farms
May 2009	Properties were first certified FSC
Nov 2009	Annual biodiversity survey reports of the projects start
July 2010	Silvicultural activities started (pruning and thinning)
Jan-Dec 2011	Community activities were performed
Jan 2013	Project was VCS validated
April 2014	First verification took place for period (2007-2013)
May 2017	Forteko lands are bought by BDU III Trust Fund
Oct 2019	New environmental characterization of farms
July 2022	CCB validation VCS verification expected

2.1.12 Risks to the Project (G1.10)

Uruguay is one of the countries in the world with lowest risks of natural disasters. This small Nation is home to few, if any, natural disasters. There is occasional flooding, but not the sort of thing that makes international headlines for its massive destruction. There are no earthquakes, hurricanes, volcanic activity, etc. There are also no nuclear plants in the country. The main risks identified include:

- Natural: fire, diseases and insects, wind and frost
- Human-induced risks: water and soil contamination due to agrochemicals use, natural and artificial habitats affected.
- Economic and market risks: Internal and external demand of products and national legislation changes.

Human-induced risks and impacts are considered of low significance in the Environmental Impact Assessment due to the mitigation measures in place to deal with them. No negative impacts to climate and atmosphere were identified due to the project.

All project risks are detailed in Appendix 3 in the Project Risks Table.

2.1.13 Benefit Permanence (G1.11)

Creation of employment is one of the main social benefits of the project. Typically, an extensive livestock production establishment directly employs 2.3 persons every 1,000 ha.³² Forteko project is expected to multiply that figure by more than 6. Beyond an increased number of jobs, the project is expected to contribute to the development of the region and the country pursuant the priorities defined by Uruguayan government (promotion of small family businesses, increase in exports, eradication of rural poverty, incorporation of technology, increased nationally added value, development of new productive chains and geographic decentralization of development) as follows. Forteko project activity will generate several job opportunities, creating nearly 350 job positions when the sustainable production is reached. The vast majority of employees will be hired by contractors. The majority of the outsourced contractor companies currently working with BDU III, are registered in Uruguay as “PYMES” (small and medium sized companies), mostly family companies hiring local workers.

Most of the production of Forteko (wood, meat and carbon credits) will have the international market as the final destination. The main contribution of Forteko project activity to the eradication of rural poverty will be through the generation of high quality and stable employment, in a region of Uruguay with elevated levels of poverty. A study by Carámbula and Piñeiro (2006)³³, demonstrates that forestry projects oriented to the production of high quality logs, generates high positive impacts in the eradication of poverty in rural areas and reverting the process of internal migration to big cities. Another study by CPA Ferrere³⁴ done in 2017, informed that the total number of direct employees per hectare in forestry is 32 employees every 1000 hectares, while in beef production, the number of employees every 1000 hectares is 6.

The project incorporates the best available and affordable technology for optimizing wood productivity and quality through the selection of seeds, site preparation, plantation, weed and pest control, forest management and wood harvesting and logistics, and achieving sustainability objectives. AF has a program for applied research, continuously testing various practices in order to achieve continuous improvement over time and collaborates with other companies (within the *Sociedad de Productores Forestales*) and public institutions in this regard.

Forteko project will produce timber that can be used for high-value products. Even though the area of planted forest grew very fast during the last decade in Uruguay, the forest industry did not follow the same trend. Most of these industries are located in the North, West and South regions, where most plantations were established and away from the project site. For the Central East region, the fact of being away from the forest industries and from the export ports are main reasons to explain the limited development of forestry plantations in the area. However, the presence of Forteko project and of other similar initiatives in the area which have already secured (Guanaré, Posco Uruguay) or are also seeking carbon finance (BDU II and others) may induce in the future the establishment of industries in the region. And even in the case that no industries are developed, the saw logs and veneer logs produced by BDU III could be exported through Montevideo harbour at prices which will be higher than those that could be obtained by selling pulpwood, which is the traditional wood product exported from Uruguay.

³² San Ramón (2004) Puestos de trabajo en la fase agraria forestal Dirección General Forestal UY

³³ Carámbula, M. y Piñeiro, D. La Forestación En Uruguay: Cambio Demográfico y Empleo en Tres Localidades

³⁴ CPA Ferrer website: <https://www.cpaferre.com/en/>

In addition, the forest management adopted by Forteko's project would increase the amount of carbon sequestered by trees, thus increasing the carbon embedded value in wood products.

As it was mentioned above, Forteko project will bring about a number of socio-economic benefits that will mostly impact its surrounding area, which is currently one of the less developed ones in the country. This would decentralise economic activity creating a development pole away from Montevideo, and other areas currently concentrating most of the economic activity in the country.

In terms of biodiversity, the fields where both Cambium and Agroempresa Forestal (AF) operate, environmental assessments and impact surveys are carried out by a team of experts and communicated to communities in order to define mitigation actions. Based on the results obtained in these studies and consultation processes, management and monitoring plans have been developed for the restoration of natural systems which may have been affected by previous practices (agricultural, farming, forestry or other activities), the conservation of natural resources and values in the influence areas (flora, fauna, soils and hydric resources) and the prevention or mitigation of environmental impact caused by forestry operations.

Monitoring tasks include, in particular, regular assessments of the effects of forestry operations on the soil, water, pollution, ecosystems, as well as HVC areas impacts. In this line, studies of the fauna are carried out with the purpose of determining the effect of these operations in the species composition and distribution in the area and the possibility of controlling invasive species -such as the wild boar-.

A wide range of ecosystems can be found in several parts of the country, from different types of native forests, wetlands, grasslands, stony fields, among others. AF carries out a characterization of the environment in each of the facilities locations and assesses the environmental features, flora and fauna, and defines the conservation areas and the necessary measures for their protection.

In "La Hacienda", located in the department from Cerro Largo, has an HVC area of 24.8 ha which corresponds to a stream that rises within the property, with abundant native vegetation. According to the flora and fauna survey that began in spring 2008, species of interest for conservation corresponding to HCV 1 and HCV 3 were found. The presence of 43 species of trees and shrubs was determined, among which were recorded some of interest for conservation, due to their distribution restricted or its productive uses.

The corresponding HCV1 species are:

- *Pyrrhura frontalis* (chiripepé)
- *Aratinga leucophthalmus* (Maracana Parrot)
- *Aratinga acuticaudata* (Blue-headed Parrot)

The HCV 3 site is the Quebrada Forest in Cañada del Sauce.

Since 2011, Forteko has been involved in several presentations related to the fauna and flora of our country, based on monitoring reports, including endemic diseases and mitigation actions related to ophidians located in the area, as well as rational use of resources and other subjects requested, carried out in rural schools

for communities³⁵, expected to improve education and general knowledge in children in rural schools. Moreover, work with women in the communities takes place through productive projects where Cambium monthly assisted and accompanied different projects, expecting them to become independent and able to continue in time. An example is the productive project Mujeres de La Micaela, which started in 2015. It is made up of five women who formed a committee of neighbours in charge of promoting and providing information on projects and plans for producers, worked as facilitators between those aspiring for electrification in rural areas and the corresponding organism. Moreover, in order to start an economic-productive activity to be continued in time, started working on small scale preserved food manufacture.

Forteko project will be established with a long-term perspective. The ultimate purpose is achieving long-term sustainability and improving soil quality. Thus, it is important to stress that the project has not been implemented to generate GHG emissions for the purpose of their subsequent reduction, removal or destruction. 'Forteko's long term perspective and sustainability is guaranteed by FSC certification. Sustainable timber and cattle production and climate change mitigation are part of Forteko's objectives. The selection of forest management practices based on uneven lengths rotation cycles in a region far from timber markets is only possible with the additional carbon financing.

In summary, among the measures needed and taken to maintain and enhance the climate, community and biodiversity benefits beyond the project lifetime, are:

- Species selected have previously proven to be adapted to the agro-ecological conditions of the project zone.
- Once the forest is harvested, replanting will be performed between existing lines, being the common practice in long rotation forests aiming to produce high quality wood.
- In order to keep production at same levels throughout project lifetime, it will be necessary to fertilize new seedlings with every new plantation.
- All establishments within project area are privately owned by the fund and no ongoing enforcement or disputes have been raised in the past and until now, relating to the protection of the planting area. In addition, the farms are demarcated by fences, and are correctly marked as private land. This limits external risks that could hinder the continuation of the forest when the project is over.
- The financial profitability produced by the project is very likely to get the project owner to extend the project, to continue management practices that protect the credited carbon stocks beyond the length of the project crediting period (100 years).
- In the project area, soil productivity is relatively low, and production of grass is reduced compared to other soils in Uruguay. These soils are categorized, by Law, as "Forest Priority Soils". Therefore the best production activity to implement over these soils is forestry. The only other production activity that can be done over these soils is extensive livestock production which, as shown in other sections of this report, forestry is by far the best option.

³⁵ Resumen público de monitoreos ambientales y sociales (2016) Cambium Forestal Uruguay S.A; Resumen público de monitoreo BDU III. Available for VVB during validation.

- Protected areas inside the project area will surely be more developed and better preserved than prior to the Project implementation, so it is expected that after project lifetime, these areas will be of much higher interest to communities and stakeholders.

The type of soils where the project was implemented, were categorized by law, as “Forest Priority Soils”. Because of that, the best productive activity to perform there is forestry. This means that the community benefits will be maintained beyond the lifetime of the project mainly because long rotation forest plantations, which is the main productive activity of the project, will be maintain for the lifetime of the project, and almost certainly, beyond the lifetime of the project. Moreover, all the skills and trainings that direct workers and local contractors will learn during project lifetime, will help these workers to continue working in the forestry sector and in the project region. GHG ERRs will continue beyond the lifetime of the project and probably sequestered carbon stocks will be higher than the ones presented in this report, mainly because future genetics improvements and improved planting/silvicultural technologies. Regarding biodiversity, all the protected areas that today are part of this project will have richer and better-known biodiversity after lifetime of the project.

2.1.14 Financial Sustainability (G1.12)

The project was first implemented by Cambium Forestal Uruguay S.A in 2007, who later in 2013 validated it under VCS standards. In 2017 the land was bought by BDU III Forestry Trust Fund³⁶ and became part of the trust fund BDU III project, administered by AF. In both cases, the project started its operation once 100% of the funds were raised to cover the total cash out before the project reached breakeven. This has been demonstrated in the validation process under VCS³⁷. BDU III Emission Prospectus (2016) provides all the information regarding investment values and analysis for the whole BDU III project. The total investment of the project once bought by AF was 60 million USD. Furthermore, the project cash flow with the results per year are illustrated in the prospectus. Based on this information it is possible to determine that the project cash flow breakeven point is 11 years and 11 months.

The most reliable and substantial demonstration are Fortekos’s financial statements, in which it can be seen that the company has an enormous capital in assets (land and standing trees), demonstrating that funding for project has already been secured, in other words the funding needed to implement the project has already been available and has already been executed. Forteko is in good financial health.

The cash flow estimated for the afforestation activity in the project site will be available for the validation team as part of the PD documentation. The cash flow included all relevant costs and revenues along the crediting period.

It is again concluded that the continuation of the pre-project land use is the baseline scenario. A sensitivity analysis was made to make the conclusion that the project activity does not meet the benchmark more robust.

2.1.15 Eligibility Criteria for Grouped Projects (G1.14)

This is not a grouped project

³⁶ Deed of accession and partial release available to VVB during validation

³⁷ All documentation available for DOE at validation.

2.1.16 Scalability Limits for the Grouped Projects (G1.15)

This is not a grouped project

2.1.17 Risk Mitigation Approach for Grouped Projects (G1.15)

This is not a grouped project

2.2 Without-project Land Use Scenario and Additionality

2.2.1 Land-Use Scenarios without the Project (G2.1)

'Forteko' project activity consists of the afforestation of degraded lands under extensive grazing in the Northeast of Uruguay. This region is not only characterized for its reduced development in terms of infrastructure and industry, but also for its socio-economic situation. 'Forteko' project will contribute to the sustainable development of this region through the creation of quality employment and the production of timber that may eventually lead to opportunities for new services and industrial development in the area.

Uruguay has traditionally been a grassland country. Natural forests cover an area of only 752,200ha approximately (based on country report to FAO on forest resources in 2006³⁸), representing 4.2 percent of total country's land area. It is mostly located on the margins of rivers. Tree planting was first introduced in the country in the late 19th century. Small areas of *Eucalyptus* sp. were established in ranch farms, with the objectives of providing shade and shelter for the cattle, and obtaining wood for building fences and for cooking. Commercial forest did not start until mid-20 century, when the first large scale plantations were established.

This historical development shows that Uruguayan forestry is characterized by technological practices that resulted in better quality, more vigorous and more homogeneous tree supports. Modern concepts, such as long-term planning, environmental management systems and social responsibility, were introduced in the management of forestry companies. Good sustainability standards were established, and several companies have obtained, or are in the process of obtaining, FSC, PEFC or ISO 14,000 certifications.

To analyse realistic and credible land use scenarios, the consolidated CDM methodology AR-ACM0001 "Afforestation and reforestation of degraded land" (version 05.2.0, EB 65) was applied. Selected methodology defines five applicability conditions. Below is an assessment of the application of those conditions to the proposed project activity, as well as a justification for the choice of the methodology.

Step 0 Preliminary screening based on the starting date of the A/R project activity

'Forteko' started its afforestation project on the 31st of July 2007, this is before the registration date and after 31 December 1999. As demonstrated with the analysis of satellite images during VCS validation (shown in Figures 11 to 14 of its PDD) afforestation process did not start within project boundaries until 2007.

Step 1. Identification of alternative land use scenario to the proposed ARR project activity

The traditional production in the region is cattle raising, characterized by medium to large size ranches, mainly for extensive livestock production based on natural pastures. The land area is characterized by

³⁸ Country's forest resources report to FAO available at: <https://www.fao.org/3/az369s/az369s.pdf>

regular to low pastoral capacity, low fertility soils of light current erosion. Most of the soils in the area are not suitable for agriculture with some specific exceptions.

The limited pastoral capacity of these soils is reflected in the low productivity rates of CONEAT classification, being of the lowest levels in the country (below 83), as shown in the map below:

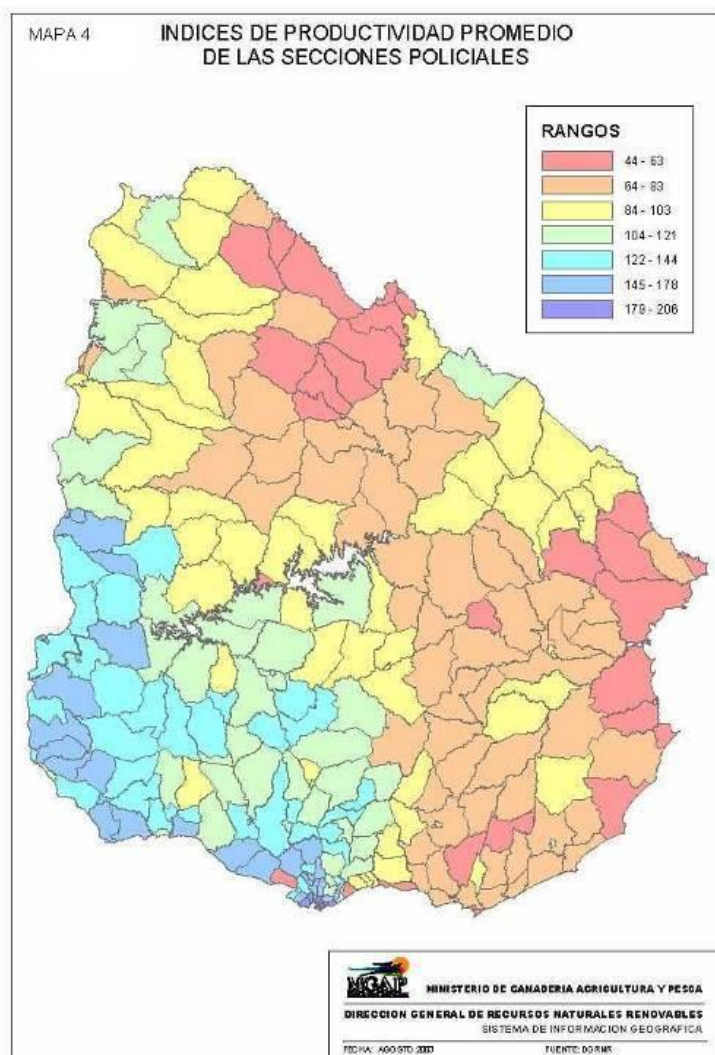


Figure 6: Level of soil productivity in Uruguay and the project area. Source: MGAP (2000)

Furthermore, the following map shows land use categories of the area the project is established in, which are defined as

- AP: suitable for pasture production but highly limited for other type or productions (yellow),
- PF: suitable for pasture and forestry productions, (brown); and
- R: no apt for agriculture, livestock or forestry productions (purple).

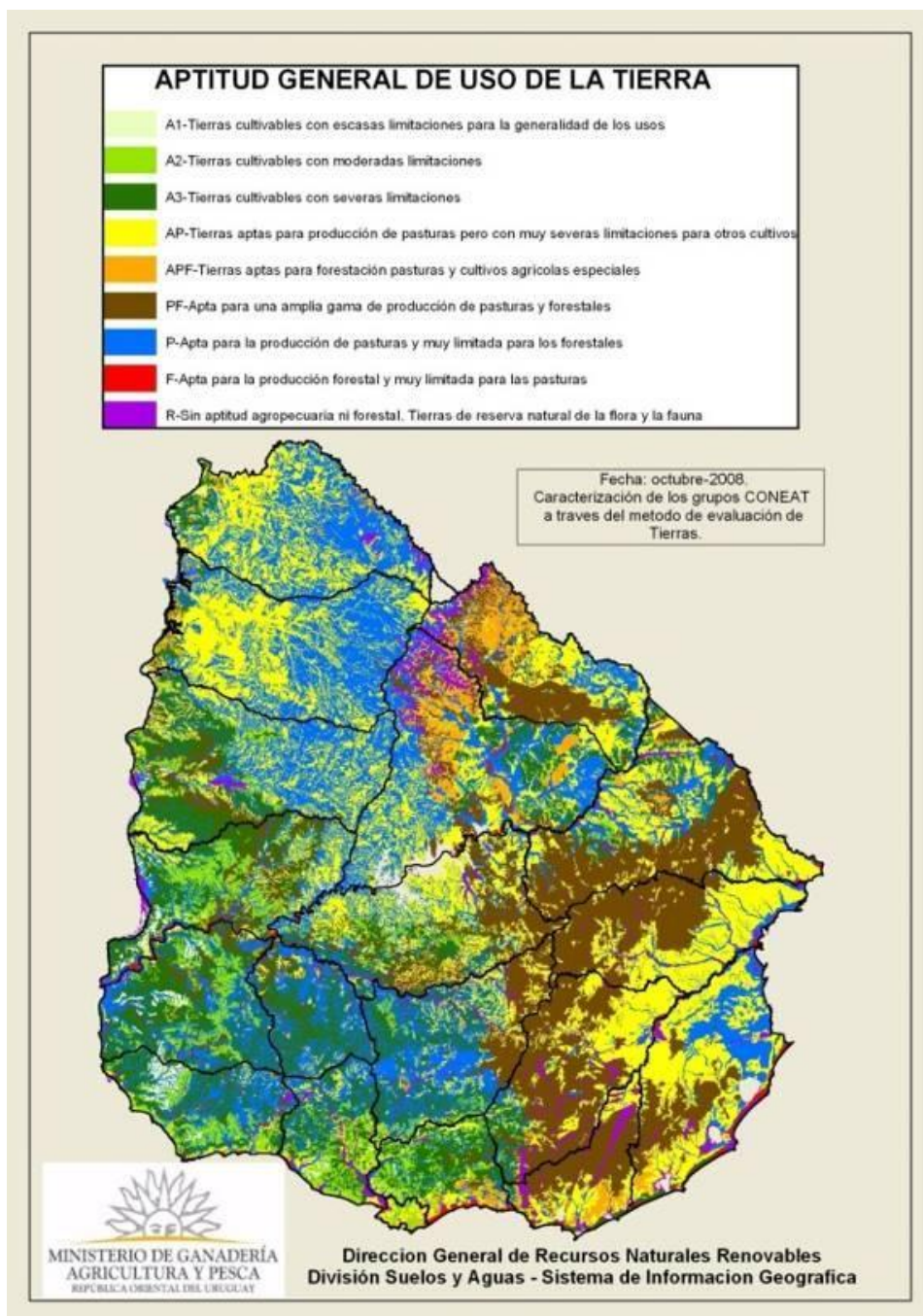


Figure 7: General conditions for land use in Uruguay. Source: MGAP

This land use type pattern is further confirmed with the national agricultural census carried out in 2000³⁹. It shows grassland under extensive grazing (i.e., beef cattle and wool sheep) is the dominant land use in this area, being the main source of income in 79% of the properties present in the region, as shown in Table 9, and only 1% from forest activities.

³⁹ <http://www.mgap.gub.uy>

Table 9: Land uses prior project initiation, categorized by main source of income per property

Main income source	Cerro Largo	Treinta y Tres	Percentage
Fruit production	24	5	1%
Vineyards	2	0	0%
Horticulture	63	19	1%
Grains	127	90	4%
Dairy	156	67	4%
Beef cattle	2052	1458	64%
Wool sheep	536	272	15%
Forest	42	7	1%
Pigs and birds	128	45	3%
Others	152	58	4%
No income	164	15	3%
TOTAL	3446	2036	100%

The following map shows the reduced presence of forestry in the project area

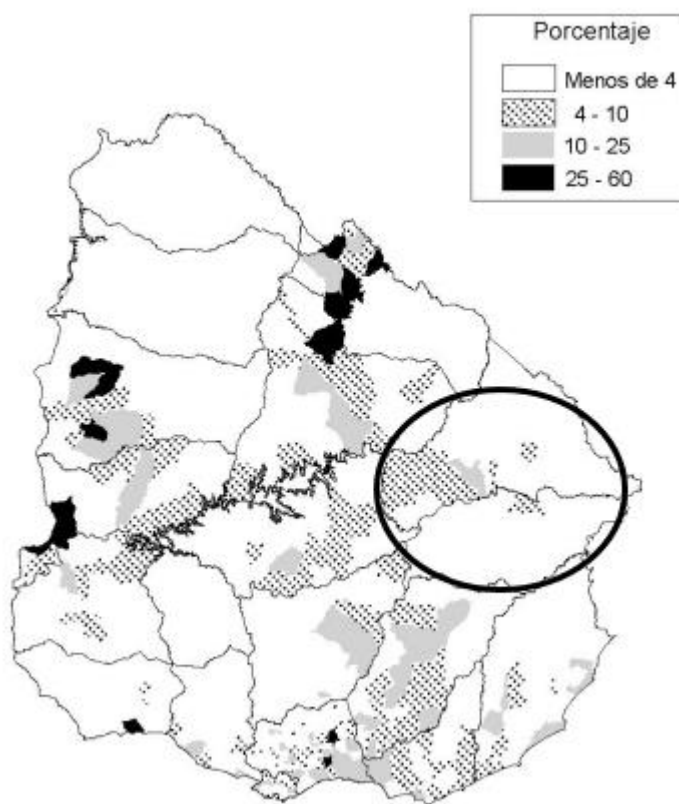


Figure 8. Area of planted forest in 2000 expressed as percentage of surveyed area.

Source: MGAP – DIEA. Agricultural Census 2000

Based on the above information it can be concluded that the agricultural potential of the region is highly reduced, limiting production to extensive livestock farming and in a few specific cases to plantation forestry.

1. Continuation of pre-project land use (extensive cattle grazing with no pasture improvement)

Cattle and sheep production has been the traditional rural activity in the project area and in all its surrounding region since the 17th century. In soils of low productivity -like the ones in the project area-, the main products obtained are wool to be sold to the textile industry, and calves to be sold for fattening on more fertile soils. A combination of sheep and cattle is the preferred production mix. This production system has remained more or less the same for decades. The main change has been almost the complete displacement of sheep by beef cattle, due to the decline in wool prices during the last 10-15 years. In spite of the relatively low productivity of this system (30-60 kg meat per hectare per year), it has survived due to its very low cost and low risks.

2. Forestation of the land within the project boundary without being registered as the A/R CDM project activity

Afforestation for pulpwood (short rotation) is the most common type in Uruguay. These plantations are normally combined with extensive grazing of forest service areas. They are not registered under any carbon standard. The extension of forest plantations in the regions of the project is low (less than 10% according to map in figure 8). The type of forest management to be applied in the proposed project activity (long rotation with pruning and thinning) is not widespread in Uruguay.

3. Other alternatives

No other possible alternative scenarios have been identified. Sub-step 1b. Consistency with enforced mandatory applicable laws and regulations. All land use alternatives identified above comply with all mandatory regulations in the country. No alternatives are eliminated based on this criterion.

Continuation of project activity has been identified as the most plausible scenario in the absence of the proposed project activity given the barrier analysis described below.

2.2.2 Most-Likely Scenario Justification (G2.1)

Following the methodology above mentioned to identify baseline, next steps are described:

Step 2. Barrier analysis

Sub-step 2a. List of barriers

Following is a list of potential barriers for the land-use alternatives identified above:

- Investment barriers
 - -Lack of access to credit (long term)
- Barriers related to land tenure, ownership, inheritance and property rights, inter alia:

- -Possibilities of large price risks due to the fluctuations in the prices of products over the project period in the absence of efficient markets and insurance mechanisms;
- -Lack of incentive for land owners to invest in their lands
- -Remoteness of land area and undeveloped road and infrastructure incur large transportation expenditures, thus eroding the competitiveness and profitability of products from the land use
- -Land tenure specific features
- Barriers due to local ecological conditions, inter alia:
 - -Degraded soil
 - -Pervasive opportunistic species prevailing land use
 - -Unfavorable meteorological conditions
 - -High erosion risk (e.g. steep slopes)
 - - Low soil quality
- Technological barriers
 - -Lack of capacity to predict systems productivity (e.g. doubtful growth models)
- Barriers related to local tradition, inter alia:
 - -Traditional knowledge or lack thereof, laws and customs, market conditions and practices
 - -Traditional equipment and technology
- Barriers due to prevailing practice, inter alia:
 - -The land use scenario is the “first of its kind”: No activity of this type is currently operational in the host country or region

Sub-step 2b. Elimination of scenarios prevented by barriers

Alternative 1

It is not prevented by any barrier. It is the current land use, and the one that has been practiced for more than 300 years (see section 2.2.1).

The traditional production in the region is cattle raising, characterized by medium to large size ranches, mainly for extensive livestock production based on natural pastures. The land area is characterized by regular to low pastoral capacity, low fertility soils of light current erosion. Most of the soils in the area are not suitable for agriculture with some specific exceptions. The limited pastoral capacity of these soils is

reflected in the low productivity rates of CONEAT classification, being of the lowest levels in the country (below 83), as shown in figure 6. This land use is further evidenced in table 9.

Alternative 2

Forest plantation with the characteristics applied by 'Forteko' is not a common practice in the region. In fact, this production system in terms of local tradition is not well known. This forestry activity in the NE region of Uruguay started to develop in the 1990's, initially in a very different way as compared to Forteko's case, as a result of the forest policy implemented in 1987. In comparison with cattle grazing (more than 300 years from its introduction) it is a new form of production. Therefore, knowledge and technology for its implementation is starting to be developed and diffused in the region. There is a noticeable difference between the return periods considered by livestock producing landowners -who are used to expect a yearly income from their production-, even with earlier forest producers, who had to expect for periods of 10 or more years for return on the investment. In addition, landowners in the region generally lack the capacity and equipment for conducting forestry activities.

In average, Forteko project sites are located 350 km away from main industries like pulp mills (Colonia and Paysandú), plywood (Tacuarembó) and large sawmills (Rivera) and 350 km away of commercial ports (Montevideo, Colonia, Nueva Palmira, etc.). This remoteness is even worse when the road conditions are considered. The productive and socio-economic characteristics of the project's region show that this region does not host any of the pulp and plywood industries nor any of the medium to large size sawmills in the country. They are all located in the North, West and South regions where most plantations were established when Forteko project started. For the Forteko project region (central and North East), the fact of being away from the forest industries and from export ports explain the limited development of transportation infrastructure. This was prepared only to support the traditional extensive cattle grazing. Therefore, the remoteness of BDU lands and the undeveloped roads and infrastructure provoke large transportation expenditures eroding the competitiveness and profitability of products from the land use.

In terms of technology, the adoption of a 22 to 25 year rotation imposes uncertainties about wood productivity and quality; wind damages; and harvesting of thick logs, which are additional to other uncertainties applicable to shorter-rotation plantations (e.g., even longer terms for returns on investment and possible pest and disease outbreaks, among others).

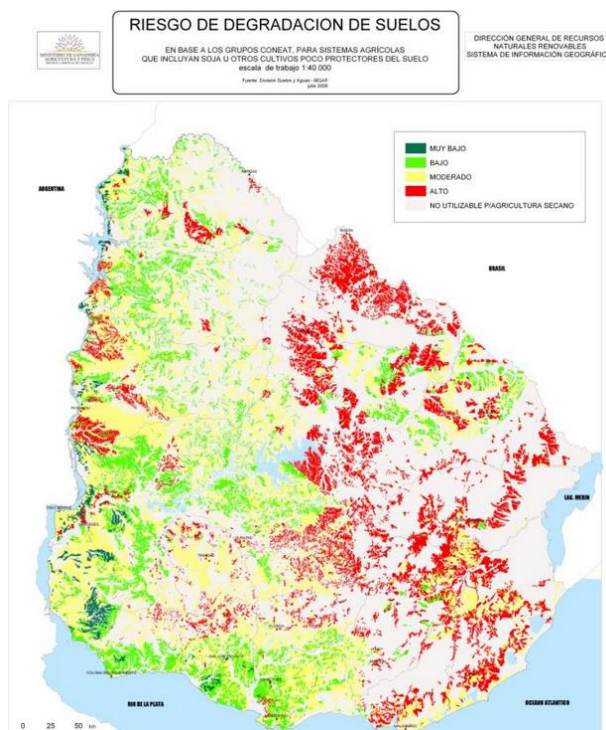
There are uncertainties related to the productivity that can be reached, particularly considering that the soils in the project area are of lower quality than those soils in the North and West regions in Uruguay where most long-rotation plantations have been developed. As explained in section 2.2.1, the land area of the project is characterized by low fertility soils of light current erosion and reduced productivity. Most of the soils in the area are not suitable for agriculture (understanding that agriculture suitability means better quality of soils) with some specific exceptions. This becomes more evident when, on map "Aptitud General del Uso de la Tierra" (Figure 7), it can be seen that the quality of the soils of other forestry regions are better than those for the project's region, i.e. orange and dark green (both with some agricultural capacity) compared to brown (with no agricultural capacity).

The only growth model in Uruguay available is for *Eucalyptus* plantations (INIA SAG-grandis and SAG-globulus), and no models for pine plantations are available. In addition, the mentioned *Eucalyptus* models were validated for rotations up to 16 years, and growth rates for ages higher than that had to be estimated with a large degree of uncertainty. Adopting a long rotation implies sticking to the same genotypes for long

periods, thus missing the opportunity of capitalizing on progress through plant breeding, which would be achieved by more frequent replanting. Finally, the quality of the wood to be obtained (i.e., whether it would be suitable for the high-price market it is targeted for) is also subjected to uncertainty. The underlying assumption in the design of the project activity is that logs to be obtained at clear-cut harvest will be of a quality at least similar to that of logs that could be obtained in shorter rotations.

Another uncertainty relates to an eventual increase in felling off or damage to trees by wind storms. Intensive thinning of pine plantations is known to increase the risk of wind damage due to the opening of wide spaces within the forest that may channel the wind and increase its speed, aggravated by the vulnerability of tall trees. There is no information on an eventual increase in this vulnerability in thinned stands with very tall trees such as those with ages 20 or more, but there have been some cases of plantations losses due to strong wind storms.

Risk of erosion within the location area is moderate to high, with moderately steep slopes which could reach 30-40%, resulting in high vulnerability of soils as it can be seen in the map below⁴⁰. Besides, considering overgrazing history during summers in the region, this alternative is subject to uncertainty about wood productivity due to the degradation process suffered by soils in the project area which, as discussed in the section above about “assessment of applicability conditions”, have lost a fraction of their net primary productivity due to grazing, aggravated by the gully erosion process.



⁴⁰ Available MGAP digital library at:
<https://descargas.mgap.gub.uy/DGRN/Comunicaciones/Riesgo%20de%20degradaci%C3%B3n%20de%20tierras%20mapa%20formato%20jpg.jpg>

In terms of investment barriers, according to the document “Strategies and Financial Mechanisms for the Conservation and Sustainable Use of the Forest - Uruguay” published by the FAO⁴¹, the forestry sector has had difficulty gaining access to bank financing. And even more for the development of projects of the size of Forteko. The report states that “bank financing was not the main source of funding for the planting of the nearly 800,000 hectares of cultivated forest between 1988 and 2006. The vast majority of this area was planted by international companies, mostly European and American, but also Chilean, Canadian and from other origins. These companies bought the land and planted forests on high-yield priority soils accessing the subsidies and the corresponding tax benefits. The same was done by local investors not related to the forestry sector, acquiring land and developing projects with their own equity. This was the case of several funds related to public institutions, professional associations, independent entrepreneurs and investment funds. Thus, only 20 % of the area was funded by the Forestry Loans granted by the República Oriental del Uruguay Bank (BROU), mostly by small and medium local investors”. Having this in mind, it can be inferred that projects of similar scale as of Forteko could only move forward because they had equity investors who did not need access to bank financing, being in general the cases of large international forestry companies.

As stated in the report “Strategies for the financing of forestry sustainable management” (prepared by Indufor for the United Nations Forestry Forum of 2010)⁴², the cases in which bank loans were available were related to small local investors developing projects that did not exceed the 1000 has. The same document mentions that financing lines opened by the BROU were primarily used by small investors (farmers and outsider investors) that assessed afforestation, and the corresponding fiscal benefits, as a good business opportunity. The BROU placed US\$ 44 million and financed approximately 120,000 hectares representing about 22 % of all planted area. Furthermore, the document also mentions that 87 % of the funded projects were smaller than 500 hectares (as shown in the tables below) and these loans were granted only until 2001.

Land size (ha)	% BROU financing	% of TOTAL
> than 1,000	2%	24%
500 to 1,000	11%	19%
200 to 500	34%	31%
50 to 200	40%	21%
0 to 50	13%	5%
Total	22%	100%

Since 2000, a downward trend in the realization of loans persisted until the financial crash of 2002 with the strong banking crisis. From that moment the line of forestry loans was discontinued.

⁴¹ Proyecto FAO /UICN / HOLANDA (LNV-DK) /CCAD GCP/INT/953/NET: “Estrategias y mecanismos financieros para el uso sostenible y la conservación de bosques” Fase 1: América Latina. Estrategias y Mecanismos Financieros para la Conservación y el Uso Sostenible de los Bosques - Uruguay”; FAO; 2006. Chapter II.a.iii and iv. Available at: <http://www.fao.org/forestry/11623-09df12c118bf235224e78938fea555141.pdf> (Accessed on 20/03/2014)

⁴² Indufor (2010) Estrategias para el Financiamiento del Manejo Forestal Sostenible (SFM). Pages 16 and 17.

Once the financial crisis was overcome the BROU reintroduced a new forestry credit line called "Forest Product 645/1". This was aimed to medium and large agricultural companies involved in the sector. Despite this new introduction of credit lines for the sector, the change in business structure itself produced almost no operation in this line.

Year	Forested area (ha)		BROU Proportion	Financed Amount (thousand of USD)
	BROU financing	Total		
Before	-	61,906	-	-
1992	6,800	25,705	26%	2,346
1993	15,600	41,992	37%	5,578
1994	15,800	44,330	36%	5,557
1995	15,000	58,568	26%	5,766
1996	14,300	58,964	24%	5,380
1997	15,900	73,243	22%	6,166
1998	16,900	84,803	20%	6,412
1999	8,900	72,698	12%	3,362
2000	7,400	57,931	13%	2,777
2001	4,800	51,242	9%	1,416
2002	-	26,932	0%	-
2003	-	11,467	0%	-
2004	-	30,000	0%	-
2005	-	40,000	0%	-

Back to FAO document ("Strategies for the financing of forestry sustainable management"), it describes other forms of financing alternatives to bank credit, mentioning the saving uptake mechanisms from small investors through mutual funds or corporate bonds. According to the report these mechanisms had only limited success during the 90s. Bad experiences in the forestry and financial management ended not being applied after that decade.

The report finishes stating that "One of the paradoxes concerning the financing of the Uruguayan forestry sector development is that, while it has received many important foreign investments funded by pension funds from their own countries (as with Canadian, American, Chilean and European funds) the national pension funds (AFAPs) have not invested in this sector so far. According to experts consulted for this report, AFAPs are willing to finance forestry projects, although they have statutory restrictions that limit the use of funds in productive sectors, but not in the financial one. Lifting these restrictions and creating projects with appropriate financial mechanisms and investment scales that fit AFAP's objectives would be a way to overcome the current situation".

Sub-step 2c. List of scenarios that are not prevented by any barrier

Application of the decision tree of sub-step 2c (considering the outcome of sub-step 2b) leads to the following conclusion:

Continuation of pre-project activity has been identified as the most plausible scenario in the absence of the proposed project activity.

2.2.3 Additionality (G2.2)

Additionality has been demonstrated through application of Steps 0 to 2 (section 2.2.1 and 2.2.2) above and through Common Practice Analysis in Step 4 (in this section below). Despite the fact that sub-step 2c resulted in only one land use scenario and according to the “Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities” it is the baseline scenario, the investment analysis was conducted in the afforestation activity to reinforce the conclusion that forest activity in the area was not meant to be developed without being registered in a carbon scheme and generating carbon certifies. Information can be found in VCS validated project.

Step 4. Common practice analyses

In spite of a large extension of forest priority soils in the Departments of Treinta y Tres and Cerro Largo, the forest promotion policy implemented in 1987 resulted in only a limited extent of afforestation. Approximately only 10% of “forest priority soils” area established in the regulatory framework has been afforested (according to the *Ministry of Livestock, Agriculture and Fisheries*, the total area of “forest priority soils” in the department of Cerro Largo and Treinta y Tres is 1,014,066 ha⁴³). This represented a very different scenario from that in the other forest regions of the country. As it was explained above, the reasons for this lack of response are to be found in the long distances to wood delivery points (industries or ports) and in the poorer quality of the soils as compared to the North and West regions. The relatively small area that was forested in the NE region (Cerro Largo and Treinta y Tres) during the period 1987-2005 was in response to the existence of a plantation subsidy, the availability of soft credits from *Banco de la República* and the exemption of all income and land taxes. As the subsidies were gradually decreased since 2002 until their complete suppression in 2005, the rate of plantation also declined (Fig. 9). The soft credits and several of the tax exemptions were also eliminated between 2003 and 2005.

The subsidies, depending on the year, had a value of up to US\$ 200 per hectare affected to the plantations (including plantations and servicing areas, which normally amount to 50 to 60 per cent of the effectively planted areas). The value of the subsidy was equivalent to more than 50 per cent of the price of the land, and even with this advantageous benefits, the response by traditional livestock producers was very modest.

The soft credits for forest planting provided by *Banco de la República* had low interest rates (LIBOR plus 1.5 to 2.0 per cent per year) and a grace period of 10 years for both principal and interests. They were conceived for short rotation cycles (i.e., 10 years), clearly not appropriate for the NE region of Uruguay due to the relatively low value of pulpwood (the only product that can be obtained in such a short period). And when the time of repayment came for plantations made in the early 1990's, forest owners were forced to renegotiate their debts with the bank because they just could not sell their wood. Many were even forced to sell their properties later. It must be also noted that, after the sharp decline in the LIBOR occurred in 2001, the *Banco de la República* unilaterally decided to change the rules and applied a value higher than LIBOR for calculating the interest rates. This aggravated the situation of debtors. This line of soft credits was gradually modified after 2002 and was later phased out.

⁴³ <https://www.gub.uy/ministerio-ganaderia-agricultura-pesca/politicas-y-gestion/carta-suelos-prioridad-forestal>

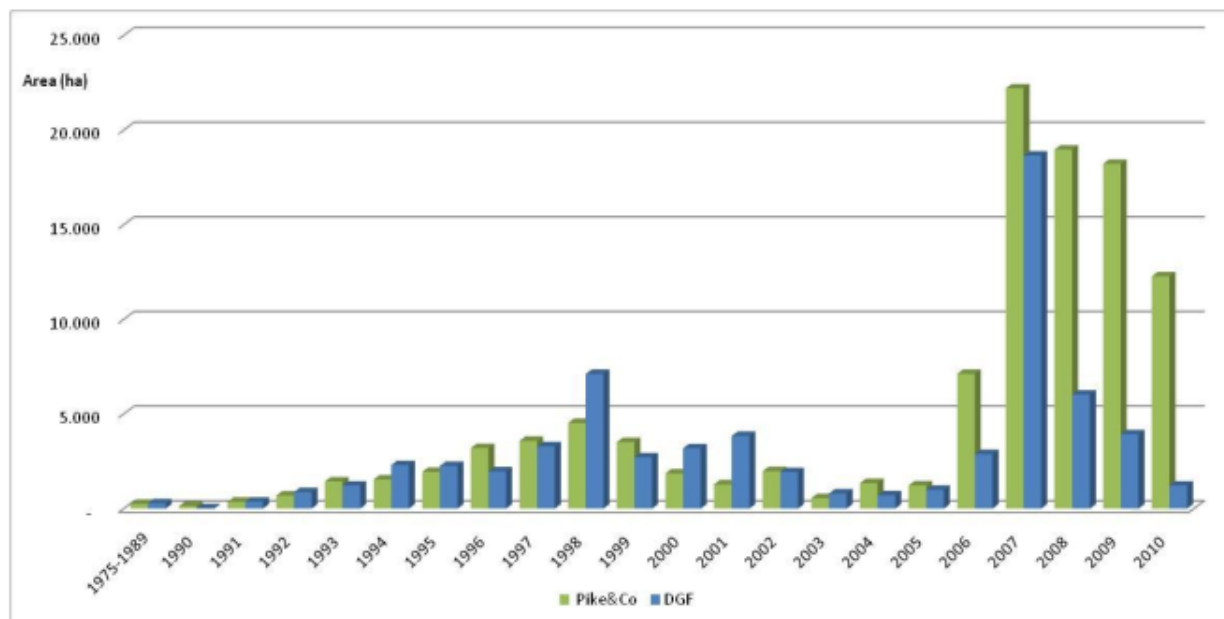


Figure 9. Historical annual forest plantation rates in the region of the project according to two sources of information (private data from Pike & Co. and official statistic from Forest General Directorate

The situation after 2005 corresponded to a completely different scenario. The rate of plantation in the region increased sharply, in spite of a lack of policy incentives. This increase is highly associated to the consideration of carbon finance by investors. As shown in Table 10, 94 per cent of the forests planted during the period 2006-2011 corresponding to a total of more than 77,000 ha, are either procuring or have already achieved registration under carbon programs (CDM, CCX and VCS).

Table 10. Forest area planted between 2006 and 2011, by owner, in Forteko project region

Company Name	Eucalyptus	Pinus	Total	Seeking Carbon finance
'Forteko'		16,928	16,928	Yes (VCS)
El Arriero		5,377	5,377	Yes (VCS)
Guanaré	22,605		22,605	Yes (VCS)
Weyerhaeuser	15,723	2,142	17,865	Yes (VCS)
RMK	4,446		4,446	Yes (CCX)
Pradera Roja	3,826		3,826	Yes (VCS)
Others	1,776		1,776	Not known
Posco Uruguay	1,432		1,432	Yes (CDM)
Caja de Jubilaciones Profesionales	1,327		1,327	Not known
ITAA	1,186		1,186	Yes (VCS)
Bulgheroni	906		906	Not known
San Ignacio	850		850	Yes (VCS)
Tierras Forestales	501		501	Not known
Fernández	187		187	Not known
Yandian	107		107	Not known
Agrosocio Brasileiro	72		72	Not known
Saps Krazemblum	53		53	Not known
Total	54,997	24,447	79,444	94%

The common practice analysis was done following the requirements set in the Step 4 of the "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities". It was analysed to which extent similar forestation activities to the one proposed have been implemented previously or are currently underway. Similar forestation activities are defined as that which are of similar scale, take place in a comparable environment, *inter alia*, with respect to the regulatory framework and are undertaken in the relevant geographical area.

Throughout the analysis is concluded that there are similar forest activities (in terms of scale, species, etc) in the area (table 12). However, 94% of those companies established in the area are seeking carbon finance. There was not identification of similar forest activities without requiring carbon finance (paragraph 33 of the tool). Therefore, there is no need to compare the proposed project activities to others. In conclusion, similar activities cannot be observed, then the project activity is not the baseline scenario, and hence it is additional.

Regarding community and biodiversity additionality, it is well known and documented that livestock production in Uruguay has very low positive community and biodiversity impacts, so all the positive impacts described in this document would not have been implemented under the without project scenario:

Community Additionality: Land use in the project area on influence is predominantly natural grasslands for extensive livestock production. The region around the project site has a dominance of an extensive livestock system of production, which is characterized with a very low productivity level, very low employment, and precarious working conditions and reduced opportunities for women and youth, among other problems. Forteko forest activity is expected to increase the gross value of production per unit area of land by six to eight folds, besides promoting a number of new activities which will multiply this impact and the inclusion of cattle breeders and beekeepers in the establishments. Typically, an extensive livestock production

system employs 1.4 persons every 1,000 ha. Forteko project is expected to multiply that figure by more than 10. The main contribution of Forteko's project activity to the eradication of rural poverty will be through the generation of high quality and stable employment, in a region of Uruguay with elevated levels of poverty, with compulsory training on FSC principals to all its direct and indirect employees. A study by Carámbula and Piñeiro (2006)⁴⁴, demonstrate that forestry projects oriented to the production of high value timber, generates high positive impacts in the eradication of poverty in rural areas and reverting the process of internal migration to big cities. Another study by CPA Ferrere (<https://www.cpa ferrere.com/en/>) done in 2017, informed that the total number of direct employees per hectare in forestry is 32 employees every 1000 hectares, while in beef production, the number of employees every 1000 hectares is 6⁴⁵. Moreover, the new study reaches same conclusions regarding forestry contribution to the country's economy these being the most remarkable community impacts:

- Promotion of small family businesses and creation of several job opportunities;
- Production of internationally tradable products;
- Eradication of rural poverty;
- Incorporation of technology;
- Increased nationally added value to forestry products.

Biodiversity additionality: As demonstrated during VCS validation in PD, the identified baseline activity: cattle breeding, represents a degrading land activity in the region^{46 47 48}. The activity does not required an Environmental Impact Assessment, leading to no mitigation plans, or HCV areas identification and conservation. No mitigation plans means no actions taken to avoid soil erosion, plant invasion, among other activity's impacts. From the biodiversity monitoring conducted in the different farms, it can be seen that those areas impacted by grazing presented low potential to provide native biodiversity habitats, and only species adapted to disturbed areas were present. This is due to the grazing management in the area, affecting vegetation cover and available resources^{49 50}. Moreover, it presents low employment rates per hectare in comparison to other economic activities.

The forestry sector in Uruguay is, by far, the most controlled sector among the different Uruguayan agriculture sectors. General Forestry Bureau and National Directorate of the Environment are the agencies that gives the approval for the forest establishment. The approval is given by complying with multiple requirements, the most important one is the accomplishment of national decree N° 349/005 "Environmental

⁴⁴ Carámbula, M. y Piñeiro, D. La Forestación En Uruguay: Cambio Demográfico y Empleo en Tres Localidades (see reference 33)

⁴⁵ Available at: http://www.spf.com.uy/data/paginas/Informe_Impacto_Cadena_Forestal_CPA_Ferrere_22-11-17.pdf (see reference 34)

⁴⁶ Piñeiro (2006) Potential long-term impacts of livestock introduction on carbon and nitrogen cycling in grasslands of Southern South America

⁴⁷ Bruzzone Perez (2020) Eventos de quema en pastizales de Sierras del Este: una caracterización basada en sensores remotos

⁴⁸ Diaz et al (2008) Impacto de la intensificación productiva sobre el campo natural en Uruguay

⁴⁹ Informe sobre fauna tetrápoda del Establecimiento Don Chico (Departamento de Florida)

⁵⁰ Paruelo et al (2004) Cambios estructurales y funcionales asociados al pastoreo en los pastizales del Río de La Plata.

Impact Assessment". The environmental approval also needs to be maintained through the project lifetime and DINAMA is always present in AF's daily work. Regarding these EIA's, BDU III presented different actions and plans in order to promote positive impacts on biodiversity in the project area. All these regulations are NOT requested in any other agricultural sector in Uruguay. In addition, the project is FSC certified. It is important to note that livestock production in Uruguay does not have any type of sustainable management certification.

On the one hand, silvopastoral activities ensure meat production is sustained, so important for the country's nutrition and trade, with cattle breeders and forestry companies working together through different contractual agreements. At the same time, this would be done through more efficient models than the traditional ones from the energy point of view; and, finally generating more sources of employment.

2.2.4 Benefits to be used as Offsets (G2.2)

Community benefits: To maximize the socio-economic benefits, the afforestation design includes forests managed with pruning (to a minimum height of 12 m) and two to three thinning operations, to obtain knot-free, high-diameter logs suitable for saw-milling and veneering. This will result in significant community benefits, mainly through increased employment and quality of employment and rural development (decentralization). In addition, there is also an increase (in relation to cattle production) in the number of job opportunities for women, in activities such as nurseries, planting, pruning and others. Agriculture is the second sector with highest job informality rates in the country⁵¹, meaning the project will lead to an increase in formal jobs, when following all the hiring regulations, including contractor's compliance to employment regulations. This would help to improve the stability of rural families. At the same time, forestry workers in Uruguay normally return home after each workday, which is a big improvement over the situation of the livestock sector, which strongly depends on workers residing on farms, away from their families.

Biodiversity benefits: The establishment of forest plantations designed to preserve high biodiversity value areas (such as native forests, wetlands and low areas under grassland) has proved to be effective in Uruguay. Since large-scale forest planting started in the 1990s, several surveys (mostly conducted by independent scientists on behalf of forest companies) have found a proliferation of birds, frogs, and mammals, some of which had been considered as extinct or endangered. These studies also allowed finding at least three new species (two birds and one frog) which had never been reported before in the country. One of them is a case of a completely new species. The project activity would produce similar impacts. After the afforestation project is fully launched, it not only produces positive benefits to soil erosion control, but also has far-reaching significance to wildlife resources protection. Harvesting of natural forests is prohibited in all areas.

Also the project contributes to the sustainable development of Uruguay, specifically by:

- Promoting an integrated management scheme with the ecosystem. In this sense, it already obtained the necessary approval from the DINAMA (National Directorate of Environment)⁵² and the plantations are certified under the FSC standard.

⁵¹ CEPAL - Serie Estudios y Perspectivas – Montevideo – N° 20 (2016) El proceso de formalización en el mercado laboral uruguayo. Table N°4. Available at: https://www.cepal.org/sites/default/files/publication/files/39859/S1501264_es.pdf

⁵² By the time this validation took place, the Ministry of Environment was created replacing DINAMA's environmental competences with a new National Directorate: Quality and Environmental Assessment

- Creating and developing a new mechanism to finance projects in the forestry sector.
- Adding value to wood products and diversifying the regional production will lead to higher economic revenues for the region.

2.3 Stakeholder Engagement

2.3.1 Stakeholder Access to Project Documents (G3.1)

The VCS Project Description has been published in the VCS website. The full CCB project documentation will be published also in VCS and CCB's website for public comments, as well as the project summary in Spanish version. Local communities and other stakeholders can easily access it from the website.

Also, the full project documentation is published in Spanish on BDU III website for public review and comments⁵³. The project has also been presented to the community during FSC and VCS validation. Given its FSC certification, public summary reports of the mentioned certification are also available to public access⁵⁴.

Monitoring reports are also published online for all stakeholders to access, and presented to communities during capacitation.

2.3.2 Dissemination of Summary Project Documents (G3.1)

Along with the project implementation, the project documentation will be published on VCS and CCB website for all stakeholders, so that they can obtain the detailed project information and development progress. Also, the summary of project description in local language will also be disseminated to local communities through local government, as long as the summary of monitoring reports during each verification.

Also, the full project documentation is published, in Spanish, on BDU III website for public access, together with specific brochures describing the project characteristics and benefits.

The project has also been presented to the community during FSC and VCS validation. Given its FSC certification, public summary reports of the mentioned certification are also available to public access.

2.3.3 Informational Meetings with Stakeholders (G3.1)

Both AF and Cambium have an active presence in the project area, communicating with the community through meetings organized at rural schools, mayor office, with community groups such as Forestry association, as well as cattle breeders in the farms, among others. Also, the installation of signage, as a communication tool with people passing through the areas of influence of the project and associated communities, such as "slowdown in populated areas", "do not litter", warning signs of dangers or areas of interest or information signs.

Regarding neighbours, part of the actions taken includes the visit, once a year or as demanded, of Forteko's employees to neighbours living close to the project area. During these visits, Forteko's employees must complete the form shown in Figure 10, where information on areas considered of HCV is collected from the interviewed, while contact information of the organization and future meetings is provided. Also, during

⁵³ All online documentation available for investors and stakeholders available at: <https://www.bosquesdeluruguay.com/bdu-iii/> under "Impacto" and available for VVB during validation

⁵⁴ Public summary FSC reports
<https://info.fsc.org/details.php?id=a023300000WS9bAAAT&type=certificate>

these visits, stakeholders can complete the “complaints and claims section” to inform discomfort over actions implemented by the project (the complaints and claims are resolved based on specific resolution procedures detailed in section 2.3.12, and active throughout the year).

The information is collected, processed and recorded by AF and published in the annual monitoring report available online at BDU III website.

		FORMULARIO DE VISITA A VECINOS	
FECHA DE VISITA		/ /	
PREDIO DE AF S.A. (EN ZONA DE INFLUENCIA)			
NOMBRE Y APELLIDO DEL ENTREVISTADO			
NOMBRE DEL ESTABLECIMIENTO/ INSTITUCIÓN/ COMERCIO			
DIRECCIÓN / UBICACIÓN			
LOCALIDAD / DEPARTAMENTO			
TELÉFONO/S DE CONTACTO			
DIRECCIÓN DE E-MAIL			
CONSIDERA UD. IMPORTANTE LA CONSERVACIÓN DE ÁREAS NATURALES Y/O ELEMENTOS DE VALOR PATRIMONIAL (HISTÓRICOS O CULTURALES)?			
¿CONOCE UD. EN LOS PREDIOS DE LA EMPRESA EN LA ZONA, ALGÚN LUGAR O ELEMENTO DE ESPECIAL INTERÉS PARA SU CONSERVACIÓN?			
QUIERE UD. REALIZAR ALGUNA SUGERENCIA, OBSERVACIÓN, COMENTARIO O RECLAMO?			
Información complementaria			
Se entregan datos de contacto de AF S.A.?	SI		NO
Se entrega información de presentación de AF S.A.?	SI		NO
ENTREVISTADO (FIRMA Y ACLARACIÓN)		ENTREVISTADOR (FIRMA Y ACLARACIÓN)	

Figure 10. Visit form to be completed annually by project neighbours.

2.3.4 Community Costs, Risks and Benefits (G3.2)

As it is described in section 2.1.5. of PD local communities in Uruguay are not entirely depending on forest, they reside in populated centers with different businesses. Communities are not asked to participate directly with the project. Projects' potential risks, costs and benefits are, for example, indirectly transmitted to

communities through the increase of labour demand for particular activities (forest implantation). Also through ecosystem services protection (e.g. erosion control) and others. In other words, communities can perceive project costs, risks and benefits in an indirect way, through market.

Only cattle breeders and beekeepers community groups are invited to use the area. The company offers grazing to neighbours or previous owners who own cattle with the aim of reducing the amount of fuel in firebreak areas and therefore the risk of fires. In addition, grazing is a way of integrating local livestock producers into the project and involving them in firefighting in the area as well. The activity is controlled by contracts ranging from 1 to 11 months and renewed on expiry. During environmental assessments, the areas where cattle grazing is allowed is defined, as well as the need to limit domestic animal presence related to cattle breeding culture. The conditions under which grazing takes place is recorded in each grazing contract, including information on number of animals/ha allowed, area within the farm, which allows cattle breeders to evaluate conditions beforehand.

The inclusion of beehives is authorized as a means of promoting the production of non-timber forest products from forests. The beekeepers are generally local. The activity is controlled by contracts ranging from 3 to 6 months, where conditions are detailed prior meeting among parties including risks and benefits.

Then, in the case of communities, although not directly impacted by the project, communication to communities on cost, risks and benefits take place. In this line, and as mentioned in section 2.3.7, an Environmental Impact Assessment is requested by public authorities before establishing the forest for those projects affecting more than 100ha. These EIA's were presented in the DINAMA web page. Any person, company or entity from the project area or not, had the opportunity to comment and influence the project design. Moreover, the project organizes meetings with communities in order to present monitoring reports and impact analysis during certification's validation and verification, where the community is updated on the project's monitoring results, stating the project's benefits in terms of biodiversity, risk mitigation action's impact, as well as development programs in place inviting communities to participate.

In terms of risks, the project organizes training and communication campaigns around fire risks in the area, in order to, not only tackle project's own risks, but neighbours' usual practices which can jeopardize the communities safety. Regarding workers, there are impact assessments in place to identify and monitor risks for workers, and training to communicate and mitigate them.

Costs, risks and benefits of the project's activities are analysed annually during the community survey which also allow the company to share information on the project and receive comments from communities.

2.3.5 Information to Stakeholders on Validation and Verification Process (G3.3)

National legislation in Uruguay does not obligate forestry project owners with activity in the VCS or CCB Standard to communicate about the validation or verification process to any stakeholders, not even to national or regional governments.

However, the company decides to actively communicate about this process, so any stakeholder can be informed and participate during the process. In this line, the description of the validation and verification process will be informed in detail to all staff members of the company through internal communication.

Information to stakeholders takes place minimum once a year at the same time of the FSC Certification annual audit. Topics of these consultations include any concerns, complaints or suggestions stakeholders

may have. These consultations include every small town close to the area of the project. Remember that native communities do not exist in Uruguay, so the focus of these consultations are in small towns and neighbours' farmers.

The local stakeholders will be informed in advance of the VVB visit, regarding the validation and verification process. As long as the audit plan has been settled, the project owner will arrange a stakeholder meeting with auditor during the site visit. Invitation will be done using appropriate means of communication, all the stakeholders will be informed via phone, mail or whatsapp regarding the project process and the auditor's visit. In the case of the community, information will also be provided through the local communication nets available, including the subject in the communities 'agenda.

2.3.6 Site Visit Information and Opportunities to Communicate with Auditor (G3.3)

The local stakeholders will be informed in advance of the VVB visit, regarding the validation and verification process. As long as the audit plan has been settled, the project owner will arrange a stakeholder meeting with the auditor during the site visit. Invitation will be done using appropriate means of communication, all the stakeholders will be informed via phone, mail or whatsapp regarding the project process and the auditor's visit. Stakeholders identified in section 2.1.6 will be contacted and specifically invited those selected by the VVB in each case.

2.3.7 Stakeholder Consultations (G3.4)

The project was first implemented by Cambium Forestal Uruguay SA in 2007. It must be noted that all the forestry plantations were done based on the National Forestry (Law No. 15.939 of December, 1987). Forteko forest plantations are done entirely on private land. An Environmental Impact Assessment is requested by public authorities before establishing the forest for those projects affecting more than 100ha. These EIA's were presented in the DINAMA web page. Any person, company or entity from the project area or not, had the opportunity to comment and influence the project design. All the plots submitted for environmental approval have been classified as category A, therefore, their negative environmental impacts are considered non-significant by the national regulations. Anyway, all the planted areas must meet local regulations on maximum size of plantations, distance to water streams, neighbours' fences, power lines, etc. established by national regulation (public sector' stakeholder).

In the case of previous owners, Cambium Forestal Uruguay SA, being FSC certified as well, all the certification requirements were met, including a stakeholder consultation. At first, although regular stakeholder consultations took place, there was no documentation of these. In 2009 after an FSC negative evaluation of these, Cambium developed a spreadsheet of public consultation in which supervisors would report all findings during these events (according to the FSC Public Summary Report 200955).

Cambium Forestal also had a Social Management Plan in place which included procedure 7.8: claims, consultation and request management. The company registered them all in electronic spreadsheets where each farm supervisor could update information on each comment situation and mitigation plan implemented.

Since the beginning of 2015, AF has in place a mechanism for on-going communication with local stakeholders and implemented with the Forteko project once owned. The mechanism consists in local communities' surveys to identify their perception of forestry activity' negative impacts and to analyse the

⁵⁵ Available at: <https://fsc.secure.force.com/servlet/servlet.FileDownload?file=00P40000003dInuEAE>

actions to be taken to mitigate these impacts. To implement the surveys', AF personnel organize talks at schools project' lands and invite the community to assist and to ask questions on forestry activities and its impacts in the region. The assistants receive the survey asking about the social, economic and environmental impacts they perceive. At the end of the talk, the surveys are collected and later analysed to establish a negative impact mitigation action plan. Moreover, annual FSC certification process includes an instance of public consultation.

Later, according to the Forest Management Certification Report from SGS⁵⁶, a wide range of stakeholders were contacted 4 weeks before the planned evaluation - that took place between the 9th and 12th of December of 2019 - in order to inform them about the evaluation and ask for their views on the forest management issues that were considered relevant.

Among the stakeholder's local government agencies and forestry authorities, forest users' groups and labour unions were included. Particularly, the following stakeholders were interviewed:

- Police agent from Pueblo Rincón police station.
- Fireman from Minas.
- Sequeira plot (BDU1) neighbour.
- School No 3, 9, 49 directors
- Dionisio Díaz Clinic nurse.
- School No 3 Isla Patrulla director
- Police agent from Treinta y Tres police station 5.
- Santa Clara army station commandant.
- Cerro Colorado high school director.
- Cerro Colorado school teacher.
- Alejandro Gallinal, city hall official.
- Polyclinic and Minas Hospital
- More than 30 Neighbours

These public consultations are conducted every year during FSC audits. The outcomes of the local stakeholder consultation are contained in the FSC summary certification report and the stakeholders' is available for VVB.

⁵⁶ Forest Management Certification Report; SGS; 06/06/2019. Available for the VVB at validation (see reference 67).

Moreover, as it is explained above, stakeholder's participation in the project is done through formal and informal channels. There are some types of stakeholders -such as forest contractors' enterprises, beef cattle breeders or rural communities- that can be affected (positively or negatively) by the project. Forest contractors' enterprises hire personnel from the surrounding areas, and beef cattle breeders are sometimes previous land owners living in the area.

The stakeholder groups that influence project design are the beef cattle breeders and rural communities. This stakeholder is normally the previous land owner that after forest implementation continues breeding cattle in the non-forested areas. The interaction between cattle and forest is so mutually beneficial that AF and cattle breeders communicate about the design of projects in order to synergistically grow.

Regarding High Valued Conservation areas, within the project area, the definition of these areas is done together with the community and experts consulted, in line with FSC standards. In this line both, annual surveys and specific community consultation, are conducted to listen to the community, community groups and other stakeholders in terms of HCV areas definition. In the case of historic sites, the community in the project zone is consulted annually about the knowledge, usage, and value of the site in order to define the category of conservation.

Another example is when communities or a community group, together with BDU III, identify a need which BDU III can help with and analyse the best way forward. Examples include rural roads construction, monuments installation, materials and workforce to paint or maintain rural schools, among others activities where main inputs are provided by BDU III and AF57.

2.3.8 Continued Consultation and Adaptive Management (G3.4)

As already shown in the previous chapter, there are permanently open channels to communicate with the project developer. A Community Monitoring Plan is carried out, mainly assessing the evolution of the local communities with regard to the forestry sector in general, and in relation to the project's actions in particular. This monitoring is aimed at identifying the positive and negative impacts of the activity on the social environment, and is carried out based on the direct and sustained link between company employees and members of the local communities.

As it is described in section 2.3.3, stakeholders can raise their comments or suggestions in the "Neighbours visit form" and the "complaints and claims" section (Figure 10). The project owner will check the forms regularly and collect all the comments received and adapt the Management Plan if necessary. All project documents available in BDU III's website are updated regularly according to need.

The Forest Management Plan⁵⁸, which is available online, specifies the Sustainable Forestry Policy for the company which includes the following items related to the relationship with the communities and communication:

- Seeks minimum negative impacts from project processes for their employees and the surrounding environment by complying with applicable regulations and requirements.

⁵⁷ List of projects and activities with communities available for VVB by request.

⁵⁸ Sustainable Forest Policy in section 1.3 of Forest Management Plan available at: https://www.bosquesdeluruguay.com/media/2022/03/GAF_PM_-_Resumen_Publico_del_Plan_de_Manejo_Grupo_AF_2021.pdf

- Seeks to contribute to the economic and social development of local communities through the generation and valorisation of forestry work

- Make sure that our employees are trained in a way that they are responsible and feel committed to the environment and their daily jobs.

- Provides employees, adjacent communities and other interested groups with relevant and appropriate information about the environmental and social quality with which the operations are conducted.

- Encourage the essential suppliers of the AF GROUP to comply with the Sustainable Forest Management Policy.

In the same line, the “General Manual for Forest Management”, which is available and communicated to all employees includes specific items as well:

- At all times you should try to be good neighbours, maintain fluid channels of communication and respect patterns of coexistence.

- Promote the harmonious integration of the company in the short and long term in local communities.

- Improve the level of information of local communities regarding forestry activity in general and the management of Forteko in particular.

- Prevent or mitigate undesirable impacts of forestry activity in the social environment.

- Keep updated the lists of interested parties and contact forms. Ensure that interested parties know ways of communicating with the company.

- All communications received (complaints / claims, requests, invitations, thanks or other interested parties) must be reported to the respective management.

- It is important to take care of the deadlines between when a complaint or complaint is received, and the corresponding follow-up is given. For the first contact and / or first response should not have been more than two weeks, or less, if the case requires speed. In the following instances of the handling of the matter, one must act in a responsible manner, trying to minimize the time until the resolution of the conflict.

- The management of the company, or whoever it designates, will be responsible for the resolution of all the communications that have to be answered.

- To resolve conflicts, proceed in accordance with INS 03 -PROCEDIMIENTO DE RESOLUCIÓN DE CONFLICTOS, and complete the corresponding internal form.

Throughout the year, activities are carried out in the communities by the Company's personnel, which allow to:

- a) Maintain an updated information base on relevant actors identified by the company.

- b) Get to know and adapt to the customs of local communities.

- c) Make the company known as a "neighbour" and maintain this link.
- d) Detect communities' basic needs that can be met by the company, especially those related to training.
- e) Support local initiatives when possible.

2.3.9 Stakeholder Consultation Channels (G3.5)

As it is explained above, stakeholder's participation in the project is done through formal and informal channels. There are some types of stakeholders -such as forest contractors' enterprises, beef cattle breeders or rural communities- that can be affected (positively or negatively) by the project. Forest contractors' enterprises hire personnel from the surrounding areas, and beef cattle breeders are sometimes previous land owners living in the area.

The stakeholder groups that influence project design are the beef cattle breeders and rural communities. This stakeholder is normally the previous land owner that after forest implementation continues breeding cattle in the non-forested areas. The interaction between cattle and forest is so mutually beneficial that AF and cattle breeders communicate about the design of projects in order to synergistically grow.

Regarding High Valued Conservation areas, within the project area, the definition of these areas is done together with the community and experts consulted, in line with FSC standards. In this line both, annual surveys and specific community consultation, are conducted to listen to the community, community groups and other stakeholders in terms of HCV areas definition. In the case of historic sites, the community in the project zone is consulted annually about the knowledge, usage, and value of the site in order to define the category of conservation.

Another example is when communities or a community group, together with BDU III, identify a need which BDU III can help with and analyse the best way forward. Examples include rural roads construction, monuments installation, materials and workforce to paint or maintain rural schools, among others activities where main inputs are provided by BDU III and AF⁵⁹.

Part of the communication with communities consist in verbal communication from the company' workers towards them. Forteko workers are permanently present in the project area and they communicate with communities and stakeholders. All communications and claims are to be reported to the manager within 10 days and a meeting is scheduled within 30 days.

BDU III web page includes all the information regarding each project, and is annually updated with its monitor reports which include different indicators, including the analysis of the information from the neighbour's survey forms.

AF has also implemented a mechanism to prevent complaints. It consists in analysing the impact of future actions that will be taken by AF. For example, harvesting of a certain area will increase the truck passage in a public road, generating modifications to the regular activity of the zone. AF staff anticipates this situation by visiting the neighbours that could be affected, explaining the activities that will be implemented and leaving a contact telephone to contact them in case of need⁶⁰.

⁵⁹ List of projects and activities with communities available for VVB by request (see reference 56)

⁶⁰ Model of the letter used to anticipate impact activities in the area available to VVB during validation. This are printed and handed directly to impacted stakeholders.

2.3.10 Stakeholder Participation in Decision-Making and Implementation (G3.6)

Forteko project has open channels to enable the effective participation of all communities. The “complaint form” and “visit to neighbour form” (see chapter 2.3.3) is a way for communication to communities and community groups. These channels are open to any culture and gender.

As previously mentioned, regarding HCV areas, these are defined together with the community, starting with a professional consultancy of the area, but also following any comment raised by neighbours regarding an important site/area for them. Then a community consultation takes place in order to communicate findings and define the category of conservation.

At the same time, regular monitoring report meetings take place, providing an opportunity for the community to raise concerns or comments. Also, when AF conducts capacitations and presentations at rural schools, regarding endemic diseases -or other requested subjects-, or during community work activities such as painting a school, employees are trained to receive com and formalize requests/claims.

2.3.11 Anti-Discrimination Assurance (G3.7)

The project owner should obey Labour Law of the Republica Oriental del Uruguay with anti-discrimination assurance.

According to International Labour Convention (ILC) 190: “Each Member shall adopt laws and policies which guarantee the right to equality and non-discrimination in employment and occupation, including women as well as men workers (...)”

National Law No 15903 states, in Article 289, that “violations of international labour conventions, laws, decrees, resolutions, awards and collective agreements, whose control corresponds to the General Inspectorate of Labour and Social Security (IGTSS) are punishable by reprimand, fine or closure of the establishment”.

Article 6 of Decree 186/004 states as very serious offences “actions or omissions involving discrimination in working conditions on grounds of sex, nationality, marital status, race, social status, political and religious beliefs and membership or non-membership of trade unions” and states in Article 13 that “very serious offences are punishable in their minimum degree with a fine of 100 to 110 day’s wages; at the medium level, from one hundred and eleven to one hundred and twenty-five daily wages, and at a maximum level, from one hundred and twenty-six to one hundred and fifty daily wages, for each worker affected”.

Lay No 17.817 also declares the fight against racism, xenophobia and all other forms of discrimination to be of national interest.

AF have a policy against any kind of discrimination⁶¹. The Forest Management General Manual clearly explained that discrimination attitudes are totally forbidden: “any type of discrimination must be avoided in any instance by reason of gender, race, religious, political or other orientation”. Same applied during the first period of the project, managed by Cambium Forestal Uruguay S.A.

⁶¹ Code of Ethics available for VVB

2.3.12 Feedback and Grievance Redress Procedure (G3.8)

The registration of complaints from the Forteko project' neighbours, contractors, or other is also used as an on-going communication system with local stakeholders. AF has in place since 2015 the "Procedure to solve social and/or illegal activities conflicts or complaints" (available to VVB). This procedure applies to any social complaint including lands' right of use, fires, illegal activity. It clearly explains how to proceed once they receive or detect a conflict with any third party:

- If complaints or disputes are received, either directly or through third parties or communication means, AF will act according to the conflict resolution procedures described in the manual.

- Complaints or complaints transmitted in the field have to be transmitted to forest managers in written within 10 days, who will attend them according to their powers.

- If needed, a meeting between the forest manager and impacted stakeholder/s will be scheduled within 30 days.

- In the meeting pertinence of the claim and possible solutions are defined, seeking to reach a positive answer for all the parties involved.

- Resources needed to implement the proposal are analysed and deadlines and responsibilities for the tasks are established

- Proposal is presented to the Director for its approval

- Proposal is implemented

- In the case the claim is not pertinent, a written response is sent and the claim is archived.

- If the dispute cannot be resolved, for example land tenure, the activity is stopped till the conflict is solved.

The General Manager will designate a person responsible for collecting and processing the information regarding all the complaints received by the company, who will keep record of them and their resolution status. The External Adviser in charge of AF Management System is in charge of registering the complaints in the corresponding form. Once a complaint is registered, its treatment and deadlines are defined and the complainant is notified about the treatment that will be given. Once the treatment is finished, the complainant is consulted about his satisfaction with the result. If he agrees with the result, the complaint is closed. Otherwise, the procedure is repeated until the complainant is satisfied. ^{62 63}

In the case of illegal activity, there is a monitoring plan in place. Once noticed, the activity must be instantly reported to the harvest manager in charge. Depending on the type of activity, it is first resolved within the parties involved (if it is people fishing, for example) and if it cannot be resolved, a report will be made at the

⁶² The surveys and complaints mechanisms are established in Chapter 11 (Monitoring System) of BDU' Forestry Management Plan – Public Summary. Available at: https://www.bosquesdeluruguay.com/media/2022/03/GAF_PM_-_Resumen_Publico_del_Plan_de_Manejo_Grupo_AF_2021.pdf and available for VVB during validation

⁶³ The survey form, the surveys analysis and BDU social monitoring plan and registries for the VVB at validation, as well as monitoring report for social indicators by Cambium Forestal.

nearest police station. If the activity threatens the integrity of AF assets, a report is made to the police immediately.

2.3.13 Accessibility of the Feedback and Grievance Redress Procedure (G3.8)

As it is mentioned in section 2.3.12, AF has in place since 2015 the “Procedure to solve social and/or illegal activities conflicts or complaints”. The forest manager in the area, or whoever he designates, will be responsible for the resolution of all the communications that have to be answered.

The monitor report updated annually at BDU III’s web page includes information on the indicator number of claims and complaints received per year by employees, neighbours, contractors or customers. The reported indicator includes a brief description of the type of claim and action taken to correct it.

Previously, since 2008, Cambium Forestal Uruguay annually analysed and reported claims received for the projects under their influence, including Forteko.

2.3.14 Worker Training (G3.9)

The project owner and group of experts provide technical advice and technical training to project staff and personnel from forest contractors companies (these last when the contractor has no capacity to manage it itself). These companies usually contract people from the surrounding areas, belonging to the neighbouring communities to the project area.

All the workers related to the project must be trained in order to perform the activities with adherence to the Principles & Criteria of the Forest Stewardship Council ® (FSC ®) for forest management and chain of custody. Both, direct employees and contractors working in Forteko project are included. The number for the whole project is estimated in 666 employees of which 4% is women (based on Terena report, see reference n° 53). These represent the total number of jobs generated as all employees must be trained.

The company's “Annual Capacitation Plan” includes the following training courses, among others:

- Induction for new contractors: Orientation and training activities to inform and establish the AF-BDU management guidelines to those responsible for the contractor companies and their health and safety services
- AF Security and General Policy: AF-BDU Management Policy; Continuous improvement; FSC Principles & Criteria; Occupational Health and Safety; Care of the environment; Social Responsibility, Labour Rights and Duties.
- Security commission: safety and continuous improvement
- Health and First Aid
- Investigation of incidents contractors supervisors
- Procedures during emergencies
- Risks
- FSC Principles and criteria

- Fire control

Every training is recorded in a template, with information about the topic, date, responsibility, etc. The Annual Training Plan and the complete list of trained people in the different topics (biodiversity, FSC, etc.), in the last years, will be available for the VVB if necessary.

Direct AF-BDU employees are also trained in other topics. The following is a list of the courses taken by personnel of different areas⁶⁴:

- Communication skills
- English as a second language
- Leadership
- Negotiation

In the case of staff turnover, the capacity wouldn't be lost as the training is in constant implementation with annual training programs and the obligation in place for all new employees to take the safety and company's policy training. Moreover, in general, replacements occur with a period of transition, where the staff leaving the post trains the staff entering, so general knowledge is transmitted.

2.3.15 Community Employment Opportunities (G3.10)

The project will have an impact in a big area located in the Center east region of Uruguay. All the people in the communities (including women, minorities and poor people) will be involved directly or indirectly with the project.

All people from the region will be given an equal opportunity to fill all work positions if the job requirements are met. A transparent system of contracts is available, through price calls to award long-term contracts and permanent evaluations of suppliers are carried out.

According to the records corresponding to the years 2015 - 2020, during the implementation of the project, forestry activities (plantation, harvest, sawmills and road works) conducted by contracted companies translates into a labour of more than 100 new workers per year.

From the total number of contractors working for Forteko project, it is estimated that around 82% of these contractors are living in the project area departments⁶⁵.

There are some forest activities where more subtle or dainty movements are needed or where more meticulous work is demanded, which is the case of the work at nurseries or the harvesting with ultra-sophisticated harvesters. In such cases, women could be better qualified for the task, this is also the case for administrative and technical work (p.e GIS). It is expected that women from the community can participate in such types of activities, or others.

⁶⁴ Complete capacitation plan available for VVB during validation in shared Google Folder.

⁶⁵ EIS Terena S.A (2018) Relevamiento de empleados. Survey conducted by the company who previously owned some of AF's farms within its employees but can be extrapolated to Forteko employees given the same employment conditions.

As part of Cambium's Integrated Management System, an audit programme has been in place since 2008 for all service companies, in the activities carried out within the assets. These audits seek to verify the legal compliance of operations, as well as the safety and environmental standards defined in the company's Work Procedures. Internal audits are the fundamental pillar that allows the continuous improvement of service companies and forestry operations in general.

When sold to BDU III Trust Fund, the company's formal system to record and centralize the information of subcontracted companies, was set in place. This centralized system is where all the data provided is available, based on the number of operators per company, which allows the documentation of the activity, as well as the training history carried out by the Operators, both by the contracting companies and by AF-BDU.

2.3.16 Relevant Laws and Regulations Related to Worker's Rights (G3.11)

There is a national legislation aimed at the enforcement of safety and health standards, which is controlled by the Ministry of Labour. Forestry in the country has its own regulation for labour conditions (Decree 372/99), on top of a large number of norms which affect any activity. This decree was developed with the active participation of the forest producers, and basically defines several rules for safety, health and living conditions of forest workers.

Another important regulation relates with the minimum wage regime. In Uruguay, the law promotes the appointment of sectorial three-party committees⁶⁶ (government, workers and companies) to discuss worker categories and minimum wages applicable to each category. The agreements reached by these committees are mandatory for all the companies in the corresponding sector. Historically, rural activities were not included in these committees, and minimum wages were fixed by decrees. In 2005, the forest companies, the forest workers and the government reached the first ever agreement for a minimum wage regime in rural activity.

These agreements set minimum wages by category, with semi-annual adjustments based on inflation and dollar variations. Employees work 48 hours a week, with a maximum of eight-hour per day, (excepting if the hours worked on Saturdays are distributed from Mondays to Fridays). In this case the hours worked per day can be extended to nine and a half hours.

Forest industry workers are organized in a specific union. SOIMA (Uruguay's Wood Industries Workers Union). As of 2014, the Union is presented as one of the strongest in the country and has negotiated significant improvements in wage conditions. Moreover, the union has been in a strong position for years and works to respect the rights of employees and improve their quality of life, including communicating their rights. As mentioned in the previous section, a system is in place to monitor the compliance of the legal standards in the sector, including contractors' workers. Moreover, AF and FSC principles and policies (communicated during training to all workers) include code of ethics, anti-discrimination, security, among other rights for workers⁶⁷.

2.3.17 Occupational Safety Assessment (G3.12)

In the area of risk prevention and occupational health, Cambium Forestal has a stated priority in its policy "Safety and health of people are as important as the health and safety of the company's employees".

⁶⁶ These committees are called "Consejos de Salarios" in Spanish.

⁶⁷ Principles and policies available to VVB during validation

This is why it used to work on an annual prevention programme, with the aim of avoid occupational accidents or occupational diseases. This includes the registry of accidents within the workers in the premises.

Forteko project considers the Safety and Health of the people, and of everyone directly or indirectly related to the activities, to be of the utmost importance. The company has implemented a system, coordinated by prevention technicians, oriented to the care of occupational safety, well-being and health risks of the personnel who work in the field. The system encompasses everyone, each and every one of the employees and contractors are committed to take care of their own safety as well as their co-workers'.

Safety management is treated as a continuous self-improvement process which materializes in a systematic process of risks identification, assessment and control which requires the participation of everyone stakeholder. In this line, risk assessments are conducted for the different activities in the project (harvesting, agrochemical applications, transport, among others), with the corresponding evaluation in line with the safety plan in place. Service providing companies are also evaluated through a registry of compliance for each and every employee and activity⁶⁸.

Safety training and dissemination

Within the project strong emphasis on the training and awareness of the personnel and the people living in the area where it develops its activities is implemented. A continuous follow-up of the work conditions and facilities is performed in all the sites where the company operates. Continuous training and teaching is done and the exchange of experience among contractors is promoted. All observations and incident records are processed systematically in order to obtain statistics which allow the detection of issues which require special attention⁶⁹. If there are accidents, a relevant investigation is carried out to reduce future risks.

The company has a Continuous Training Program structured according to the detected needs. The objective is clear: self-protection; the company wants every individual involved to embrace safety measures as a value. The project owner implemented health and safety practices to protect workers from occupational safety and health hazards. These practices shall, proportionate to scale, intensity and risk of management activities, meet or exceed the recommendations of the ILO Code of Practice on Safety and Health in Forestry Work.

In addition, there is a monitoring system in place to check all employee's documentary status –for instance, the validity of the health card, delivery of safety equipment, among others– and reports such information to the corresponding person in case the employee status is not in good standing so as to carry out their duties. And last, according to national legislation, the employer has the obligation to register in the Social Security Bank (“Banco de Previsión Social” - BPS) and the Ministry of Labour and Social Security. By this, the employee assures health assistance for every member of the family.

⁶⁸ All information regarding work safety assessment and monitoring available for VVB during verification

⁶⁹ Annual Monitoring Report includes an indicator on accidents per year, results for 2017-2020 available for VVB

2.4 Management Capacity

2.4.1 Project Governance Structures (G4.1)

Initially, the Project proponent was 'Forestal Tekoayhu' S.A, a legally constituted company for investments in Uruguay. All activities related to forest investments, marketing and management were implemented by Cambium Forestal Uruguay S.A., a consultant company highly experienced in forest management.

Later in 2017, BDU III bought the lands corresponding to Forteko project. The ownership of the lands is legal and are protected by deeds duly registered in the National Registries, with the corresponding number for the Real Estate Registry.

BDU III has a contractual agreement with Agroempresa Forestal (AF) for the management of its investment. AF is the manager of the business and the legal entity of the group, it is a Uruguayan company founded in 2000, leader in forestry services and in field administration. The company provides services to financial forest trusts Bosques del Uruguay I, II, III and IV and Gutiérrez Zaldivar.

AF guarantees the development of the forests and the entire enterprise, under a strict business plan and a system for reporting results and permanent audits, which assure the investor a participation profitable in this productive project.

The fiduciary of Bosques del Uruguay III (which includes Forteko) is EF Asset Management (EFAM), Administradora de Fondos de Inversión S.A. It was created in 2003 by Ferrere Abogados and CPA Ferrere in Uruguay. It is about the biggest private trust administrator in the country, and has issued the largest number of financial trusts in the Uruguayan market, such as UTE 2004, Urban Collective Transport of Montevideo, CFP, NZFSU I and Pronto among others.

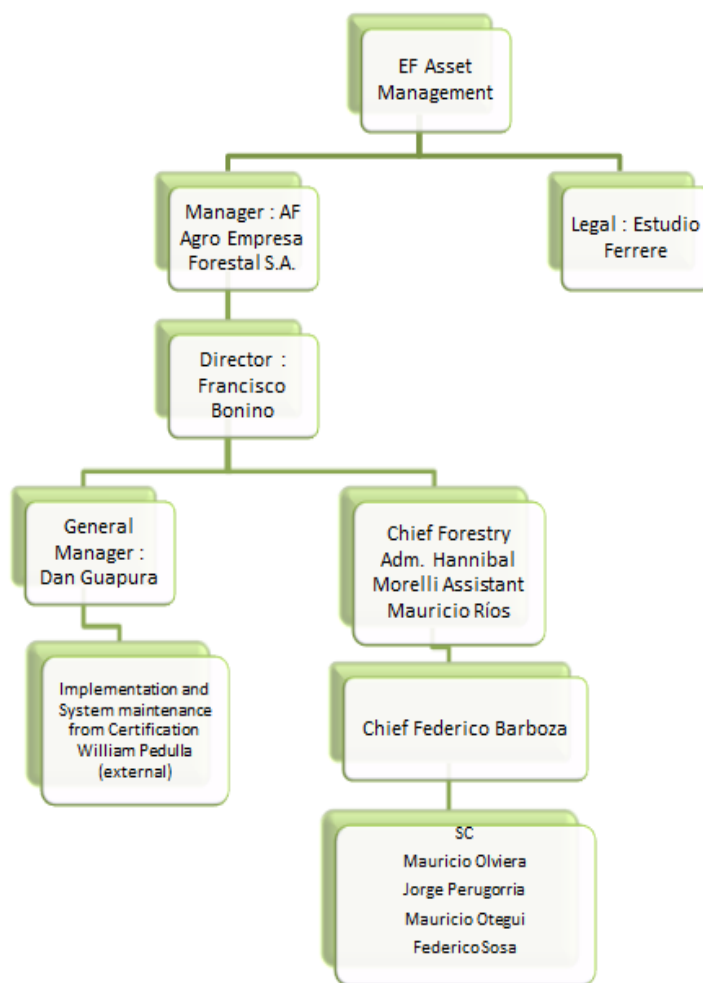


Figure 11. EF Asset management organization hierarchy

2.4.2 Required Technical Skills (G4.2)

For the development of the Project, the required skills and experience are related to:

- Experience in management of natural resources conservation projects
- Ability to interact with different actors and stakeholders,
- Development of Projects with rural populations,
- Experience in the development of carbon projects and environmental services
- Experience in the evaluation and monitoring of biodiversity

The project owner and the experts group provide technical advice and technical training, and carry out Project implementation of quality control and quality assurance at the same time. It must be stated that

BDU is only one of the projects managed by AF (BDU II, BDU III and BDU IV), all of which are validated under VCS.

All the workers (both own personnel as well as contractors) will be trained in order to perform the activities with adherence to the Principles & Criteria of the Forest Stewardship Council ® (FSC ®) for forest management and chain of custody. More than 660 employees (direct employees and contractors) work in Forteko project. These are specialized in engineering, forestry, administrative and technical. All these employees are included in the company's "Annual Capacitation Plan".

AF has a team dedicated to the implementation and monitoring of the FSC principles and CCB criteria regarding social and environmental aspects, in line with project implementation plans⁷⁰.

Regarding forest inventory monitoring, third party team of experts is hired to conduct the monitoring, while Forteko project has a technical team, within the planning area, in charge of controlling and analysing data results obtained from a systematic tool which makes biomass estimations. These contractors are hired to conduct forest inventories based on the detailed criteria stated in the Forest Management Manual⁷¹.

Moreover, regarding carbon credits, the project team works together with a consultancy firm which provides services and constant support in the climate and carbon aspects of the project⁷².

2.4.3 Management Team Experience (G4.2)

Forteko project is proposed, designed, implemented, operated and administered by Agroempresa Forestal (AF) on behalf of "Fideicomiso Financiero Forestal Bosques del Uruguay" (BDU, the trust fund). AF has a long track record in managing forests. It started its activities in Uruguay in 2000 as a forestry services company, and expanded to Chile and Brazil in 2007 and 2010 respectively. Currently AF offers services throughout the forest growth stages from consulting to forest lands management services. The company supervises more than 50,000 hectares per annum only in Uruguay, plus another 50,000 hectares in Chile and Brazil. Its main clients are responsible for more than 80% of Uruguay's afforested area (UPM, Weyerhaeuser, Montes del Plata, Arauco, etc).

AF has a professional, highly specialized and fully independent team composed by 8 agricultural engineers, 19 foresters and field supervisors and 8 administrative staff. Also 40 forestry services companies are associated with AF employing 600 people. This makes AF a market leader in the provision of forest services.

The project owner has many years in sustainable forest management projects, having been certified under FSC, for which it has developed capacities to interact with different types of actors, and as a result, it has established cooperation agreements with local governments, companies, producer organizations and local communities. It has also developed a system applicable to environmental projects, which has effective tools and methodologies to have effective control over the interventions carried out.

The table 11 below describes those activities conducted by AF-BDU and those contracted to suppliers:

Table 11 Responsible for different project's activities

⁷⁰ CV of personnel available for VVB during validation

⁷¹ Guide for contractors in term of forest inventories available for VVB

⁷² List of projects experience in carbon certification available for VVB during validation

Activity	AF/contractor
Farms selection, property analysis, negotiation	AF
Models and projections (plantation, sales, budget, etc.). Silvicultural management strategy, sanitary surveillance, etc.	AF
Plantation	Contractor
Weed control	Contractor
Pruning and Thinning	Contractor
Infrastructure maintenance	Contractor
Final Harvesting	Contractor
Wood sales	AF
Other commercial negotiations (silvopastoral activity)	AF
Transport	Contractor
Preparation and coordination of FSC certification process	AF
Commercial and operative report to investors	AF
Environment and community relationships	AF
Suppliers contract and execution and quality control	AF
Execution and supervision of activities according to the Forest Management Manual, objectives, environmental standards and legal framework	AF

The company manages its forest plantations integrated with other land uses, optimizing the management of natural resources in a responsible manner in accordance with the companies' sustainable forest management policy:

- ✓ The Forests that make up the "GRUPO AGRO EMPRESA FORESTAL" are committed to the environment, for this reason we make an efficient and rational use of natural resources, minimising the use of pesticides and not using those that are prohibited.
- ✓ The respect and protection of these resources are in line with our commitment towards continuous improvement.

- ✓ We ensure that our operating processes minimise negative impacts on our employees and the environment, safeguarding their health and safety. To this end, we comply with applicable regulations and requirements.
- ✓ We seek to contribute to the economic and social development of our local communities through the generation and valorisation of forestry work.
- ✓ We ensure that our employees are trained so that they are responsible and committed to the environment and their daily work.
- ✓ We provide our employees, adjacent communities and other stakeholders with relevant and appropriate information about the environmental and social quality of our operations.
- ✓ We encourage the AF GROUP's key suppliers to comply with our Sustainable Forest Management Policy.

AF GROUP works according to economic, social and environmental principles that demonstrate a long-term commitment to sustainable environmental; complying with the Principles and Criteria of the Forest Stewardship Council TM (FSC®).

Previously to AF, Cambium Forestal S.A provided its consultancy and management services to Forestal Tekoayhu. Cámbium Forestal Uruguay S.A. is a company dedicated to manage forestry businesses and assets of national and foreign investors. Cámbium also provides international consulting services in countries such as Argentina, Brazil, South Africa, New Zealand, USA and Australia, in the areas of forestry market, sawmills, plantation management, mapping, economic evaluation, strategic, tactical and operational planning of forestry projects.

In Uruguay, Cámbium Forestal Uruguay S.A. has its head office in Montevideo and manages the ownership of four companies, dedicated to the management of forest plantations with the objectives of solid and pulpwood. In this way, it is the administrator of the Cámbium Forestal Uruguay group, for the purposes of FSC certification, with the FSC certificate. FSC certification, with certificate number: GFA-FM/COC-001693.

In relation to the carbon component of the project, Carbosur SRL is the consultant hired in charge. Carbosur has been hired by *Forteko* as the contractor in charge of managing all aspects related to VCS registration, project validation, monitoring and verification. Carbosur has experience with VCS forest projects, having effectively registered six afforestation projects under the VCS (at the time of Forteko validation). In addition, Carbosur has vast experience with the CDM and VCS, having successfully led the registration of one A/R CDM project (#3845), and having contributed significantly to the development of the first consolidated methodology for A/R CDM projects (ARACM0001), which is the one used for *Forteko* project. Carbosur also proposed to the A/R Working Group of the CDM a tool for accounting soil organic carbon in A/R CDM projects, which was later approved, with modifications, by the CDM Executive Board.

2.4.4 Project Management Partnerships/Team Development (G4.2)

Not applicable

2.4.5 Financial Health of Implementing Organization(s) (G4.3)

The project developer is legally registered company in Uruguay, and according to the public information listed in National Enterprise Credit Information Publicity System, none of them were involved in or complicit in any form of corruption such as bribery, embezzlement, fraud, favoritism, cronyism, nepotism, extortion, and collusion.

BDU III Trust's objective is to structure a long-term investment alternative supported by a tangible asset that increases its value throughout time and by a strong management plan. Following the highest productive, environmental and social standards, and aiming to attain a production of high quality timber, the trust will offer pension fund investors reasonable long term profits.

The novelty of this trust lies in the fact of being the first one in the history of the country presenting a public offer at Montevideo stock exchange and the first one that convinces a pension fund (called AFAP in Uruguay) to invest in this type of project with physical assets and productive risks. In general, these funds invest in low risk government bonds which offer similar rates of return but at a much lower risk.

Among the values promoted by the trust are: excellence in the performance, accountability and ethics. In order to convince the pension funds to invest money in the trust many aspect of Forteko project were highlighted, being climate change mitigation, sustainability and carbon credits incomes the most relevant ones. The endeavour was not easy though. In fact, in the last days prior to the certificated issuance the whole process was close to failing given the negative pressure from some of the AFAPs, who were reluctant to commit before the IPO.

In order to become operative, the Trust had to obtain the approval of its business plan from the president of the country and the Central Bank of Uruguay.

The total investment of the project in year zero was 50 million USD. Based on this information it is possible to determine that the project cash flow breakeven point is 11 years and 11.4 months.

Regarding Forestal Tekoayhu, its financial health was demonstrated in the validation process under VCS.

2.4.6 Avoidance of Corruption and Other Unethical Behavior (G4.3)

Although Uruguay in many aspects already has regulations in line with those established by the anti-corruption Convention, on the one hand of a preventive nature and on the other repressive, there is still no anti-corruption law in Uruguay for the private sector.

Anyway, this project has an Operating Framework Guide where it is clearly explained that corruption and other unethical behaviours are totally forbidden (detailed in the Code of Ethics and included in Forest Management General Manual). Moreover, as legally registered companies, the project owner and other involved entities have the obligation to comply with relevant regulations. The annual audit on general legislation compliance makes sure that it operates with full compliance with Uruguay law and regulations. This include working conditions, fiscal regulations, environmental legislation, among others.

2.4.7 Commercially Sensitive Information (Rules 3.5.13 – 3.5.14)

None of the project documents will be considered as commercially sensitive information, and all of the documentations are available to any stakeholders.

2.5 Legal Status and Property Rights

2.5.1 Statutory and Customary Property Rights (G5.1)

As it was previously explained at section 2.4.1, the land is privately owned by the BDU III (and II for the case of Santa Hildara) Trust Fund project and before that Forestal Tekoayhu.

National legislation enshrines different forms of land tenure, use and enjoyment, which, in principle and in general terms, can be divided into two forms: those of a permanent nature and those of a transitory nature. Table 9 detail land tenure according to area farmed (ha) for 2011 in the departments of the project zone.

Moreover, in Uruguay, since 1948, there has been another special form of land tenure, which is part of a public policy called Colonisation carried out by the INC (National Institute of Colonization). It is defined as a set of measures to be adopted in accordance with Law No. 11.029, in order to promote a rational subdivision of land and its adequate exploitation, and improvement of the agricultural production and the settlement and welfare of the rural worker.

The INC facilitates access to land with security of tenure, to aspiring settlers through the leasing of land, with a land rental value lower than the market value. Until 2005, there was a second modality: sale of land financed on a term basis (INC 2017). The figure 12 show the INC tenure within the project zone⁷³.

In the case of the project area, all the land is privately owned by the corresponding BDU III and II Trust Fund. The establishments included in Forteko project are: Carricoche, El Chuncho, La Roja, Las Palmas, Los Teros, Santa Mariana, Tronco Perez, Canito, El Italiano, El Nacho, Cerros del Chircal, El Chico, Jotape, El Huaso, El Pudú, Las Flacas, El Ombú, Manolete, Pesadilla, Quiebra Yugo, La Hacienda, Santa Hildara, EL Enzo, La Gordi, Las Mimadas, Matador, La Loma, Los Azules, Los Cóndores, Mique. These belong to the group of investors that acquired the forests in the year 2017, previously owned by Forestal Tekoayhu S.A

Table 12. Land tenure by department for the project zone based on area farmed (ha)⁷⁴.

⁷³ Source: Proyecto REDD+ Uruguay (2020). Tenencia de tierra y bosque nativo en Uruguay. Chiesa, V., Rodríguez, P., Gasparini, K., García, M.L., Olivera, J., Rama, G. y Martino, D. Ministerio de Ganadería, Agricultura y Pesca - Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente. Montevideo.

⁷⁴ Source: General Agriculture survey 2011, (figure 162 translated)

Area farmed by tenure status, according to department							
Departments	Area farmed (ha)						
	Total	Land tenure					
		Property	Lease	Grazing	Share cropping	Occupier	Other forms
Artigas	1.144.493	777.332	285.512	18.416	1.682	32.369	29.182
Canelones	336.805	252.574	61.937	4.011	665	8.240	9.378
Cerro Largo	1.325.852	939.620	287.245	29.379	3.002	32.779	33.827
Colonia	563.177	327.346	196.835	2.010	6.286	6.631	24.069
Durazno	1.098.847	636.196	323.703	43.062	7.095	38.307	50.484
Flores	502.914	296.369	162.947	5.809	4.880	8.719	24.190
Florida	973.091	594.537	303.164	14.607	2.047	27.127	31.609
Lavalleja	944.241	643.136	203.257	33.926	2.574	36.053	25.295
Maldonado	387.166	271.293	71.263	16.464	1.467	7.382	19.297
Montevideo	15.363	13.268	788	70	201	277	759
Paysandú	1.438.706	900.115	383.057	73.621	21.660	30.333	29.920
Rio Negro	914.414	556.597	256.624	48.261	18.625	5.797	28.510
Rivera	865.692	536.245	199.171	65.777	4.186	29.967	30.346
Rocha	921.189	577.840	252.730	26.129	893	26.371	37.226
Salto	1.280.105	850.706	331.524	18.043	1.067	51.571	27.194
San José	442.926	257.308	137.908	4.283	3.735	15.722	23.970
Soriano	839.682	453.941	301.542	18.746	26.650	13.631	25.172
Tacuarembó	1.490.989	1.077.350	254.586	84.088	4.117	34.258	36.590
Treinta y Tres	871.646	521.597	290.968	12.577	1.543	29.319	15.642

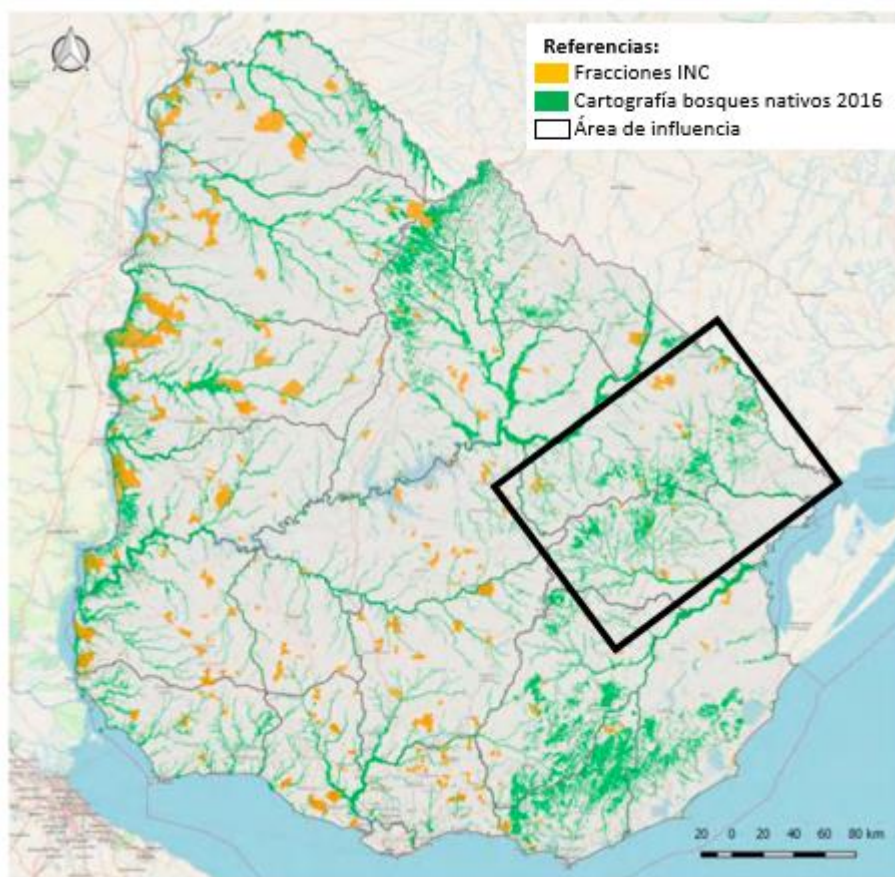


Figure 12. INC tenure lands and native forests in project zone. Source: adapted from Proyecto REDD+ Uruguay (2020), Map n°2.

2.5.2 Recognition of Property Rights (G5.1)

Since these lands are all legal forestry land, the ownership is clear, and there is no dispute over land ownership in the project site. Land tenure evidence is provided through notarial certificates of ownership⁷⁵ which comply with Uruguayan legislation. Moreover, evidence of complying with principle n°2 *Rights and Responsibilities of Tenure and Use* of FSC certification are reported in FSC summary reports publicly available.

2.5.3 Free, Prior and Informed Consent (G5.2)

Prior to the project initiation, all of the project land was owned by Forestal Tekoayhu S.A. To make sure the successful development of the project, the project owner which had the ownership of forest land had presented all the requested documentation to government authorities⁷⁶. So, the project will not encroach uninvited on private property, community property or government property.

Cattle breeding activity owners are invited to continue the activity within the property once the trees are 2-3 years, to avoid damages. This is done through signed agreements.

⁷⁵ Land ownership evidence available for VVB during validation

⁷⁶ Documentation presented to VVB during VCS validation

2.5.4 Property Rights Protection (G5.3)

Prior to the project implementation, the project area was degraded grasslands where farmers (private owners) used these lands for extensive beef production. Private owners voluntarily sold the lands to project owners, therefore the project activities will not lead to involuntary removal or relocation of property rights holders from their lands or territories, and does not force rights holders to relocate activities important to their culture or livelihood.

Due to its history, there are no native peoples in Uruguay. Only a new stream of people who have recognized themselves as descendants of indigenous communities, but who currently reside in cities. Roque Roldán's estimate for a paper for the Inter-American Development Bank, presented in Fortaleza in March 2002 based on ILO data, estimated its total number at only 524 (0.02% of the Uruguayan population) even though it is a subject of debate among different historians, the historical reports of the different auditing houses that certify in Uruguay indicate that there is no indigenous population according to the definitions of FSC.

2.5.5 Illegal Activity Identification (G5.4)

The forests are nursed by project staff regularly as a result of the implementation of the project and legal requirements, so there will not be illegal activities or deforestation of native forests inside Forteko farms or surrounding the project boundaries. Furthermore, all farms are gated and a conflict resolution procedure exists, where illegal activities are addressed detailing modo operandis.

The project benefits are gained from legal activities. Therefore, the project's climate, community and biodiversity impacts will not be affected by illegal activities.

2.5.6 Ongoing Disputes (G5.5)

Because the project owner signed legal purchase agreements on all the land and complies with local legislations, the forest land was developed reasonably and legally, so there are neither ongoing nor unresolved conflicts or disputes over rights to lands, territories and resources nor any disputes that were resolved and recorded. Claim registries show no ongoing disputes and public sector authorisation was granted for the activity⁷⁷. At the same time, Principle 2 of FSC, for which the project is compliance, states *rights and responsibilities over land tenancy* (see reference n° 54).

2.5.7 National and Local Laws (G5.6)

The project activity complies with the National law and binding regulations, since forest investment has been approved by the General Forestry Directorate (entity of the Ministry of Agriculture, Livestock and Fishery) and the National Environment Directorate (entity of the Ministry of Housing, Territorial Planning and the Environment at the time of project presentation, since July 2020 in charge of the National Directorate of Quality and Environmental Assessment under the Ministry of Environment). The former ensures that the project activity complies with National Law N° 15.939 and all binding decrees and decisions, while the second grants environmental authorization⁷⁸. This can also be evidenced with the

⁷⁷ Authorizations available for VVB.

⁷⁸ Authorization available for VVB (see reference 76)

fulfilment of principle 1.1 of FSC certification⁷⁹. Moreover, AF hires a third party service (Oval) to verify the compliance of labor obligations, documentation control and field audit of its contractors as well⁸⁰.

The applicable laws in Uruguay regarding afforestation are the ones detailed in table 13:

Table 13. List of forestry activities related laws. Source: GAF-PM-12 Legislation⁸¹.

National Laws	Decrees	Labour standards ⁸²	International Conventions and Treaties ⁸³	ILO Conventions ⁸⁴	National code of good practices
Law 15939/1987 . Forestry	Decrees 450 to 452/988. They regulate Law No. 15939.	Decree 14785 of 05/19/1978.	Law No. 13,776 Convention for the Protection of Flora and Fauna of America	C. 29 On forced labour (ratified 1995)	ILO Code on Health and Safety in Forestry Work 15.- C. 3 Maternity
Law 16002/88 Art. 45	Decree 849/988. It contains regulations on fire prevention.	Decree 647/978 No. 11/21/1978	Law No. 14,113 Convention No. 110 (ILO) Relating to Conditions of Employment of Plantation Workers	C. 87 On freedom of association and protection of the right to organize (ratified in 1954)	24 and C25 Health insurance
Law 16170 Arts. 251,267-275	Decree 931/988. Duties of the Administrative Commission of the Forest Fund.	Law No. 13,619 of 11/10/1967.	Law N° 17.279 Approve The Kyoto Protocol Of The UN Framework Containment On Climate Change Signed In Kyoto	C. 98 Right to organize and collective bargaining (1954)	C12, C17, C18, C19 YC 42 Work accidents and occupational diseases

⁷⁹ Area authorizations available for VVB during validation stated in FSC summary reports in reference 54.

⁸⁰ Oval's scope of work available for VVB

⁸¹ Available at BDU web, under Forestry Management Plan: https://www.bosquesdeluruguay.com/media/2022/03/GAF_PM_-_Resumen_Publico_del_Plan_de_Manejo_Grupo_AF_2021.pdf

⁸² Specific labor standards for rural and forestry workers

⁸³ International Conventions, Conventions and Treaties ratified by Uruguay

⁸⁴ Ratified by Uruguay

National Laws	Decrees	Labour standards ⁸²	International Conventions and Treaties ⁸³	ILO Conventions ⁸⁴	National code of good practices
Law 136320/92 Arts. 195-211	Decree 247/989. Regulates tax benefits Law 15939.	Law 10,471 of 03/03/1944. (It refers to the laws of limitation of working hours - law 5350- and rural minimum wage -law 7550, not applicable today-).	Law No. 17.026 UN Convention to Combat Desertification in Countries Affected by Serious Drought or Desertification	C. 105 On the abolition of forced labour (1968)	C88 and C89 Employment
Law 16906/98 Art. 28	Decree 457/989. Exoneration of import levies for forestry.	Decree 372/999. On working conditions in the forestry sector.	Law No. 16,408 Biological Diversity Agreement entered into in the city of Rio de Janeiro, Federative Republic of Brazil	C. 111 On discrimination (employment and occupation) (1989)	C 103 Maternity protection
Law 17288/2000	Decree 23/990. Norms relating to the extraction of products from the native forest.	Law 18251 Outsourcing Law of 01/2008	Law 14.205 Approves the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	C. 138 On the minimum age (1977)	C 128 Disability benefits
Law 17296	Decree 333/990 on forest priority soils. 8- Decree 50/991. Expands Decree 457/989.	Law 18099 Law of Outsourcing of 01/2008	Law 15.337 Relating to Ramsar, especially as habitat of ornithological fauna	C. 155 Health and safety of workers	C 130 Medical assistance

National Laws	Decrees	Labour standards ⁸²	International Conventions and Treaties ⁸³	ILO Conventions ⁸⁴	National code of good practices
Law 17453/02 Art. 43.	Decree 24/993. On indigenous mountain. Decree 330/993. On indigenous mountain. Decree 296/994. Modifies Decree 457/989.	Salary Council group 24 Period 2020 (February 5, 2020)		C. 161 Safety and Health Service at Work	C 121 Unemployment insurance
Law 17555/02 Ats. 75, 76 and 77. Art.	Decree 212/997. Modifies Decree 931/988.	Law 5032/1914 Prevention of work accidents		C. 161 Safety and Health Service at Work	
Law 17843/04.	Decree 372/999. Regulates working conditions in the forestry sector.	Law 14976 homologation of the ILO Convention 139 - carcinogens		ILO code 450 Use of Agrochemicals, guide and safety in the use of chemical substances at work.	
Law 16466 Environmental Impact Assessment	Decree dated 05/23/02, Forestry Law. Arts. 7th 8th 9th and 10th of Decree 849/88 of 14/12/1988	Law 15896 Prevention and fight of fire and accidents			

National Laws	Decrees	Labour standards ⁸²	International Conventions and Treaties ⁸³	ILO Conventions ⁸⁴	National code of good practices
Law for the Creation of Protected Areas 2000	Decree 209/003. Specifies the concept of forest exploitation for the purposes of tax exemptions.	Law 17852 Noise Pollution			
Law 16408 Law of conservation and biological diversity	Decree 504/005. Forest fire prevention December 2005 April 2006.	Law 18191 traffic and road safety			
Law 15239 Soil and Water Conservation (MGAP Soil Division)	Decree 188/02. Forest fire protection	Law 18360 Defibrillators			
Fauna Law and hunting regulations of the MGAP Natural Resources Division.	Decree 349/05. Regulatory Impact Assessment Law	Law 19196 Corporate criminal responsibility			
Dec. 14859 Water codes and their regulatory decree. Rural Code	Decree 307-2009 Protection from the Health and security from The workers from the risks related to agents chemicals.	Law 14785 9/05/1978 Regulatory Decree 647/78 Rural Environment			

National Laws	Decrees	Labour standards ⁸²	International Conventions and Treaties ⁸³	ILO Conventions ⁸⁴	National code of good practices
Law 15242 Mining Code Law 18099	Decree 294-2004 Labelling of phytosanitary products	Law 10471 of 44 Mountains, Forests and Peatlands			
Law 18251 Outsourcing	DGSA Resolution No. 53 on the training of applicators (2009)	Ministerial Resolution of 11/21/2000 Registration of contractors and subcontractors forest - Decree Law 372/99			
Law 18360 Defibrillators	Decree 152/13 Disposal of solid waste (PGR), and its ministerial resolution 1708-2013	Law 1990 16170 Pollution of the water			
Law 16074 Work accidents	Decree 291/2007 Safety Commission (Accident Prevention)	Law 15896 of the year 87 Competition, prevention, firefighting and accidents.			
Law 18083/06 Tax Reform	Decree 143/12 Noise, (after 80 Db mandatory use of PPE)	Law 11577 of 1950 Prohibition of dismissal of pregnant workers or recent mothers			

National Laws	Decrees	Labour standards ⁸²	International Conventions and Treaties ⁸³	ILO Conventions ⁸⁴	National code of good practices
Law 17234 National system of protected areas Constitution of the republic art. 7, 53, 54, 56 and 57.	Decree 307/09 Mandatory provisions Chemical agents Decree 103/95	Law 15084 Maternity leave and salary			
Law 18245 (12/27/07) Rural Real Estate Contribution Art. 162 Decree 150/007 IRAE Regulation	Decree 103/95 Homologation of standards in EPP 31	Law 16104 year 1990 Lactation			
	Decree 273/79 Water pollution	Law 17215 Gravity and change of task			
	Decree 210/12 List of occupational diseases	Law 17242 of the year 2000 Prevention of geno-mammary cancer			
	Decree 54/2020 Action Protocol against COVID-19				

Please refer to section 2.5.8 for details on approval resolutions for the farms.

2.5.8 Approvals (G5.7)

As mentioned, the total planted area had been approved (area larger than 100 ha) by the General Forestry Directorate (entity of the Ministry of Agriculture, Livestock and Fishery) and the National Environment Directorate (entity of the Ministry of Housing, Territorial Planning and the Environment) environmental office

responsible at the time of the Project presentation; since July 2020 it has been replaced by a new National Directorate under the newly created Ministry of Environment.

Also, the activity implemented by the project is the establishment of forests on land that had previously been under grassland for more than 50 years (methodology requirement), and therefore corresponds to the VCS scope 14: “Agriculture, Forestry and Other Land Use” as an Afforestation, Reforestation and Revegetation (ARR). ‘Forteko’ afforestation on degraded grasslands under extensive grazing is a single GHG Project. ‘Forteko’s long term perspective and sustainability is guaranteed by FSC certification.

2.5.9 Right to Claim Benefits (G5.8)

Please refer to existing documentation regarding Forteko land ownerships provided during validation under VCS. Moreover, the corresponding Deed of Accession and Partial Release have been sign between parties in April 2017⁸⁵.

2.5.10 Other Programs (G5.9)

‘Forteko’ is a new afforestation project and is not registered in any GHG program other than the VCS. The project is now managed by AF according to ISO 9001, following its work procedures and manuals.

AF has been certified ISO 9001:2008 since 02/12/2014. The project has also obtained the Forest Stewardship Council (FSC) certification ensuring that it complies with all legal, environmental, social and labour regulations⁸⁶

2.5.11 Double Counting (G5.9)

This project will not seek to generate or has received any other form of environmental or social credit.

3 CLIMATE

3.1 Without-Project Climate Scenario

3.1.1 Without-Project Estimated Greenhouse Gas Emissions (CL1.1)

Since continuation of an activity that has been applied without changes for more than 20 years has been selected as the baseline scenario, it is assumed, in agreement with IPCC Good Practice Guidance for Land Use, Land Use Change and Forestry (2003) that the net GHG removals by sinks in the baseline equals zero.

3.2 Net Positive Climate Impacts

3.2.1 With-Project Estimated Greenhouse Gas Emissions (CL2.1)

Since continuation of an activity that has been applied without changes for more than 20 years has been selected as the baseline scenario, it is assumed, in agreement with IPCC Good Practice Guidance for Land Use, Land Use Change and Forestry (2003) that the net GHG removals by sinks in the baseline equals zero.

⁸⁵ Documentation both, on land and carbon credits ownership available to VVB (Reference 36 and 74)

⁸⁶ ISO 9001 and FSC certificates available for the VVB at validation (reference 54 for FSC documentation).

Refer to section 3.2 of Project Description⁸⁷ for VCS validation and section 2.2 of project description deviations in first verification period in year 2013 Monitoring Report⁸⁸.

3.2.2 Net Impact (CL2.2)

Refer to section 1.7 of Project Description for VCS validation. Baseline net GHG removals and total GHG emissions due to leakage are zero, thus ex-ante estimation of C AR-CDM equals ΔC ACTUAL.

According to VCS version 3 AFOLU requirements, the amount of carbon credits must not exceed the long term GHG benefit of the project. The long-term average GHG benefit (LA) is determined by averaging the expected total GHG benefit for the length of the project. The project will remove a total amount of 5,596,531tCO_{2e} during a period of 100 years. This means an average of 55,965 tCO_{2e} per year.

Table 14. Estimated net GHG removals presented in validated VCS project

⁸⁷ PDD for project “Forteko Afforestation on degraded grassland under extensive grassland”. Version year 2012

⁸⁸ Monitoring report “Forteko Afforestation on degraded grassland under extensive grassland”. Version year 2013

Years	Estimated GHG emission reductions or removals (tCO ₂ e)	Years	Estimated GHG emission reductions or removals (tCO ₂ e)	Years	Estimated GHG emission reductions or removals (tCO ₂ e)
2008	4,704	2043	-189,555	2078	987,930
2009	123,237	2044	120,256	2079	876,340
2010	456,168	2045	3,440	2080	765,698
2011	442,301	2046	123,019	2081	853,793
2012	448,269	2047	296,300	2082	514,353
2013	610,309	2048	342,534	2083	-1,014,149
2014	499,857	2049	379,908	2084	-3,620,453
2015	457,284	2050	466,719	2085	-1,243,768
2016	433,256	2051	584,389	2086	-2,062,609
2017	242,845	2052	798,235	2087	-1,343,675
2018	-149,955	2053	1,264,035	2088	80,098
2019	159,856	2054	1,021,272	2089	262,854
2020	43,040	2055	1,042,981	2090	417,683
2021	162,620	2056	1,073,526	2091	393,656
2022	335,900	2057	574,921	2092	203,244
2023	382,134	2058	-989,009	2093	-189,555
2024	419,508	2059	-3,620,453	2094	120,256
2025	506,319	2060	-1,243,768	2095	3,440
2026	623,990	2061	-2,062,609	2096	123,019
2027	696,291	2062	-1,343,675	2097	296,300
2028	805,059	2063	80,098	2098	342,534
2029	839,694	2064	262,854	2099	379,908
2030	758,695	2065	417,683	2100	466,719
2031	863,849	2066	393,656	2101	584,389
2032	658,842	2067	203,244	2102	656,690
2033	-519,721	2068	-189,555	2103	769,331
2034	-3,416,168	2069	120,256	2104	817,505
2035	-943,067	2070	3,440	2105	742,103
2036	-1,844,098	2071	123,019	2106	855,510
2037	-1,283,450	2072	296,300	2107	656,501
2038	105,106	2073	342,534	2108	-520,408
2039	262,854	2074	522,094	2109	-3,416,168
2040	417,683	2075	963,631	2110	-943,067
2041	393,656	2076	788,831	2111	-1,844,098
2042	203,244	2077	958,453	2112	-1,283,450
				2113	105,106
Total estimated ERs				5,596,531	
Total number of crediting years				100	
Average annual ERs				55,965	

3.3 Offsite Climate Impacts (Leakage)

3.3.1 Types of Expected Leakage (CL3.1)

The methodology requires the assessment of sources of leakage due to activity displacement (conversion from grazing land to forestry). Application of the tool “*Estimation of the increase in GHG emissions*”

attributable to displacement of pre-project agricultural activities in A/R CDM project activity” led to the conclusion that this source can be neglected. The application of the “Guidelines on conditions under which increase in GHG emissions related to displacement of pre-project grazing activities in A/R CDM project activity is insignificant”, which is one of the applicability conditions of the tool, resulted in the conclusion that the project will not cause any displacement of the activity occurring before project implementation.

Please refer to section 3.3 of Project Description document validated under VCS for the project.

3.3.2 Quantity of Expected Leakage (CL3.1, 3.3)

Please refer to section 3.3 of Project Description document validated under VCS for the project.

3.3.3 Leakage Mitigation (CL3.2)

Given leakage is assumed to be zero, there is no mitigation in place. Please refer to section 3.3 of Project Description document validated under VCS for the project.

3.4 Climate Impact Monitoring

3.4.1 Climate Monitoring Plan (CL4.1)

Please refer to section 4.3 of Project Description⁸⁹ for VCS validation and section 2.2 of project description deviations and 3.3 for Monitoring Plan in first verification period in year 2013 Monitoring Report⁹⁰.

3.4.2 Dissemination of Monitoring Plan and Results (CL4.2)

The full project documentation will be published on VCS and CCB website for public comments, as well as the project summary in Spanish version, and the local communities and other stakeholders can easily download from the website. Also, the full project documentation will be published on BDU website for public comments.

3.5 Optional Criterion: Climate Change Adaptation Benefits

Not applicable as the project is not seeking gold level

3.5.1 Regional Climate Change Scenarios (GL1.1)

Not applicable

3.5.2 Climate Change Impacts (GL1.2)

Not applicable

3.5.3 Measures Needed and Designed for Adaptation (GL1.3)

Not applicable

⁸⁹ PDD for project “Forteko Afforestation on degraded grassland under extensive grassland”. Version year 2012 referenced 61 in shared Google folder

⁹⁰ Monitoring report “Forteko Afforestation on degraded grassland under extensive grassland”. Version year 2013 referenced 62 in shared Google folder

4 COMMUNITY

4.1 Without-Project Community Scenario

4.1.1 Descriptions of Communities at Project Start (CM1.1)

Main settlements in the project zone area are listed in 2.1.5 belonging to Cerro Largo, Treinta y Tres, Durazno, Florida, Lavalleja and Tacuarembó departments (the last is only partially part of the project zone and with no settlements in the area). These departments, and specifically the communities around the project area, are mostly white people (90 to 95%) followed by afro/black groups thought to have emigrated from Brazil (reaching 11% of population in Cerro Largo), anyway, the community within the project zone share the same language. Moreover, the land use in the project zone is predominantly natural grasslands for extensive livestock production, so this economic cultural activity is shared among the community and is the main relationship with natural resources in the area. Other land uses are cropland (corn and rice fields mainly) and native forest⁹¹.

Cerro Largo Department is among the lowest degrees of development, together with the departments of the north of the country (Veiga, 2016⁹²), while the central east region follows, presenting high values of population with at least one basic need uncovered (over 41%, with the exception of Florida department with 32.2% of population, but when analysed at a censal level, the value for the project zone is above 35%)⁹³.

In Cerro Largo the distribution by geographical area although mostly urban (87.9%)⁹⁴, it is lower than the total number of the country, with a rural population that was approximately 10,474 people (the remaining 12.1%) according to the result of the 2004 Census. For the case of Florida, Treinta y Tres, Lavalleja and Durazno the percentage of rural population reaches 16%, 10.3%, 13.1% and 11.8% respectively⁹⁵. Moreover, an important parameter to analyse is the percentage of population in localities with population below 5,000, as studies have shown to be the ones affected by greater poverty level than net rural areas⁹⁶. For the case of Cerro Largo, only Melo and Rio Branco are above this threshold, where 74% of the population of the department live.

Even with a relatively young population structure, with 27.5% of its population under 15 years of age, Cerro largo has a strong youth emigration (persistent over time in the department) which, together with a decrease in the birth rate, determines the aging of the population, a trend visible in all the project zone. The urban population is 88% and the growth rate of the population is on average 0.1% per year. The birth and mortality rates are 1.6% and 1.0% per year, respectively, which evidences, in comparison with the rate of change of the population, the occurrence of an important emigration process.

⁹¹ General Agriculture Survey (2011)

⁹² http://columnistas.montevideo.com.uy/ucimprimir_302409_1.html

⁹³ Census 2011. Analysis available at: https://www.ine.gub.uy/documents/10181/34017/Atlas_fasciculo_1_NBI_versionrevisada.pdf/57ea17f9-3fd9-4306-b9ca-948abc7fab73

⁹⁴ General Census 2004; Cerro Largo results available at: https://www.ine.gub.uy/c/document_library/get_file?uuid=ec824095-7ca4-4fb3-a701-72891dc2d85f&groupId=10181

⁹⁵ INE 2005 in GEOUruguay 2008

⁹⁶ ANUARIO 2012 - OPYPa (Paolini, 2012) "Reducción de la indigencia y la pobreza rural" Available at: <http://www2.mgap.gub.uy/OpypaPublicaciones/ANUARIOS/Anuario2012/material/pdf/24.pdf> (see reference 17)

One education indicator is the literacy rate, which, according to the General Census of 2011, is below 96.8% in the area, reaching 94.7% in Treinta y Tres, below the average in the interior (95.6%). This means 5.3% of the population of 15 or more years who do not know how to read in Treinta y Tres, while the country's average is 3.2%.

Life expectancy at birth is one of the demographic indicators that measures achievements in health matters. According to INE, Cerro Largo has one of the lowest values of this indicator, with an index of life expectancy at birth of 75.3 years (2006), which places the department in the national context in 15th place in this area (out of 19 departments), with a value lower than the national average (75.7 years). It is followed by Treinta y Tres in position 14th.

In terms of gender equality, a strong difference in the unemployment rate is verified in the Uruguayan labour market. The female unemployment rate is on average more than five percentage points higher than the male. In 2002, women represented 56% of the total unemployed. At the same time, the duration of female unemployment is superior to that of men. Regarding job informality, in year 2005 and for the interior, a 5 points gap between men and women was verified, and a 3.2 points gap in terms of social protection in favour of men⁹⁷.

In terms of Human Development Index (HDI), it consists of "a synthetic measure of the achievements of society in terms of human development", and "seeks to quantify and combine in an aggregate index the achievements average that registers a country in three fundamental dimensions: to achieve a long and healthy life (health dimension), to acquire useful knowledge (education dimension) and to have the necessary resources to enjoy a decent standard of living (standard of living or access to resources)". In 2005 (based on data of 2002)⁹⁸, considering the order of the departments according to this HDI, Cerro Largo was located in 16th place (reaching 17th place in previous years), while Treinta y Tres, Lavalleja, Durazno and Florida were 13th, 9th, 8th and 4th, respectively .

The area in which the project focuses presents high poverty rates. The average income of the households of the affected departments was \$ 9,900 / month in 2004, 30% lower than the national average. As shown in Figure 13, in the census sections located around the project site, between 5 and 30% of households are below the poverty line, with some areas with more than 30% of households below poverty line.

⁹⁷ Amarante & Espino (2007) Informalidad y protección social en Uruguay. Elementos para una discusión conceptual y metodológica. Cuadro A.5

⁹⁸ PNUD_Desarrollo Humano en Uruguay 2005 (see reference 18)

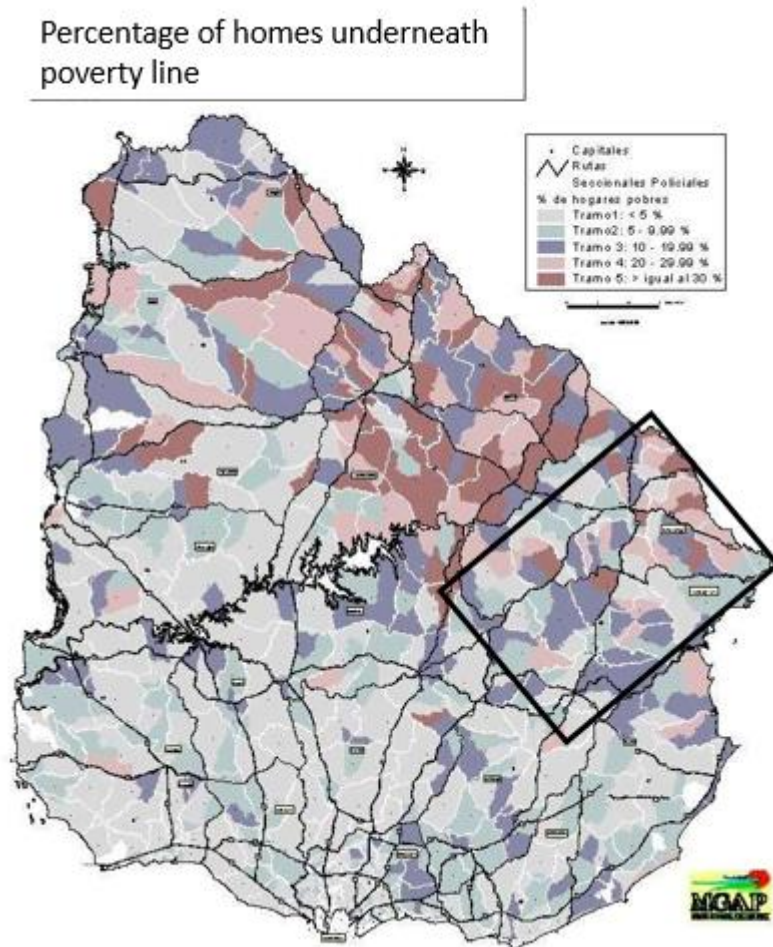


Figure 13. Proportion of households under poverty line in rural areas

In terms of economy, the project zone is characterized by primary economic activities (livestock in more than 90% of the establishments for each of the different departments), as well as tertiary and to a lesser extent secondary, with variation according to the department considered.

The main activities in the department of Cerro Largo are beef cattle ranching (62% of establishments declare cattle ranching as the main source of income, occupying 85% of the area of the department according to the 2000 Agricultural Census), and the sheep (15% of establishments, occupying just over 4% of the departmental area). In addition, they are responsible for 64% of rural employment. Meanwhile, in Treinta y Tres the main activities are livestock (cattle and sheep) and rice. The dairy must also take into account the involvement of a number of producers that are not negligible and that make it a way of life without visualizing alternative alternatives to that activity (some 60 families), according to the 2000 Agricultural Census⁹⁹. Employment in agriculture is concentrated in beef cattle, which represents 64% of employment (55 thousand jobs in the country). However, cattle ranching is one of the activities that

⁹⁹ General Agricultural Census 2011; Chart 191. Number of exploitations per main source of income, per department; Ministry of Livestock, Agriculture and Fishery (MGAP); <http://www.mgap.gub.uy/portal/hgxpp001.aspx?7,5,786,O,S,0>, (Accessed on 26/03/2016).

have the lowest rates of people employed per thousand hectares (employs four people per thousand hectares).

Rural poverty is the origin of the main social problems in Uruguay. The region where Forteko project is developed is particularly affected by a lack of development. Rural poverty has caused the internal migration from rural towns to precarious urban settlements in Montevideo and other cities, increasing marginality, criminality, lack of education, drug-addiction and other social problems. The region around the project site has a dominance of an extensive livestock system of production, which is characterized with a very low productivity level, very low employment, and precarious working conditions and reduced opportunities for women and youth, among other problems. Forteko's forest activity is expected to increase the gross value of production per unit area of land by six to eight folds, besides promoting a number of new activities which will multiply this impact.

Table 15 presents a summary of the census information of the project zone

Table 15. Demographic indicator from the project zone for year 2004 (population for year 2011 in the case of settlements marked with *, and "S/D" equals no data available)

Settlements	Department	Population					Total
		Male	Female	Age class (years)			
				<24	24-64	>64	
ARACHANIA (CEL)	Cerro Largo	5	4	2	4	3	9
ARBOLITO	Cerro Largo	117	106	85	77	48	210
AREVALO	Cerro Largo	43	39	43	34	5	82
CAÑADA BRAVA	Cerro Largo	S/D	S/D	S/D	S/D	S/D	S/D
CASERIO LAS CAÑAS	Cerro Largo	38	34	34	32	6	72
CERRO DE AMARO	Treinta y Tres	S/D	S/D	S/D	S/D	S/D	S/D
CERRO CHATO (DUR)	Durazno	513	586	493	427	179	1099
CERRO CHATO (FLO)	Florida	247	271	175	185	94	518
CERRO CHATO (TYT)	Treinta y Tres	810	851	674	859	128	1661
EL CORDOBÉS	Cerro Largo	S/D	S/D	S/D	S/D	S/D	S/D
ISLA PATRULLA (MARIA ISABEL)	Treinta y Tres	119	117	83	121	32	236
LA MICAELA	Cerro Largo	S/D	S/D	S/D	S/D	S/D	S/D
MENDIZABAL (EL ORO)	Treinta y Tres	42	42	40	35	9	84
PLACIDO ROSAS	Cerro Largo	237	222	163	242	54	459
QUEBRACHO (CEL)*	Cerro Largo	38	32	43	25	2	70
RINCÓN DE RAMIREZ	Treinta y Tres	363	379	302	384	56	459
SANTA CLARA DE OLIMAR	Treinta y Tres	1135	1170	852	1163	290	2305
TUPUMBAÉ	Cerro Largo	608	561	451	586	132	1169
VALENTINES (FLO)	Florida	24	15	8	16	14	39
VALENTINES (TYT)	Treinta y Tres	87	91	64	95	19	178
VERGARA	Treinta y Tres	1983	2003	1435	2068	483	3986

In summary, communities in the area are not diverse, they share the same language, religious belief, livelihood system, history and culture. Their relationship with natural resources is through the main responsible of the economy, beef cattle breeding.

4.1.2 Interactions between Communities and Community Groups (CM1.1)

Communities (described in 2.1.4) don't normally generate community groups related to forestry, although there is a Society of Forestry Producers where AF authorities take a seat. On the other hand, there are some community groups created around the beef cattle breeding activity, like "Sociedad de Fomento Treinta y Tres" or "Sociedad de Fomento Cerro Largo". These social organizations are characterized by being groups constituted voluntarily by the community for self-management of their economic development.

Other community groups identified are those created around the rural schools, these working as a place for neighbours to share activities.

4.1.3 High Conservation Values (CM1.2)

A list of community HCV areas identified within the project zone is described, nevertheless, none is located within the project area.

High Conservation Value	Parroquia de Santa Clara de Olimar
Qualifying Attribute	National Historical site for its book collection and paintings which will allow rescuing and maintaining the bond of those values with their environment as referents of the identity of the place.
Focal Area	Santa Clara de Olimar town in Treinta y Tres department

High Conservation Value	Cerro de Guazú-Nambí
Qualifying Attribute	National Cultural Heritage site for its scenery
Focal Area	Cerro de "Guazú-Nambí" and an area of 50 hectares surrounding it

High Conservation Value	Arbolito Combat
Qualifying Attribute	Place where the "Arbolito Combat" took place and a monument was erected where Antonio Florencio (Chiquito Saravia) fell
Focal Area	Surrounding 10 ha of the spot near route 8 in Cerro Largo Department.

High Conservation Value	Cueva de la Tigra
Qualifying Attribute	National Cultural Heritage site for its scenery
Focal Area	Cueva de la Tigra and an area of 30 hectares surrounding it

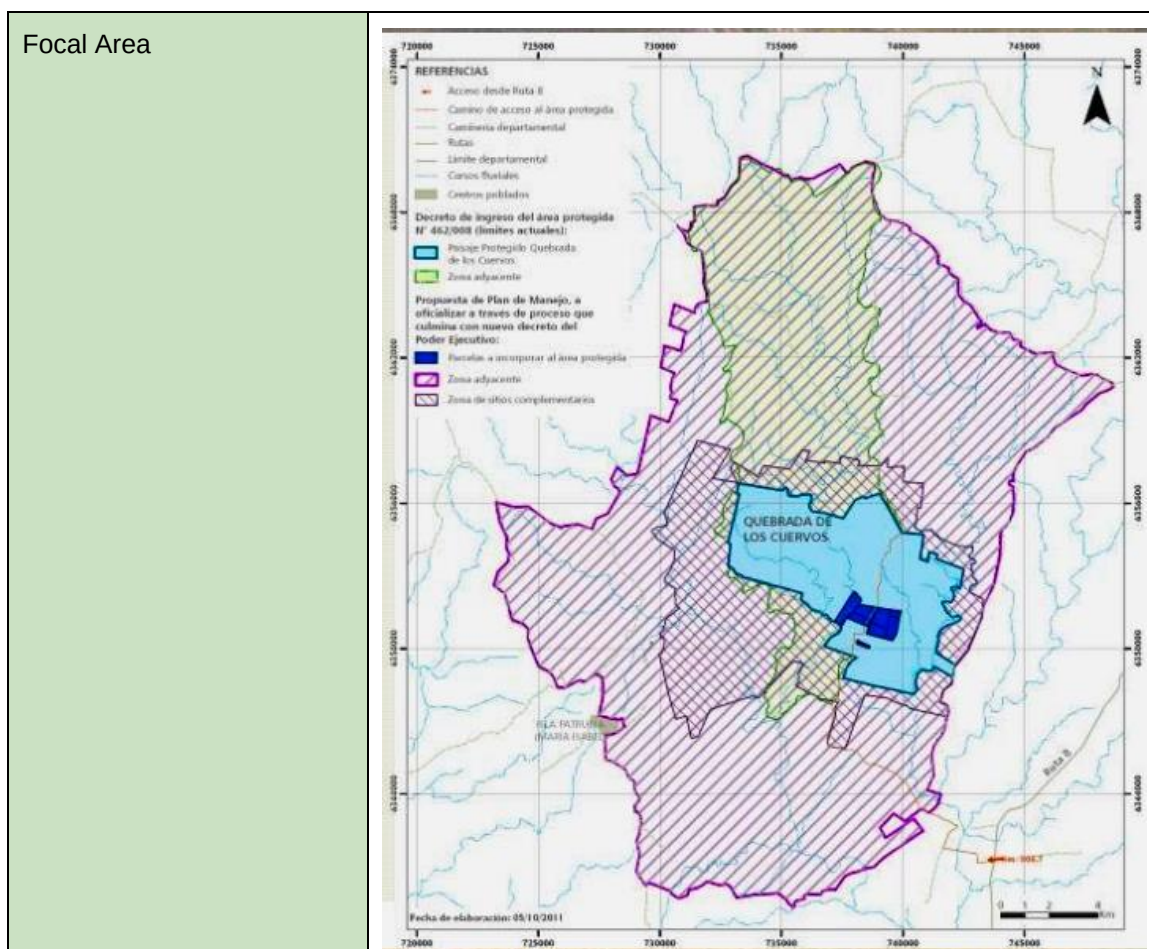
High Conservation Value	Cerro de las Cuentas
Qualifying Attribute	National Cultural Heritage site for its scenery
Focal Area	Cueva de la Tigra and an area of 50 hectares surrounding it at Departamento town

High Conservation Value	Casa Estancia de Aparicio Saravia
Qualifying Attribute	Historic monument
Focal Area	-

High Conservation Value	Casa de las Crónicas de Justino Medina
Qualifying Attribute	Historic monument
Focal Area	-

High Conservation Value	Paso Centurión y Sierra de Ríos (as of 2019 integrates SNAP protection area under Decree n.º 198/2019)
Qualifying Attribute	Paso Centurión together with Sierra de Ríos are located in the Department of Cerro Largo on the banks of the Yaguarón River, thus receiving a rich influence from the Atlantic Forest. For this reason, the area is home to animal and plant species that are unique to Uruguay. In 2007, for being one of the most biodiverse areas of the country, it was declared a Departmental Reserve. In 2019 the area was included in the National System of Protected Areas (SNAP) as a Protected Landscape “Paso Centurión and Sierra de Ríos”.
Focal Area	Paso Centurión is part of the landscape territory called Serranías del Este, and is located within the basin of the Laguna Merín. Several ecosystems are combined in the area, giving rise to a great diversity of environments, composed of ravines, riparian forests with characteristics of sub-tropical forest, natural grasslands, wetlands, pastures, palm groves and espinillares, thus allowing for the existence of a rich biodiversity.

High Conservation Value	Quebrada de los Cuervos y Sierras del Yermal (as of 2008 integrates SNAP protection area)
Qualifying Attribute	Biodiversity reserve as it presents priority flora and fauna species for the National System of Protected Areas; ecosystem services like soil protection.



High Conservation Value	Mi Generala - HCV6
Qualifying Attribute	Tombs belonging to soldiers Geronimo Farias and Cirilo Vera who died during national revolution in 1904. It can be found within the private property of BDU I Trust Fund and correspond to an historical heritage for local communities
Focal Area	It is located in the property Mi Generala, department of Florida managed by AF under the Trust Fund BDU I.

4.1.4 Without-Project Scenario: Community (CM1.3)

Expected changes in the well-being conditions and other characteristics of communities under the without project land use scenario are difficult to assess. According to the description of the communities at project start (4.1), and considering the evolution of the communities during the last 20 years, there has been a general improvement in the well-being of Uruguayan population, still there is an important gap among the population well-being in the country, mainly between the south and north of the country. In this sense, the most probable scenario without project land use scenario is that communities in the zone would not have significantly improved their well-being if continuation of cattle breeding represented the main economic activity.

Conclusion is achieved based on the historical characteristics of communities and how they are linked to beef cattle breeding. This is the main economic activity that has generated employment and is the main

source of income for the region¹⁰⁰, over the last 30 years. Soil productivity is relatively low, and production of grass is reduced compared to other soils in Uruguay¹⁰¹. Therefore cow–calf operation is the main activity method for raising beef cattle in which a permanent herd of cows is kept by a farmer or rancher to produce calves for later sale. This is the perfect scenario for maintaining “Gaicho” traditions. Gaicho is part of the national folklore, but the actual gaichos are only descendants of the original archetype. But this activity generally means living away from their houses for long periods of time, with no training and, thus, with low job growth possibilities.

4.2 Net Positive Community Impacts

4.2.1 Expected Community Impacts (CM2.1)

One of the main objectives of the project is to create positive benefits on the community and stakeholders of the project based on a comparison with the baseline scenario. This benefits will be monitored based, as previously mentioned, periodic surveys to the community allow to identify the forestry activity impacts on the communities. In this line the impacts analysed include: impact on local jobs, community well-being, employees respect for local communities culture, environment conservation, among others.

Moreover, bearing in mind the objective of creating an economic activity with exceptional community communication and participation throughout the project’s lifetime, the Company interacts with the community in accordance with the criteria of Social Responsibility and assuming its role as a neighbour. Through socio-cultural studies, possible interactions are identified, for example:

- a) Generation of manpower and use of local services.
- b) Collaboration with educational activities (presentations, collaborations, etc.).
- c) Talks on forest fire prevention and care for the environment in schools and high schools in the areas of influence, whether rural or urban.

As a result of the project activity an increase in the creation of jobs in an area with high unemployment and high poverty rates are expected. The number for the whole project is estimated in 666 employees of which 4% is women (based on Terana report, see reference n° 62), but women participation is expected to be higher. The forest activity in Uruguay causes an increase in the number of jobs compared to extensive farming activity, as well as job quality, since forestry wages are typically higher than other activities rural areas. These will contribute to the attenuation or reversal of the phenomenon of population migration from the project zone to urban and other areas of the country. Moreover, the development of services in the towns next to project area is expected to increase due to project activity. Direct and indirect

¹⁰⁰ According to Censo agrícola 2011, if the departments of Cerro Largo, Treinta y Tres, Lavalleja and Florida are considered, they represent 26,4% of beef cattle heads in the country, which represents 26% of the national surface dedicated to this activity. Including Tacuarembó and Durazno (which have less participation in the reference area), the surface dedicated to this activity equals 42% of the country.

¹⁰¹ GEOUruguay 2008 available in: <http://ambiental.net/wp-content/uploads/2008/12/GeoUruguay2008.pdf> and Ministerio de Agricultura, Ganadería y Pesca – Dirección Gral. de Recursos naturales renovables. Sistema de información geográfica. Agosto 2020

jobs of forestry activity is 150% of direct jobs expected¹⁰². If you add cattle breeders and beekeepers within the project area, livelihood improvement is expected to reach 1036 people, of which 45 are women.

In addition, there is a tendency in the country that forestry workers return home after each workday, which is a big improvement in respect to livestock, which strongly depends on the residence workers on farms, far from their families.

On the other hand, the gross value of production per unit land area will increase between 6 to 8 times compared to extensive livestock farming. Forestry produces an increase in tax revenue. Biomass production and energy resource is of high strategic value for Uruguay, the project will increase supply of forest residues, which is considered a security for the country in terms of energy sources.

Regarding each community group impacts have been identified:

Community Group	Cattle breeders
Impact(s)	Temporary relocation of activities, changes in the beef cattle breeding system (to silviculture)
Type of Benefit/Cost/Risk	Actual and predicted impacts beneficial to the cattle breeders (with temporary inconveniences)
Change in Well-being	Changes towards silvicultural activities have shown to bring benefits to cattle animals in comparison to grassland breeding, this being the provision of shelter from high temperature weather and storms. Moreover, with the objective of reducing fire risks, cattle breeders and neighbours are capacitated on fire prevention and care for the environment during talks and community work.

Community Group	Rural population
Impact(s)	Increase in economic activities and demand for services in the area; improve of local communities well-being and livelihoods
Type of Benefit/Cost/Risk	A direct actual benefit is that Forteko has implemented a program to support and assist local communities, public schools, public entities (firefighters, police) or any stakeholders identifying together problems solvable by the company, with donations of various types ¹⁰³ in the project zone. From materials goods (firewood, tools, and school supplies), to staff time (educational presentations in schools, technical assistance and participation in productive projects). Both Cambium and AF are committed to promote and enhance the well-being and livelihood of the community. An indirect predicted benefit with the increase in the demand for services in the area, as a result of more activities taking place, is the generation of more jobs in different sectors ¹⁰⁴ . This value is expected to represent a 150% in relation to direct jobs generated by the

¹⁰² Based on reports on the impacts of the forestry chain. Available at: http://www.spf.com.uy/data/paginas/Informe_Impacto_Cadena_Forestal_CPA_Ferrere_22-11-17.pdf

¹⁰³ A complete and detailed list of donations is available for VVB during validation (see reference 56)

¹⁰⁴ Based on the report by Ferrere (2017) "Contribución de la Cadena Forestal a la Economía de Uruguay"

	project¹⁰⁵, meaning 1,036 people with improved livelihoods (of which 4% are expected to be women). Another direct benefit for rural communities' well-being is erosion control and HCV conservation. Impacts will be measured based on annual surveys to community. Community well-being is expected to equal 12,558 people within the project zone, the equivalent to the whole population in the area (of which 52% are expected to be women based on gender participation in total population of Census 2011).
Change in Well-being	Improvement given more people access jobs and training; conservation of environmental services. The implementation of the project activity will result in an effective protection of the soil against erosion and in a reversion of the degradation by building up soil organic carbon. Soils will be disrupted only once each rotation cycle and site preparation will be based on strip tillage, with strips oriented perpendicularly to slope direction, and use of glyphosate herbicide to minimize the exposure the soil to erosion agents. The tree vegetation will completely protect the soil and at harvest, bark, leaves and branches will be left on the ground, thus minimizing any negative impacts of erosion by rainfall and soil degradation by harvesting machinery

Community Group	Forest producers and workers
Impact(s)	Increase in scale and demand for jobs and industries; management experience improvement
Type of Benefit/Cost/Risk	Indirect predicted benefit given by economic studies ¹⁰⁶
Change in Well-being	The project will contribute to create a development pole away from Montevideo and other areas which concentrate most of the economic activity in the country

Community Group	Project forestry workers
Impact(s)	Chemical management
Type of Benefit/Cost/Risk	Identified direct potential risk – low significance (given the mitigation actions in place)
Change in Well-being	Potential health risk

Community Group	Rural school students and staff
Impact(s)	Education improvements by upgrading education facilities that are child sensitive to 500 students and staff (of which 48.9% are women based on child gender participation in Census 2011).

¹⁰⁵ Based on information from the report of Ferrer, 2017 (previous reference); where induced jobs from the forestry sector represented more than 150% of direct jobs in 2016.

¹⁰⁶ Based on the report by Ferrere (2017) "Contribución de la Cadena Forestal a la Economía de Uruguay"

Type of Benefit/Cost/Risk	Actual direct benefit received by students and education institution staff
Change in Well-being	This will be achieved through the project's donations to improve the school infrastructure and maintenance. It also includes talks on subject of interest to school authorities as: locally transmitted diseases, risk of locally present ophidians, flora and others ¹⁰⁷

4.2.2 Negative Community Impact Mitigation (CM2.2)

On the basis of the theoretical assessment of the impacts identified in the EIA as negative as a result of the planned interventions and related forest activities, the aim is to establish mitigation measures that will depend on each particular situation.

Mitigation is understood as the design and execution of works, activities or measures aimed at moderating, attenuating or measures aimed at moderating, attenuating, minimising or diminishing the negative impacts that this that this project may generate on the human and natural environment.

The project impacts identified in the Environmental Impact Assessment will be mitigated based on:

Generation of jobs: the main objective of the harvesting manager is to select contractors in the areas of influence as far as possible.

Economy: the increase of the economy in the area is carried out indirectly, the company only sets as a criterion to buy from suppliers.

Impacts on personnel: the mitigation measures that result in a low risk weighting are: the mandatory use of PPE (shoes or rubber boots, overalls, nitrile gloves, respirator for organic vapours, cap and goggles in the case of transferring products to be filled, etc.) rubber boots, overalls, nitrile gloves, respirator for organic vapours, cap and goggles in the case of transferring products for filling goggle backpacks). It is also compulsory to have an applicator's licence which implies going through a specific training course in the application of chemical products.

Roads and Routes: The Company establishes that on rainy days it is forbidden to drive on unpaved roads to avoid road and routes deterioration.

Soil and water contamination by chemicals: There is an operating procedure in place for the correct use and care to be taken to avoid spills and contamination by limiting use, trained personnel in charge, among other actions.

Flora: Operators will be trained in operational IT to prevent the product from contaminating the local flora.

To the extent that negative impacts are identified that could have a greater significance than foreseen, the necessary corrective measures will be taken immediately. These will depend on the specific situation in each case and will be evaluated by the management of the legal entity, the AF GROUP and the appointed technical advisors.

¹⁰⁷ A complete and detailed list of donations is available for VVB during validation (see reference 56)

No elements have been established to determine or establish compensation measures to restore environmental impacts, given that they have not been identified in the production process of the properties that make up the AF GROUP.

The following are some of the situations that could be found and the measures that could be taken in the event that they are found:

Gullies: If there are significant gullies, their surface area is measured and monitored to ensure that it does not increase. If this is the case, the area is measured and monitored to ensure that it does not increase, and if it does, it will be filled in or trees will be planted, selecting the most appropriate measure for each situation.

Erosion: Planting lines should preferably be carried out perpendicular to the slope, in the event that there is a longitudinal and transverse slope, it shall be cross slope, with drains/roads that allow for a change in the direction of the tillage so that there are no downhill furrows. The furrows should have a slight slope (2%), which is necessary to prevent the accumulation of water that would limit the growth of the trees.

Whenever possible, roads should not be used when they are wet, so as not to risk jeopardising their preservation.

Water wells: In the water wells, physical and chemical analysis of the water is carried out and the water table is measured on a biannual basis.

Soil analysis: If necessary, soil analysis will be carried out at selected sites. This can be defined e.g. when plantations are monitored and growth is found to be below expectations.

Harvesting: Given that forest harvesting is the activity that potentially generates the greatest impacts, certain aspects to be taken into account after harvesting are recorded in the Harvest Environmental Monitoring Sheet.

Roads: Given that forest harvesting is the activity that potentially generates the greatest impacts, certain aspects to be taken into account after harvesting are recorded in the Harvest Environmental Monitoring Sheet.

Moreover, the project area has management and monitor plan in place for HCV and APIC areas to ensure the conservation of those areas identified, throughout the project's lifetime (see section 4.2.4 and 4.4.1).

4.2.3 Net Positive Community Well-Being (CM2.3, GL1.4)

The main source of income for communities associated with the agriculture in the project area is beef-cattle breeding (cow-calves). The production methods have been applied for the last 300 years (extensive production) and are affected by natural disasters such as droughts, floods. Overall, agricultural production is low. The project will benefit communities economically and socially.

1) Income improvement: during the project period, the net income generated by the project includes generation of employment and increasing labour income

2) Job creation: The project will provide permanent, temporary, direct and indirect employment opportunities. Most of the work will belong to local farmers involved in the project.

- 3) Enhance social cohesion: project developers will form a closer interaction channel, which will strengthen communication between communities, local/national governments and forestry contractors' companies.
- 4) Technical training: people from communities hired to develop forest activities will be technically trained.
- 5) During the project implementation, it will contribute to HCV areas conservation.

Those impacts identified will be mitigated based on the procedures further described in the general Forest Management Plan.

4.2.4 High Conservation Values Protected (CM2.4)

The identified community HCV areas are not located within the project area. None HCV will be negatively affected by the project because they are either protected by national laws or voluntarily protected by the project proponents (as is the case of the tombs found in Mi Generala, within the project zone). Almost all HCV related to community well-being are not located in the rural areas, but in towns, negligible being affected by the project activity. If HCV are to be identified during the project's lifetime within the project area, they shall be monitored and protected as mentioned in the BDU project Management Plan and section 5:

For example, for the case of historical resources, the following management plan is defined for their care and conservation:

- Visual inspection of each tomb will be carried out once a year whether there have been visits or not.
- Removal of existing weeds in the vicinity of the graves.
- Placement of HCA signage.
- Prohibition for visitors to remove or change parts of the graves (plaques, etc.).
- No machinery is allowed near the graves.
- No planting near the graves.
- Any existing natural regeneration (exotics) shall be removed.
- Visitors are prohibited from any hunting, fishing, camping, that is considered illegal activity.
- It is forbidden to barbecue on the property, to gather firewood, to cut branches, to throw trees.

Evidence of monitoring is recorded and the record will be kept for 5 years.

4.3 Other Stakeholder Impacts

4.3.1 Impacts on Other Stakeholders (CM3.1)

The project activities may contribute to other stakeholders, improving socio-economic conditions, by bringing decentralized development and generating job opportunities. It will also add to a higher demand for forestry industries in the area, which can eventually lead to migration because of job opportunities.

It is well known that planting trees on a grassland site usually causes a reduction in the runoff and an increase in the evapotranspiration. This might cause some competition for water with other users (e.g, cattle farms located downstream in the watersheds, hydroelectric power generation, and water for human consumption). Some studies (e.g. Silveira et al., 2006¹⁰⁸) have shown that this effect is not significant in Uruguay at the medium-size watershed scale (due to high precipitation). At the micro-watershed level, there might be some problems, which can be minimized by plantation design (e.g. by limiting the extent of forest plantations in a watershed)¹⁰⁹. The proposed project will leave at least 35-40% of the land area unplanted, which would greatly reduce the hydrological effects, as compared with a more common 25- 30% of unplanted area. In addition, since most of the project area flows into rivers with relatively high flow rate, no significant downstream effects are expected.

On the other hand, given the fact that climate change in Uruguay has increased precipitations and is expected to continue causing an increased frequency of extreme precipitation events associated with flooding¹¹⁰ causing severe infrastructure damage and displacement of people from their homes, the establishment of forests acts as a factor attenuating such negative impacts, by moderating the runoff. This is in fact a positive environmental service of the project. Given the fact that soil erosion will be controlled and that a minimal amount of agro chemicals will be used no negative impacts on water quality is expected either.

4.3.2 Mitigation of Negative Impacts on Other Stakeholders (CM3.2)

Any potential negative impacts on the hydrological cycle processes will be minimized by: a) the design of plantations, which will occupy only approximately 62%¹¹¹ of the land of Forteko project area, avoiding sensitive areas; and b) the fact that the annual rainfall, and in particular during the spring-summer period, when usually water deficits occur, has been increasing over recent decades, and is expected to continue in the future, thus offsetting the expected decrease in runoff.

No other negative impacts have been identified on other stakeholders, but periodic monitoring of project activities impacts will allow quick identification and opportunity for its mitigation.

4.3.3 Net Impacts on Other Stakeholders (CM3.3)

As previously analysed, given the fact that climate change in Uruguay has been causing, and is expected to continue causing an increased frequency of extreme precipitation events associated with flooding causing severe infrastructure damage and displacement of people from their homes, the establishment of forests acts as a factor attenuating such negative impacts, by moderating the runoff. Together with the mitigating actions, with proper forest design, instead of causing a negative impact on other stakeholders in terms of runoffs, the project presents a clear environmental service.

¹⁰⁸ Silveira, L., Alonso, J., y Martínez, L. 2006. Efecto de las plantaciones forestales sobre el recurso agua en el Uruguay. Agrociencia (2006) Vol. X N°2 pág. 75-93

¹⁰⁹ Nosetto, M. & Jobbagy, G. (2016) Análisis del impacto hídrico de la expansión forestal en cuencas de Uruguay at Sociedad de Productores Forestales Uruguay

¹¹⁰ As mentioned in section III of: Giménez et al (2006) Cambio climático en Uruguay, posibles impactos y medidas de adaptación en el sector agropecuario. Serie Técnica N° 178, INIA

¹¹¹ This takes into consideration only the forested surface, meaning, for example only 2,055.9ha of Manolete farm is considered when the whole farm is 3,042ha

As there has not been identified other negative impacts, there is no need to anticipate their results.

4.4 Community Impact Monitoring

4.4.1 Community Monitoring Plan (CM4.1, CM4.2, GL1.4, GL2.2, GL2.3, GL2.5)

There is a “Social Monitoring and Management Plan” for the project within the general Forest Management Plan, elaborated to monitor social impacts of the project over communities and vice versa. The responsibility for the application of this plan lies within the General Management, with delegated functions over company personnel and external advisors, as needed.

Social management is understood as all the activities carried out by the company to facilitate relations with the local community and support its development in a compatible way with the forestry activities. This activities/actions may eventually include both, a regional and national scope. The planning of social management activities is based on the knowledge of the socio-cultural reality of the area of influence of the project, based on desk research, field evaluations (surveys and monitoring) and direct contact with community members. The objective of the document is to describe and monitor how the company works to achieve good relations and integration with local communities in the area of influence of the project’s activities.

The Social Monitoring Plan is carried out, mainly assessing the evolution of the local communities with regard to the forestry sector in general, and in relation to the project’s actions in particular. This monitoring is aimed at identifying the positive and negative impacts of the activity on the social environment, and is carried out based on the direct and sustained interactions between company employees and members of the local communities.

The project monitoring plan is based on the “theory of change approach”, which supposes the improvement of a list of assumptions about the possible impacts of the project activity. Measurable indicators are established for the evaluation of the community impact of the project. The indicators included in the monitoring plan are evaluated periodically. The monitoring purpose is to identify the areas for improvement, where the level of compliance is not being achieved and for the development of new strategies and processes to accomplish the objective.

Improvement	Indicator	Source of data	Monitoring frequency	Goal
Improvement of livelihoods of communities and stakeholders	Number of direct and indirect employees	Human resources	Annual	Prioritize local hiring if needs are met
Improvement of technical capacities of communities and stakeholders	Number of trained people in forestry-related areas	Internal registry of training	Annual	100% forestry contracted companies should be trained every year
Achieve exceptional community communication and participation	Number of complaints resolved	Internal record of complaints and resolution	Annual	100% of complaints should be answered and solved in line

Improvement	Indicator	Source of data	Monitoring frequency	Goal
throughout the project lifetime				with procedures in place
	Communities valorisation of project communication procedures ¹¹²	Survey	Annual	Maintain values of good/very good results above 60%
Improvement of communities well-being	Contribution of project developer to communities in material assistance	Internal registry of donations (supported by accountability books)	Annual	Contribute with communities with what is possible
	Communities valorization of project improvement to community well-being	Survey	Annual	Maintain values of good/very good results above 60%
Cattle breeders participation	Number of cattle breeders in properties	Internal reports	Monthly	Maintain interaction with cattle breeders
Maintenance of community HCV	Community HCV conservation status within premises	Monitoring plan implementation	Annual	No HCV negatively impacted
Mitigate workers health risks	N° of accidents/1million working hours	Internal records	Monthly	Reduce accidents to 4 accidents every 1 million working hours

In the case of AF, apart from these objective indicators, a set of subjective indicators are collected from stakeholders present in the project area of influence through semi-directed interviews. Positive and negative impacts of forestry activities area consulted, allowing the company to better understand how the project's activities contribute or interfere with satisfying the priority needs for the communities development.

This opinions are recorded in the forms previously presented in this document and analyzed later by the social area in charge. This information allows AF-BDU to select and define the socio-environmental indicators that can be followed up in the coming periods in order to verify the contribution for the communities' development, as well as impacts on natural ecosystems. Moreover, HCV for communities monitoring is based on the management guidelines stated in the general Forest Management Plan.

4.4.2 Monitoring Plan Dissemination (CM4.3)

The monitoring plan and annual monitoring results are published on BDU III website which can be consulted by stakeholders. Annual monitoring reports are also presented to the stakeholders during face-to-face presentations organized with the communities.

¹¹² Only for AF, Cambium did not have a specific survey on communities' valorization of project, but had good relation with neighbours by working together with communities on productive and educational projects in the project zone.

4.5 Optional Criterion: Exceptional Community Benefits

Not applicable as the project is not seeking Gold Level

4.5.1 Exceptional Community Criteria (GL2.1)

Not applicable

4.5.2 Short-term and Long-term Community Benefits (GL2.2)

Not applicable

4.5.3 Community Participation Risks (GL2.3)

Not applicable

4.5.4 Marginalized and/or Vulnerable Community Groups (GL2.4)

Not applicable

4.5.5 Net Impacts on Women (GL2.5)

Not applicable

4.5.6 Benefit Sharing Mechanisms (GL2.6)

Not applicable

4.5.7 Benefits, Costs, and Risks Communication (GL2.7)

Not applicable

4.5.8 Governance and Implementation Structures (GL2.8)

Not applicable

4.5.9 Smallholders/Community Members Capacity Development (GL2.9)

Not applicable

5 BIODIVERSITY

5.1 Without-Project Biodiversity Scenario

5.1.1 Existing Conditions (B1.1)

The natural grasslands are the most representative habitat of Uruguay¹¹³. This environment, mainly due to agricultural exploitation, has been degraded and modified over time, leaving only a few pristine areas¹¹⁴. The natural prairie is the habitat of many species of fauna, many of them categorized as RAE species

¹¹³ Baeza et al (2011) Cartografía de los pastizales naturales en las regiones geomorfológicas de Uruguay predominantemente ganaderas. Based on Soriano et al (1991) y Agriculture census 2001.

¹¹⁴ Paruelo et al (2004) Cambios estructurales y funcionales asociados al pastoreo en los pastizales del Río de la Plata.

worldwide. Some researchers found richness in different taxa. For example, Dias et al. (2013)¹¹⁵ described 57 species of birds in grasslands, Bilenca and Mirraño (2004)¹¹⁶ mentioned more than 100 mammal species in the area, Carreira et al. (s/f)¹¹⁷ detailed 71 species of reptiles. It is also relevant to mention that 46 priority bird species inhabit in grasslands which require a high height in vegetable cover (Satouullo et al. 2013)¹¹⁸.

But the native pastures of Uruguay, since the introduction of the cattle by the Spaniards at the end of the 15th century, have undergone a substantial modification from those times to the present¹¹⁹. This condition has intensified due to overgrazing, the introduction of exotic forage species and the tendency to add new grazing lands by burning areas of humid grasslands¹²⁰, chilcales (shrubby areas) and other natural ecosystems that used to be habitats of RAE and IUCN species. Associated with this, there are lowlands and wetlands, with richer biodiversity and higher conservation value, or has lost biodiversity but presents potential to be recovered with a sustainable management.

Topography of the area consists of rolling hills with less than 300 m altitude, with abundant water streams. The mean annual temperature is 18 °C, varying from 12 °C (July) to 25 °C (January). Night frosts occur during the winter (from mid-May to early October), with an average of 30 days with frost per year, with temperatures seldom falling below –5 °C. Annual precipitation in the area ranges from 1,100 to 1,300 mm, homogeneously distributed along the year, although periods of severe drought and severe water excess can occur. Potential evapotranspiration is about 900 mm/year. Runoff and drainage are on average in the order of 300 mm/year, feeding an extensive network of rivers and the Guaraní Aquifer, one of the largest of the world.

Soils are generally not very deep, of medium-to-coarse texture, with low natural fertility. Dominant land cover in the area is grassland, with predominance of herbaceous vegetation (mainly grass species) with interspersed and not very abundant shrubs. The vegetation is highly determined by land use (grazing of cattle and sheep). Native vegetation before cattle was introduced in the XVII Century, was richer in shrubs and small trees, although grass and other herbaceous species were also abundant. In spite of high rainfall level and quite fertile and deep soils, trees appear naturally only at the side of rivers and streams, covering only 3 % to 5 % of the land area. This has been attributed to the natural occurrence of frequent droughts which prevented slow growing trees from becoming established against an aggressive competition by grasses. As it was stated above, the project area consists basically of grassland altered by many years of grazing.

¹¹⁵ Días R et al (2013). Shifts in composition of avian communities related to temperate-grassland afforestation in southeastern South America. Available at: <https://doi.org/10.1590/S0073-47212013000100002>

¹¹⁶ Bilenca & Mirraño (2004). 4. Identificación de Áreas Valiosas de Pastizal (AVPs) en las Pampas y Campos de Argentina, Uruguay y sur de Brasil. Fundación Vida Silvestre Argentina. Buenos Aires.

¹¹⁷ Carreira S, et al (s/f). Diversity of reptiles of Uruguay: knowledge and information gaps. Bol. Soc. Zool. Uruguay (2ª época). 2012. Vol. 21 (1-2): 9-29. ISSN: 0255-4402. Available at: http://www.szu.org.uy/boletin/vol21/9_29_vol21.pdf

¹¹⁸ Soutullo A, C. Clavijo & JA Martínez-Lanfranco (eds.). 2013. Especies prioritarias para la conservación en Uruguay. Vertebrados, moluscos continentales y plantas vasculares. SNAP/DINAMA/MVOTMA y DICYT/MEC, Montevideo. Available at: https://www.researchgate.net/publication/280601000_Especies_prioritarias_para_la_conservacion_en_Uruguay_Vertebrados_moluscos_continental_y_plantas_vasculares

¹¹⁹ Diaz et al (2008) Impacto de la intensificación productiva sobre el campo natural en Uruguay. INIA

¹²⁰ Bruzzone et al (2020) Eventos de quema en pastizales de Sierras del Este: una caracterización basada en sensores remotos, based on Rollo Payarés et al 2005; Berretta 2006; Lopez Mársico et al 2019a

This would have caused a significant change in species, as well as some soil loss due to laminar erosion due to frequent over grazing. Due to the change in the regime of precipitation observed in recent years, with an increasing trend in both total precipitation and storm intensity, combined with the effects of overgrazing, particularly in dry periods, the soils in the project area would be subjected to increasing erosion and degradation pressures. Figure 14 shows the project is located on the areas affected by various degrees of gully erosion, according to the map of gully process intensity on Uruguayan soils. Moreover, the removal of vegetation by grazing cattle has caused a reduction in the annual inputs of organic carbon into the soil, thus causing a long-term reduction in the soil organic carbon content, which has been estimated at more than 20 per cent of the original soil organic carbon content (Piñeiro et al., 2006)¹²¹

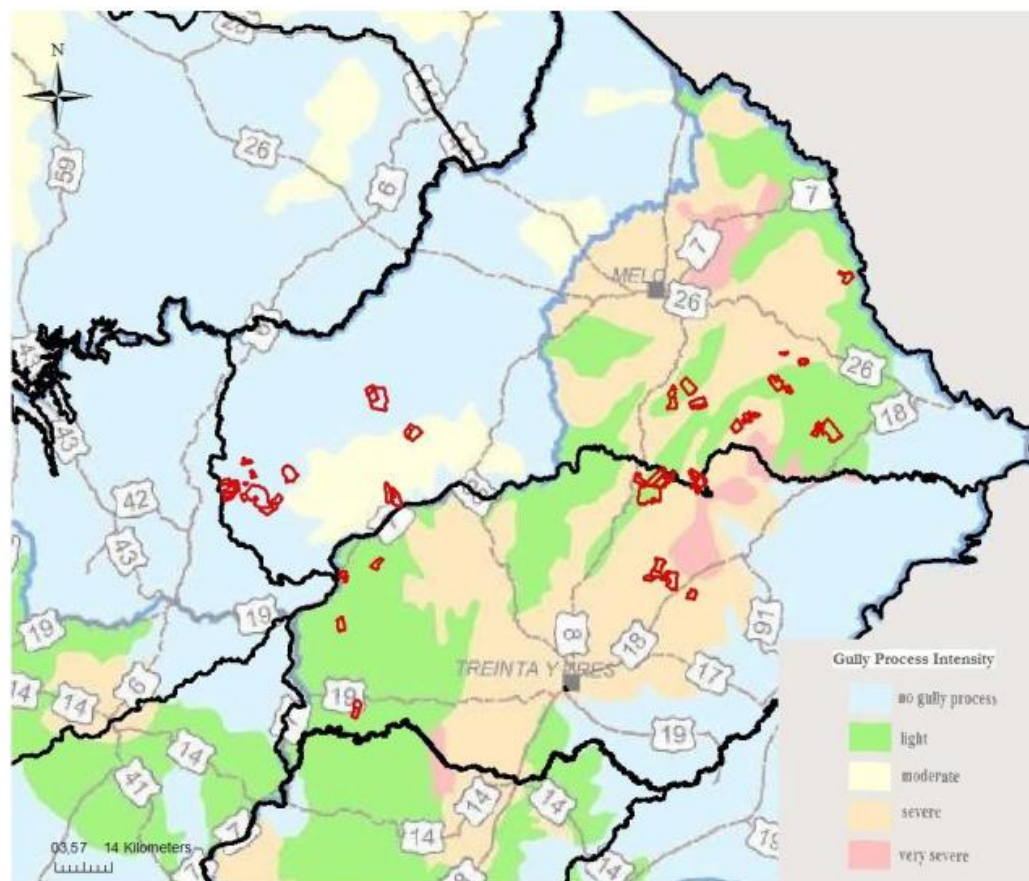


Figure 14. Occurrence of soil gully erosion processes in Uruguay¹²².

This grazing-degraded grassland covers virtually all the project area. Associated with this, there are lowland, humid zones, with richer biodiversity and higher conservation value. The forests within the project

¹²¹ Piñeiro, G., Paruelo, J.M. and Oesterheld, M. 2006. Potential long-term impacts of livestock introduction on carbon and nitrogen cycling in grasslands of Southern South America. *Global Change Biology* 12:1267–1284 (see reference 46)

¹²² Source: 'Ministerio de Ganadería, Agricultura y Pesca' of Uruguay (Ministry of Agriculture). (<http://www.mgap.gub.uy/Renare/SIG/ErosionAntropica/intdelprocesodecarcavas.jpg>)

boundaries will be planted on grazing-degraded zones, and it was designed with the objective of preserving the most valuable areas outside project boundaries but inside the land owned by 'Forteko'.

These conservation areas include natural forests alongside the rivers and minor water streams, composed by hydrophilic species close to the streams, and xerophytic species of shrubs and tall grasses surrounding them in a transition to the grasslands.

On the other hand, favoured by overgrazing, appears *Cynodon dactylon* which has been naturalized and has progressively colonized the soil, occupying the spaces left by species less resistant to trampling. Once established it gives no place, being considered as a noxious weed and as a sign of land degradation (decreased site productivity)

The project will be implemented on degraded lands which are expected to remain in a degraded state in the absence of the project. Evidence is provided here showing that, due to extensive grazing activity practiced for more than 300 years, with frequent periods of overgrazing, lands have lost the original vegetation and a fraction of the soil organic matter, an essential component determining land productivity, leading to constraints to productivity, particularly in those areas affected by severe erosion. In addition, due to frequent periods of overgrazing causing the soil to become exposed to erosive processes (i.e., due to lack of vegetation cover) combined with dominating moderate slopes in the terrain, gully erosion processes have affected most of the lands within project boundaries.

Native vegetation in the project region was originally composed mainly by tall grasses and shrubs. The turnover of plant residues maintained relatively high levels of organic matter in the soil. Introduction of cattle in the 17th century brought about a degradation of the vegetation, which became dominated by grasses that were kept short by grazing, particularly after introduction of sheep a few decades later. The sheep and cattle extensive grazing activity has prevailed, more or less unchanged, until present. Due to the extensive nature, the production system is vulnerable to climate extremes, the relatively frequent droughts that occur in Uruguay (e.g., dry periods every summer, with extreme droughts every 10 years or so) are associated to overgrazing. Grazing practices applied on all the lands included within project boundaries during long periods of time have resulted in significant losses of carbon, nitrogen, phosphorus and other nutrients from the soil, and have also resulted in significant alterations to the vegetation cover and the biological diversity. The change in vegetation due to grazing reduced the turnover of plant residues and, consequently the organic matter content of the soil, thus leading to a more degraded state of soils. Some recent studies support this statement (Piñeiro et al, 2006¹²³) having found that 370 years of grazing have caused, on average for 11 grassland sites in Argentina and Uruguay, decreases in soil organic nitrogen content (-880 kg ha^{-1} or -19%), soil organic carbon content ($-21,200 \text{ kg ha}$ or -22%) and net primary productivity ($-2,192 \text{ kg ha}^{-1}$ or -24%). The conditions in which this study was conducted match those of all the sites included in the project activity.

Another peer-review study prepared by Altesor et al. (1998)¹²⁴ arrived to similar conclusions. Five sample plots on grassland sites in North Uruguay were measured in 1935 and revisited in 1990. It was concluded

¹²³ Piñeiro, G., Paruelo, J.M. and Oesterheld, M. 2006. Potential long-term impacts of livestock introduction on carbon and nitrogen cycling in grasslands of Southern South America. *Global Change Biology* 12:1267–1284 (see reference 46)

¹²⁴ Altesor, A., Di Landro, E, May, H. and Ezcurra, E. 1998. Long-term species change in a Uruguayan grassland. *Journal of Vegetation Science*, 9:173-180

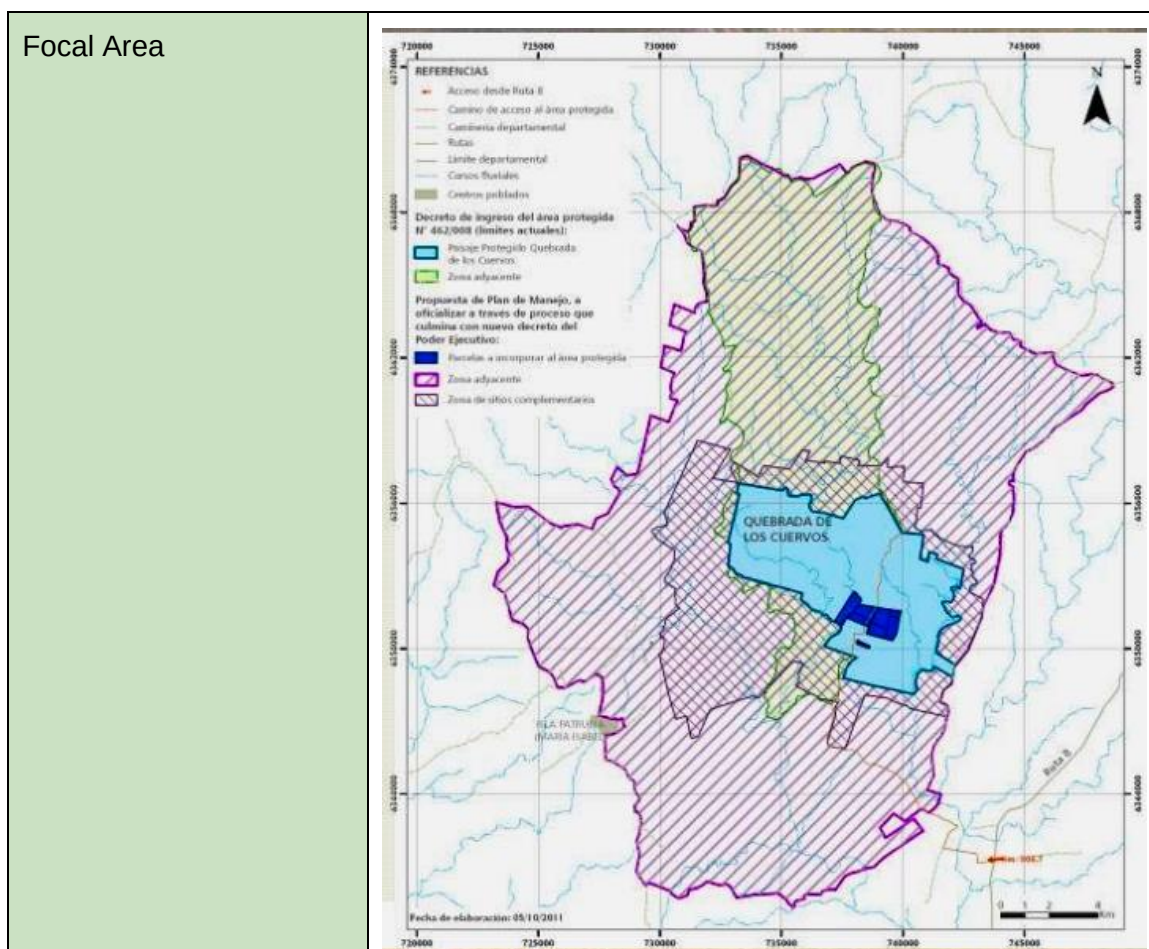
that continued grazing causes an increase in the amount of weedy species and decreasing the palatable forage species. This is an indicator of a presently and continuous degrading process. The findings of this study are applicable to all sites included in the project activity. In Uruguay plantations are established on old farming land, mainly established on degraded grasslands that is the most important type of vegetation in Uruguay. Plantations are located neither in the tropics nor rainforests.

5.1.2 High Conservation Values (B1.2)

The list of biodiversity HCV areas identified within the project zone is described. Only La Hacienda: Quebrada de los Loros is located within the project area.

High Conservation Value	Paso Centurión y Sierra de Ríos (as of 2019 integrates SNAP protection area under Decree n.º 198/2019)
Qualifying Attribute	Paso Centurión together with Sierra de Ríos are located in the Department of Cerro Largo on the banks of the Yaguarón River, thus receiving a rich influence from the Atlantic Forest. For this reason, the area is home to animal and plant species that are unique to Uruguay. In 2007, for being one of the most biodiverse areas of the country, it was declared a Departmental Reserve. In 2019 the area was included in the National System of Protected Areas (SNAP) as a Protected Landscape "Paso Centurión and Sierra de Ríos".
Focal Area	Paso Centurión is part of the landscape territory called Serranías del Este, and is located within the basin of the Laguna Merín. Several ecosystems are combined in the area, giving rise to a great diversity of environments, composed of ravines, riparian forests with characteristics of sub-tropical forest, natural grasslands, wetlands, pastures, palm groves and espinillares, thus allowing for the existence of a rich biodiversity.

High Conservation Value	Quebrada de los Cuervos y Sierras del Yermal (as of 2008 integrates SNAP protection area)
Qualifying Attribute	Biodiversity reserve as it presents priority flora and fauna species for the National System of Protected Areas; ecosystem services like soil protection.



High Conservation Value	Mi Generala - HCV 1
Qualifying Attribute	<i>Grazielia brevipetiolata</i> , an endemic plant to southeastern Uruguay from which there are no reports of it in other floras in the region, can be found in the private property belonging to Trust Fund BDU I. This means its presence in Mi Generala constitutes, to date, the only record known to the Florida department.
Focal Area	It is located in the property Mi Generala, in the department of Florida managed by AF under the Trust Fund BDU I. The HCV comprises an area of 74.4ha

High Conservation Value	La Hacienda: Quebrada de los loros
Qualifying Attribute	According to the flora and fauna survey that began in spring 2008, species of interest for conservation corresponding to HCV 1 and HCV 3 category were found. The presence of 43 species of trees and shrubs was determined, among which were recorded some

	of interest for conservation, due to their restricted distribution or its productive uses. The corresponding HCV1 species are: • <i>Pyrrhura frontalis</i> (chiripepe) • <i>Aratinga leucophthalmus</i> (Maracana Parrot) • <i>Aratinga acuticaudata</i> (Blue-headed Parrot) The HCV 3 site is the Quebrada Forest in Cañada del Sauce.
Focal Area	It is located in the property La Hacienda, department from Cerro Largo. It has an area of 24.8 Ha. It corresponds to a stream that rises within the property, with abundant native vegetation.

No HCVs were identified related to biodiversity in the project are before the implementation of the project. Native forests were degraded because of intensive beef production and no hunter's control. Before the implementation of the Forteko project, native fauna or flora studies in the area were never conducted. Extensive beef production companies did not have the habit nor the obligation to carry out this kind of studies, since traditionally the extensive cattle is not certified by international standards (for example, FSC or similar), nor is it controlled by the Ministry of the Environment (DINAMA).

5.1.3 Without-project Scenario: Biodiversity (B1.3)

Uruguay is located in a biogeographic transition zone in the southern part of the South American continent.

The confluence of biogeographic regions gives rise to natural fields interspersed with wetlands, different types of native forests, landscapes and important bodies of water, including coastal lagoons. Noteworthy biodiversity exists at the ecoregional, ecosystem, species and genetic levels. Furthermore, habitat diversity reveals a variety of interesting species, many of which are globally significant in ecological, economic and social terms.

Natural temperate grasslands (Pampas) cover about 60% of the national territory and are significantly affected by intensified land use practices. Native Forest areas in Uruguay have grown steadily over the past 25 years (from 3.5% coverage to 6%)¹²⁵.

The forestry sector (forest plantations based on introduced species) has experienced dynamic growth in the last years –from 1990 to 2004 total area (ha) planted with non-native species grew from 45.000 to 740.000ha¹²⁶-, with significant investment occurring as a result of opportunities offered for developing new projects, such as sawmills, power plants and pulp mills.

Uruguay is home to several bird species considered globally threatened, such as the yellow cardinal, the black-and-white monjita (*Heteroxolmis dominicanus*) and the marsh seedeater. Several tree species located in Uruguay are at their southern and eastern natural range limits, implying genetic variability of populations important for breeding programmes. Other native species are known for their medicinal or aromatic characteristics, for timber or as ornamentals. Many landraces have evolved from introduced species, such as wheat, during the colonial era.

¹²⁵ <https://www.cbd.int/countries/profile/default.shtml?country=uy>

¹²⁶ MGAP-DGF (2005) in PNUMA, "Geo Uruguay 2008. Informe del estado del ambiente", p.87.

In Uruguay plantations are established on old farming land, mainly established on degraded grasslands that is the predominant type of vegetation in Uruguay¹²⁷. The main driver of soil degradation is livestock overgrazing, which will continue to be present under the baseline scenario identified (continuation of extensive grazing by beef cattle). Figure 10 shows the project area is located in eroded land with gully presence. The intensity of soil erosion is expected to increase with time due to climate change. According to the National Institute of Agricultural Research (INIA), the precipitation in the region where the proposed project activity is located has increased by 400 mm yr⁻¹ during the period 1930-2000¹²⁸, with a sharp increase during the spring and summer months. This increase is associated with an increase in the intensity of precipitation, thus leading to higher erosion pressure. A global assessment (Milly et al, 2008¹²⁹) has estimated that Uruguay is the country with the highest expected increase in runoff during the period 2000-2050 (Fig. 9). This evidences that the soil erosion pressures are expected to increase in the future.

5.2 Net Positive Biodiversity Impacts

5.2.1 Expected Biodiversity Changes (B2.1)

The expected biodiversity changes include an improvement of the ecological environment of the planted areas and the native forest and grassland surrounding these forest plantations, meaning the total of the properties (only considering the cadastral units part of the project): 16,181.5ha. This is due to the fact that native forests won't be impacted by the activity and monitored to avoid negative impacts, whereas those degraded grasslands due to cattle breeding with HVC potential will be protected and monitored, allowing its recovery. Cattle breeding activity did not include this measures, leading to degradation in the area.

Biodiversity Element	Fauna
Estimated Change	Increase in biodiversity
Justification of Change	Ecotones and buffer areas are very important areas from the point of view of biodiversity and its conservation. In them, the biggest number of fauna species are registered, in relation to forested plots, inside each farm. At the same time, they act as biological corridors, avoiding isolation or genetic drift. The implementation and maintenance of buffer zones between forest plantations and native forests of more than 20 meters, allow the development and, in some cases, the improvement of pastures. These pastures are habitat and biological corridors for many RAE fauna species.

Biodiversity Element	Pastures' flora and fauna
Estimated Change	Maintenance
Justification of Change	In all the wildlife studies conducted in the region, native pastures were found to be impacted by beef cattle breeding and concluded that the natural pastures were long altered.

¹²⁷ Boggiano, P. 2003. Informe de consultoría: Subcomponente Manejo Integrado de Pasturas. Proyecto Combinado GEF/IBRD "Manejo Integrado de Ecosistemas y Recursos Naturales en Uruguay" Componente "Manejo y Conservación de la Diversidad Biológica". Montevideo, 2003 (en línea)

¹²⁸ Giménez, A. et al. 2006. Cambio climático en Uruguay y la región. Available in www.inia.org.uy/gras

¹²⁹ Milly, P.C.D, Betancourt, J., Falkenmark, M., Hirsch, R.M., Kundzewicz, Z.W., Lettenmeier, D.P and Stouffer, R.J. 2008. Stationarity is dead. Whither water management? Science 319:573-574

	Moreover, wildlife studies conducted in the region and with same economic activity ¹³⁰ showed strict pasture species have been detected in forest lands, coinciding with the forest plantation lands that present protected areas and buffer areas correctly established and managed. . No CR or E CITES-UICN potential species identified in the area (both pastures and forest based on bibliographic data for the geographical location and the environments studied, but yes 3 SNAP species (part of the national prioritization list) ¹³¹
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Biodiversity Element	Invasive species
Estimated Change	Reduced/controlled
Justification of Change	The periodic monitoring of invasive species and the implementation of invasive species control plan will reduce and control the presence/expansion of these species in the farms.

Biodiversity Element	Native forest
Estimated Change	Maintained
Justification of Change	The project will implement afforestation activities through scientific and rational allocation methods, without burning and cutting or harvesting native forests so no change is expected to occur over this element, on the other hand, it will be protected and monitored within the farm.

5.2.2 Mitigation Measures (B2.3)

In their Forest Management Plan, the mitigation measured for the project are described for AF¹³² and Cambium respectively¹³³. In the fields where the Project operates, environmental assessments and impact surveys are regularly carried out by a team of experts. Based on the results obtained in these studies, management and monitoring plans are developed –and updated- for the restoration of natural systems which may have been affected by previous practices (agricultural, farming, forestry or other activities), the conservation of natural resources and values in the influence areas (flora, fauna, soils and hydric resources) and the prevention or mitigation of environmental impact caused by forestry operations.

AF has in place a Quality Management System certified UNIT-ISO 9001 since 2/12/2004. Furthermore, AF has set a Forest Management Plan for Forteko's project, based on the baseline information generated by the environmental assessments mentioned previously. The plan includes a Natural Resources Monitoring Plan¹³⁴. The environmental monitoring plan that the company has implemented consists of assessing the impact of forestry activities over determined resources:

¹³⁰ Guanaré forestry project CCB certified, now part of BDU IV.

¹³¹ See HVC areas description for La Hacienda in CAMBIUM's 2015 report; available to VVB during validation

¹³² Source: Forest Management Plan available to VVB

¹³³ Source: Plan de Manejo Forestal - Resumen. Julio 2015 available to VVB

¹³⁴ The information is publicly available on BDU website within the Forest Management Plan available at: https://www.bosquesdeluruguay.com/media/2022/03/GAF_PM_-_Resumen_Publico_del_Plan_de_Manejo_Grupo_AF_2021.pdf

- 1) soil (skid marks, signs of erosion, drainage conditions, risk of waterlogging, presence of gullies and its evolution).
- 2) Watercourses: keep circulation distances, maintain cleanliness, project and plan the installation of operational areas at a proper distance not to affect the watercourse (6 meters).
- 3) Areas of special interest for conservation and HCV areas, Native Forest: respect for the circulation distances, detection of natural regeneration of exotic species invading the native bush.
- 4) Fauna: species composition and distribution in the area and the possibility of controlling invasive species -such as the wild boar-. Other observations of rare and endangered species.
- 5) Forest residues: order and distribution according to the management plan. Make sure that residues do not increase the risk of fire.
- 6) Non-forest residues: comply with handling protocols: deposition, containers, identification.

FSC certifications evidence the concern and experience of both Cambium and AF in the implementation and management of very demanding control systems, and consequently in the monitoring of them to ensure the quality of the forestry. Therefore, Cambium and now AF staff is aware of the importance that monitoring has and is committed to monitor the data correctly for the entire crediting period.

The identification and rating of potential threats to biodiversity was conducted for some of the properties managed by Cambium¹³⁵ and then AF¹³⁶, the results lead to a series of recommendations and general measures for the protection of the facilities including:

- ✓ Prohibition of hunting. Special authorization may be granted¹³⁷ for those animal species identified by the national Directorate of Renewable Natural Resources as of compulsory control (e.g. wild boar pig) and/or control free of authorization¹³⁸;
- ✓ Prohibition of fishing, or catching specimens;
- ✓ No management of the native forest, no substitution of native forest by forestry plantations;
- ✓ The extraction of native plants is also prohibited;
- ✓ Measures to prevent and control fires;

¹³⁵ Plan de Manejo de Bosques de Alto Valor de Conservación. (2015) Cambium Forestal Uruguay S.A (see reference 130)

¹³⁶ Brussa & Walker. Establecimiento Mi Generala - Monitoreo de ambientes y flora

¹³⁷ If an authorisation to hunt is granted, all the hunter's data must be available and the hunter must be given a and give the hunter a time limit to carry out the activity, and will be acted upon according to procedure.

¹³⁸ These are: "Cotorra" *Myiopsitta monachus*; "Wild boar" *Sus scrofa*; "Garibaldino" *Agelaius ruficapillus*; "Crucera" *Bothrops alternatus*; "Yarará"; *Bothrops neuwiedi*; "Coral" *Micrurus frontalis*

- ✓ Environmental safeguards that include guidelines for the responsible management of the various natural ecosystems present, soil conservation, protection of water resources, and proper waste management.

5.2.3 Net Positive Biodiversity Impacts (B2.2, GL1.4)

First, due to long-term farming, ecological structure of most project sites where afforestation takes place was relatively homogenous, with low biodiversity. Forteko project implemented afforestation activities with scientific and reasonable configuration method, with no burning and slash. The row site preparation will protect the existing vegetation as much as possible. Therefore, the implementation of this project will not decrease biodiversity of project sites.

Second, because ecotones and buffer areas are very important areas from the point of view of biodiversity and its conservation, Forteko project focused special studies in those areas. In them, the biggest number of fauna species are registered in relation to forestry plots, inside each farm. At the same time, they act as biological corridors, avoiding isolation or genetic drift. The implementation and maintenance of buffer zones between forest plantations and native forests of more than 20 meters, allow the development and, in some cases, the improvement of pastures. These pastures are habitat and biological corridors for many RAE fauna species.

Last, scientific and rational afforestation projects can adjust the hydrological cycle, reduce drought and flood risk; promote soil nutrient cycle, improve local micro-climate and others ecological environments.

Moreover, all the information generated from the experience of forest planting and sustainable forest management in degraded grasslands in connection to HCV areas is publicly available, and consulted with interested stakeholders generated valuable information for the activity.

5.2.4 High Conservation Values Protected (B2.4)

Conservation protection and management activities are documented in the Management Plan and detailed in the cartography. The "Natural Resource Management" chapter of the management plan shows that the flora and fauna studies are carried out by external experts to know the natural resources on lands certified by BDU III. Within the same chapter, the areas to be protected or preserved are established. Additionally, hunting is prohibited on all Forteko's lands and native forests are not disturbed.

There are detailed wildlife censuses, carried out by external experts that characterize the different existing ecosystems. There is a list of existing and potential species on the land according to their conservation status. The silvicultural systems applied to artificial plantations meet the production objectives and are similar to those of other companies in the area and approved by the competent authorities.

In 2008, the identification of areas of high conservation value based on the document "Common Guidelines for the Identification of High Conservation Values"¹³⁹ took place. In this line, a review was carried out of the assets managed by Cámbium Forestal Uruguay S.A., assessing whether the six criteria mentioned in the reference above were met in any of the properties. The advice of a biologist with expertise in flora and fauna was contracted. Native forest, wetlands or other environmentally interesting areas were selected. After an on-site review by Forestal Cámbium Uruguay S.A. staff, those lands where the native forest or

¹³⁹ Available at: <https://www.proforest.net/fileadmin/uploads/proforest/Documents/Publications/guia-generica-para-la-identificacion-de-altos-valores-de-conservacion.pdf>

environmentally interesting areas were fragmented or had common characteristics of the region were declassified.

In this way, the following project plots were left for the consultant's visit:

- Quiebrayugo, Department of Cerro Largo.
- Manolete, Department of Cerro Largo.
- La Hacienda, Department of Cerro Largo.

The biologist carried out a diagnostic visit to the selected properties, to determine whether areas with interesting biodiversity potential exist on these properties. In this line, only the HCV identified in La Hacienda¹⁴⁰ detailed in section 5.1.2 was established as well as the management plan to avoid its impact due to the project's activity (see section 5.4).

At the same time, company personnel carried out a review of the property, based on its proximity to population centres. It was determined that water sources for human consumption would qualify as a basic need for the communities. However, in the case of the project, there are no villages adjacent to the establishments.

5.2.5 Species Used (B2.5)

The Forteko project is an afforestation project on extensive cattle grazing pastures areas using exotic species Loblolly Pine (*Pinus taeda*) and to a lesser extent Hybrid Pine (*caribea x elliotti*). Both species are considered of forestry priority at a national level and are endorsed by the supervisory bodies under current legislation.

Conifers in general, and Pines in particular, have traditionally been considered undemanding in their nutrient requirements and soil fertility. Within the *Pinus* genus, the most widely used species in Uruguay is *Pinus taeda*, it is an arboreal species of the Pinaceae family, genus *Pinus*, native to the southeastern United States. Currently (2012) there are approximately 256 thousand planted hectares of pines located mainly in the departments of Rivera (44%), Tacuarembó (27%) and Paysandú (11%) (*taeda* and *elliotti* indistinctly, but primarily *taeda*). *Taeda* wood is widely known in international markets for having good technical properties. The main destination of *Pinus taeda* in Uruguay is the obtaining of solid wood products through the industrial processing of wood¹⁴¹.

Pinus plantations, are based on 22-25 year forest rotation managed with pruning (to a height of 5.6 m) and two thinning operations, to obtain knot-free, high-diameter logs suitable for saw-milling. Plantation will be completed by year 5 of project and forests will be replanted after clear-cut harvest. Practices are certified with FSC standard. For *elliottii* Pine and *taeda* species the amount of area to be harvested is 600 ha. per harvesting face, while the maximum size of continuous clear felling is defined as 200 ha.

It is worth mentioning that there are no trees where forests will be established (project area), since the original vegetation is grassland. Native forests, located on low areas at the margins of an extensive network of rivers and minor water streams, cover less than 5% of Uruguay's territory. Native tree species have

¹⁴⁰ PM - Management Plan "Bosques de Altos Valor de Conservación" (2016) – available to VVB

¹⁴¹ <https://www.bosquesdeluruguay.com/media/2022/03/Prospecto-de-Emission-BDU-3.pdf> (p.36)

usually short, contorted stems, and very slow growth rates. Because of these features, there are currently no native tree species suitable for large-scale commercial plantations. A few species with potential commercial uses have been identified, but there is very limited knowledge on their management. Also, their feasibility would largely depend on finding a market value for their wood products. Specific sampling was performed on native forests in order to evaluate growth, sanitary status and number of species.

5.2.6 Invasive Species (B2.5)

Forteko plantations include exotic species *Pinus taeda* and *caribea x elliotti*. They have been evaluated and validated by national regulatory and research bodies. Specifically, the Exotic Invasive Species Committee for Uruguay (CEEI) has published a list of invasive flora and fauna, where *Pinus* is not among them¹⁴². Hence, there is no evidence of invasive species.

Moreover, the Forestry Management Plan includes exotic species control, which consist of monitoring and extraction of individuals if necessary.

5.2.7 Impacts of Non-native Species (B2.6)

The project uses mostly Loblolly Pine (*Pinus taeda*) and to a lesser extent Hybrid Pine (*caribea x elliotti*). None are native to the area. The choice of species is due primarily to the fact that they ensure an adequate productivity level and a market access for the products to be obtained, which would not be possible if other species were used. On the other hand, they originate in regions with ecological conditions highly similar to those in Uruguay. At the same time, the mentioned species are broadly used in Uruguay and therefore adapted to the project agro-ecological zone.

These similarities explain why this species adapted so well to Uruguayan conditions, where it has been successfully grown and bred for many years. Prove of this is that other VCS forestry plantations projects are using the same species.

Species	<i>Pinus taeda</i>
Justification of Use	<i>Pinus taeda</i> started to be spread in the 1960s. Currently this tree species is one of the most widely planted in Uruguay, representing approximately 20% (177,469ha) of commercial plantations according to “Dirección General Forestal”. In addition, this species has been successfully planted and has satisfactorily grown in the Forteko project site since 2009, there were no soil or weather adaptation problems which could be seen during last verification and which will surely be seen during the next one.
Potential Adverse Effect	As a general measure, the project will voluntarily adopt the application of the National Code of Good Forest Practices. Forests are based on 22-25 year rotation Loblolly Pine (<i>Pinus taeda</i>), managed with pruning (to a height of 5.6 m) and two thinning operations, to obtain knot-free, high-diameter logs suitable for saw-milling.

¹⁴² Available at: <https://www.gub.uy/ministerio-ambiente/comunicacion/publicaciones/lista-especies-exoticas-invasoras-uruguay#:~:text=El%20Comit%C3%A9%20de%20Especies%20Ex%C3%B3ticas,requieren%20de%20atenci%C3%B3n%20prioritaria%20dado> and for VVB during verification

Regarding *Pinus caribea x elliotti* plantations, a very small area of this genus was planted. Natural regeneration is permanently controlled.

5.2.8 GMO Exclusion (B2.7)

Forteko project is FSC certified so it has a commitment with FSC values. One of them is the prohibition of introduction of genetically modified organisms in forestry operations.

5.2.9 Inputs Justification (B2.8)

The chemical products that are used in the plantation (herbicides and pesticides) are selected according to their efficacy proven by previous experiences for the type of control required. Only products that are permitted in accordance with national regulations and the chemicals policy of the FSC® (Forest Stewardship Council®) -at the time- are used. Most of the inputs used are related to plantation period in order to enable establishment of trees without competition. Some of the most questioned pesticides and herbicides used are listed below although the Forest Management Plan includes detailed information on the procedures for its application, more detailed justification and mitigation measures.

During the course of the project the use of these are expected to decrease based on regulatory updates as well as voluntary objectives, based on the monitoring conducted over forest activity impacts.

Some of the inputs eventually used includes:

Name	Fipronil ¹⁴³
Justification of Use	It is used for ant control during the establishment of the trees, meaning with a minimum of 8-9 years between applications. In the absence of a national regulation regarding use of the input, the company has decided internally the minimum distance for application near water bodies, being 10 mts to water bodies when terrestrially applied. Fipronil is applied manually in a solid format, inside bateholders minimizing risks of runoffs for localized control of ants. Only specially trained personnel manage the chemicals. The project will follow FSC standards regarding these input ¹⁴⁴ .
Potential Adverse Effect	The WHO and EPA consider fipronil "moderately toxic" to humans. It is considered low to moderately toxic depending on the route of exposure. It is classified within group C, a possible human carcinogen. In the environment it behaves as: Solubility in water: low. Persistence in the soil: extreme to medium. Mobility on the ground: medium to light. Persistence in water sediment: less persistent. Volatility: not volatile. Bioaccumulation: medium.

Name	Metsulfuron
Justification of Use	Used to control wide-leaf weeds. In addition, grazing is used as an effective method to control the vegetation before planting
Potential Adverse Effect	EPA considers it as "Slightly toxic". In the environment it behaves as: Solubility in water: moderate. Persistence in the soil: medium to non-persistent. Mobility on the ground *: extreme. Persistence in water

¹⁴³ Source: <http://www.plaguicidasdecentroamerica.una.ac.cr/index.php/base-de-datos-menu/259-fipronil>

¹⁴⁴ The project has been granted by FSC a permit to use the chemical till 2021, after which risk analysis and mitigation plans are to be presented till the use of Fipronil is discontinued.

	sediment *: more persistent. Volatility: not volatile. Bioaccumulation: slight. ¹⁴⁵
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Name	Glyphosate
Justification of Use	Weed control is performed by using glyphosate, a moderate toxicity ¹⁴⁶ herbicide according to Uruguay legislation on toxic substances. Two applications are carried out some days before tillage and/or plantation. Generally, the last row (4th row) and the last intermediate row (3rd row) are applied with glyphosate. The rest of the rows are made with selective and pre-emergent herbicides which do not contain glyphosate. In addition, grazing is used as an effective method to control the vegetation before planting.
Potential Adverse Effect	Given its potential effect on soils it is limited to pre-emergence periods (tillage and or plantation) and used only over last and last intermediate rows.

Name	Phosphorite
Justification of Use	Fertilization is mechanically applied on plantation stripes before tree plantation
Potential Adverse Effect	Phosphorite is a natural, low-impact fertilizer for the environment. Products and their waste have a better nutritional quality (higher P content than unfertilized crops). The incorporation of such organic residues improves the biological activity of the soil and the accumulation of carbon in the soil, helping to improve its physical and chemical properties. Excessive amounts used in rainy seasons or degraded soil could potentially cause runoffs to water bodies, causing eutrophication ¹⁴⁷ .

Name	Chlorine-free insecticides
Justification of Use	On the first year after plantation, during the month February and March, ant control is systematically performed over the whole area. Afterwards insecticides are selectively applied on ant paths and nests
Potential Adverse Effect	It has a reduced permanence in the ecosystem, but potential effects can be clinical manifestations to people depending on the exposure

Name	2,4 D-Amine
Justification of Use	It is a selective herbicide with low volatility and systemic action, specially designed to combat broad-leaved weeds in natural fields and grass pastures.

¹⁴⁵ Source: <http://www.plaguicidasdecentroamerica.una.ac.cr/index.php/base-de-datos-menu/395-metsulfuron>

¹⁴⁶ In Uruguay, Glyphosate has now been declared with a moderate toxicity, corresponding to a Category III (blue label): Category 1a. Extremely dangerous or very toxic; Category 1b. Very dangerous or toxic; Category 2. Moderately dangerous or noxious; Category 3. Moderately dangerous or careful; Category 4. Normally not dangerous or careful

¹⁴⁷Source: <http://fosfatosdelhuila.com/fhportal/wp-content/uploads/2014/02/LIBRO-APLICACION-ROCA-FOSFORICA1.pdf>

Potential Adverse Effect	In the environment it behaves as ^{148 149} : Solubility in water: high. Persistence in soil: medium to non-persistent. Mobility in soil: high to light (depending on pH; high pH5). Persistence in water sediment: less persistent. Volatility: not volatile. Bioaccumulation: slight.
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Name	S-metolachlor
Justification of Use	It is a systemic herbicide, for pre-emergent use, it is absorbed by coleoptile and radicle in annual grasses and by hypocotile and radicle in germinating broadleaf weeds. It is important to bear in mind that this product will not exert control if it is applied on emerged weeds.
Potential Adverse Effect	In the environment it behaves as ¹⁵⁰ : Solubility in water: high to light. Persistence in the soil: slight. Mobility in the soil: high to medium. Persistence in water sediment: more persistent. Volatility: not volatile. Bioaccumulation: medium to slight.

Name	Flumioxazin
Justification of Use	Residual herbicide, with contact action for use in pre-emergence of cultivation. Excellent efficacy in the control of the main broadleaf weeds and suppression of annual grasses in pre-emergence of the crop.
Potential Adverse Effect	In the environment it behaves as ¹⁵¹ : Solubility in water: low. Persistence in soil: slight to non-persistent. Mobility on the ground: light. Persistence in water sediment: less persistent. Volatility: not volatile. Bioaccumulation: slight. It has low leaching potential.

Name	Haloxifop methyl
Justification of Use	Non-residual systemic herbicide, from the group of graminicides. Selective for post-emergent control of annual and perennial grass weeds (narrow leaf).
Potential Adverse Effect	In the environment it behaves as ¹⁵² :

¹⁴⁸ http://www.lanther.com.ar/producto/73/2_4-d-amina-60-lanther/

¹⁴⁹ <http://www.plaguicidasdecentroamerica.una.ac.cr/index.php/base-de-datos-menu/5-24-d>

¹⁵⁰ <http://www.plaguicidasdecentroamerica.una.ac.cr/index.php/base-de-datos-menu/388-metolaclor>

¹⁵¹ <http://www.plaguicidasdecentroamerica.una.ac.cr/index.php/base-de-datos-menu/273-flumioxazin>

¹⁵² <http://www.plaguicidasdecentroamerica.una.ac.cr/index.php/base-de-datos-menu/309-haloxifop>

	Solubility in water: low. Persistence in soil: medium to non-persistent. Mobility in the soil: high to medium. Persistence in water sediment: less persistent. Volatility: not volatile. Bioaccumulation: slight It is stable in water and moderately mobile on the ground. It is a metabolite of haloxyfop ethoxyethyl, which is converted very rapidly to halixifop and its metabolite 3-chloro-5- (trifluoromethyl)-2 pyrinol, both very persistent, not very mobile in the soil and with moderate leaching potential.
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Name	Oxyfluorfen
Justification of Use	Pre-emergence broad leaf weed control is performed by using the active principle oxyfluorfen.
Potential Adverse Effect	Given its potential effect on soil, water and people health (both operators and neighbouring communities), its use authorization is now limited with a specific risk assessment and mitigation plan ¹⁵³ .

This policy meets the requirements of the National Code of Good Forest Practices and the ILO Code. It is also established that products prohibited by the FSC will not be utilized.

All pesticide and agrochemical inputs used are publicly available in BDU annual reports in the web¹⁵⁴ (Public Summary Monitoring). This information includes: the pesticides used by active principle, quantities applied and area.

5.2.10 Waste Products (B2.9)

The BDU III Management Plan contains instructions for the treatment of waste, including chemicals, generated by its contractors. It includes details on waste products identification, classification and management. The different waste types identified are:

Forest/wood waste: Minimize the tree residues resulting from the practices of silvicultural management and forest harvesting. Forest harvest planning aims to obtain the maximum commercial use of the forest.

AF has decided to prioritize and leave small wood waste scattered within the forest to achieve a progressive, effective and homogeneous decomposition in the forest site, and in turn prevents vertical continuity of the fuel, always in line with Decree 188/02 regarding security to prevent fires.

Domestic waste: Reduction is prioritized and waste sorting for recycling takes place in the farms. For those generated in camps, the same contractor is responsible for them and are disposed back in the city following the measures mentioned in the Management Plan as well as Field Procedures

Chemical products packaging: Application, handling, transport and disposal of agrochemicals must comply with the legal provisions established in the Decree 372/99; as well as with the FSC® Principles and Criteria. The guidelines for handling agrochemicals and packaging are explained in the Management Plan.

¹⁵³ More detailed information on risk form elaborated specifically for these input (as well as Fipronil)

¹⁵⁴ Summary monitoring report publicly available at
https://www.bosquesdeluruguay.com/media/2022/03/RESUMEN_PUBLICO_MONITOREOS_2020.pdf

Other special waste: There is no change of batteries on the premises since this activity is carried out in the city and it is done following the indications of the Decree 373/2003.

Fuel residues are contained, identified as such, in a specific area, marked, on a ground cover or tray to avoid possible spills. From there they will be returned to their respective suppliers. Lubricant waste comes from the city and reaches the field in drums for later use in chainsaw chains.

The waste generated by forest services companies is based on the same management and is removed on their own account from the area where they are generated.

5.3 Offsite Biodiversity Impacts

5.3.1 Negative Offsite Biodiversity Impacts (B3.1) and Mitigation Measures (B3.2)

Negative Offsite Impact	Mitigation Measure(s)
Livestock enters protected natural areas or the exclusion of livestock in those areas.	Build fences or exclusion of livestock in those areas.
High density of cattle - degradation of grasslands and native forest, by shift of livestock from plantation to said natural areas	Proper management. Livestock density control (units per ha). Livestock management plan. Evaluation of pastures within afforestation. Annual survey on impacts in HVC areas within farms
The advance of the native forest towards the plantation, eliminates the buffer areas	Buffer zones are established or re-established between forest plantation and native forests. This grasslands buffers zones must be equal or bigger than 20 meters.
Plague outbreaks	Forteko project works together with the Health Commission of the Forest Producers Society (CS-SPF for its acronym in Spanish). CS-SPF establishes a short- and medium-term work plan, which includes monitoring, control, research and training/dissemination for priority pests, training/dissemination for priority pests. In this framework, the activities of the AF Group's health management plan are part of or aligned with the activities of the CS-SPF. The main areas of the plan include¹⁵⁵: - Preventive actions: material selection; health check of seedlings on entry; silvicultural management (timing, procedures) - Monitoring: systematic survey; survey of specific events - Control: biological; silvicultural (sanitary thinning); chemical as last resource.

¹⁵⁵ More information on the Forestry Management Plan section 3.6

5.3.2 Net Offsite Biodiversity Benefits (B3.3)

The Forteko project is a subgroup of lands within BDU III and II trust fund total plots. Forteko project area corresponds to 16,181.5ha in 30 plots.

The project has a long history of grazing by beef cattle, activities that have caused soil erosion and land degradation. Forteko project, forest plantations for obtaining pulp and saw wood and removing carbon dioxide from the atmosphere have been established since 2012, significantly decreasing soil erosion and soil degradation.

Before the implementation of Forteko's project, native fauna or flora studies in the area were never conducted. Extensive beef production companies did not have the habit nor the obligation to carry out this kind of studies, since traditionally the extensive cattle is not certified by international standards (for example, FSC or similar), nor is it controlled by the Ministry of the Environment (ex-DINAMA). Burning was a common activity in pastures by cattle breeders. With the Forteko project implementation, new HCVs areas are defined, native forests are strictly controlled and fires are controlled. Periodic monitoring activities allows to identify the activities' impact on HCV.

5.4 Biodiversity Impact Monitoring

5.4.1 Biodiversity Monitoring Plan (B4.1, B4.2, GL1.4, GL3.4)

The methodology used in the identification of areas of high conservation value was based on the document "Common Guidelines for the Identification of High Conservation Values - draft May 2013 from the "Proforest organization¹⁵⁶. The six types of High Conservation Values (HCVs) are as follows:

- HCV 1 - Species diversity: Concentrations of biological diversity, including endemic species and rare, threatened or endangered species, significant to global, regional or national level.
- HCV 2 - Landscape-scale mosaics and ecosystems: Large ecosystems and mosaics of landscape-scale ecosystems that are globally, regionally or nationally significant, and that contain viable populations of the vast majority of species that appear in natural, in natural patterns of distribution and abundance.
- HCV 3 - Ecosystems and habitats: Rare, threatened or endangered ecosystems, habitats or refuges danger.
- HCV 4 - Critical ecosystem services: Basic ecosystem services in critical situations, including the protection of water catchment areas, the control of the erosion of vulnerable soils and slopes.
- HCV 5 - Community needs: Areas and resources essential to meet the needs of basic needs of local communities or indigenous peoples (for example, subsistence, health, nutrition, water, etc.), identified in collaboration with these indigenous communities or peoples.

¹⁵⁶ Available at: <https://www.proforest.net/fileadmin/uploads/proforest/Documents/Publications/guia-generica-para-la-identificacion-de-altos-valores-de-conservacion.pdf>

- HCV 6 - Cultural values: Culturally significant areas, resources, habitats and landscapes, archaeological or historical criticism at the world or national level and / or of cultural, ecological, economic or religious / sacred importance for the traditional culture of the local communities or indigenous peoples, identified through the involvement of said indigenous communities or peoples.

In 2008, a review was carried out of the assets managed by Cámbium Forestal Uruguay S.A., assessing whether the six criteria mentioned above were met in any of the properties. The advice of a biologist with expertise in flora and fauna was contracted. The following were selected of native forest, wetlands or other environmentally interesting areas were selected. After an on-site review by Forestal Cámbium Uruguay S.A. staff, those lands were declassified where the native forest or environmentally interesting areas were fragmented or had common characteristics of the region.

In this way, the following project plots were left for the consultant's visit:

- Quiebrayugo, Department of Cerro Largo.
- Manolete, Department of Cerro Largo.
- La Hacienda, Department of Cerro Largo.

The biologist carried out a diagnostic visit to the selected properties, to determine whether areas with interesting biodiversity potential exist on these properties. The result of the visit was a document entitled "Report of field trips for the selection and proposal of sites to survey and monitor flora and fauna". This report prioritises the sites with a high environmental potential for a flora and fauna monitoring programme.

At the same time, company personnel carried out a review of the property, based on its proximity to population centres. It was determined that water sources for human consumption would qualify as a basic need for the communities. However, in the case of the project, there are no villages adjacent to the establishments.

In this line, a HCV was identified in La Hacienda property. For these reason, as prevention measures, the following procedures were established:

1. Indicated the area on the property plan.
2. Inform contractors of the environmental value, when they have forestry operations close to the area.
3. Indicated the boundaries of the plantation, respecting the 20 meters that they must exist between the plantation and the native forest.
4. Access control to third parties.
5. Access control and careful handling of livestock loads
6. Firewall maintenance
7. Periodic supervision in order to avoid the entry of hunters and birders

Regarding AF's monitoring procedures, these are detailed below, and implemented for all VCS certified projects:

Criteria for the categorization of representative BDU properties for the conservation of biodiversity

The following criteria¹⁵⁷ is used for the categorization of forest properties in BDU III pointing to the greater efficiency in the application of conservation measures and considering human and economic resources availability for their management and monitoring.

- 1) Presence of SNAP (National System of Protected Areas) or high value areas for HCVA conservation according to the definition originally developed by the FSC for High Conservation Value Forests in the certification of forest ecosystems.
- 2) Biogeographic representativeness
- 3) Representativeness of watersheds.
- 4) Presence of threatened species of flora or fauna at the international or regional level according to the International Union for the Conservation of Nature.
- 5) Presence of endangered species of flora or fauna at the international or regional level according to the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES).
- 6) Connectivity of the areas.
- 7) Estimated wealth (Chao 1).
- 8) Special landscape value.
- 9) Effective total area of natural areas
- 10) If there are still conflicts in the categorization of the areas after the application of these criteria, indexes of similarity between communities can be applied (Greig-Smith)

Based on the aforementioned criteria, the properties selected as representative are surveyed (monitored) in greater depth to clearly determine its habitat values with precise identification of their attributes in order to define conservation plans.

The monitoring studies would be applied over properties with HCV, presence of natural environments or species of particular study interest or farms with high species richness values. These studies involve annual surveys (at least two surveys to gain information on different times of the year), calculation of diversity indexes, spatial distribution, indicator species, wealth estimation, etc.

The follow-up studies would be applied to the rest of the representative farms. These studies involve surveys every five years, calculation of species richness, distribution of species and indicator species.

¹⁵⁷ Inclusion criteria varies according to fauna and flora subgroups analysed, more information on each biodiversity report available to VVB during validation (see reference 35).

The categorizations made are subject to changes due to the entry of higher priority properties (more representative) or changes in management or anthropogenic activity that may change their condition.

Activities taken to perform the flora and fauna monitoring studies include:

- 1) Prior to the fieldwork, surveys over satellite images (Google Earth) to identify environmental composition and over available historical information are made. Based on this information, areas of interest, access to them and other logistical aspects are defined.
- 2) In situ, ground survey (surface data) according to vegetation physiognomy is carried out.

Subsequently, walking and vehicle trips are made by transects in the natural environments present in the property. The vegetation is characterized by recording the dominant species of each zone, through observation, collection and registration.

The analysis includes the comparison of total lists of potential species within the area, and those actually present (detected by different means during the field visit), as well as to those that are considered to be present according to the composition and state of the composition and status of the environments represented.

An approximation is made of the conservation status and the importance of the environments as biodiversity hotspots and their functioning as biological corridors.

In relation to the fauna, walking tours are the main tool used to reduce the potential lists obtained from bibliographic information to lists closer to the real ones, recording the richness and abundance of the tetrapod fauna species. This emanates from the recognition of the environments actually represented in the study area and their conservation status. The lists generated are analysed to detect species present based on IUCN Red Book (IUCN, 2013), Red List of the Birds of Uruguay (Azpiroz et al., 2012, and the List of Priority Species for Conservation (SNAP - DINAMA) (Soutullo DINAMA) (Soutullo et al., 2013). The presence of migratory species is also analysed, as well as those that are present in different observation probability categories (Azpiroz, 2003).

Photographs are taken with digital cameras, of the most representative species. For the bird survey, binocular are used for walking tours and for the group of birds, the number of species (richness) and the number of individuals of each (abundance) based on direct sightings and the identification of vocalizations is recorded.

For the amphibian survey, surveys are carried out with estimation of abundance by sound record of vocalizations and by active search of individuals. For reptiles, an active search is made under stones, trunks and other cryptozoic shelters. For mammals, traces and caves are surveyed.

Fauna Monitoring Plan

Fauna biodiversity plans are performed in most representative farms belonging to BDU III by using environmental indicators that describe the impact on the environment.

According to Canter L.W. 1998, environmental indices are useful for:

- 1) summarize existing environmental data
- 2) report on the quality of the affected environment
- 3) assess the vulnerability or susceptibility to contamination of a certain environmental category
- 4) selectively focus on key environmental factors
- 5) serve as a basis to predict the impact.

The specific biological diversity of a site depends on the number of species present (Wealth of species) and the number of individuals that make up each of the species (relative abundance).

Low values may indicate:

- Disturbances due to harvesting activities (noise, traffic of vehicles and people, exposure to atmospheric agents, etc.)
- Lack of buffer zones between planted forests and natural environments.
- Lack of connection or biological corridors in natural areas.
- Lack of natural environments that act as feeding or reproduction areas.
- Barrier effect for the movement of species, mainly because of height of planted trees (final stage of forestry before harvest).

Species richness indexes (Chao) are also used to evaluate the real number of species present in each farm studied. Chao 1 is a nonparametric estimator of the number of species in a community based on the number of rare species present in the sample.

The richness of the species distributed in a non-homogeneous way, between the different environments inside the area, would indicate a certain human affectation in the area that would be increasing the number of some particularly sensitive species.

In turn, the distribution of the species is estimated taking into account the levels of specific richness and relative abundance detected in the main landscape units.

So far, in the monitored farms, the structure of the different species present in the area tends to be fairly homogeneous (it is not clearly dominated by any species). That is, all the species observed have a similar high abundance, which indicates a low degree of imbalance. The population differences are not enough for these species to affect the rest of the community. In some properties, high or very high values have been recorded in the biodiversity indexes.

Criteria for the selection of species to determine the biological diversity of a given site:

At the global level, both invertebrate and vertebrate species are used for studies of biological diversity. In the case of the research team, the Bird Class was chosen, subfilum Vertebrata (Vertebrates) due to:

- Easy direct and / or indirect registration
- Important number of species in our country
- Specific conservation status defined in most species, whether at the national, regional and global levels (Ministry of Environment, IUCN, CITES).
- Can apply as RAE species for international forest standards

Selection of species as indicators (“Indicator species”)

An indicator organism is a species selected for its sensitivity or tolerance to the various types of contamination and their effects. In addition, the use of indicator species are useful for diagnosing environmental quality because they have some important characteristics:

- Provide valuable information quickly to take conservation measures in a minimum time available.
- Animals, plants and their quantitative and qualitative relationships are modified to different types of environmental degradation even when they are produced sporadically or discontinuously over time.
- Many species, due to their mobility, absorb and indicate environmental actions of broad or specific foci in a natural area.
- The biological indicators are compatible and can complement with analysis and physicochemical indicators

Selection criteria

To select indicator species, the role they play in the ecosystem will be taken into account, especially considering those species known to be sensitive to specific actions of the use of resources related to the project in question, species that play a basic role in a given community and species that represent a certain group of species (associations). For example, some bird species that are not very specialized, find food resources in modified environments, where some specific plant species that provided food to other species of birds specialized in them have disappeared. These last ones (specialists) will see reduced population in these areas, while those (generalists) will see them increase sensibly due to lack of competence in the availability of other resources (shelters, water, etc.).

Migratory species have often been shown to be more sensitive to environmental changes in the sites where they arrive, meaning that they may no longer be stopover, feeding, breeding or resting sites. The proportion of migratory species in the total number of species detected is a good indicator of the conservation or otherwise of environmental suitability.

Moreover, the proportion of bird species in categories of frequency of observation are a good indicator of the degree of health of the environments studied. The categories considered are Common, Fairly Common, Uncommon and Rare (according to Azpiroz, 2003). Environments that suffer strong disturbances tend to vary the proportions of observation frequency categories, generally with an increase in Common and Fairly common species to the detriment of Uncommon and Rare species.

The analysis of the relative abundances of these species will be useful for the purpose of evaluating changes in the habitat that determine high or low levels in the populations and are manifestations of impacts on a larger scale. It is also important the real or potential value from the aesthetic, scientific or economic point of view, its survival expectation and its rarity at the local and global level.

In these sense, the presence maintained or not of species listed in IUCN threat categories, both globally (for their entire distribution) and strictly for the region are indicators monitored and taken into account:.

- "Extinct"
- "Extinct in the wild",
- "In critical danger"
- "In danger"
- "Vulnerable"
- "Threatened"

Special consideration is given to those species that the Ministry of Environment recommended for its inclusion in the "List of Priority Species for Conservation in Uruguay" (Soutullo et al, 2013). The presence maintained or not of species included in these list is one of the indicators monitored.

Flora Monitoring Plan

The first step towards the definition of HCV is the implementation of a programme for the survey and characterisation of environments and flora. For the purpose of establishing a priority list of properties to be studied, a grid is drawn up in which the sites are rated on a scale of 3 to 1 (High, Medium and Low respectively), in which attributes such as species richness (α diversity), diversity of environments as a potential for species turnover (β diversity), and ratio between non-forested area within the establishment in relation to the area occupied by forest crops were the selected indicators. The Conservation Importance Value that arises from the sum of the values of each of the attributes allowed a ranking of properties to be surveyed in more detail.

In the case of flora present, the monitoring plan includes annual surveys in order to evaluate:

- a. Verification of species under the National Protection Area System list in order to assign conservation category.
- b. Fragmentation of natural areas and biological corridors
- c. Buffer areas condition around HCV and particular interest for conservation areas.
- d. Natural regeneration of woody invasive species, within both, productive areas and native forest.
- e. Invasive species control procedures carried out in HCV areas.
- f. General natural land condition, based on land use and land use management.

The monitoring plan also includes the variables surveyed on HCV sites regarding any presence of impact from the forestry activity as well as illegal activities. In this sense, indicators include: presence of vehicle tracks, invasion of exotic species, conservation state of the signs, among others, in order to ensure HCV protection. Additionally, hunting is prohibited in all BDU III lands¹⁵⁸, native forest are not altered and the silvicultural systems applied to artificial plantations meet the production targets approved by the competent authorities.

Moreover, level of degradation is monitored, in order to define the need for a restoration plan implementation. Although no degraded areas were identified that might require the implementation of restoration plans, based on the baseline studies, a plan for the elimination of invasive species (ELEI 2020-2021¹⁵⁹) was elaborated.

The project preserves areas of native forest, natural grassland with rocky outcrops and low meadows. These areas are mapped and identified and well known by the land's workers.

5.4.2 Biodiversity Monitoring Plan Dissemination (B4.3)

The project's Biodiversity Monitoring Plan is publicly available within the Forest Management Plan (section 3 of it, under natural resources management plan). Annual reports include a review of the biodiversity monitoring plan results.

Along with the project implementation, the project documentation will be published on VCS and CCB website for all stakeholders, so that they can obtain the detailed project information and development progress. Also, the summary of project description in local language will also be disseminated to local communities, as well as the summary of monitoring reports during each verification.

Also, the full project documentation will be published on BDU III website for public comments, together with specific brochures describing the project characteristics and benefits.

5.5 Optional Criterion: Exceptional Biodiversity Benefits

Not applicable

5.5.1 High Biodiversity Conservation Priority Status (GL3.1)

Not applicable

5.5.2 Trigger Species Population Trends (GL3.2, GL3.3)

Not applicable

¹⁵⁸ Only special authorization may be issued for hunting does animal species listed by the national Directorate for Renewable Natural Resources as of compulsory control, or control free of authorization

¹⁵⁹ Invasive species management plan available on request by VVB during validation

6 **APPENDICIES**

Appendix 2: Project Activities and Theory of Change Table

Activity description	Expected climate, community, and/or biodiversity			Relevance to project's objectives
	Outputs (short term)	Outcomes (medium term)	Impacts (long term)	
Forest plantation (afforestation)	Timber sustainably produced and carbon removals	Carbon credits	Mitigation of climate change	Wood production, land restoration and carbon sequestration. Generation of income and job opportunities for local communities/ rural areas
Preserve HCV	Increase the biodiversity value	Improved community's wellbeing	Generation of a more sustainable scenario for forestry development	Enhancing biodiversity conservation and increasing the connectivity of forests
Training to Cambium, AF and BDU staff as well as forest contractors companies	Trained staff member and forestry contractor companies people in several topics	Better social and labour working conditions	Better quality of life	Wood production in a sustainable way
Promote community social and economic development (with multiple activities such as orchard in schools and donations)	Implement orchards in schools in the project area of influence	School kids with knowledge about local flora and fauna, environmental awareness, respect for the work	Community members with a better well-being	Generation of income for local communities/rural areas

Appendix 3: Project Risks Table

Identify Risk	Potential impact of risk on climate, community and/or biodiversity benefits	Actions needed and designed to mitigate the risk
Fire	The risk of fires in commercial forest plantations in Uruguay is very low due to reduced population density and a very humid climate. Normally forest fires in Uruguay only occur in summer in the coastal areas of the South and Southeast of the country, associated with the tourism activity. In spite of prevention activities, fires can happen. In that case, equipment and staff (owned and contracted) is ready and trained for fire-fighting.	In compliance with national regulations, Cambium Forestal has implemented an extensive plan to prevent forest fires, extended to AF management of properties. There are many preventive activities such as: i) establishment of a network of firebreaks surrounding forests blocks with an area not larger than 50 ha; ii) the introduction of cattle in early stages of the forestation for maintaining pastures short and green, thus reducing the volumes of fuel; iii) permanent surveillance of the project area, particularly at times of medium to high risk of fire; iv) burning as possible technique for cleaning fields is particularly excluded; vi) warning signs with risk of fire are placed next to forest sites; vii) transit of non-authorized hunters, hikers or campers is forbidden; viii) fire extinguishers must set in vehicles (including tractors) that circulate in the property; viii) PAIF program to detect and prevent fires during summer was implemented since 2013; ix) the project has fire insurance hired
Diseases and insects	With a low to intermediate possibility of occurrence, there could be diseases and insects that may damage the planted trees, but the diseases and insects will be prevented by routine oversight.	A continuous monitoring of several variables as the actual health of plantations is applied, in order to detect in advance any disease spread or plagues attack. Furthermore, the monitoring system of the Management Plan, establishes that together with the growth inventory is done the sanitary monitoring of the plantations. An external consultant specialized in health is available, which is used in case of detecting anomalous situations. Supervisors permanently monitor plantations. Upon routine oversight, the diseases will be treated according to the Weeds and Insects Control Plan, immediately with biological control once occurred. The chemical pesticides are allowed to be used only if there is a serious pest problem erupted in the project area, and the pesticides will be used in accordance with the National Pesticides Policy and FSC standard.

Identify Risk	Potential impact of risk on climate, community and/or biodiversity benefits	Actions needed and designed to mitigate the risk
		Given forestry sanitation is considered to need a national scale solution among producers, both Cambium and AF channel its efforts through the Health Commission of the Society of Forest Producers (CS-SPF), participating actively. The CS-SPF establishes a short and medium-term work plan, which includes lines of work in aspects of monitoring, control, investigation and training / dissemination for pests considered priority. In turn, forest health issues at the national level are coordinated by the CECOPE (Executive Council for the Coordination of Pests and Diseases forestry) made up of representatives of the MGAP through the General Forestry Directorate and the General Directorate of Agricultural Services, INIA and SPF.
Wind	Although it has a very low probability of occurrence, and affects mainly young individuals, another risk is related to an eventual increase in felling off or damage to trees by wind storms. Intensive thinning of eucalyptus plantations is known to increase the risk of wind damages due to the opening of wide spaces within the forest that may channel the wind and increase its speed, aggravated by the vulnerability of tall trees. There is no information on an eventual increase in this vulnerability in thinned stands with very tall trees such as those with ages 15 or more, but there have been some cases of plantations losses due to strong wind storms.	High density initial plantation. Thinned density never below 150 trees per hectare. Also the use of climate insurance in critical moments, geographic diversification and last, avoidance of critical activities during periods of expected adverse meteorological conditions.
Frost	Night frosts occur during the winter (from mid-May to early October), with an average of 30 days with frost per year, with temperatures seldom falling below -5°C .	Those areas imposing restrictions to tree growth or with high vulnerability to frost were excluded
Soil and water contamination	Low significance impacts to water sources contamination was found from the EIA to the properties due to agrochemicals use.	Operative procedures in place to assure a correct use of agrochemicals avoiding all risk of contamination and leak to water and soil. Water physicochemical analysis is conducted and phreatic levels are measured every 15 days.
Natural and artificial habitats affected	Low significance impacts to natural habitat were identified during the EIA to the properties due to the	Plantations take place in grasslands with no natural habitat replacement. Environmental monitoring takes place during and

Identify Risk	Potential impact of risk on climate, community and/or biodiversity benefits	Actions needed and designed to mitigate the risk
	activities taking place during plantation growth and harvest.	after harvest, determining all aspects to take place in future activities.
Economic risks	Although with a low probability of occurrences, internal and external demand for the project's products, changes in national tax legislation, infrastructure maintenance, among others may lead to changes in the project's first description including demand for jobs, hectares planted, among others objectives.	Adaptation to new conditions, alternative markets to be found, export internal market products or delay harvest to maintain project's objectives, among others