SELVA PARANAENSE VIDA NATIVA

GS1 PROJECT

Document Prepared By Nideport S.A., Ecosecurities and ProSustentia

Project Title	Selva Paranaense Vida Nativa - GS1
Version	9
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Project Location	Argentina, Misiones Province, San Pedro Municipality
Project Proponent(s)	NIDEPORT S.A., President Marcelo A. Taboada, marcelo.taboada@nideport.com, +54911 5470 7177
Prepared By	Nideport S.A. Ecosecurities do Brasil LTDA and ProSustentia
Validation Body	AENOR INTERNACIONAL, S.A.U José Luis Fuentes Perez, jfuentes@aenor.com, (+34) 914 326 000
Project Lifetime	15/12/2021 - 14/12/2121; 100 years
GHG Accounting Period	15/12/2021 - 14/12/2121; 100 years
History of CCB Status	-
Gold Level Criteria	Climate: The project identifies climate change risks and develops activities both for biodiversity (habitat conservation, enrichment and regeneration with native species, while closely following population trends) and community including water access, housing improvement and food security aiming to increase community and biodiversity adaptation to

	climate change. Biodiversity: The project seeks to protect and enhance biodiversity in a proposed KBA area by reducing the Atlantic Forest threats by stopping logging, illegal hunting and promoting its preservation and sustainable management through forest enrichment and regeneration. Community: located in very low developed areas, under the poverty line, the project invests in social infrastructure and development project activities designed by the communities based on main needs in order to improve the most vulnerable well-being.
Expected Verification Schedule	-

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Summary of Project Benefits

1.1 Unique Project Benefits

Outcome or Impact Estimated by the End of Project Lifetime	Section Reference
1) Recovery of biodiversity affected by anthropic activities by enrichment and regeneration of areas with native species.	3; 5
2) Biodiversity threats reduction with state-of-the-art monitoring technology implementation and biodiversity monitoring plan	2; 5
3) Enhance community development by identifying and implementing productive projects	2; 4

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.	10,178,342 tCO2e	2.1.17
	Net estimated emission reductions in the project area, measured against the without-project scenario.	Not applicable	-
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.	Not applicable	-

[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*)

Category	Metric	Estimated by the End of Project Lifetime	Section Reference
	For ARR[3] projects: Estimated number of hectares of forest cover increased in the project area measured against the without-project scenario.	Not applicable	-
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.	22,298.8 ha	3.1.3
	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	579.7	3.1.3
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.	50	2.3.14; 2.3.15
	Number of female community members who are expected to have improved skills and/or knowledge resulting from training as part of project activities.	35	2.3.14; 4.2.1
Employment	Total number of people expected to be employed in the project	50	2.3.15

[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*)

Category	Metric	Estimated by the End of Project Lifetime	Section Reference
	activities,[5] expressed as number of full-time employees[6]		
	Number of women expected to be employed as a result of project activities, expressed as the number of full-time employees.	25	2.3.15; 4.2.1
Livelihoods	Total number of people expected to have improved livelihoods[7] or income generated as a result of project activities.	50	2.3.15
	Number of women expected to have improved livelihoods or income generated as a result of the project activities.	25	2.3.15; 4.2.1
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.	1.500	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	700	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

[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

Category	Metric	Estimated by the End of Project Lifetime	Section Reference
	Number of women and girls for whom access to, or quality of, education is expected to improve as a result of project activities, measured against the without-project scenario.	300	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.	250	4.2.1
	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.	150	4.2.1
Well-being	Total number of community members whose well-being[8] is expected to improve as a result of project activities.	1500	4.1.3; 4.2.1
	Number of women whose well-being is expected to improve as a result of project activities.	700	4.1.3; 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	Total project area: 22,878.5 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

Category	Metric	Estimated by the End of Project Lifetime	Section Reference
	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	During baseline 4 EN species category were identified and more than 10 VU species	5.2.1

2 GENERAL

2.1 Project Goals, Design and Long-Term Viability

2.1.1 Summary Description of the Project (G1.2)

The project area is located in the extreme east of the province of Misiones, in the department of San Pedro, bordering Brazil. The field of native forest where the project is located has 22,878.5 hectares and immersed in the Green Corridor there is a sawmill operating. In this area, controlled logging has been carried out since the 1960s and will decrease as NIDEPORT's project progresses, with harvesting expected to be completed by the end of 2021. The project activity is Improved Forest Management with areas that will be enriched and regenerated by planting more than 430,000 native trees in the first 5 years, and other activities managed to increase forest productivity (bamboo control, and others). The Forest Regeneration Plan states the seedlings distribution which has been defined on the particular situation of the stratum and the area of the field to be treated, based on an in-depth study of different variables using various tools and in collaboration with a professional team.

Although there are no communities, individuals or groups of people living in the project area, GS1 has been subjected to invasion and illegal occupations, with burning for planting or deforestation for rudimentary construction. Also, there are numerous cases where the land has been colonized or exploited for agriculture or livestock, where the land is left with high levels of degradation and contamination. For these reasons project objectives include installation of state-of-the-art monitoring technology and biodiversity monitoring plan to reduce biodiversity threats and recovery of biodiversity affected by these anthropic activities by enrichment and regeneration of areas with native species. The area of the woody strata affected by enrichment activities (7,008 ha) will be actively intervened by the planting of an average density of 696 seedlings per hectare, while in the remaining area the restoration will be through passive natural regeneration. On the other hand, in the most affected strata, the intervention will be in the total area through reforestation actions.

The project, encompassed in an area with population under poverty line, expects to work together with the community identifying risks, HCV areas and needs, in order to implement productive projects together to enhance community development. In this line, first meetings with communities have already helped to identify both biodiversity

[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

and community's HCVs, and possible projects regarding housing improvement, health care, among other needs to be identified during the project lifetime.

Regarding community impacts, the SPVN GS1 project establishes additionality by implementing activities that directly respond to community needs and agreements. Initiatives to improve organizations such as "Mujeres Cultivadoras," and to develop projects such as "Óga," and "Ra'ÿi" have been developed in close collaboration with local communities, and their success hinges on the financial and technical support provided by Nideport. Without the project's intervention, these activities would hardly take place due to a lack of resources for their implementation. It should be remarked that in the case of the interactive networks that strengthen communities' capacity to manage their resources sustainably and with autonomy.

Indigenous community of Alecrín, the projects developed were decided through a Free, Prior and Informed Consultation from which the members of the community not only gave their consent to the restoration project, but also proposed the priorities to define the projects that Nideport would support. From this consultation process arose the construction of houses and community gardens.

Direct Contributions: Since the project's inception, Nideport has invested in these initiatives, ensuring they address challenges related to climate change and enhance community resilience. This support includes providing training, resources, and fostering collaboration.

The «climate benefits» of the project are defined as the reductions or removals of GHG emissions resulting from forest regeneration, these are expected to reach 4,548,944 tCO_2e during the crediting period, averaging 151,631 tCO_2e per year and adaptation to climate change. The "community benefits" of the project are defined as improvements in the well-being of communities resulting from the project activities in place. The "biodiversity benefits" of the project are defined as the enhancement of the biodiversity elements resulting in increments of endangered populations. All project benefits take into account positive and negative impacts and are relative to conditions under the no-project land use scenario described in this document.

2.1.2 Project Scale

Project Scale	
Project	x
Large project	

2.1.3 Project Proponent (G1.1)

Organization name	NIDEPORT S.A.
Contact person	Marcelo Alejandro Taboada

Title	President
Address	Rambla República de Chile 4525 Apto. 302, Montevideo, Uruguay
Telephone	+549 11 5470 7177
Email	marcelo.taboada@nideport.com

2.1.4 Other Entities Involved in the Project

Organization name	Forestal Belga Sociedad Anónima
Contact person	Guillermo Videla
Title	Representative
Address	Maipu 726 3ª, Ciudad Autónoma de Buenos Aires
Telephone	+54-9-11-4322-4121
Email	forestalbelga@hotmail.com

2.1.5 Physical Parameters (G1.3)

The area is located in the extreme east of the province of Misiones in Argentina, immersed in Paraje Cruce Caballero, in the department of San Pedro, bordering Brazil. The entire area is located between the ecoregions of the Atlantic Rainforest of the Upper Parana and the Araucaria Rainforest. The property is located between the Piñalito Provincial Park to the north, and the Yabotí Biosphere Reserve to the south; it is also located a few kilometers from the Cruce Caballero Provincial Park and Arauco Private Reserve, which protects the Alegría stream Valley, belonging to the same company.

The site is included in the AICA MI014 Piñalito and surroundings, which totals some 45,500 hectares, currently proposed as a Key Biodiversity Area (KBA).

The relief of this region varies from undulating to typically broken terrain and is crossed by the courses of the Toro (Manduví at its headwaters), Cisnandez (or Dos Hermanos), Macaca and Persiguero, tributaries of the Pepirí Guazú (Eastern boundary of GS1), which run in a northwest-southeast direction. In their paths they present numerous waterfalls varying from 5 to 12 m in height.

The region stands out for its high pluviometry records, as a result of the humid winds coming from the northeast, southeast and east, and from the Atlantic Ocean. The subtropical climate develops without a dry season, which makes Misiones one of the most humid provinces in Argentina. The average relative humidity varies from 75% to 90% with significant nocturnal dew and rainfall ranges from 2,000 to 3,000 millimeters, distributed throughout the year (see figure 1). Temperatures average 16 degrees Celsius during the winter season (July to September) and 25

degrees Celsius during the summer months (December to March), reaching temperatures of 40 degrees Celsius during the day.

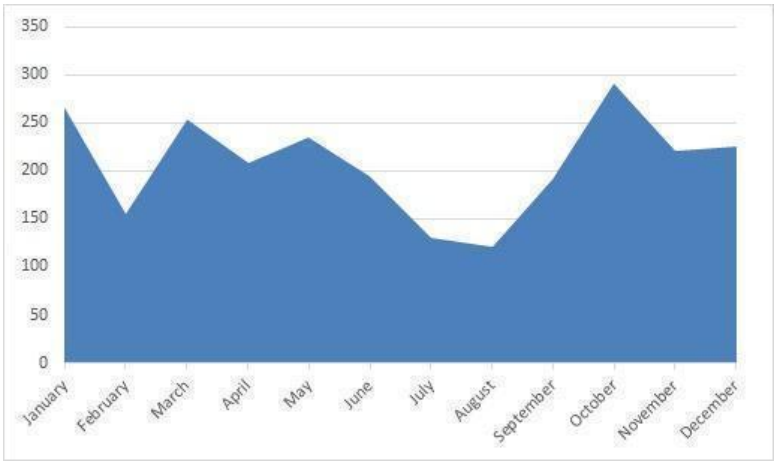


Figure 1: Monthly precipitation average for San Pedro from 2013 to 2022 [12]

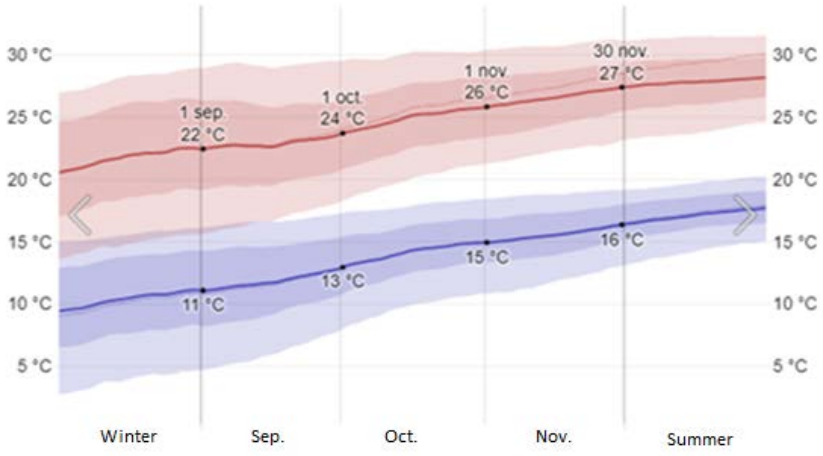


Figure 2: Minimum and Maximum average temperature in project zone. Monthly detail for springtime. Source: Weatherspark.com.

Highly accurate precipitation data from the past 10 years, has been sourced from Arauco Argentina S.A.'s Loma Porá meteorological station (26°34' 3.14 "S; 54° 3' 32.11"W), San Pedro, located just 13.87 km from our project site, "Selva Paranaense Vida Nativa GS1." Over this decade (2013-2022), the average precipitation is 2,480 mm, with

[12] Private weather station located less than 14 km from Selva Paranaense Vida Nativa GS1. The information provided is available to de VBB upon request.

maximum peaks in 2014 and 2015 at 3,439 mm and 3,240 mm, respectively. The standard deviation for this period is 570 mm, which accounts for 23% of the mean value. This mean value deviates 0.8% off the 2,500 mm benchmark set for our methodology's applicability assessment.

The Pepirí Guazú River (in Portuguese Pepirí-Guaçu) is a South American watercourse that forms the border between the province of Misiones, Argentina and the state of Santa Catarina, Brazil along its entire course. It rises in the Sierra de Misiones above the towns of Bernardo de Irigoyen and Dionísio Cerqueira and flows south until it empties into the Uruguay River a few kilometers before the Moconá Falls, presenting a large number of meanders along its entire course. A peculiarity of this river is that it separates two totally different landscapes: on the Argentinean side you can still appreciate the ecosystem of the Paranaense rainforest protected by the Yabotí Biosphere Reserve, while on the Brazilian side it has been cut down and the landscape is totally anthropized with the presence of fields dedicated to agriculture.

Its main tributaries are Los Hermanos and Toro streams on the Argentine side and the Flores River on the Brazilian side. Along its course are the waterfalls of the Gran Salto Macora, the Salto de la Marca, the Salto Leicao, the Salto Valiente and the Macacos Blancos waterfalls.

Estimates from satellite images show that there are more than 160 kilometers of streams of varying flow within the property. Some of these streams originate in the property or in the vicinity and others originate in the higher areas of the province and enter with great flow to continue supplying themselves with small tributaries that the forest feeds. The project area also contains the headwaters of the Yabotí Miní Stream, the Liso Miní, Liso and Invernada streams.

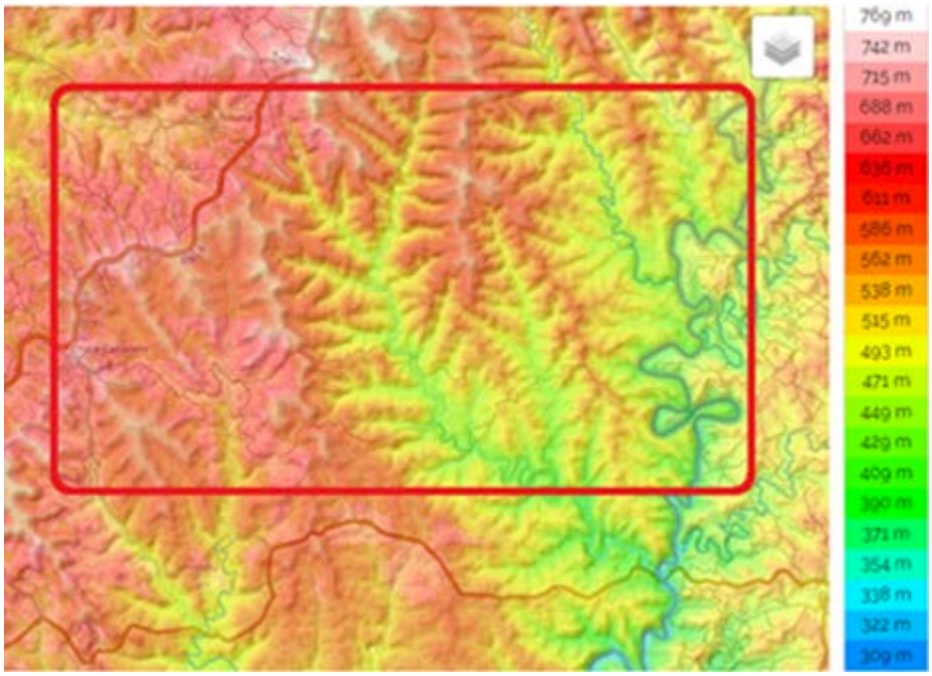


Figure 3: Altitude in meters over sea level for project zone.

The red soils, characteristic of the province, are the result of transformation processes of basaltic material under warm and humid climatic conditions. In the plateau area they are deep, clayey and rich in iron and aluminum oxides.

In the steep relief areas, they are shallow where basalt outcrops abound. The soils in these areas are made up of soils of quality 6 A, 6 B and 9. These are described below:

Soils 6.- Young soils, little evolved or evolved, derived from altered and fractured melaphyre to discrete depth (1 to 2 mts.), permeable, slightly acidic, and fertile. The following phases can be distinguished:

6 A: Flat or slightly sloping relief (slope < to 20 %). Low risk of erosion, deeper profile (> 1 m). Suitable for reforestation.

6 B: Steeply sloping relief (slope > 20 %). Strong danger of erosion, shallow profile (0.5 to 1 m). Not suitable for reforestation (restriction by Law Nº 3426 of Protective Forests).

Soils 9.- Very evolved deep red soils, leached, permeable, acidic or slightly acidic, moderately fertile, derived from melaphid. Includes the eroded phases. May be found associated with small areas of units 3 and 6. Suitable for reforestation.

The baseline analysis conducted indicates that the type of vegetation within the premises is as indicated in the figure below, with main participation (more than 90%) of explored native forest, with different degrees of degradation:

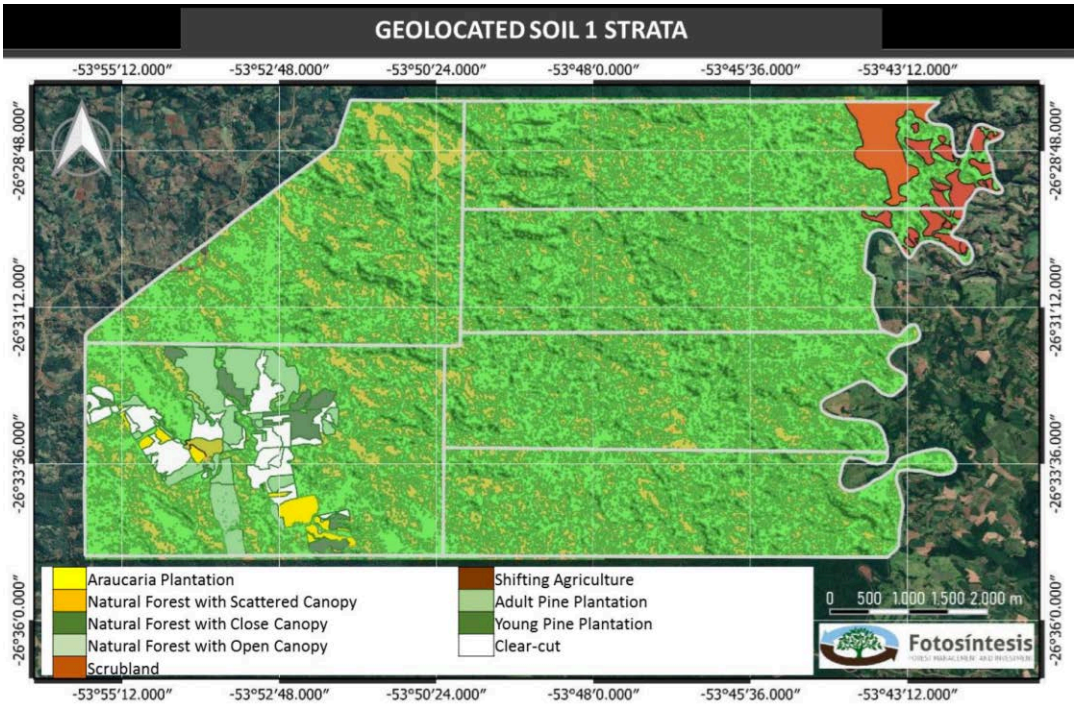


Figure 4: GS1 property area land use

Figure 4 portrays the whole area of the Reserva GS1 property, which has a size of approximately 24,643 ha. The project area encompasses almost the entire reserve, 22,878.5 ha. The project area and its project boundaries are displayed in section 3.1.3.

The native forest is in a highly intervened state and in most of the surface it can be interpreted as highly degraded, however, it maintains a dynamic of a high potential for natural recovery in different scenarios of vegetation

succession societies. This includes three different strata, which are: closed canopy (relatively intact forests), open canopy (heavily disturbed forests) and then scattered canopy (degraded forests). The main woody species identified (in terms of number of individuals) are Laran Geira, Laurel Negro, Catigua, Lianas and Rabo Itiá[13].

Among the characteristic mammals are marsupials, carnivores with the presence of the greater ferret (irará); otters such as the river otter and the chokecherry wolf (lobo gargantilla), felids, including jaguars, pumas, onza cats, tiger cats and chiví cats; bush foxes and pitoco foxes; and rodents, with several species exclusive to this jungle, such as the paca, the acutí bayo, the coendú misionero (also known as the hedgehog) and the gray squirrel (serelepe).

Some 550 bird species inhabit the province, which represents more than 50% of Argentina's avifauna. The presence of jungle eagles such as the harpy eagle and the widow eagle is outstanding. Also commonly found are the wild guans, parrots and toucans. Among the birds there is an important variety of tropical and subtropical families. There are also various types of amphibians, reptiles and invertebrates, particularly insects, many of which are unique to this eco-region. Most of them are in danger of extinction.

2.1.6 Social Parameters (G1.3)

GS1 project is in a property belonging to Forestal Belga S.A., located in the municipality of San Pedro, Misiones. We will call as "Project area" only the 22.878,5 hectares of the land called "Vida Nativa GS1", and we call as "Project boundary" the surrounding areas to the "Project area", where the rural agglomerates are located: Cruce Caballero, Paraje Piñeiro, Paraje Gentile, Colonia Alegria, Tobuna and Tekoa Alecrin. There is not any community, individual or group of people living within the project area. Outside the limits of the area, and in the project zone, there are rural agglomerates: Cruce Caballero, Tobuna, Alegría, Piñeiro, and further: Gentile and Tekoa Alecrín.

Cruce Caballero and Tobuna are the main rural agglomerates of which it is possible to find official census information.

The rest of the sites are considered scattered rural groupings, and therefore not censored.

According to the 2010 census, Cruce Caballero had a population of 408 and Tobuna had a population of 350. Taking as a reference the intercensal variation rate of the Department of San Pedro, the estimated population in both places nowadays reach 530 and 397 inhabitants, respectively.

Another procedure for establishing population estimates is the housing listing. There are 48 houses in Paraje Piñeiro. Based on the census of a maximum variation sample that determined that the average number of people per household is 4 people, we can calculate that the number of inhabitants is approximately 192. Tekoa Alecrín, meanwhile, has 238 inhabitants according to the last territorial survey carried out by the same community in 2020. Taking into consideration these values, the total estimated population in the Project boundary is 1,500 inhabitants. The residents of these places are predominantly smallholders, self-employed farmers who work in their family productive land, known as "chacra". Their income derives mainly from the commercialization of perennial crops such as yerba mate, tobacco, and tea. These products are grown in small plots of subdivided land where livestock is also practiced, usually to meet the needs of agriculture or for self-consumption. In addition to this, most of them are engaged in family horticulture, from which they get the food they consume daily.

[13] 2022 Forest inventory by Fotosíntesis consultancy

Employment, under conditions of high informality, occurs between the workers and forest services providers who work -with greater or lesser continuity- in the extraction of pine wood and native trees, thinning and cleaning activities in the current logging extractions of the forestry projects on the project boundary. There are also temporary or stationary work activities (known as "changueo") in different forest services with low qualifications requirements and low labor protection. Also trading, fishing and gathering, takes place to be able to satisfy the basic family goods basket.

Although associationism and cooperatives are important forms of community economic organization, they exist marginally in the project boundary and do not represent a significant magnitude in the composition of family income. It is an activity carried out predominantly by women in the collection, processing and marketing of vinegars and liquors made from native fruits .

These conditions of low economic resources have generated the need to go in search of more than one job to be able to satisfy the basic family basket. Analysis based on national and provincial values have shown the population of the project's boundary is below the provincial and national poverty lines. To alleviate this condition of poverty that is observed in the communities of the project zone, people depend on farms and orchards for self-consumption.

Dependence on the resources of the forest:

The forest, mainly in the hectares of family and private land, and secondly the communal forest areas are the most important places for gathering woody vegetation and other wild products such as medicinal plants, and fishing. No evidence has been found through direct observation or surveys and studies of the population in the project boundary that these activities of extraction and/or collection of timber and non-timber resources are carried out within the forest of the project area.

Education and human capital:

The population has a high percentage of literacy, and this situation is very similar in both men and women. The sites have educational institutions at the primary, secondary and adult school levels. The education offered includes satellite classrooms, of primary level; a Technical School of secondary level in Cruce Caballero and an agrarian school in the capital city, San Pedro.

The level of education predominantly achieved is complete primary. Although the new generations attend secondary schools with a high rate of completion of studies, there are some cases of school dropout. The reasons for this are teenage pregnancy and the need for family-driven employment. However, women are the ones who go the furthest in the educational path, reaching the end of their university studies in some cases.

The School of the Agricultural Family (E.F.A) of San Pedro is the one with greater school attendance levels as its agrarian orientation provides them a training compatible with the productive activities that the families of the area do and over which they base their subsistence. In addition, this provides them with a lunch and a student ticket to travel by public transport for free.

Community of indigenous people:

The surrounding rural areas outside the project area i.e., in the Project boundary (Cruce Caballero, Tobuna, Alegría Gentile and Piñeiro), share language and culture, religious beliefs, way of life, type of occupation and scale of income, reproduction patterns, access to public education and health systems. On the other hand, Tekoa Alecrín village is in a radius of approximately 25 km from the GS1 project area, which is part of the 5 indigenous villages that

inhabit in the department of San Pedro, Misiones. They belong to the original Mbya Guarani people, who have a large presence in the jungle corridor outside the project area.

In the past, the Mbyá-guaraní were characterized by having developed a way of life linked to the forest, both in material, social and cosmological terms. Today, their traditional living conditions have been highly modified by colonial and private advances on their ancestral territories, which have not only created a series of impediments to the development of their traditional life, but also the increasing loss of the resources of the forest, which used to be their only source of livelihood. Inter-contact has increased with the dominant society because of unmet basic needs that forces communities to change their patterns of political organization and intermediation with external agents. Sedentarism has increased, leaving more and more relegated to the traditional pattern of territorial mobility.

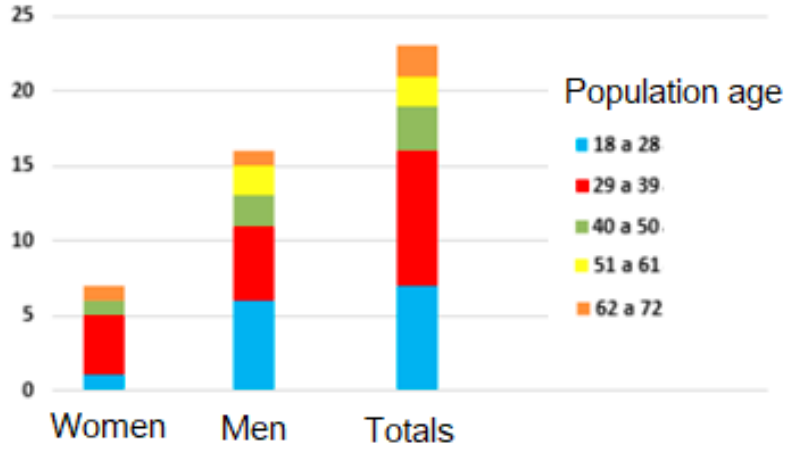


Figure 5: Tekoa Alecrin Census by age and sex (2021).

Tekoa Alecrín village consists of a primary school, a health unit and two community gardens in an initial phase, and approximately 40 houses in overcrowded conditions -given more than one nuclear family lives in them-. They have been granted a right of use and occupation over the lands they inhabit, but they do not hold official title. The houses are highly deteriorated with water leaks, moisture problems, ventilation problems, lack of electricity and lack of a drinking water network within them.

Currently, the population consists of 71% of children/youth between 0 and 25 years. The level of illiteracy is low. The inhabitants carry out traditional subsistence activities such as horticulture through the slash and burn system alongside illegal hunting, fishing, and harvesting of wood, animals and medicinal plants. Although most families have farms, they have few crops (corn, watermelon, beans, sweet potatoes, melon, squash), given the shortage of seeds. The only animals they breed are chickens. The food they consume is mainly industrialized products and animal products, most of which need to be obtained from shops and warehouses.

The monetary income received by each family does not exceed US$100 per month[14], on average. Except for those working in the school or the health unit, the only sources of wage labor are the sale of handicrafts, the "changas", which give them a rather precarious contribution. The rest of the income comes from social plans, mainly from the Universal Child Allowance (UCA).

[14] Conversion of Argentinean ($) to US Dollar (US$) calculated based on nov-dec 2021 value at time of census equal to $100 per US Dollar.

For a complete description of social parameters, see section 4.1.1 Description of communities at project start.

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

The area of influence of the project covers the area of the project (which corresponds to the majority of the land inside Reserva GS1) and the communities Gentile, Piñeiro, Alegría, Cruce Caballero, Tobuna and Tekoa Alecrín.

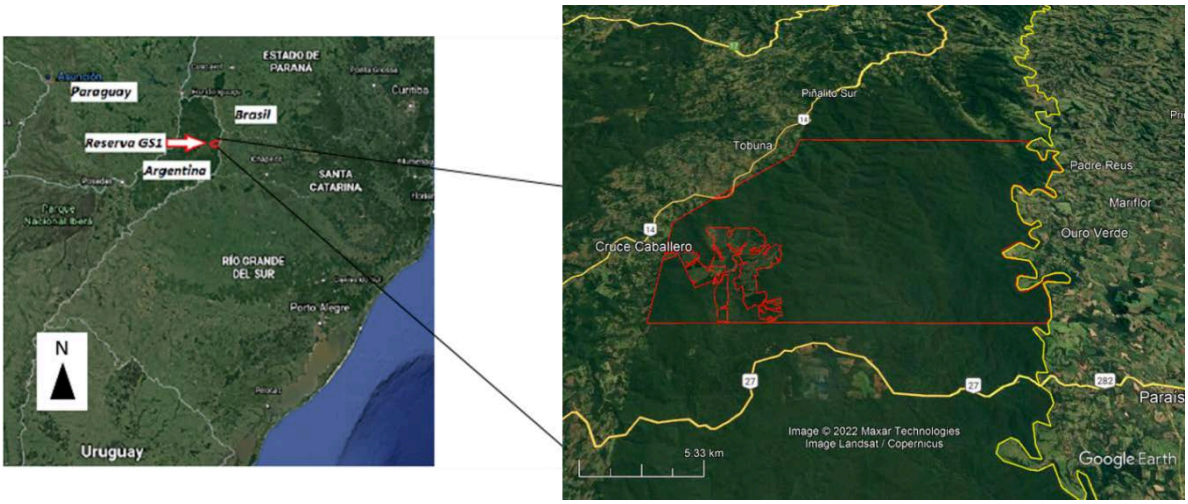


Figure 6: Project area and political boundaries. Boundaries of the project area(s), which is defined as the area(s) where project activities aim to generate net climate benefits.

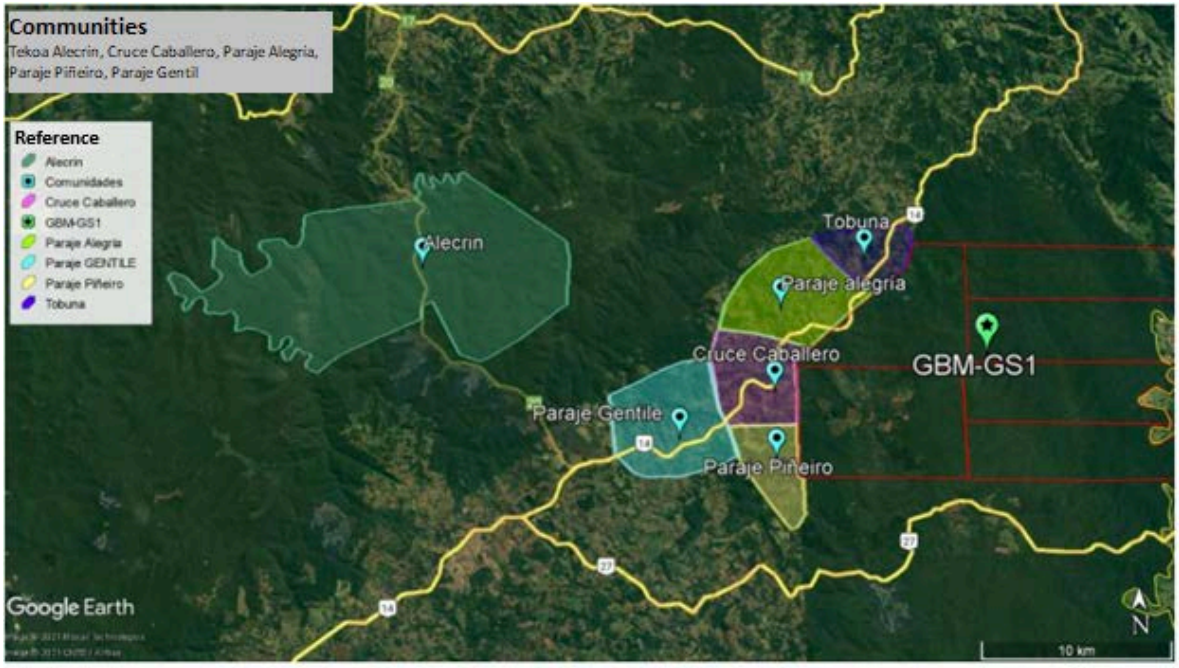


Figure 7: Project zone and location of communities identified.

In addition to this criterion being based on the previously selected manual, the choice of this criterion responds to the company's logistical and resource difficulties in dealing with a larger area. Outside the limits of the site are the rural agglomerates: Cruce Caballero, Tobuna, Paraje Alegría, Paraje Piñeiro, and further away Paraje Gentile and Tekoa Alecrín; covering a total estimated population in the area of influence of the Project of 1500 inhabitants. However, the project is planned under a logic of "scalability", therefore, in the future the area considered of influence of the project may be larger, covering more towns and a greater number of populations.

On the other hand, the mixed territorial approach strategy used by the community relations team made it possible to identify as a community the resident population of the surrounding rural areas outside the project site boundaries (up to 25 km), as they share an eminently rural way of life, a similar type of occupation and income scale oriented to subsistence agriculture and marketing of non-forestry products, cultural patterns of reproduction, access to public education and health systems, etc.



Figure 8: Community high conservation values (HCVs) identified with communities of Cruce Caballeros.

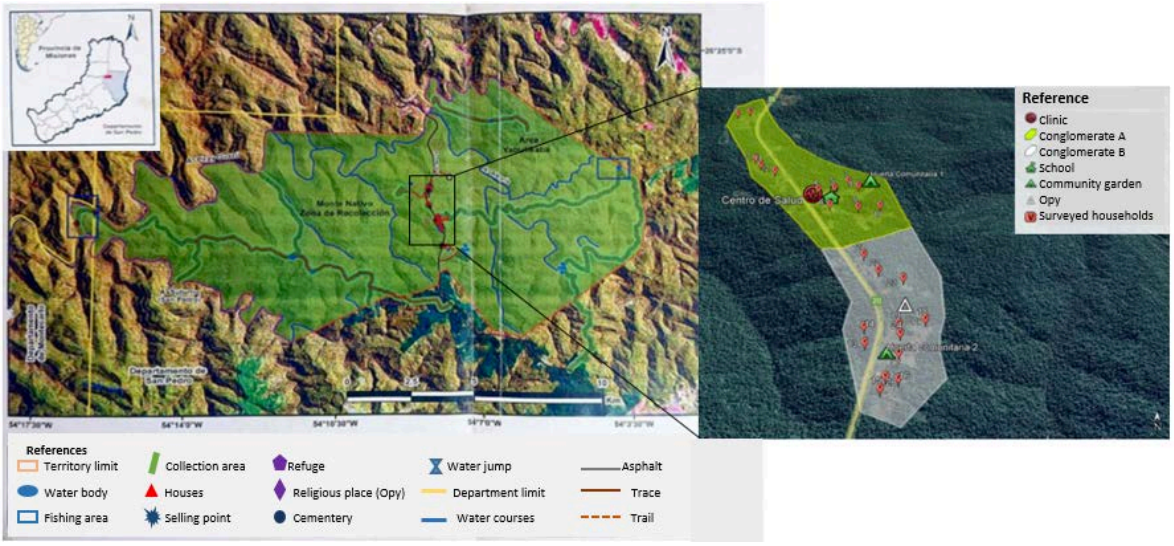


Figure 9: Detail for Mbyá Guaraní ALECRIN Community land uses and community's HCVs identified. Source: adapted from Programa Nacional de Relevamiento Territorial de Comunidades Indígenas - Ley 26.160 and information from NIDEPORT

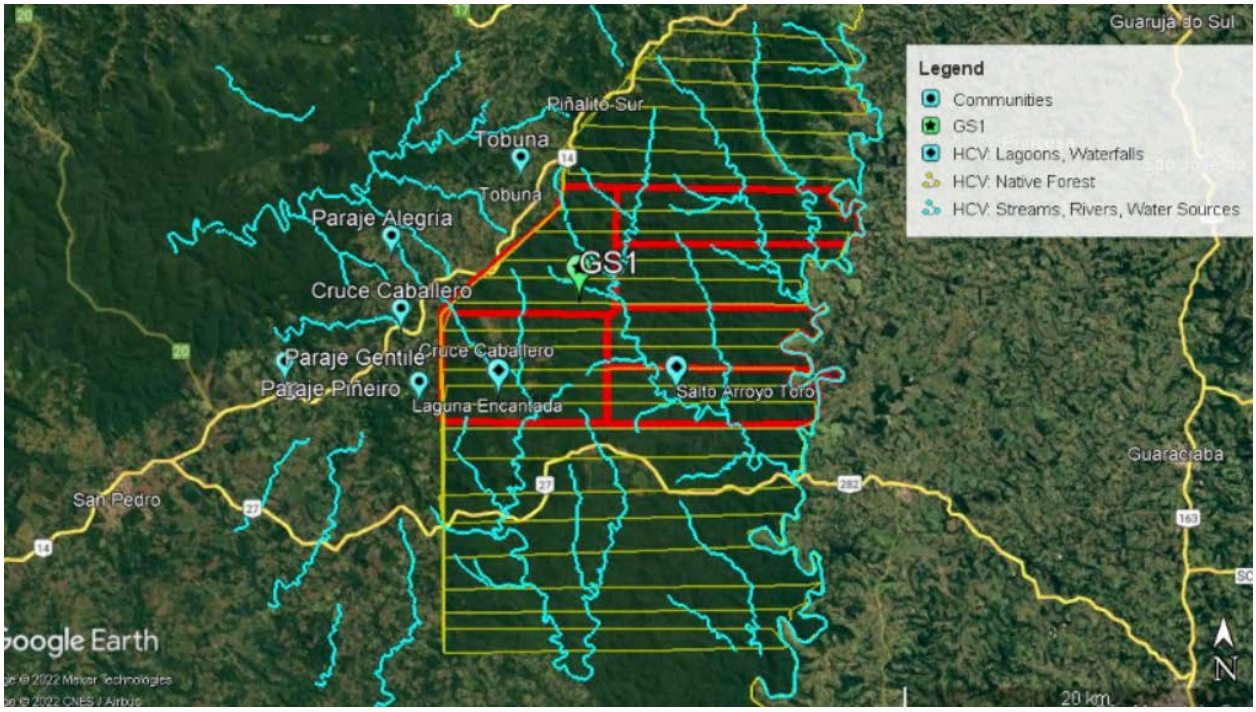


Figure 10: Biodiversity high conservation value (HCV) areas identified with communities.

2.1.8 Stakeholder Identification (G1.5)

The stakeholder identification and analysis process consisted, first, of a brainstorming with the collaboration of key informants, who were able to provide a local and situated view on the relevant stakeholders that may have an influence and/or be affected by the project. This allowed for a preliminary classification of sectors distinguished by gender, ethnic group, level of wealth or well-being, livelihoods, but also community-based organizations, local government influencers, public organizations, and others.

After this preliminary identification, secondly, field research continued with a mixed - or triangulated - multistage design. In general terms, this strategy brought together interviews of maximum variation; under the logics of "key actor", "snowball" and "focus group" with censuses of rural households in villages, towns, and native communities; with a random sample selection by clusters for villages and community villages, and with a directed sample selection and by clusters for community groups.

The mixed strategy included:

- Meetings with stakeholders based on a convenience sample.

- Ethnographic approach: participant observation, descriptive and detailed recording of social daily life, open anthropological interview, intercultural dialogue.

- Semi-structured interviews on focal themes (human capital, degree of dependence on the forest, economy, social capital, climate change) through chain or "snowball" sampling.

- Thematic focal interview or focus group for agriculture and indigenous habitat issues and perception of local problems in Cruce Caballero.

- Participatory rural assessment: SWOT matrix for self-diagnosis of community organization.

- Survey of rural households. Three household censuses were conducted. The first was a pilot or ex ante test, in the rural areas surrounding the property, based on a non-probabilistic sample of maximum variation with criteria of gender, income difference and place of residence. The second household census with a sample of 60% of the households of Tekoa Alecrín (24 households), under a cluster sampling. The type of sampling used in this case is the culturally appropriate methodology achieved through intercultural dialogue with the council of authorities of the community group. The third household census will be carried out at the end of October, in Cruce Caballero, Paraje Piñeiro, Colonia Alegría and Tobuna, following a probabilistic sampling procedure, in this case random by clusters.

- Georeferencing and cartographic updating of houses, community infrastructure places, stores, community spaces, access points, roads, routes, services, sites of cultural interest and other points of interest for the local population. The methodology combined geolocation, interviews with community members and the use of geographic processing software.

This mixed strategy methodology made it possible to identify as a community the resident population of the surrounding rural areas that are outside the site boundaries, insofar as they share language and culture, religious beliefs, way of life, type of occupation and income scale, reproduction patterns, access to public education and health systems, etc.

As community groups, women, indigenous peoples, and people with greater economic and social vulnerability were identified, as their income, livelihoods and/or cultural values differ widely from those of other groups.

With the methodology described above we have not identified any other stakeholders in the project boundering. For more info, see section 2.1.9.

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

The rural areas and the original Alecrín community will be analyzed as a community, meaning the resident population of the surrounding rural areas outside the boundaries of the GS1 site, as far as they share language and culture, religious beliefs, way of life, type of occupation and scale of income, patterns of reproduction, access to public education and health systems, etc.

Strictly speaking, territorial proximity, empirical regularities in terms of income and economy, homogeneity in the conditions of access to public services, mainly primary schooling, the deep-rooted existence of evangelical Christian religions and to a lesser extent Catholic (including an Aboriginal Pastoral) as well as the existence of common linguistic patterns – predominantly Spanish in a sociolinguistic diversity that includes the official Portuguese, the portuñol and the ancestral Mbya Guaraní language – provide evidence to believe the entire population of the project boundary corresponds to a single community.

But this reduction to one community becomes abstract if we do not consider the existing cultural and social diversity, recognizing the existence of community groups which, by virtue of their social-historical condition, can be grouped into three:

Others Stakeholders	Descriptions
Companies in the timber production chain (Contractors).	There are small and medium-sized timber extraction and transportation companies in the region that established contracts with Forestal Belga, which were terminated at the beginning of the SPVN GS1 Project. These companies work in an area beyond the project boundary, and maintain their production structure and employees.
Employers of informal labor for short-term services in agricultural production.	Informal employment for *changueo*, *tarefeo*, *raleo*, etc., is a widespread practice in the province of Misiones and in the project boundary. These employers do not mediate a contract, pay by the day and do not provide social benefits to employees, in addition to the fact that their labor supply is temporary and the salaries they pay do not represent a central income in households.

Temporary informal workers in the timber production chain.	Informal or semi-legal employment for timber extraction and transport activities is widespread in Misiones province and in the project boundary. Informal workers in this type of temporary activity fall into the category of population of high social and economic vulnerability, but are particularly considered because of the cessation of Belgian forestry activities during the COVID 19 pandemic prior to the start of the project. They are relevant as another stakeholder group because of the better opportunities to obtain legal employment, training and other benefits from project activities due to their work history.

2.1.10 Sectoral Scope and Project Type

Sectoral scope: 14 (AFOLU)

Project category: Conversion of low-productive forests to high-productive forests (LtHP).

Specifically, the project is a Low-Productive to High-Productive Forest (LtHP, because the forest in the project area):

- Qualify as a forest as defined by the host country for its UNFCCC national inventory accounting.
- It is in a state of arrested succession, where regeneration is inhibited for extended periods of time, due to intensive colonization of bamboos/vines caused by years of logging activity.
- Have a very slow growth rate both in the with-project scenario and in the baseline scenario, where relogging is the baseline activity..

In order to transform the low-productive forest to a high productive one, the project will:

- Stop relogging;
- Adopt enrichment planting to increase the density of trees.
- Implement forest management activities such as cutting bamboos/vines that prevent forest regrowth.

The project is not a grouped project.

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

The overall objective of the project is the restoration of the biosphere, regenerating the native forest structure, reinserting native species, and restoring the biodiversity of the different ecosystems. And in this way recover the natural capital of GS1.

The project starts with the restoration of forest mass, over 5 years, in the 22,878.5 hectares. It will consider the density and distribution of the species that will promote the interaction between them for the sustainable recovery of the forest mass and will also promote the reinsertion of fauna specimens, naturally or artificially.

The project activities are further developed in the documents “Forest Management Plan (Restoration & Forest Management Plan-EN_2023-27)” and “Planning and Execution of Annual Restoration Activities” shared during validation. The first document outlines the forest's characteristics and structures for restoration. The areas of intervention include forest gaps and clearings, requiring ongoing annual monitoring due to natural growth dynamics.

Soil preparation for planting solely utilizes manual tools like shovels, with no disruption beyond the planting hole. Heavy machinery will not be used for soil removal. Activities include planting and liana management, and the location of the interventions is defined according to the forest inventory and strata.

This is ensured through the exclusive use of the saracua, a manual tool designed for minimal soil impact. It only penetrates the top 10–12 cm of soil, avoiding deep disruptions, compaction, or erosion typically associated with mechanized methods. This approach effectively preserves the soil's natural structure and stability.

By preserving the integrity of the soil and avoiding the adverse impacts of mechanical processes, we are able to prepare planting sites effectively while safeguarding the project's environmental objectives. This traditional method exemplifies how time-tested, simple tools can play a vital role in sustainable land management.

The forest restoration strategy begins with an annual plan to determine the sites that most require active practices for forest recomposition. Based on information obtained from successive forest inventories, and complemented by field reconnaissance trips, drone flights, and office analysis to understand the forest growth dynamics, we identify and prioritize areas where we will work on enrichment.

Enrichment plantings in strategically selected areas will be essential to restore the forest to its original composition, structure, and diversity. Native tree species such as Timbó, Loro Negro, Guaicá, Cañafistola, Guatambu blanco, Pitanga, Cerella, Guayuvira, Siete Capotes, Jaboticaba, Cedar, Guatambu Amarillo, Incienso, Lapacho, Araucaria, among others, will be used. The careful selection of these species, considering 50% fast-growing species, 25% "key" species that propose to recompose the diversity lost as a result of selective extraction, and 25% fruit species, will allow recreating the natural balance of the forest and attracting wildlife.

Native tree specimens of high ecological value, currently conditioned in their development by invasive species or lianas, will be released through selective pruning and thinning. This action will allow them to receive the necessary sunlight to develop and reach their full potential. Special attention will be given to key species such as those that produce seeds, fruits, and shelter for wildlife.

Controlling bamboos, lianas, and climbers, which suffocate the understory and compete with native species, is crucial for the success of restoration. Carefully planned manual measures will be implemented to remove these invasive species without damaging the native trees. Areas where the threat of these species is greatest will be prioritized.

A rigorous monitoring and follow-up project activities will evaluate the effectiveness of restoration and conservation actions. Variables such as tree cover, species composition, forest structure, and the presence of wildlife will be measured. The results obtained will be used to adjust strategies and optimize the implementation of the plan.

Scientific research in the area will be promoted, generating invaluable knowledge about the ecosystems of the Misiones Rainforest and the best practices for its restoration and conservation. Collaborations will be established with academic and research institutions to develop projects relevant to the conservation of native forests.

Environmental education project activities will propose to raise awareness among the local community about the importance of native forests and the need for their conservation. Workshops, talks, and field activities will promote the active participation of the community in restoration and conservation actions.

At the community level, local personnel from the Project boundary will be hired, trained, and coached in restoration and reforestation tasks. In addition, local personnel from the Project boundary of influence will be hired, trained, and coached for other safety and prevention tasks.

Hiring will be carried out in accordance with the country's current legal framework, through the dissemination in the Project boundary of the search for personnel to fill required positions, so that interested individuals can conduct a job interview to analyze whether they meet the basic requirements to be hired. Hiring will be carried out respecting a gender quota, according to the standardized benefit metrics in section 1.2 Standardized Benefit Metrics.

As a result, an improvement in income and an increase in the capacities of the contracted members of the communities is expected.

Such activity (hiring, training and coaching) is the one that is closely linked to the core activity of the SPVN GS1 project area.

On the other hand, for reasons that will be explained in the relevant section, the "forest safety net" project activity, which addresses the possible dependence of the Project boundary population located adjacent to the project area, seeks to provide, once intrusions into the project area have been identified, access to timber resources (firewood, medicinal plants) to households that - once surveyed - are found to need them for their livelihoods.

Subsequently, the project activities with community benefits are not directly related to or involved in the SPVN GS1 project area activities. They only depend on the funding obtained from carbon sequestration as co-benefits in terms of education, health, community infrastructure, maintenance of high conservation values, food security, collaborative housing construction, support for women's agro-ecological enterprises, etc.

The project is not located within a jurisdiction covered by a jurisdictional REDD+ program.

2.1.12 Sustainable Development

NIDEPORT is committed to align its projects and actions with the SDGs, defined according to the 2030 Agenda, especially the goals and targets of the United Nations Strategic Plan for Forests 2030, which provides a global framework for sustainable action and management of all types of forests and trees (even those outside forests) to halt deforestation and forest degradation.

Global forestry goals and targets are voluntary and universal. They support the objectives of the international agreement and are intended to contribute to the progress of sustainability, according to the Aichi Goals for Biological Diversity, the Paris Agreement adopted under the United Nations Framework Convention on Climate Change and other instruments, processes, commitments, and goals.



Figure 11: SDG icons.

Regarding national sustainable development priorities, the project contributes to goals:

1. No poverty: by reducing poverty (in all its forms) and hunger, by generating development project opportunities to those more vulnerable (housing improvement, vegetable gardens inputs, water access, and training, among others).

5. Gender equality: by working specifically addressing women and girls needs and developing projects with gender perspective.

8. Decent work and economic growth: by generating jobs, training communities, and generating economic activities in the area by implementing different activities within the project zone and conservation activities.

13. Climate action: by conserving and enriching natural forests, increasing carbon sequestration.

15. Life on land: by promoting the sustainable use of the land, reduce and reverse forest degradation and biodiversity loss and control invasion.

2.1.13 Implementation Schedule (G1.9)

Date	Milestone(s) in the project's development and implementation
2020	Project development
June 2020	Land irrevocable lease with option to purchase
Sep 1st – Oct 31st 2021	Community assessment and census
Aug. 28th 2021	Baseline fauna biodiversity inventory
Oct 26th 2021	Baseline forest inventory
Jun 3rd 2021	FPIC with Tekoa Alecrín community
Nov. 26th 2021	Public consultation with communities in project zone

Dec 15th 2021	Project start date with stopped logging
15th Dec 2021-31st Jul 2022	1st Monitoring Period
May 25-27th 2022	First enrichment and regeneration practices
Jul 11-30th 2022	Forest inventory
Jul. 13th 2022	Biodiversity inventory
March 2027	End of enrichment period activities
Dec. 14th 2121	End of crediting period

2.1.14 Project Start Date

The project start date is 15/12/2021, which is when the logging stopped in the project area.

2.1.15 Benefits Assessment and Crediting Period (G1.9)

Crediting period start date: 15/12/2021

Crediting period end date: 14/12/2121

Crediting period total duration: 100 years

2.1.16 Differences in Assessment/Project Crediting Periods (G1.9)

There is no difference in crediting periods.

2.1.17 Estimated GHG Emission Reductions or Removals

For the first 30 years we have the following emissions reductions.

Year	Estimated GHG emission reductions or removals (tCO_2e)
2022	280,626
2023	294,698
2024	309,449

2025	324,915
2026	230,465
2027	248,790
2028	268,899
2029	290,972
2030	315,204
2031	328,329
2032	331,067
2033	333,804
2034	336,542
2035	339,280
2036	342,017
2037	344,675
2038	347,333
2039	349,991
2040	352,649
2041	379,898
2042	380,405
2043	380,792
2044	381,051
2045	381,178

2046	382,361
2047	383,370
2048	384,187
2049	384,794
2050	385,169
2051	385,434
Total estimated ERs	10,178,32
Total number of crediting years	30
Average annual ERs	339,278

2.1.18 Risks to the Project (G1.10)

The identification of the probable natural and human risks to the expected benefits for climate, community and biodiversity during the life of the project, including the probability of fires, torrential rains that could cause flooding and winds that could bring down trees or affect the biodiversity of the site have been considered as natural risks. The mitigation actions to be implemented (once carbon credits are emitted) include early warnings, 24/7 monitoring and action plans to respond to these risks. In some cases, being the natural cycle of native forests, the only measures may include regeneration/replacement of fallen individuals. Regarding impacts on communities, the nearest communities are 15 km away and are therefore not affected by activities or events that may occur on the site.

Regarding human-induced risks, the main one identified is illegal entering affecting fauna and flora, so one of the main project's activities is the installation of monitoring technology, including monitoring towers with state-of-the-art cameras and the use of drones with photogrammetric cameras, for the entire area to be monitored, controlling fires and illegal logging. These devices will be monitored 24/7 all year round from the Ecological Monitoring Center (EMC) located in one of the points of access to the natural reserve on National Route No. 14.

Among the identified risks, wildfires are a natural risk, while deforestation, poaching, illegal trafficking, illegal agriculture, and unregulated logging are human-induced risks. For each of these risks, specific measures have been developed to prevent, mitigate, and manage negative impacts, thereby ensuring the project's success and the forest's preservation.

Wildfires pose a significant threat to the integrity of the forest ecosystem. To manage this risk, we have designed a comprehensive prevention and response system. This includes the use of online platforms equipped with satellite data, providing instant information on heat spots with georeferencing within the forest and a 5 km radius around it. We also propose project activities that include the installation of surveillance posts at strategic points within the forest, which will be equipped with high-resolution cameras and thermal sensors to detect temperature changes and

smoke. Additionally, climatic monitoring stations will be established to anticipate weather conditions that could increase the risk of fires, such as high temperatures and strong winds. Continuous training for personnel in fire prevention and combat techniques will be conducted, and coordination with local and regional authorities will ensure a swift and coordinated response in the event of a fire. The contingency plan includes establishing firebreaks and using specialized equipment for firefighting. The local community will also play a crucial role in early fire detection, and awareness campaigns on fire prevention will be implemented to reduce human-caused incidents.

Illegal deforestation is another significant risk that could compromise the health of the forest ecosystem. To address this issue, we have developed a multifaceted approach that includes the implementation of a satellite surveillance system to detect changes in forest cover and suspicious activities. This system will be complemented by regular on-ground patrols conducted by park rangers trained in deforestation detection and prevention techniques. Collaborations with local authorities and non-governmental organizations have been established to strengthen monitoring and response capacity against unauthorized deforestation activities. Additionally, awareness project activities will be implemented for landowners and local communities engaged in sustainable forest management practices and conservation of wooded areas on their properties. These project activities will include technical assistance and training in forest management techniques that promote sustainability and the restoration of degraded areas.

Poaching is a serious threat to both wildlife and ecosystem balance. To mitigate this risk, regular patrols will be conducted in critical areas of the forest, supported by advanced technologies such as camera traps and drones for aerial surveillance. Camera traps will help identify activity patterns and potential offenders, while drones will provide detailed aerial views to detect suspicious activities. A rapid response protocol will be developed for intervention in cases of poaching, including collaboration with law enforcement authorities. Additionally, awareness campaigns will be carried out in local communities to educate about the negative impacts of poaching and promote sustainable practices. The project will also encourage the creation of wildlife refuge areas with restricted access to protect the most vulnerable species.

Illegal trafficking of species and natural resources also poses a significant risk to forest conservation. To address this issue, close collaboration will be established with federal authorities, such as the National Gendarmerie, with periodic patrols within and around the project's boundaries to prevent the illegal transfer of species and resources out of the project area. The implementation of a confidential reporting system will allow community members to report illegal activities without fear of retaliation.

Illegal agriculture is another factor that can lead to forest degradation and ecosystem alteration. To counteract this risk, preventive measures will be implemented, such as regular patrols to identify and eradicate illegal crops. Close collaboration with local communities will be established to promote sustainable agricultural practices that respect forest areas and reduce pressure on the forest. Training project activities will include conservation agriculture techniques, such as the use of organic fertilizers and terracing systems that minimize soil erosion and degradation.

The project also focuses on training and empowering local communities to ensure ongoing forest protection beyond the project's duration. Training project activities in sustainable forest management techniques will be implemented, and active community participation in forest management decision-making will be promoted. Additionally, partnerships with local and regional organizations will be established to strengthen community capacity to protect and conserve the forest. Economic development practices that reduce dependence on forest resources and offer sustainable alternatives to improve people's quality of life will be encouraged. Among the planned project activities, honey production and the collection of Yerba Mate leaves are among the first to be promoted.

To ensure the permanence of the project's benefits, strategies for periodic monitoring and evaluation will be adopted, allowing for adjustments to management and mitigation measures based on changing environmental conditions. Ongoing collaboration with local authorities, non-governmental organizations, and communities will be essential for maintaining the success of conservation initiatives. The project is committed to balancing permitted activities in the forest with the conservation of its natural resources, ensuring that productive practices do not compromise ecosystem health. Strict policies and regulations will be implemented to ensure compliance with sustainable management standards, and a culture of responsibility and environmental respect will be promoted among all stakeholders.

Although the native forest in the project area is classified as green, which allows productive activities, the project is committed to careful management that ensures the sustainability of forest resources and the protection of biodiversity.

2.1.19 Benefit Permanence (G1.11)

From its earliest planning stages, the project has incorporated a comprehensive approach to ensure that the climate, community, and biodiversity benefits are sustainable and enduring. This approach guarantees that the positive impacts of the project will not only be maintained throughout its implementation but will also continue to generate long-term benefits even after its conclusion.

To secure and enhance the climate benefits, the project focuses on the continuous implementation of sustainable forest management practices. This includes key strategies such as systematic reforestation, specialized management of species like bamboo and climbing plants, and regular monitoring of carbon stocks in the forest. These practices are designed to maximize carbon capture and storage, significantly contributing to climate change mitigation.

Innovation is fundamental to the project's long-term success. Therefore, research and development of new forest management techniques that optimize carbon capture efficiency will be promoted. Advanced technologies will be developed in collaboration to allow more precise assessment of carbon reserves and facilitate the implementation of adaptive management strategies based on continuous monitoring results. This will not only ensure that the project continues to contribute to the reduction of greenhouse gas emissions but will also expand its impact on combating climate change.

The preservation and enhancement of biodiversity are central pillars of the project. Continuous measures will be implemented to control invasive species, restore degraded habitats, and monitor the flora and fauna of the ecosystem. These actions are essential for maintaining ecological balance and protecting the biological diversity of the area.

Support for scientific research and ongoing biodiversity monitoring will enable a proactive response to emerging threats. Conservation strategies will be developed based on up-to-date scientific data, ensuring the effectiveness of the adopted measures. Additionally, collaboration with scientific institutions and specialized organizations will be fostered to maximize the impact of conservation initiatives.

To ensure the continuity of project benefits beyond its duration, the focus will be on strengthening local capacities. This involves providing communities with the tools, knowledge, and training necessary to sustainably manage forest resources and develop independent livelihoods.

Participatory forest governance mechanisms will be encouraged to ensure equitable and transparent decision-making. These mechanisms will enable communities to manage the forest autonomously, promoting sustainable practices and ensuring that benefits continue to flow.

Collaboration with non-governmental organizations (NGOs) and the private sector will be essential to secure ongoing funding and technical support for community-led conservation initiatives. This collaboration will ensure that communities receive the necessary backing to implement and maintain long-term conservation projects.

At the end of the 100-year protection period, which includes planting native species and regenerating biodiversity, the land will be donated to the provincial government to be converted into a nature reserve. This donation will not only ensure the continued protection of the area but will also establish a lasting legacy of conservation and sustainable forest management.

The ex-ante design of community development projects in conjunction with the communities makes it possible to establish and monitor long-term benefits, but does not guarantee that the communities will decide on their own in a new scenario, beyond the life of the project, to use these resources and capacities to maintain the benefits identified in this historical context. For example, the Oga project contemplates the construction of houses to improve the quality of life of the Tekoa members and proposes the installation of capacities for the modular construction of houses in the future; in the case of the Mujeres Cultivadoras project, tools and inputs will be transferred to improve production indicators, thus making it possible to supply new markets. In the case of the Ra´ÿi and Payments for environmental services projects, the communities will have protected water reservoirs, greater forest density, and in the specific case of Ra´ÿi, the Alecrin community will have a greater diversity of vegetables for consumption, a seed bank, and knowledge exchanges to strengthen ancestral knowledge for community food production. As for the participatory carbon, it will provide long-term benefits in terms of participatory management skills and increased social cohesion for the development of projects.

With this in mind, the following measures will be adopted:

-Participatory construction of an action plan and operational manual for each sustainability project.

-Training course for trainers and facilitators per project.

Since Forestal Belga will no longer own the land, it lacks the legal authority to commit to its donation. Nideport, as the new owner and after paying the land with the carbon credits, will assume full responsibility for donating the property to the provincial government upon project completion, as outlined in this PD. This agreement will include clauses ensuring the land's conservation, sustainable management, and suitability as a nature reserve, securing long-term protection beyond the project's duration.

2.1.20 Financial Sustainability (G1.12)

Corporations

Corporations must, in an increasingly complex and regulated process, compensate for their pollution. The different economic activities have an environmental impact that can be established in detail, which is called carbon footprint.

The voluntary carbon market is the place where corporations and environmental activities converge to exchange economic resources for carbon sequestration certificates.

Environmentalists

Preservation and restoration will have unprecedented transparency and online monitoring accessibility. Environmentalists will be able to tangibly, in the palm of their hand, visualize these actions. NIDEPORT also has agreements with environmental non-profit organizations, which will be able to receive donations for the materialization of concrete scientific actions in the "GS1" field establishments, where they will be able to use the developed infrastructure.

Whether by means of photogrammetry, camera systems or field survey (in partnership with scientific organizations), users will have access to pre-publication reports and will have the possibility of volunteering in the field, contributing to the development of the different tasks of preservation, forestation, conservation, and preservation tasks.

Buyers

Buyers will find in the project an original and sustainable development as it will become the first kind in this type of preservation and restoration of natural capital native forest. Its price will be affected by the steady increase of carbon credits over the years.

A. Financial Mechanisms Adopted by the Project

Private Financing:

● Initial Stage: The project is financed through contributions from committed private entities, with an initial total of $500K from Draper Cygnus VC. Since the monitoring period, additional financing of $4.2M in financial debt has been received: $500K from Friends & Family and $3.7M from ALMA.

● Carbon Credit Income: In the second stage, financing will depend on the sale of carbon credits to meet restoration objectives, contribution to communities, impact on biodiversity, and obligations to creditors.

Funding and Donations:

● The project will establish alliances with non-profit environmental organizations, such as Fundación Vida Silvestre Argentina, Aves Argentinas, and Fundación Vida Nativa, to manage the funds destined for communities, climate, and biodiversity.

Actual and Projected Cash Flow:

● The project will be supported primarily by revenue from carbon credits. Donations will be marginal but necessary for field operations, land purchases, and technology investments. Part of this revenue will be used to improve the quality of life of the communities, through projects such as organic yerba mate production and cultural tourism.

B. Identification and Role of Organizations

Nideport:

● Role: Owner of the Project, in charge of administration for the issuance of carbon credits.

● Financial Contribution: Provides initial funds and will generate income through the sale of carbon credits.

Fundación Vida Nativa:

● Role: Fund management and technical support in practices with local communities, estimated to begin in the first half of 2025.

● Financial Contribution: Will manage carbon credit donations and seek additional financing.

Fundación Aves Argentinas:

● Role: Manages funds and supports biodiversity monitoring and environmental education.

● Financial Contribution: Receives donations from Nideport and contributes to mutual benefits such as the installation of camera traps.

Fundación Vida Silvestre:

● Role: Manages funds and supports conservation and educational project activities.

● Financial Contribution: Provides logistical and financial support through conservation project activities.

C. Donation Mechanisms and Dynamics with the Project Owner

Donation Mechanisms:

● Donations are managed through dedicated bank accounts, guaranteeing exclusive use for project activities.

Dynamics:

● Nideport coordinates with the aforementioned organizations the supervision and distribution of funds, ensuring that they are aligned with the project objectives. Contributions are made periodically and are linked to specific projects.

2.1.21 Grouped Projects

Not applicable as it 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)

See section 3.1.5.

2.2.2 Most-Likely Scenario Justification (G2.1)

See section 3.1.5.

2.2.3 Community and Biodiversity Additionality (G2.2)

Restoring a previously logged native forest offers an exceptional opportunity to generate a positive and lasting impact on the biodiversity of the site. Priority is given to restoring ecosystems that provide high ecological value and are essential for the conservation of regional biodiversity. This involves identifying critical areas for habitat connectivity, the recovery of populations of threatened species and the provision of essential ecosystem services.

Restoring the functional and genetic diversity of species present in the target ecosystems involves using a variety of native species adapted to local conditions, considering their ecological role and interactions within the ecosystem.

An adaptive management approach will be implemented that allows restoration strategies to be adjusted based on monitoring and evaluation of results. This involves establishing clear success indicators, rigorously tracking progress and adjusting restoration techniques as necessary.

Controlling invasive species will allow effective measures to be established to prevent the introduction and control the expansion of invasive species that may threaten restored ecosystems. It involves implementing strict biosecurity protocols, carrying out periodic controls and eliminating invasive populations in a timely manner.

Isolated forest fragments will be connected to improve the flow of species and strengthen the ecological structure of the landscape. This involves considering the restoration of biological corridors, the creation of wildlife passages and the elimination of physical barriers that impede the movement of species.

The restoration of essential ecosystem services—such as climate regulation, water purification, pollination, and soil conservation—requires not only rebuilding the ecosystem's structure and functions but also reestablishing the ecological interactions between species.

The contribution to scientific research and long-term monitoring to evaluate the effectiveness of restoration actions and generate knowledge about the ecological dynamics of the site is essential for adaptive management and informed decision-making in the future.

Through Law 26.331 enacted in 2007, the land use planning of native forests in Argentina was carried out, categorizing them based on three Categories Red (Category I): Very high conservation value. They must not be transformed, and their use is limited to habitat for indigenous communities and scientific research; Yellow (Category II): Sectors of Medium Conservation Value. Their use is limited to sustainable use, tourism, harvesting and scientific research; Green (Category III): Sectors of low conservation value. They can be partially or totally transformed. In Misiones, 70% was categorized as yellow and red (Figure 12).

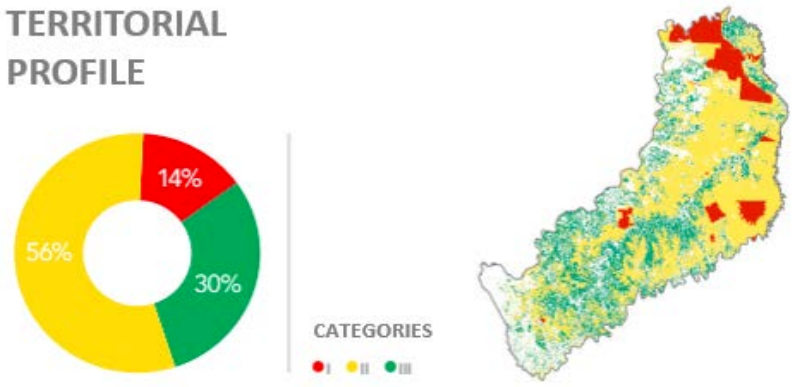


Figure 12: Misiones native forest categories from OTBNs (translated for original source) Source: WWF (2021). Ley de Bosque nativos: el proyecto de presupuesto 2022, provincia por provincia. Misiones sheet[15] Although Misiones has a legal framework to address the conservation problems of the Atlantic Forest, the factors responsible for the loss and fragmentation of the forest - including deforestation and population growth, with the consequent pressure on resources - have not yet been abated (Laclau, 1994; Dalmau, 1995). From 2010 to 2018, a total of 12,675 ha of native forest under yellow and red category were deforested in Misiones (WWF, 2021 from SAyDS, 2019) showing difficulties to implement the native forest conservation law. Without adequate financial stimulus, the provinces are unable to strengthen their capacity for oversight, control, and monitoring, as summarized in figure 13.

[15] Available at: https://wwfar.awsassets.panda.org/downloads/ficha_lbn__misiones_nacional_1.pdf

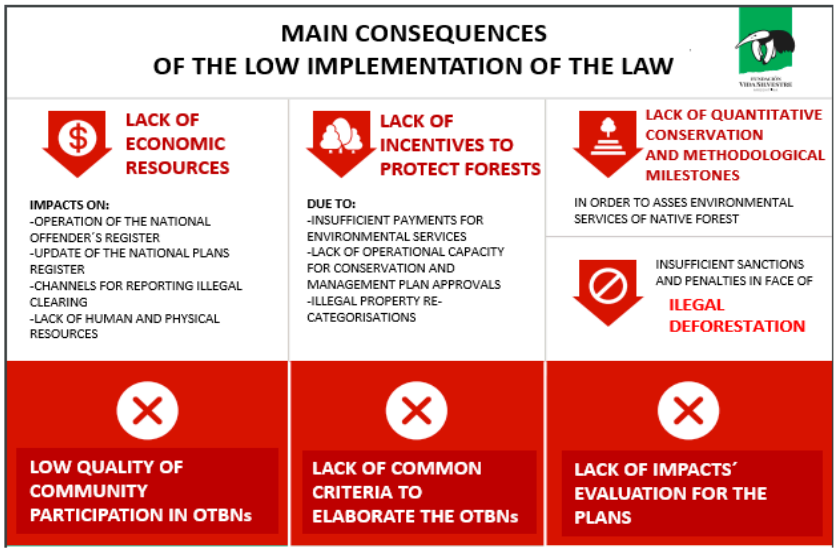


Figure 13: Summary of the consequences of the low native forest law implementation (translated from original source). Source: WWF (2021) Ley de Bosque nativos: el proyecto de presupuesto 2022, provincia por provincia[16]. Misiones sheet[17].

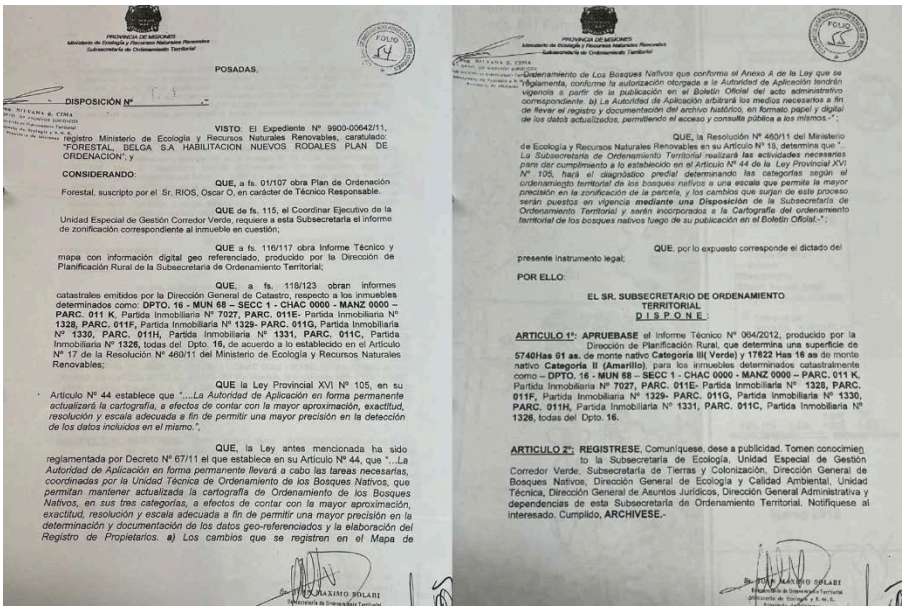
The stipulated budget corresponds to barely 3% of what should be allocated for the protection of forests if the law were properly enforced. Each province, for its part, has the duty to carry out the process of updating its Native Forest Territorial Planning (OTBN), within the stipulated deadlines, in accordance with the criteria established by the Law and with the corresponding required citizen participation. At the same time, it is important to speed up the processes of accountability and implementation of the allocated funds, so that the Law can be adequately complied with (WWF, 2021).

In this sense, specifically for the case of the project zone, through Law 26.331 enacted in 2007, the land use planning of native forests was carried out, categorizing almost all of the native forest within the property Forestal Belga (including project area) as yellow, with the exception of a few small fractions that correspond to the green category (adding only 180 has). In 2013, however, through a formal request from Forestal Belga SA to the Undersecretary of Land Management of the Ministry of Ecology and Renewable Natural Resources of the province of Misiones, the change of category was authorized, thus allowing the change of land use over 5,790 hectares of native forest.

The attached images (Figure 14) correspond to a section of Forestal Belga SA's Harvesting Plan issued in 2013. On sheet 2 (page 55), Article 1, the Province approves the re-categorization of 5,740 hectares of native forest previously classified as yellow to green.

[16] Native Forest Law: the 2022 budget project, province by province

[17] Available at: https://wwfar.awsassets.panda.org/downloads/ficha_lbn__misiones_nacional_1.pdf



POSADAS,

DISPOSICIÓN Nº

VISTO: El Expediente Nº 9900-00642/11, del registro Ministerio de Ecología y Recursos Naturales Renovables, caratulado: "FORESTAL, BELGA S.A HABILITACION NUEVOS RODALES PLAN DE ORDENACION"; y

CONSIDERANDO:

QUE, a fs. 01/107 obra Plan de Ordenación Forestal, suscripto por el Sr. RIOS, Oscar O, en carácter de Técnico Responsable.

QUE de fs. 115, el Coordinar Ejecutivo de la Unidad Especial de Gestión Corredor Verde, requiere a esta Subsecretaría el informe de zonificación correspondiente al inmueble en cuestión;

QUE a fs. 116/117 obra Informe Técnico y mapa con información digital geo referenciado, producido por la Dirección de Planificación Rural de la Subsecretaría de Ordenamiento Territorial;

QUE, a fs. 118/123 obran informes catastrales emitidos por la Dirección General de Catastro, respecto a los inmuebles determinados como: **DPTO. 16 - MUN 68 – SECC 1 - CHAC 0000 - MANZ 0000 – PARC. 011 K**, Partida Inmobiliaria Nº **7027, PARC. 011E-** Partida Inmobiliaria Nº **1328, PARC. 011F,** Partida Inmobiliaria Nº **1329- PARC. 011G,** Partida Inmobiliaria Nº **1330, PARC. 011H,** Partida Inmobiliaria Nº **1331, PARC. 011C,** Partida Inmobiliaria Nº **1326,** todas del Dpto. **16,** de acuerdo a lo establecido en el Artículo Nº 17 de la Resolución Nº 460/11 del Ministerio de Ecología y Recursos Naturales Renovables;

QUE la Ley Provincial XVI Nº 105, en su Artículo Nº 44 establece que *"....La Autoridad de Aplicación en forma permanente actualizará la cartografía, a efectos de contar con la mayor aproximación, exactitud, resolución y escala adecuada a fin de permitir una mayor precisión en la detección de los datos incluidos en el mismo.",*

QUE, la Ley antes mencionada ha sido reglamentada por Decreto Nº 67/11 el que establece en su Artículo Nº 44, que *"...La Autoridad de Aplicación en forma permanente llevará a cabo las tareas necesarias, coordinadas por la Unidad Técnica de Ordenamiento de los Bosques Nativos, que permitan mantener actualizada la cartografía de Ordenamiento de los Bosques Nativos, en sus tres categorías, a efectos de contar con la mayor aproximación, exactitud, resolución y escala adecuada a fin de permitir una mayor precisión en la determinación y documentación de los datos geo-referenciados y la elaboración del Registro de Propietarios. a) Los cambios que se registren en el Mapa de Ordenamiento de Los Bosques Nativos que conforma el Anexo A de la Ley que se reglamenta, conforme la autorización otorgada a la Autoridad de Aplicación tendrán vigencia a partir de la publicación en el Boletín Oficial del acto administrativo correspondiente. b) La Autoridad de Aplicación arbitrará los medios necesarios a fin de llevar el registro y documentación del archivo histórico, en formato papel y digital de los datos actualizados, permitiendo el acceso y consulta pública a los mismos.-"* ;

QUE, la Resolución Nº 460/11 del Ministerio de Ecología y Recursos Naturales Renovables en su Artículo Nº 18, determina que *"...La Subsecretaría de Ordenamiento Territorial realizará las actividades necesarias para dar cumplimiento a lo establecido en el Artículo Nº 44 de la Ley Provincial XVI Nº 105, hará el diagnóstico predial determinando las categorías según el ordenamiento territorial de los bosques nativos a una escala que permita la mayor precisión en la zonificación de la parcela, y los cambios que surjan de este proceso serán puestos en vigencia **mediante una Disposición** de la Subsecretaría de Ordenamiento Territorial y serán incorporados a la Cartografía del ordenamiento territorial de los bosques nativos luego de su publicación en el Boletín Oficial.-"* ;

QUE, por lo expuesto corresponde el dictado del presente instrumento legal;

POR ELLO:

EL SR. SUBSECRETARIO DE ORDENAMIENTO TERRITORIAL
D I S P O N E :

ARTICULO 1º: APRUEBASE el Informe Técnico Nº 064/2012, producido por la Dirección de Planificación Rural, que determina una superficie de **5740Has 01 as.** de monte nativo **Categoría III(Verde)** y **17622 Has 16 as** de monte nativo **Categoría II (Amarillo)**, para los inmuebles determinados catastralmente como – **DPTO. 16 - MUN 68 – SECC 1 - CHAC 0000 - MANZ 0000 – PARC. 011 K**, Partida Inmobiliaria Nº **7027, PARC. 011E-** Partida Inmobiliaria Nº **1328, PARC. 011F,** Partida Inmobiliaria Nº **1329- PARC. 011G,** Partida Inmobiliaria Nº **1330, PARC. 011H,** Partida Inmobiliaria Nº **1331, PARC. 011C,** Partida Inmobiliaria Nº **1326,** todas del Dpto. **16.**

ARTICULO 2º: REGISTRESE. Comuníquese, dese a publicidad. Tomen conocimiento, lo la Subsecretaría de Ecología, Unidad Especial de Gestión Corredor Verde, Subsecretaría de Tierras y Colonización, Dirección General de Bosques Nativos, Dirección General de Ecología y Calidad Ambiental, Unidad Técnica, Dirección General de Asuntos Jurídicos, Dirección General Administrativa y dependencias de esta Subsecretaría de Ordenamiento Territorial. Notifíquese al interesado. Cumplido, **ARCHIVESE.-**

Figure 14: Forestal Belga's land use change authorization from yellow to green category, totaling 5,740ha in green category.

This did not only happen in Forestal Belga. Constantly the province, through the Ministry of Ecology, is advancing and authorizing advances on native forest for agricultural and livestock production by means of land use change, thus eliminating the entire forest structure. This affects not only the forest, but also all its biodiversity and, above all, the surrounding communities. A recent example is the land use change authorization for a property, affecting directly indigenous communities in the area: Community Mbya Puente Quemado II. In their own words, "this has been happening since 2019. There is no respect for prior consultation as established in ILO Convention 169 and the National Constitution. No progress should be made on indigenous territory under any aspect without consultation, as it represents a serious violation of their rights. In the Community they are very concerned that this will happen again"[18].

The community of Puente Quemado II denounced years ago the incursion of another company into their territory, where logging authorization was given without consultation or public hearing with the indigenous peoples (Resolution 060/18 "Expte. N° 9900 02017/14). The presentation was made in November 2019 and was repeated in February, with no results at the moment.

Moreover, within the property of Forestal Belga, a few years ago there was a project to divide part of it into plots for housing and/or forestry, agriculture, and farming. In the project lots of 1 and 2 hectares were delimited, with the possibility of building large farms, for a total of 50 hectares in its first stage.

[18] Extraction from article available in: https://misionesonline.net/2023/02/12/garuhape-ecologia-autorizo-cambio-de-uso-de-suelo-a-un-propietario-de-bosques-nativos-y-se-reavivo-un-conflicto-con-la-comunidad-mbya-puente-quemado-ii/



Figure 15: Real estate project map, showing plots for housing and agriculture activities.

Regarding community economic conditions without a project scenario, the initial situation has already been described in section 2.1.6 and 4.1.1, with population below poverty line, informal conditions of work, mostly for self-sustain and no saving opportunities.

No projections or classical linear interpolation can be made due to the absence of official published primary data on the population, housing and households of the project area in particular, over a period of at least 10 years. In this line, based on a mixed strategy, future perceptions of the population and short-term trend of the regular patterns have been made from the results of the rural household census carried out by the project and the analysis constitutes the maximum methodologically acceptable scenario according to the available data.

These results have been summarized in flowcharts (see section 4.1.4), developed together with the communities.

They show the projected changes in the welfare condition under the without project scenario. Three different conditions projected without a project scenario were identified: low supply of formal employment, environment degradation, and no supply of job training. These conditions have an impact on the well-being of the communities due to the lack of employment opportunity, especially formal jobs, which lead to a lack of professionalization and improvement of labour skills. Although there are state project activities in place with subsidies for vulnerable people, communities in the project boundary remain below the poverty line, as the census conducted in the area showed, relying heavily on these subsidies as the main household income. In addition, climate change is expected to lead to environmental degradation that will impoverish the communities due to their financial fragility and close dependence to ecosystem services (fresh water, resources -fire wood, medical plants, etc.-, and tourism attractions, among others).

As a result of the last, further unemployment and poverty are expected, worsening environmental degradation, adding to climate change pressure, further exploration and over exploitation of the area; finally, the communities have identified that lack of training leads to greater job insecurity with consequences on the welfare of the community with fewer opportunities for skilled employment in the future.

In this sense, the additionality of the projects with social benefits is given by the improvement in the level of income, education and training, as well as the implementation of focal project activities that in the absence of the project do not report the additionality given by the intervention of the project activities to be developed. In the case of the Nueva Esperanza cooperative and the self-construction of housing in Tekoa Alecrín, although they are pre-existing projects -directed by the communities- they could not be developed or sustainable over time without the financial, technical and project activity strengthening provided by Nideport through "Mujeres Cultivadoras" – Women growers - (in the case of Nueva Esperanza) and "Óga" and “Ra 'ÿi” in the case of Alecrín.

SPVN GS1 project also ensures additionality by supporting community-driven activities that would not have occurred without its involvement. Nideport remains committed to working closely with communities to guarantee the sustainability and effectiveness of these initiatives, ultimately improving quality of life and resilience to climate change.

Activities Dependent on the Project: Key initiatives, such as the Forest Safety Net and land tenure guarantees for Tekoa Alecrín, exemplify activities that would not have materialized without project support.

These efforts are critical in improving community livelihoods and ensuring access to vital resources.

On the other hand, projects like “Óga” and “Ra’ÿi” respect the indigenous cosmovision and the houses and the plans of the houses respect the customs and traditions of the Guarani people, which is a special distinction since neither the State nor the foundations or NGOs that support this type of project usually adapt to these particularities and generally work with pre-assembled projects that are difficult to adapt to the reality of the communities. The “Mujeres Cultivadoras” project gives full autonomy to women entrepreneurs to define priority support needs; which is also a differentiating element from most of the support to this type of initiatives that have a pre-determined prior plan. And “Don Antonio” project that serves to preserve and promote native medicinal species.

Implementation Methods: The activities mentioned are carried out directly by the SPVN GS1 project, in partnership with local communities. Nideport serves as a facilitator, offering the resources and support necessary for these initiatives to thrive. In addition, partnerships with non-governmental organizations and foundations have been established to amplify the impact and ensure the long-term sustainability of these activities.

Evidence of Positive Impact: The project has demonstrated significant benefits for the communities, supported by measurable data and impact assessments. These outcomes are documented in monitoring and evaluation reports, showing improvements in community capacity to manage resources and adapt to environmental challenges.

Benefits to be used as Offsets (G2.2)

The project focuses its efforts in working with communities in order to revert projected conditions identified by them and expressed as flow charts here included. In this line, it contemplates additional benefits for the five main assets of the "Sustainable Livelihoods Framework" for the assessment of the impact on the general welfare conditions of the community and community groups in the project area: financial, social, human, physical and natural capital.

In terms of financial capital, direct carbon payments to individuals and communities, job opportunities, market opportunities and a containment network for highly socially and economically vulnerable households are promoted, reversing vulnerable conditions and further lack of jobs and skilled training.

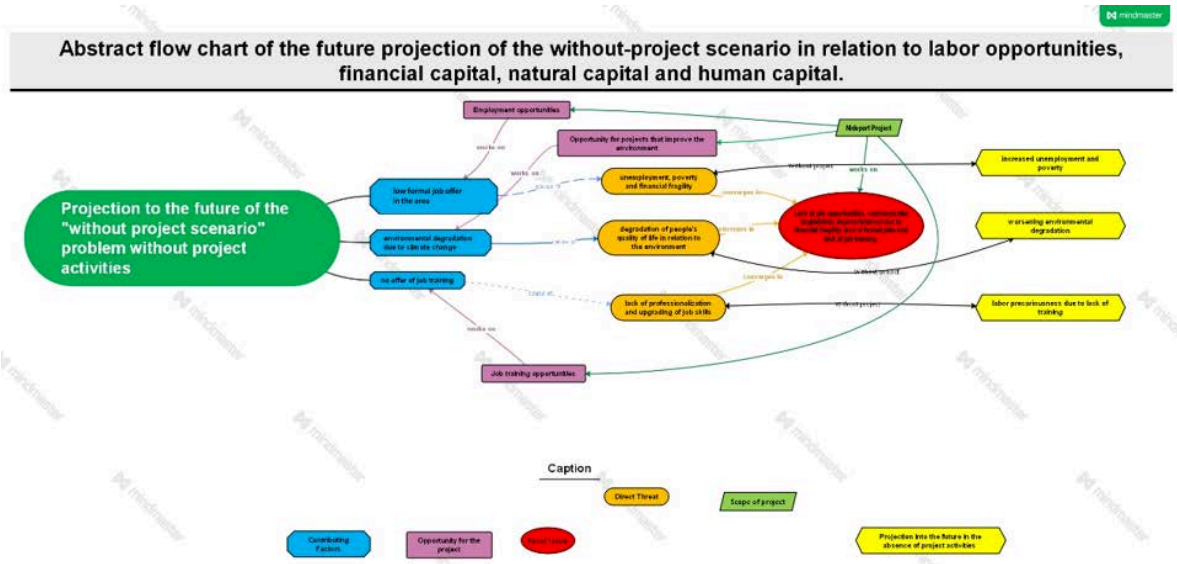


Figure 16: Flowchart for the projected labor conditions without the project.

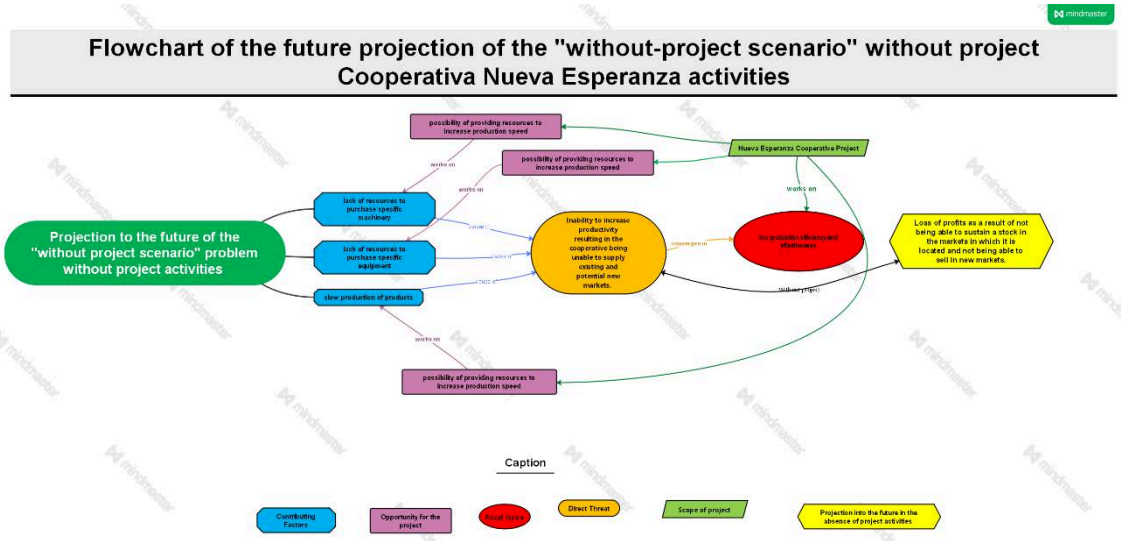


Figure 17: Flowchart for the projected development conditions and activities within Cooperativa Nueva Esperanza without the project.

Regarding social capital, the aim is to strengthen weak social cohesion and increase capacities for community participation and governance in the design, implementation, monitoring and evaluation of community projects with a focus on health, education, HCV maintenance and community infrastructure. This is a lacking condition in the area and project to continue as so by the same community due to lack of participatory culture in the area.

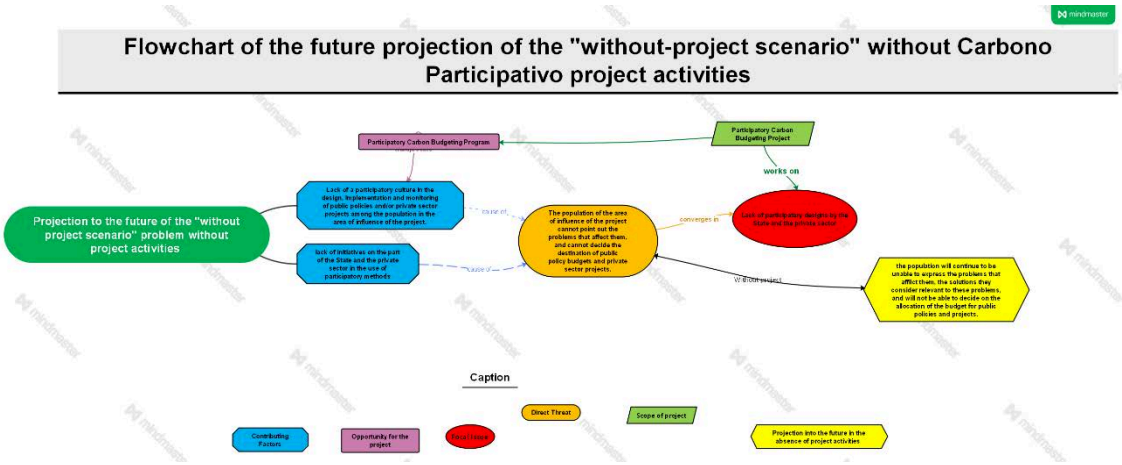


Figure 18: Flow chart for the projected lack of participatory culture within the community without the project and participatory carbon project activities.

Under human capital, project activities include training in conservation and reforestation skills, labor rights, and climate action goals. Access to health and education is part of the project's agenda, through access to medicinal plants, housing improvements, psychophysical well-being of the jungle as a cultural ecological service, and investment in primary health care, including education for health. In this line, food security is one of the first goals, through the Ra´ÿi project activities in order to change Tekoa Alecrin's projection of food problem access both, due to economic difficulties and climate change impacts.

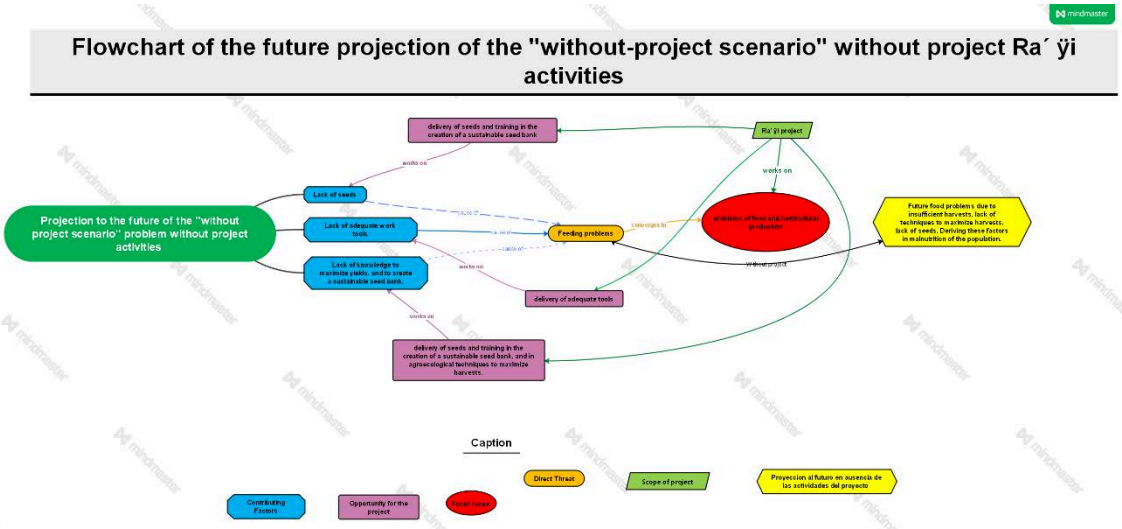


Figure 19: Flowchart for the projected food security conditions of the Alecrin community without the Ra´ÿi project activities.

In terms of physical capital, the project will bring about positive changes in community infrastructure, as well as in infrastructure for the improvement of water resources access, housing conditions, and others. Especially in the Tekoa

Alecrin community where the Oga project activities will take place, impacting positively on the well-being of the community regarding housing needs projected.

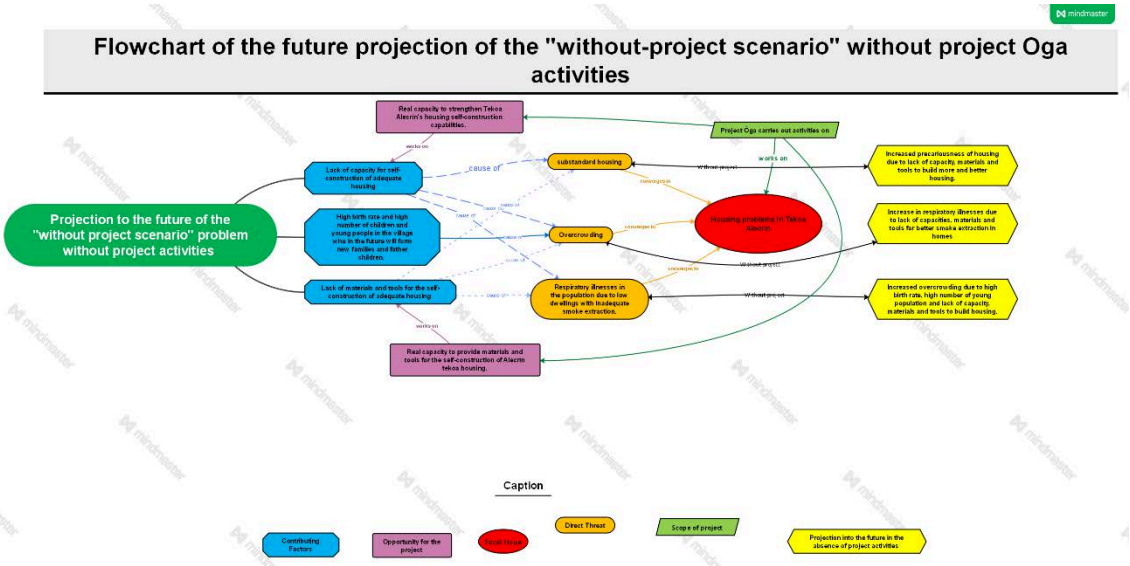


Figure 20: Flowchart for the projected Tekoa Alecrin community well-being in terms of household needs without the Oga project activities.

Finally, regarding natural capital, the GS1 is not only a reserve that prevents degradation and ensures the natural capital of the forest, but promotes it by paying for environmental services, the care of the native tree landscape and the ecosystem resources in the small rural producers who are in the area of influence of the project.

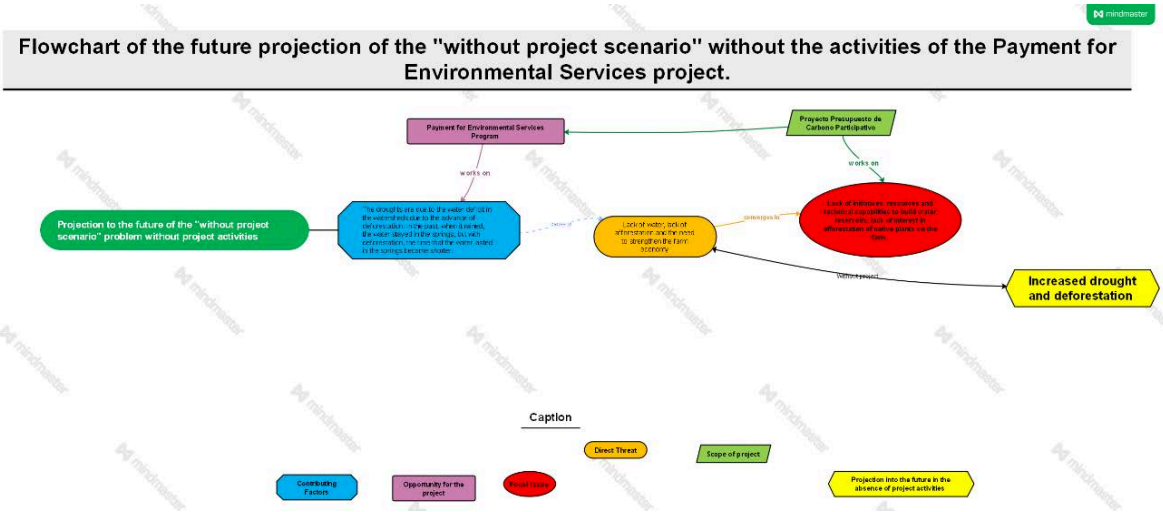


Figure 21: Flow chart for the projected natural degradation of forest without the project.

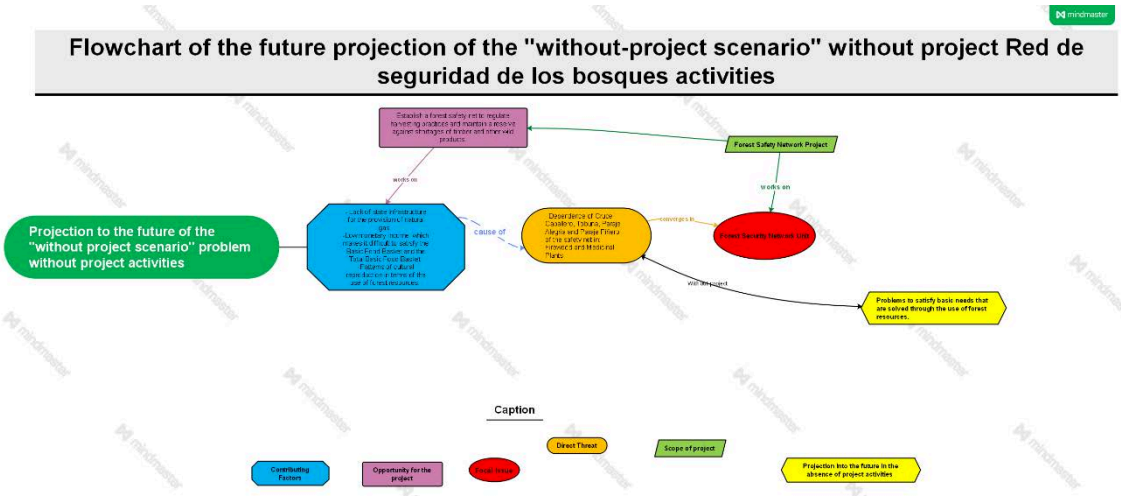


Figure 22: Flow chart for the projected basic needs for project zone communities without the project and Forest Security Net project activities.

2.3 Stakeholder Engagement

2.3.1 Stakeholder Access to Project Documents (G3.1)

Public Consultation with social impact assessment is a fundamental axis of the project. During this instance, surrounding communities were invited to the introduction of the project's main objectives, risks, and benefits, with open instances to comment on it.

Regarding indigenous peoples, all interested parties have access to the proceedings and documents of the FPIC in Spanish and Guarani Mbya, both in digital and physical versions, as well as the survey and project documents, statutes, CCB and VCS regulations, etc.

Moreover, a part of the project documentation is available at CCB and VCS webpage and in NIDEPORT webpage with project details[19].

In this sense, access to information throughout the life of the project will be through a strategy that includes News web portal and NIDEPORT social networks, local radios and newspapers, face-to-face briefings with stakeholders during verification instances. Moreover, the installation of a local Community Relations Office (RRCC, for its acronyms in Spanish) in Cruce Caballero, is projected in the short term. It will work with open hours in order to allow communities to reach out. Besides, the mail for inquiries and claims are operational as well as a public WhatsApp contact number[20].

[19] Public consultation: https://news.nideport.com/2022/04/13/consulta-ciudadana-las-comunidades-locales-y-el-proyecto-de-nideport/ , https://news.nideport.com/en/2022/05/12/publicconsultation/, Methodological issues: https://news.nideport.com/en/2022/05/12/an-approach-to-the-methodology-of-anthropological-and-socio-cultural-analysis-of-the-area-of-influence-of-the-gs1-reserve/

[20] Email contact and WhatsApp contact published and accessible for stakeholders.

2.3.2 Dissemination of Summary Project Documents (G3.1)

Taking up the previous point, it remains to say that during the monitoring process, basic documents will be made, reporting results in a simple and inclusive language and with measures of evaluation of processes and results, they will be available on the website, social networks, publications in local newspapers, information meetings with stakeholders during monitoring instances. Moreover, the project's documentation (as well as local language summary) will be available on VCS and CCB webpage, and a public consultation period will take place for stakeholders to comment on each project's design.

2.3.3 Informational Meetings with Stakeholders (G3.1)

In order to guarantee the full and effective participation of the parties the project has developed its own Consultation Plan[21].

Different stakeholder consultations were conducted taking into consideration special procedures needed in order to include the indigenous community Tekoa Alecrín. In this line, in order to coordinate the meeting, between December 2020 and February 2021 prior investigation was carried out in meetings with the Council of Authorities of the Tekoa Alecrín community, as well as with the Counsel of authorities of Tekoa.

Then, two meetings were held. In the first one, the corresponding presentations were made between the members of the company NIDEPORT and the Council of Authorities. The second meeting, in the framework of a General Assembly, with the participation of elders, women, adolescents, adults and children, allowed the team to tour the village with the Council of Authorities and several members of the Tekoa Alecrín community (2 adult women, 3 adult men, 5 young men, 1 girl and 3 or 4 boys). At the General Assembly it was agreed to carry out a FPIC process in order to jointly identify benefits, costs, risks and define projects that focus on the problems that Tekoa Alecrín considers to be of primary importance.

In the case of the rural communities (Cruce Caballero, Tobuna, Paraje Piñeiro, Colonia Alegria and Paraje Gentile) before the public consultation with the interested parties, different communication meetings were held in which the project was actively disseminated. After the public consultation, the project documentation was shared with the communities and made available on the company's website. At the end of the public consultation, a satisfaction survey was conducted on the participatory methodology and the information provided; the results of the survey were very satisfactory. [22]:

1- Cruce Caballero Sports, Cultural and Recreational Commission: Two face-to-face meetings. Date: both meetings in November 2021. Meeting place: Cruce Caballero Community Room

2- Local Evangelical Church: One face-to-face meeting. Date: November 2021. Meeting place: Pastor's home.

3- E.P.E.T N°31 of Cruce Caballero "Escuela Provincial de Educación Técnica" (Cruce Caballero Technical High School N° 31): Two face-to-face meetings. Date: May 2021 and November 2021. Meeting place: one in the High School Principal's House and the other one in the educational establishment.

[21] Infographic is available in the following link, Spanish and English version: :
https://news.nideport.com/2022/04/13/consulta-ciudadana-las-comunidades-locales-y-el-proyecto-de-nideport/
https://news.nideport.com/en/2022/05/12/publicconsultation/.

[22] Newspaper public communication of stakeholder consultation available for VVB during validation.

4- EP N° 482 of Cruce Caballero “Escuela Primaria” (Elementary School N° 482 of Cruce Caballero): Two face-to-face meetings. Date: May 2021 and November 2021. Meeting place: educational establishment.

5- La Nueva Esperanza Cooperative: Five face-to-face meetings. Dates: one in August 2021, one in September 2021, two in October 2021, and the last one in November 2021. Meeting place: All meetings were held in the cooperative.

6- Cooperativa Nuevo Arco Iris LTDA: Six face-to-face meetings. Dates: one in February 2021, one in April 2021, two in June 2021, one in October 2021, and the last one in November 2021. All meetings were held in the cooperative.

7- Residents of Cruce Caballero, Paraje Piñeiro, Paraje Gentile, Paraje Alegría and Tobuna: face-to-face meetings, face-to-face meetings within the framework of the random census of rural households by cluster, the public was informed about the citizen consultation, and project documentation was shared with the members of the households according to clusters, including dispersed rural areas. Posters and infographics of the consultation process were also posted in stores, health units, schools and community infrastructure points. Communication through WhatsApp and radio announcements from local radio stations (from October to November 2021), in order to inform and invite to the public consultation to be held on Friday, November 26, 2021. These communications clarified the nature of the public consultation and relevant information on the nature of the project, its duration, benefits, impacts, costs and risks.

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

A Public Consultation was held on November 26th of 2021 in the Community Hall of Cruce Caballero attended by more than 70 people from Cruce Caballero, Paraje Piñeiro, Paraje Gentile, Colonia Alegria and Tobuna. In this opportunity the public was provided with relevant information on the environmental and community benefits of the project, with special emphasis on costs and risks as well as opportunities. It summarized the main guidelines of the projects, their scale, costs, and risks. The participants were able to ask questions about the financial health of the project, employment opportunities, external threats and risks, and the continuity of information meetings and monitoring and evaluation of the projects, including verification and monitoring bodies.

In addition, following the consultation, a participatory mapping of HCV identification and risk and threat estimates was carried out, as well as a focused focus group of women to assess the differentiated impact on their role in society, considering gender safeguards in the areas of division of labor, access to resources and substantive participation.

In the case of Tekoa Alecrín, a FPIC took place, where the nature, duration and objectives of the project were explained with the participation of more than 80 members of Tekoa. At the same time, a matrix of costs, risks and benefits was jointly established using a SWOT analysis, HCV identification and project formulation workshops took place. This included a workshop on gender perspectives regarding the benefits of the project.

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

The information on the validation and verification process of CCB and VCS was carried out at the public consultation meetings with people from Cruce Caballero, Paraje Piñeiro, Paraje Gentile, Colonia Alegria and Tobuna; and the FPIC in Tekoa Alecrín.

The public consultation has been recorded[23] in the minutes of the meetings to be disseminated as from the first quarter of 2023 in the Web Portal. In addition, the various monitoring and verification milestones during the life of the project will be reported in advance through newsletters, printed documents and briefings,

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

Information about the auditor's visits was provided at the Public Consultation (Cruce Caballero, Paraje Piñeiro, Paraje Gentile, Colonia Alegria and Tobuna, and at the FPIC in Tekoa Alecrin).

In addition, the communities will be informed 15 days in advance of the auditors' visits, through the website, newsletters, posters and face-to-face communication through written notification and oral communication.

The auditor shall be provided with all relevant contact lists necessary for its development and adequate space for meetings shall be ensured.[24]

2.3.7 Stakeholder Consultations (G3.4)

Different stakeholder consultations were conducted taking into consideration special procedures needed in order to include the indigenous community Tekoa Alecrín. In this line, the Tekoa Alecrín has been consulted and has influenced the design of the projects through a FPIC.

By special procedures, we understand: (A) the development of a specific consultation process for the Tekoa Alecrin and independent of the public consultation with the other communities (Cruce Caballero, Colonia Alegría, Paraje Piñeiro, Paraje Gentile and Tobuna) held on November 26, 2021 in the community hall of Cruce Caballero. (B) that the meetings of said FPIC took place in the Tekoa territory itself and within said territory in the specific places designated by the Alecrin community. (C) that all the oral interventions of the FPIC process be translated into the Mbya Guarani language at the same time as the face-to-face meetings with the community, by means of a translator designated by the community, in order to guarantee the understanding of the project information by all the members of the Tekoa attending the meetings.

Regarding how the members of the Mbya Guarani community have influenced project decisions, this influence is found in the identification of benefits, in the choice of projects that embody these benefits, in the prioritization of execution of these projects and in the consensus of the variables used to measure the management and impact of these projects.

Between December 2020 and February 2021 prior investigation was carried out in meetings with the Council of Authorities of the Tekoa Alecrín community, as well as with other members of the community that wanted and could be part of them.

On January 26th it is agreed a FPIC will take place in order to identify the main community´s problems.

On February 22, a meeting was held to report on the methodology of FPIC, at which time the first cacique stated that for reasons of cultural self-determination and internal organization, this meeting of FPIC would not be held with

[23] https://news.nideport.com/2022/04/13/consulta-ciudadana-las-comunidades-locales-y-el-proyecto-de-nideport/ , https://news.nideport.com/en/2022/05/12/publicconsultation/

[248] https://news.nideport.com/2022/04/13/consulta-ciudadana-las-comunidades-locales-y-el-proyecto-de-nideport/ , https://news.nideport.com/en/2022/05/12/publicconsultation/

[9] This procedure was used during the AENOR auditor's visit in January 2023.

all members of the community, but that the Council of Authorities was empowered to listen and speak on behalf of the entire community of Tekoa Alecrin.

On May 19, during an assembly with all members of the Alecrin community, an agreement was reached with the Council of Authorities on a housing improvement and construction project, as this problem is the most urgent and pressing for the community, followed by access to seeds for vegetable gardens. In both cases, the monitoring plan was jointly designed with the impact variables to be measured.

On June 3, 2021, in an assembly, the signing of the Act of Agreement took place between the Tekoa Alecrin and NIDEPORT, where the community stated its agreement with the FPIC procedure, with the Oga and Ra'yi projects, but not with the main SPVN GS1 project, since the distances between the Tekoa territory and the Project Site do not limit the access of the Mbya Guarani community to the forest, resources and forest products.

On November 24, 2021, the community members of Tekoa Alecrin jointly designed flip charts with the agreed projects (training and housing materials: "Oga" and "Huerta Comunitaria" projects). Also, through a SWOT self-diagnosis mapping, the strengths, opportunities, weaknesses and threats of the community's capacities for the management of the projects were jointly evaluated. In addition, a participatory diagnostic workshop was held to determine the HCVs for the Tekoa Alecrin community, and a gender workshop was held with 8 female participants of different ages, using a "focus group" methodology. This focused on the needs of women based on a series of trigger questions that considered:

Within the framework of the Legal Personality C.I. 64 granted by the Provincial Direction of Guarani Affairs of the Province of Misiones to the Tekoa Alecrin; the 1st Cacique provided the NIDEPORT team with a copy of the minutes of the "Assembly of the totality of the members of the Aboriginal Community Alecrin on the ratification of the continuity of the Cacique and Renewal of Legal Representatives of March 5, 2021" and the minutes of "Inscription in the Registry of the Communities to the Community Alecrin, recognized by provision N° 05/2003 of the registry of the Direction of Guarani Affairs, under registration N° C. I. 064 of the respective book". These elements legitimize from the institutional framework and from the law the role and legitimacy of the Council of Authorities in the representation of the community and decision making

In turn, in the framework of the meetings and assemblies carried out within the framework of the FPIC, First Chief ratified and recorded in the minutes of the meeting, in front of the participating community members, the role and legitimacy of the Council of Authorities in the representation of the community and decision making.

Finally, our ethnographic field observation has verified that the Council of Authorities expresses the civil and political leadership of the Tekoa.

1. Opinion on the proposed projects.
2. Your interest in training in housing construction.
3. Your interest in training to improve your knowledge of crops.
4. Needs which they indicate to be specific to women.

The consultation with the communities of Cruce Caballero, Tobuna, Paraje Alegría and Paraje Piñero was held on November 26, 2021, in the community hall of Cruce Caballero with more than 70 participants. [25]

[25] More evidence of the meeting available for VVB during validation

The choice of the community hall of Cruce Caballero was due to the fact that it represents a point of communitarian infrastructure very used in the zone, that all the neighbors of the area of influence of the project know (because cultural activities and traditional festivities are carried out there) and that it is easily accessible. Relevant information was provided to the public on the environmental and community benefits of the project, with special emphasis on costs and risks, as well as opportunities. The main project guidelines, scale, costs and risks were summarized. Participants were able to ask questions about the financial health of the project, employment opportunities, external threats and risks, and the continuity of briefings and project monitoring and evaluation, including verification and control bodies.

In this table, we can see principal inputs and outputs.

FPIC

Stakeholder	Instance where it was raised	Comment received	How the comment was included
Women	Public consultation	Request for training and work for women due to lack of opportunities	Employability and training in project activities
		Support for projects led by women	Support through the women growers project
Indigenous population	FPIC	That the meetings be held in Tekoa territory.	FPIC meetings held in the territory of the Alecrin community.
		That the OGA project be prioritized	Prioritization of Oga project
Vulnerable population	Public consultation	Generation of jobs	Jobs in GS1
		that the company generates benefits for the community in addition to generating jobs.	Formulation and implementation of a participatory carbon project.

Within the framework of the Legal Personality C.I. 64 granted by the Provincial Direction of Guarani Affairs of the Province of Misiones to the Tekoa Alecrin; the First Chief provided the NIDEPORT team with a copy of the minutes of the "Assembly of the totality of the members of the Aboriginal Community Alecrin on the ratification of the continuity of the Cacique and Renewal of Legal Representatives of March 5, 2021" and the minutes of "Inscription in the Registry of the Communities to the Community Alecrin, recognized by provision N° 05/2003 of the registry of the Direction of Guarani Affairs, under registration N° C. I. 064 of the respective book". These elements legitimize from the institutional framework and from the law the role and legitimacy of the Council of Authorities in the representation of the community and decision making.

In turn, in the framework of the meetings and assemblies carried out within the framework of the FPIC, the First Chief ratified and recorded in the minutes of the meeting, in front of the participating community members, the role and legitimacy of the Council of Authorities in the representation of the community and decision making.

Finally, our ethnographic field observation has verified that the Council of Authorities expresses the civil and political leadership of the Tekoa.

In addition, following the consultation, a participatory mapping of HCV identification and estimates of risks and threats was conducted, as well as a focus group of women to assess the differential impact on their role in society, taking into account gender safeguards in the areas of division of labor, access to resources and substantive participation.

Stakeholder Categories	Citizen Consultation:	Free, Prior and Informed Consultation (FPIC):
Women	Residents of Cruce Caballero, Paraje Piñeiro, Paraje Gentile, Paraje Alegría and Tobuna. Participating women from institutions in the project's area of influence.	Elderly, adult and young women of Tekoa Alecrin
Indigenous population	----------	Tekoa Alecrin members
Vulnerable population	Residents of Cruce Caballero, Paraje Piñeiro, Paraje Gentile, Paraje Alegría and Tobuna.Participants from institutions in the project's area of influence.	Tekoa Alecrin members

2.3.8 Continued Consultation and Adaptive Management (G3.4)

Access to information throughout the life of the project will be through a strategy that includes: Web portal and Project social networks, local radios and newspapers, face-to-face briefings with stakeholders during verification instances and assemblies. Moreover, the installation of a local Community Relations Office (RRCC) in Cruce Caballero, is projected in the short term. It will work with open hours in order to allow communities to reach out, comment or ask about the different aspects of the project.

In the case of Tekoa Alecrín, projects will continue to be carried out using the FPIC methodology (with face-to-face meetings) throughout the project's lifetime, in line with development projects deadlines and requirements.

2.3.9 Stakeholder Consultation Channels (G3.5)

To ensure an extended communication of the consultation to stakeholders, radio spots and advertisements in provincial newspapers were broadcast according to the deadlines stipulated in the Consultation Plan and a communication campaign was conducted, with posters in stores, churches, community infrastructure, educational centers and gas stations and through oral communication in more than 150 households in the Project boundary during the random census by clusters, including dispersed rural areas, carried out in Cruce Caballero, Colonia Alegría, Paraje Piñeiro, Paraje Gentile and Tobuna.

In addition, during the entire survey process and information meetings, interviews, etc., with stakeholders in the project boundary, information was provided on the steps to be followed by the project, including the Public Consultation, and everything related to the presence of auditors and verifiers. The predominant strategy of face-to-face communication allowed to establish high intensity levels of information exchange that concluded in the Public Consultation for project boundary, on November 26, 2021, in the community hall of Cruce Caballero, attended by neighbors from all the areas of the project boundary.

In the case of the Tekoa Alecrin community, direct communications were made with the Council of Authorities, which represents the community and is committed to informing the community of the meetings and discussions and to include them in the community's conclusions.

This communication from the Council of Authorities to the members of the Tekoa is verified by the participation of different members of the Alecrin community in the different meetings of the FPIC process (up to 80 people - men and women - out of a population of 238 inhabitants of the Tekoa, grouped around 40 houses, which means that an average of 2 people per house participated). In addition, having conducted a census by conglomerate in the Tekoa Alecrin, as proponents, allows us to have first-hand knowledge that the families were duly informed by the Council of Authorities of the FPIC process and the meetings to be held. In these meetings we have corroborated the participation of these families.

In addition, the mail for queries and complaints is operational as well as a public WhatsApp contact number. [26]

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

To ensure effective participation of the entire community, including community groups, the following measures have been implemented:

1) Access to information: in all cases an open process of communication and dissemination of all the actions to be carried out has been carried out, along with the possible costs, risks and benefits for communities. In some cases, printed materials have been used. In addition to this, simple language has been implemented, avoiding excessively technical terminology.

2) Stakeholder consultation process: consultation of stakeholders has been ensured through a FPIC process in the Tekoa Alecrín, conducted based on interviews with community authorities, participatory rural diagnostic techniques and targeted discussion groups. In the case of Cruce Caballero, Tobuna, Paraje Alegría and Paraje Piñero a public consultation and interviews of maximum variation took place. Thus, the parties involved have participated in the design of the project activities and their implementation (except in the project activities that have not yet been implemented), respect for the rules on their rights, local culture, values, representatives, and institutions and

[26] More evidence of the meeting available for VVB during validation.

maintaining HCV. This strategy focuses on ensuring that all relevant groups are represented and have the freedom to express their ideas and opinions. At the same time, it recognizes the diversity of the parties, including the most vulnerable groups. These consultations have been documented and can be reviewed in a next section.

3) Intercultural approach: ethnic differences have been considered and the vision of these communities and their language respected. In the case of the community of Alecrín, from the beginning, dialogue was initiated with the indigenous authorities, thus respecting the structure of representation. The translation of dialogues with indigenous authorities at meetings with the community has been promoted and the official FPIC document translated into the Mbya language to ensure access to information for the entire community. Information has been shared with communities in advance of consultations and in appropriate formats to facilitate understanding.

4) Gender approach: gender balance has been considered in terms of the number of participants in the meetings convened with stakeholders. The opinions, experiences and priorities of men and women have been considered equally in the design, decision-making and implementation of the project.

Other necessary measures under way are:

- Communication to communities and stakeholders about the auditor's visit to the site prior to the event to facilitate direct and independent communication between the VVB and the community or its representatives.

- Capacity building through training, workshops, courses, or other collaborative instances that allow not only technical training but also a greater capacity for resource management and improvement of the understanding of strategies and projects that benefit the community.

2.3.11 Anti-Discrimination Assurance (G3.7)

To ensure that project proponents and stakeholders are not involved in or complicit in any form of discrimination or sexual harassment with respect to the project activities, the following measures have been implemented[27]:

- For each project activity, a memorandum of understanding was established defining inclusive participation guidelines and protocols for action in the event of observed cases of discrimination. To this end, project beneficiaries were provided with means of contact with the human resources area to communicate any act of discrimination and to activate the corresponding protocols.

- The company has a Code of Conduct (POE-01-Reg-01), which establishes in its Article 1 the rule of "Non-discrimination" rule, both within the company and towards clients, suppliers, job applicants or other parties, whether based on ethnicity, color, religious belief, gender, national origin, age, disability, sexual orientation, language or any other characteristic protected by law. Article 2 also establishes the norm of "No harassment" such as verbal or written harassment, sexual harassment, comments referring to sexual harassment, comments referring to physical appearance, sexual innuendo, jokes, statements or threats that refer to ethnic status, gender, sexual orientation, religious belief, nationality, age, etc.

- A question was also implemented in the self-reported household survey on cases of discrimination experienced by the respondent in order to detect possible points to work on in this subject.

[27] More information available for VVB specifying the anti-discrimination methods used in each project.

Moreover, during stakeholder consultation, both in the FPIC and in the public consultation, moderators for the meetings were included to provide an opportunity for those who wanted to express their opinion and ideas. Also acting as mediators in situations of discussion between participants.

2.3.12 Feedback and Grievance Redress Procedure (G3.8)

The reception of grievances and comments are done both through face-to-face (during communication meetings) and digital communication channels, such as email and project's WhatsApp publicly available to stakeholders[28].

Within the project description it is established that complaints and comments are dealt with within 72 hours. This period includes the first contact with stakeholders involved in the complaint received and, if possible, a first resolution attempt. If not resolved a mediation is determined, taking into consideration the type of complaint/action and stakeholder involved, meaning community, investor, other stakeholders, etc. This may include the need for the arbitration of security agents in the case of illegal activity[29]

In the case of communities in the project zone, due to the problems of periodic intermittency of electricity service and, as a result, intermittency in 4G data connectivity and wi-fi, added to the presence in many cases of only one cell phone per family, lack of computers, lack of a digital and registry culture that discourages the approach by electronic means and use of ICT'S, we have relied on a strategy of proximity through face-to-face briefings mainly, where opinions, inquiries, complaints and claims are recorded, both as an early warning system of conflicts and registration of them. In this case, complaints and claims are recorded in minutes and referred internally by e-mail to the corresponding areas.

During the year 2022, inquiries were predominantly registered for: 1) jobs for communities; 2) delays in project execution. The expectations of a certain segment of the population are an impact not because of Nideport's operations, but because of the unforeseen delays, and it is not necessary to mitigate the labor impacts of external and foreign ventures, but to have a plan for the correct management of expectations with respect to the company's own goals. These were addressed by further updating communities on the project milestones both face-to-face and digitally, with progress reports.

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

Grievances and comments that arise during public consultation and communication events are published at the project web. All grievances received are registered in order to monitor successful resolution[30].

2.3.14 Worker Training (G3.9)

The measures needed and taken to provide orientation and training to project workers are:

Induction

Every person who joins the project receives an Induction instance where general characteristics of the organization, its mission, values, and the Code of Conduct (7.5.1-POE-01-Reg-01 Code of Conduct) are shared. The Employee must read it and then complete the Code of Conduct Certification (7.5.1-POE-01-Reg-02 Code of Conduct

[28] Information available to VVB during validation.
[29] Procedure for solving conflict documents available to VVB.
[30] Procedure and monitoring spreadsheets available to VVB.

Certification). Then, the person in charge of the sector notifies him/her about the correct use of the facilities, as well as the internal rules and regimes.

On-the-job training and coaching

Upon joining, transfer or promotion, the sector manager draws up the On-the-Job Training Plan for the person starting to work in the sector. The plan is recorded on Form 7.5.2-POE-01-Reg-03 "On-the-job training and coaching". This form contains the training plan for the position, the estimated duration and the result of the evaluation at each point of the training.

In this way, the organization ensures that the person who begins to provide services / is transferred / is promoted, receives training in all organizational issues that must be mastered, according to the position in which the person is going to collaborate.

The period for this training stage is a maximum of 3 months from the date of commencement of service. Once this period has expired, it is the responsibility of the immediate superior of the person who was transferred or promoted to submit (to the human resources area) the training record, to be filed in the employee's folder.

Request for Technical Training

In addition to the above, the sector manager may request any technical training courses/project activities he/she requires for his/her employees by completing a request form[31] to be sent to the human resources area 15 days in advance. This form should detail the person applying for the course, the training activity requested (fees, location of classes, consultant, etc.), the reasons why the employee should attend the activity, and what changes are expected in his/her work activity once the course has been completed.

Training Activity Measurement Tools

The following measurement tools are implemented in order to evaluate the activities. Namely:

- Attendance Form where the record of each of those who participated in the training is recorded (Form 5.2-POE-01-Reg-02).

- Knowledge assessment. If the participants cannot read/write, the incorporation of content can be assessed by means of oral questions and a show of hands for the answer.

Records of training activities

All internal training activities are recorded on a form prepared for this purpose (7.5.2-POE-01-Reg-02- "Training Activity"). It details the topics covered, date of the activity, duration of the activity, name, and signature of the Instructor/Trainer, etc. This form is filed in the training folder. Training can also be documented by means of a photographic/film record while the training is taking place.

In addition, for the operation of its processes, all project collaborators have access to the Teams tool[32], where all the current and validated policies and procedures of each of the sectors of the organization are published. This provides the possibility for each collaborator to browse through the procedures of all the sectors, access manuals, registers, etc.[33]

[31] The form is the "Technical Training Request" form (7.5.2-POE-01-Reg 04), available to VVB during validation.
[32] Teams: NIDEPORT_Total Team. Revised Procedures Folder available for VVB during validation.
[33] Access to all revised and current company procedures available for VVB during validation.

2.3.15 Community Employment Opportunities (G3.10)

The project includes the generation of new 50 direct job opportunities for communities, of which 50% are expected to be women. The position includes training on the different tasks based on the processes detailed in the previous section. The following explains the steps showing how workers are selected for the positions in order to demonstrate that they have a fair chance of filling the positions:

The head of the requesting sector completes the form "Request for Personnel Recruitment", with the required level of signatures. In the case of staff requirements for new positions that do not exist in the structure, the requesting sector must, in addition, complete the "Job Profile" form.

The "Personnel Recruitment Request" form is sent to the human resources area to start the search.

Internal Search

Human Resources, in order to start an internal search, must prepare a "Job Posting" (Job Offer) where the characteristics of the position and the established requirements are stated, and publish it through the general WhatsApp group. As stated in the organization's Code of Conduct, qualifications based on race, color, religion, sex, national origin, age, disability, marital status or sexual orientation, political opinion or any other characteristic protected by law are not permitted.

Persons interested in applying for the search must complete the "Internal Application Form" (7.3-POE-02-Reg-01) and submit it to Human Resources.

Human Resources receives the form from the various applicants for the position and selects the possible candidate(s) from among the personnel who have applied, according to the required job profile. Then the area interviews them, evaluating the characteristics of the applicants, their performance history, and their adjustment to the requested profile.

If no applicants are obtained through the internal search mechanism or, if the search modality chosen was directly the external search, the following point is followed.

External Search

Human Resources, may use one or more of the following options as a source of recruitment, taking the one it considers most convenient according to the search profile or market situation:

- People referred by organization personnel (7.3-POE-02-Reg-08 Referral Program Form).
- Spontaneous introductions received.
- Notices on job sites
- Notices at technical colleges/universities/job boards
- Community infrastructure points
- Temporary staffing agencies
- External consultants
- Social networks/professional networks
- Other

The gender quota of 50% women is to be met in recruitment.

Human resources make an initial selection from among the CVs received. It generates the selection interviews. These must be carried out by evaluating the applicant's personality characteristics, their adjustment to the profile requested, to the work group and to the organizational culture. Without discriminating based on race, color, religion, sex, nationality, age, disability, marital status or sexual orientation, political opinion or any other characteristic protected by law.

Once the selection interviews have been carried out, the human resources area presents the pre-selected candidates to the applicant sector.

The requesting sector interviews the shortlist of applicants and carries out the technical evaluations it deems appropriate.

- Evaluation of technical knowledge.
- Skills test.

The admission of the applicant is subject to the results of the interviews and evaluations carried out.

Once the interviews have been carried out, the applicant sector must decide according to the following situations:

- If it considers that one of the applicants meets the requirements for the position, it forwards to human resources the results of the tests that have been applied (if this has occurred).
- If he/she does not find one that satisfies him/her, he/she informs human resources of this.

If the pre-selection carried out was not satisfactory for the applicant sector, human resources must restart the search, and once new candidates have been obtained, it must carry out the same procedure as indicated in the previous points.

If the vacancy to be filled is a fixed-term contract or permanent position, once the suitable candidate has been identified, the following examinations must be carried out by external professionals:

- Medical examination (pre-occupational examination): The external Medical Centre contracted by the Company must carry out the necessary medical examinations, and then issue a health examination report in which it gives its opinion on the applicant's physical aptitude.
- Psycho-technical examination: Based on this examination, the Center contracted for this purpose must draw up a report on the applicant's physical aptitude.

If the vacancy to be filled is under the outsourcing modality (outsourcing), the medical and psycho-technical examinations will not be carried out.

Human Resources, together with the Applicant sector, are responsible for making the decision on the choice of the candidate to join based on:

- Background
- Interview evaluations
- Technical evaluations
- Psycho-technical evaluations

Adjustment to the required profile.

2.3.16 Relevant Laws and Regulations Related to Workers Rights (G3.11)

The list of all laws and regulations that cover workers' rights in the country and provided assurances that the project meets or exceeds each of them are:

National laws:

- Law 20.744 on Employment Contracts and its amendments.
- Law 24.013 on Employment.
- Law 24.557 on Labor Risks.
- Law 26.390 on Prohibition of Child Labour and Protection of Adolescent Labour.
- Law 19.587 on Hygiene and Safety at Work.
- Law 11.544 on Working Hours
- Law 26.727 on the agricultural labor regime.
- Law 23.551 on trade union associations
- Law 24.365 on compulsory conciliation

Provincial regulatory framework:

Provincial Constitution of Misiones. Art. 30 to 36 inclusive: Right to work, without distinction of sexes: dignified and equitable working conditions; limited working hours, rest, and paid holidays; fair remuneration: minimum living wage; equal remuneration for equal work; participation in the profits of companies, with control of production and collaboration in management; protection against arbitrary dismissal; the right to strike and all labor legislation. Free choice of occupation; regulation and control of night and unhealthy work; women's and minors' work; safety at work and the right to hygienic and decent housing. Free and democratic organization of trade unions.

The right to comprehensive and inalienable social security rights. Free procedures before the labor courts and administrative bodies.

The measures necessary and designed to inform employees of their rights was designed by several procedures that were disseminated and delivered to each employee[34].

In the case of community members who do not have access to electronic devices and connectivity, who cannot read and write, or who speak the Mbya Guarani language, face-to-face meetings will be held, using a translator and/or developing oral transmission techniques, using an ethnographic approach to ensure understanding of the meaning and to generate reports on content and degree of understanding of the content of the subjects participating in the informative and training meetings.

2.3.17 Occupational Safety Assessment (G3.12)

Through a job risk assessment, main risks have been identified for the different job positions and mitigation actions defined:

Security: for those responsible for the area of physical and property security, the risks include the hypothesis of "armed confrontation, especially with poachers", who carry firearms. These encounters may be expected during the various tours of the property for the purpose of supervision of different sectors. In this instance, the security team of

[34] Document available to VVB during verification.

the GS1 does not have the necessary protective equipment, such as bullet-proof waistcoats and firearms, among other things. However, organized patrols are carried out with three security forces, the National Gendarmerie, the Provincial Park Rangers and the Misiones Police, so that police power is outsourced, without exposing the reserve's own personnel to such risks.

Forestry personnel: regarding personal safety when moving in the forest and when pruning, thinning and dismantling camps, the major risks identified are snake, insects and mites' bites (e.g., mosquitoes, spiders, bees, wasps, etc.), secondly falls, sunstroke, and dehydration, among others. Mitigation actions include training on main threatening species identification as well as the provision of basic equipment required, such as high-top rubber boots, high top boots, gloves, goggles, and fireproof waistcoats. The equipment must be complemented with a first aid kit containing general and specific elements such as anti-ophidic serum, immobilizing splints, creams for burns, sun protection creams, anti-allergic and anti-inflammatory creams as well as injectable corticoids, among others.

In cases where communities are permitted to access forest resources, such as collecting firewood, strict adherence to the program's established protocol will be ensured. This protocol is designed to promote responsible and safe resource management, safeguarding both the communities and the forest environment. It minimizes potential risks and fosters coordinated interaction with the security forces involved.

Security forces are trained to distinguish between permitted traditional uses and prohibited activities, ensuring appropriate responses. For authorized firewood collection, community members are required to document the georeferenced location, type, and quantity of fallen firewood. This information is recorded and communicated to security patrols, significantly reducing the likelihood of tensions or conflicts between community members and security personnel.

Regarding the containment and fighting of forest fires, in this case, the major risks are burns, asphyxia, suffocation, falls of trees, falls from miscellaneous grounds (fractures, traumatisms, injuries). For these cases training and Personal Protective Equipment (PPE) must be provided, with the basic elements for the performance of this task, such as safety footwear, helmets, flame-proof clothing, goggles, gloves, among other elements. Anyway, the task will be performed by firefighters, although first responders may include trained GS1 workers.

In conclusion, the measures to be implemented in relation to work safety include:

- To provide information on the general regulations in force on conduct at work, as well as in each specific area to the personnel.
- To apply the personal protection rules and to train personnel in their proper use.
- To train personnel in the correct use of resources.
- To develop accident procedures and train personnel in accident prevention and procedures.
- Training in fire prevention and immediate fire procedures.
- Training in first aid.
- Training in waste treatment
- To provide security equipment.
- To provide first aid equipment.

2.4 Management Capacity

2.4.1 Project Governance Structures (G4.1)

The Strategic Alliance team is made up of more than 30 professionals. Said strategic alliance was created for the development, production, marketing and management of financial, technological and sustainable products and services that we call the company ecosystem.

Through different contractual modalities (purchase, lease, joint venture, etc.), Nideport S.A incorporates carbon sinks either in their natural state or degraded and carries out a conservation or restoration process on them –as the case may be- with the objective of achieving the natural regeneration of the biosphere.

This action aims to restore the carbon sinks to their natural state and allows Nideport to carry out the issuance of carbon credits certified by a third party on a yearly basis, according to the capture and sequestration of GHG.

The carbon credits give us the cashflow for Opex for our restoration activities. Nideport assumes the commitment that all land incorporated will be restored and preserved for a period of one hundred years, after which it will be donated to the state for the creation of a National Park.

To achieve the stated objectives, a corporate structure has been created that responds to the needs of each stage of the project:

Heimdall Corp. USA

Heimdall Corp. is a holding company that owns 100% of the shares of Nideport SA and Heimdall Technologies OÜ.

Nideport SA (Uruguay)

Nideport SA is based in Montevideo, Uruguay, and it will carry out the following activities:

- Search and selection of lands that meet the eligibility requirements for the development of reforestation, restoration, remediation, conservation, and non-harmful exploitation activities.

- Leasing and acquisition of land for project development.

- Commercialization of carbon credits within the framework of the voluntary carbon market, according to certification by VERRA

- Commercial relations with corporations.

- Development of software for the geolocation of photogrammetric indicators and tokenization of spatial polygons, as a technology transfer service to adherent companies.

- Exploitation of verifiable sustainable activities and services.

The governance structure of the project is detailed below:

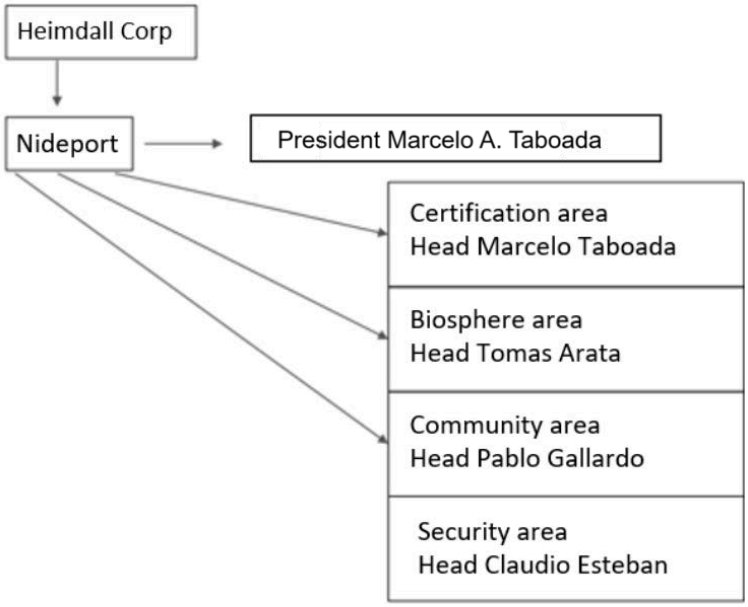


Figure 23: Project's hierarchy graph.

The mission of 1st level members of the structure and of the entities involved in the design and implementation of the project are described below:

Table 2: Attributions of the people involved in the project.

Member	Mission[35]
General Manager	To lead the Company's operation and train the executive team in order to achieve the established business objectives. To permanently increase shareholder value. Design and execute the medium/long term Business Plan approved by the Board and shareholders, monitoring its progress and reporting any deviation or need for adjustment. Promote the security and protection of assets, minimizing risks to equity. To represent the Company institutionally.
Administration Manager	To plan and follow up the administrative management of the Group's companies and provide timely, valid and reliable information on the performance of operations to enable decision making, in order to meet strategic

[35] Complete list including main duties available for VVB during validation.

	objectives while complying with established regulations at both national, regional and international levels.
Operation Manager	To manage, develop and operate the physical and logistical resources to ensure: remediation, land conservation and security, and community relations with the territory's native peoples, all in pursuit of providing reliable information to investors.

2.4.2 Required Technical Skills (G4.2)

The key technical skills required to successfully implement the project, including community engagement, biodiversity assessment and carbon measurement and monitoring skills, are:

- Community Relations
- Community engagement methodology for project design, implementation, monitoring and evaluation.
- Anthropological and ethnographic approach in a framework of intercultural dialogue.
- Risk and threat assessment and mitigation
- Biodiversity monitoring

2.4.3 Management Team Experience (G4.2)

The PP has a coordination team which works together with other experts in the subject hired specifically for the task in order to fulfill the necessary technical experience. In this line, there is a permanent team with different professional backgrounds and a group of third-party companies which assist the project.

The knowledge and previous experience of the management team for the implementation of projects is detailed below:

To manage the participation of the community, in the staff of collaborators, there is a Community Relations Officer with a degree in sociology who has experience in Consulting, having been assistant in the implementation of public policies of prevention and security for municipalities (2016-2019). Carrying out diagnostics, coordination of intersectoral working groups and elaboration of suggestions for the efficient implementation of public policies in local governments. He also has experience in public management, working as Head of Social Work Coordination Division in the Secretariat of Human Development and Social Promotion in the Municipality of Zárate (2009-2010) and municipal referent of the shared social responsibility project activities for young people in vulnerable situations "Envión". Finally, he participated in the coordination table for tackling gender violence. Coordination of the interdisciplinary Gender and Family team.

The Community Relations Unit carries out: ethnographic approach and intercultural dialogue with local communities, including Mbya Guaraní villages; gender focus in forest management and community strengthening; surveys, interviews and production of reports; design of appropriate methodology for projects according to CCB standards, Verra 3.1. The unit is integrated by:

A member graduated in Anthropological Sciences. He is also a member of the university extension project called "Consolidating educational social practices. Indigenous people in the city: visibilization and ethno-political organization in the framework of recent transformations". She has also carried out Methodology and field research techniques. Research work in the feminist self-defense workshop "Manifesto".

A teacher of philosophy and psychology in numerous secondary schools in Campana (Province of Buenos Aires). Also, co-director of the sociocultural and interdisciplinary project "Al Ciervo de los Pantanos". Interdisciplinary work project in articulation with the Deer of the Marshes National Park aimed at generating processes of aesthetic and socio-cultural valorization of the local and regional environmental heritage of the city of Campana and its surroundings. He carries out functions such as cartography and digital mapping; socio-community and anthropological surveys and mapping; theoretical advice; bibliographic and multimedia research on the town of San Pedro and its surroundings; bibliographic and multimedia research on the Mbya-Guaraní communities; development of trans-disciplinary approaches to the local community.

A member graduated in Political Science. Magister in course (Government Magister) (UBA).

To manage the Biodiversity Assessment, the staff of Collaborators includes:

A person in charge of Forest Management, graduated as Agronomist Engineer, with prior experience on crop monitoring, supervision of logistics and operations. He is also certified by INASE for the inspection and certification of seed production and classification, among others.

For carbon measurement and monitoring, the staff of collaborators includes a certification and sustainable development Manager who has a lawyer degree with institutional activity as President of the Sustainability Commission of the French-Argentine Industrial Chamber, Member of the Environment and Sustainability Commission of UIPBA Circular Economy Club Buenos Aires, and has been a participant and speaker at the Climate Change Conferences held in: COP 24 Katowice, COP 23 Bonn and COP 22 Morocco.

As mentioned, the PP has a coordination team which works together with other experts in the subject hired specifically for the task. In this line, Fotosintesis is the consultancy hired to assist the project's proponent in the monitoring of climate section, conducting the forest inventories and assisting in the action plan design.

In terms of biodiversity monitoring, the project allied with Aves Argentinas for its consultancy service on biodiversity monitoring and they assisted on the project's design in this area. The monitoring facilities will allow researchers to execute their work, and access 24/7 monitoring information.

Aves Argentina is hired by the company to conduct all biodiversity monitoring.

Ecosecurities and ProSustentia are the consultancies hired to assist on the validation and verification process, with the PD and MR documentation, carbon calculations, among others[36].

Being specific, the management team has sufficient relevant experience in community engagement.

Aves Argentinas Aves Argentinas's Profile.docx

Fotosintesis

- CV - Burschel, Heinrich.pdf

[36] All contracts, CVs, and consultancy experiences available in the Drive Folder.

- CV - Cellini, Juan Manuel.pdf
- CV - Ochoa Ferreyra, Mario.pdf
- CV - Ortellado, Leandro.pdf
- CV - Russel, Juan Carlos.pdf
- CV - Russo, Federico.pdf

Ecosecurities

Magno Castelo Branco

Stella Mainardi Nogueira da Gama

Rebeca Blucher

Prosustentia

Josefina Uijt den Bogaard

The professionals and companies hired have a recognized and public reputation and experience in having participated in the development of projects, assisted in validation and verification audits, and interacted with VERRA in the carbon credit certification processes. Their personal resumes and the information provided on their websites can be seen and confirmed. For reasons of confidentiality, we cannot provide additional information on the name of the project, but the companies provide such data and are in fact internationally recognized.

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

Involved entities collaborating in the design and implementation of the project include:

Fotosíntesis, a consultant firm whose mission in the project is to carry out the inventory and calculation of biomass (carbon) baseline for Forestal Belga's properties.

Aves Argentinas is an NGO hired for the biodiversity inventory and as an external advisor for the monitoring plan elaboration.

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

The financial health of the organization is proved through the document “Long term Viability of Nideport”, shared with the VVB.

According to the projections made in this document, the NPV of the project in the next 10 years would be around $1,750,167, and the IRR would be 24.1%. These values were obtained considering a moderate scenario and could vary according to an optimistic and pessimistic scenario.

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

The project developer, and the other entities involved are legally registered companies in Uruguay, Estonia, and Argentina. None of them were involved in or complicit in any form of corruption such as bribery, embezzlement, fraud, favoritism, cronyism, nepotism, extortion, and collusion.

As legally registered companies, the project owner and other involved entities have the obligation to comply with relevant regulations, including anti-corruption law[37].

This project has a Forest Management General Manual where it is clearly explained that corruption and other unethical behaviors are totally forbidden.

Moreover, the project's legal notice describes actions and regulations in terms of fraud, corruption or other illegal action towards users regarding the use of the NIDEPORT platform[38].

2.4.7 Commercially Sensitive Information (Rules 3.5.13 – 3.5.14)

Sensitive or confidential documentation is only related to the contractual and financial terms agreed in the lease with the option to buy the land where the project is being developed between Forestal Belga and Nideport. The information is available to the auditors and will be provided by restricting access to it, exclusively related to economic matters[39].

Moreover, in the case of species surveys, for endangered species and species with illegal hunting pressure, the exact location where it is seen is not reported in public documents but is available to VVB upon request.

2.5 Legal Status and Property Rights

2.5.1 Statutory and Customary Property Rights (G5.1)

Land tenure in the northeast of Misiones was first impacted by years of unpopulated fiscal lands, bordering Brazil, an area which was later defined in the 1970s as the Bernardo de Irigoyen Border Area (25 de Mayo, Guaraní, San Pedro & General Belgrano). In that year, National Law Nº 18.575 was enacted, containing regulations for the development and integration of the Nation's border zones and areas. Between 1972 and 1980, national decree established a border area comprising these areas. Officially defined by the "lack of development", "lack of infrastructure and services", "lack of physical and spiritual integration with the rest of the nation", and by the "irradiation and infiltration of neighboring countries", the frontier began to be seen as a "space destined for forestry". Moreover, settlement and agricultural occupation were associated with Brazilian occupation[40].

The graph shows land tenure for the whole province, where a high percentage is under property category, both private and fiscal.

[37] Law 27.401/17.
[38] Available to VVB during validation.
[39] Copies of said documents have been sent exclusively to the auditors by email.
[40] Gabriela SCHIAVONI (1995) Organización doméstica y apropiación de tierras fiscales en la Provincia de Misiones (Argentina) Available at: https://www.researchgate.net/publication/271810049_Organizacion_domestica_y_apropiacion_de_tierras_fiscales_en_la_Provincia_de_Misiones_Argentina/link/5de2b4fe299bf10bc334eee6/download

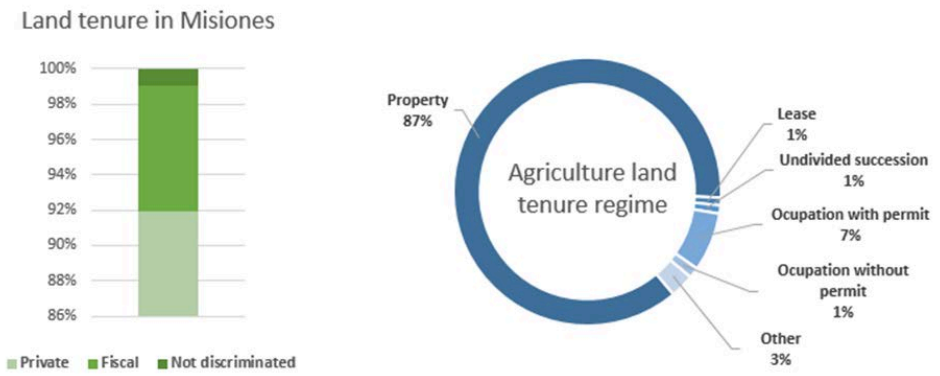


Figure 24 : Agriculture land tenure, Misiones. Source: Based on Agriculture census 2018[41].

In addition to Brazilian immigration, these movements involve producers from older rural colonies in the province, immersed in an agricultural crisis triggered by the deterioration of the prices of their main products. Thus, the "occupant" is in many cases an impoverished colonist or a young producer from Misiones who migrates to the new territories in order to reproduce himself socially as an autonomous farmer.

The Andresito Colonisation Plan (1979) prohibits access to land "to natural persons originating from neighboring countries"[42]. During the 1970s and 1980s, informal colonization took place on public lands; the unproductive large estates located on the Uruguay River remained uninhabited. From 1984 onwards, the provincial administration managed to relax the security zone regulations governing the use of public lands in border areas (Law Nº 21.900), promoting the legalization of spontaneous settlement through a system that considers unofficial occupation (Schiavoni. 1993). At the end of the 1980s, with the reserve of public lands exhausted, the occupants began to exert pressure on the private extensions, instituting "the land problem" among the demands of the agrarian organizations. In this sense, the occupants request "the implementation of the agrarian reform promoted by Justicialism in 1987" (El Territorio, 3-VII-94). Faced with the problem of the occupation of private land, the government initiated a Plan for the Regularization of Private Land (MAA; 1994), which involved the acquisition of land from private individuals for subsequent division and sale to the occupants.

The vacant fiscal lands in the northeast of the province define a social space in formation, whose organization is marked by the scarce intervention of the state and the implementation of a society of agricultural occupants, structural surpluses of agrarian capitalism from the south of Brazil and family farmers from Misiones with deteriorated conditions of social reproduction in the oldest fiscal colonies.

As mentioned, the origin of the land occupation process in the municipality of San Pedro, leads to different degrees of colonization and development. In the Municipality, there are between 47 and 49 locations distributed in approximately 85,000 hectares of public land with different degrees of ownership (Owners, permit holders, occupants with improvements).

The map below was generated by the Department of San Pedro, showing big private properties and an area of official colonization of communities.

[41] Available at: https://www.indec.gob.ar/indec/web/Nivel4-Tema-3-8-87.

[42] «Sistema de puntaje y adjudicación de lotes fiscales en Andresito», art. Nº 16 de la Ley Provincial Nº 1.071.

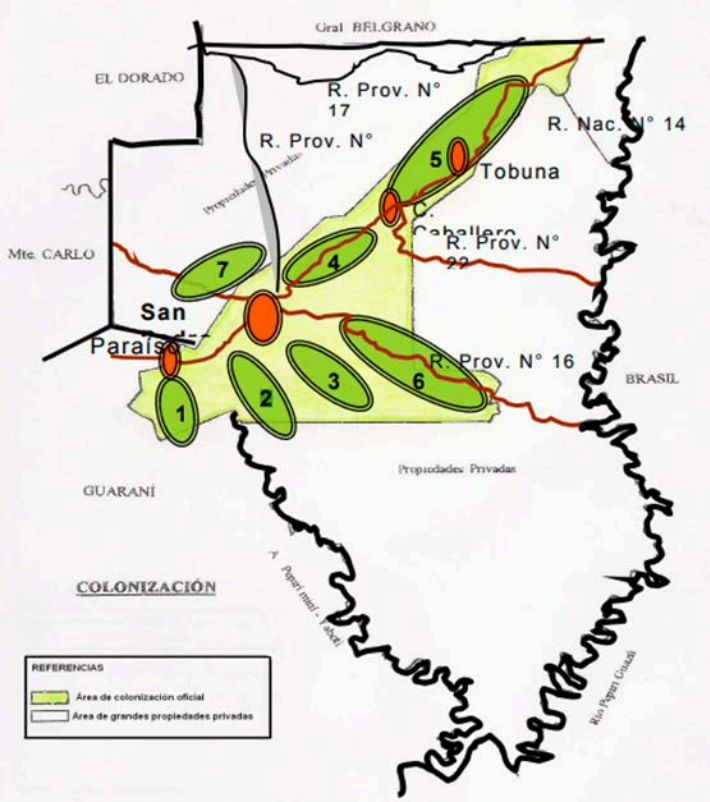


Figure 25: Areas of private and colonized areas in San Pedro Department. Green and orange references are related to the proposed zones in the original source. Source: Plan de Desarrollo Estratégico de San Pedro, 2010[43].

2.5.2 Recognition of Property Rights (G5.1)

Since these lands are private, the ownership is clear, and there is no dispute over land ownership in the project site. The project proponent has the legal right to conduct the proposed project activities inside the project area through a legal agreement with Forestal Belga, the company that owns the land[44]. The corresponding public consultation took place, and no claims arose regarding land ownership and rights.

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

Since prior to the project initiation, all the project land has been owned by Forestal Belga. To ensure the successful development of the project, the project proponent, which has legal authorization over the land, has made the corresponding research on the lands by verifying government authorizations[45]. So, the project will not encroach uninvited on private property, community property or government property.

Moreover, there is not any community, individual or group of people living in the project area and the project land is privately owned.

[43] Available at: https://www.argentina.gob.ar/sites/default/files/plan_de_desarrollo_estrategico_sustentable_del_municipio_de_san_pedro.pdf.
[44] Available to VVB during validation.
[45] Legal documentation available for VVB.

The corresponding public consultation which took place during 2021 did not raise any complaints regarding property rights (see section 2.3).

2.5.4 Property Rights Protection (G5.3)

Considering that there are no communities or activities within the project area, there will be no relocation of any kind or nature. "There is no illegal hunting, and if any illegal activity is detected, it is promptly reported to the appropriate government authorities."

There are no communities, individuals or groups of people living within the project site and the project land is privately owned.

Notwithstanding neither in the 80's, 90's, 00's, or at present, and as observed in satellite images, official censuses maps, preventive patrols, reforestation and road repair tasks, field observations, there are no spontaneous settlements in GS1 native life, i.e., in the project area.

Given this situation, there will be no relocation of activities, only those related to threats to biodiversity while alternatives and productive projects will be offered to access the basic family basket to those communities that use the area for gathering (fruits and to a lesser extent wood). There are also communities that use the area for recreational/cultural use.[2] [3] [4] (there was and will be no relocation of activities)

In addition, the project will generate jobs to be occupied by the local community (production of seedlings, planting of native species), allowing the population to improve their well-being with formal forms of employment.

A report prepared by the Misiones Police is attached. This report was submitted as a request from Nideport to support what was expressed above and as a result of the patrols that are regularly carried out at the project site. [46]

2.5.5 Illegal Activity Identification (G5.4)

The planning of security actions is based on three fundamental pillars: early warning, management of institutions and local enforcement authorities.

In the context of situational prevention, the integral nature of the approach considers different conflict scenarios, which, with due diligence and multi-agency collaboration, may lead to a positive result.

Early Warning

According to the Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis[47], carried out on the ground (remote pre-diagnosis), the necessary technological and human means (cameras, sensors, drones, operators, etc.) will be available to detect, in due time and manner, any activities evidencing the following problems:

- Forest fires (intentional or not).
- Deforestation.
- Poaching.
- Illegal trafficking (in any of its variants).
- Illegal agriculture due to usurpation of land.

[46] Policia de Misiones_Informe0724.pdf

[47] More information available to VVB during verification.

A Contingency Plan[48] has been developed to address each of the problems outlined above.

In order to efficiently develop and subsequently apply contingency plans, the following institutions will provide support: Border Patrol, monitoring personnel, park rangers, and regional (provincial) firefighters. All institutions are in the process of agreement with the adherent company Nideport.

The contracting modality will be that of "additional cost for services to private persons" for public institutions and "employer-employee relationship" for monitoring tasks In both cases, the participation in social areas will be of the essence to comply with the tenets of integration of indigenous peoples and local citizens.

Crime map

Intervention strategies, that will be implemented, are designed based on the reports provided by the local community (police, border patrol, Municipality of San Pedro, neighbors, etc), who by maintaining fluid local communication, allow one to be aware of any activity of interest within the property and its surroundings and to be able to evaluate the evolution of the place in the last two years as regarding the main threats identified: Drug trafficking; Poaching; Illegal logging. Later, the information provided by the analysis of monitoring control tower images will allow further definition and redesign of the intervention strategies.

Some equipment to be used includes:

- Thermographic cameras: to be installed in the towers to allow automatic detection of fires as well as people's presence.
- Drones: For automated patrol in predetermined routes, especially project area borders, with constant operator supervision.
- Peripheral sound system: will allow personnel to identify different situations to be managed from the monitoring center. Impulsive sound detection, both through cameras and microphones, will allow gunshots, shouts or other sounds indicating threats, to be identified and triangulated in order to identify location.
- Lorawan net: installation for the interconnection of appliances and equipment, such as meteorological centers with different sensors to measure environmental variables or others. The information provided and analyzed will allow us to anticipate, for example, fire threats due to dry days, flooding, etc. and execute early warnings.

There are illegal activities and uninvited entering of people from the bordering country Brazil in the eastern size of the property. These illegal activities are not within a legal right for land dispute but entirely as illegal activities, with natural resources extraction and degradation. For this reason, this conflict has been handled by country-authorities and is frequent along the whole political border.

2.5.6 Ongoing Disputes (G5.5)

The land is privately owned. There are no identified or ongoing conflicts over land rights, nor were there. There are no permanently settled local communities with customary land rights within the project area.

On the other hand, as mentioned, there are illegal activities and uninvited entering of people from the bordering country Brazil in the eastern size of the property. These illegal activities are not within a legal right for land dispute but entirely as illegal activities, with natural resources extraction and degradation. For this reason, this conflict has been handled by country-authorities and is frequently along the whole political border.

[48] Available to VVB during verification.

Identify any ongoing or unresolved conflicts or disputes over rights to lands, territories and resources and also any disputes that were resolved during the last twenty years where such records exist, or at least during the last ten years. If applicable, describe measures needed and taken to resolve conflicts or disputes. Demonstrate that no activity is undertaken by the project that could prejudice the outcome of an unresolved dispute relevant to the project over lands, territories and resources in the project zone.

We have provided more than enough information at the time of the audit and it is in the document: *Property ownership report and evidence of exploitation of the native forest,* which is available for your consultation and study.

To ensure that the land for the Nideport carbon credit certification project is privately owned and free from ongoing conflicts over land rights, the following steps were taken.

Based on the search results there are several key points that we had considered regarding land ownership and potential conflicts in the Misiones, Cruce Caballero area:

Verification of property titles: We have ensured that the property titles of the project area are clear and there are no overlaps with recognized indigenous territories or in the process of recognition and check official land registry documents from Argentine authorities.

Land ownership records: Conduct a thorough title search to verify the chain of ownership.

The search results provide specific information about land ownership records and databases for the Cruce Caballero area. To ensure private ownership, we consult official land registry records from the relevant local Argentine authorities the following legal investigations and findings were made:

The property where the project is located has been owned by the company FORESTAL BELGA S.A. since February 19, 1996, as stated in the property title, signed before a public notary.

On March 4, 1997, the real property registry of the province of Misiones certifies that it is not inhabited, there are no restrictions on the domain, and there are no legal real rights in dispute over it.

This situation has remained without changes or alterations of any nature until the present. This has been verified with meetings with the communities, with local authorities at the time of the start of the project, with the gendarmerie and local police and with on-site surveys in the physical area of the project lands.

Consultation with local authorities: We have consulted with local government officials to confirm the land's status and any potential claims to obtain updated information on the presence of indigenous or local communities with traditional rights in the area, and the information has confirmed that there are none.

Official registry: Consult The National Institute of Indigenous Affairs (INAI) maintains a registry of recognized indigenous communities and their territories. We have verified this registry to confirm that there are no registered communities in the project area.

Consideration of traditional uses: Although there are no permanent settlements, it is important to consider that, although the area is occasionally used for traditional activities such as gathering or spiritual practices by nearby communities, they are recognized and respected.

Illegal activities: There have been reports of illegal activities in the border regions between Argentina, Brazil and Paraguay, including agrochemical smuggling, fishing, poaching and palm heart extraction in the past. However, these activities are described as criminal and not related to land rights disputes. With our intervention in the project area

and the agreements signed with the gendarmerie and the border police, we have managed to eradicate these activities, which in some cases ended in arrests of the intruders that were removed by the local authorities.

To date, no intruders have been detected again and, given that there are no local communities living within the project area, there are no disputes or territorial claims, proof of this is that no filing notifications or legal complaints have been received.

Cross-border issues: Assess any potential impacts from illegal cross-border activities and coordinate with local law enforcement.

The area experiences challenges related to its proximity to international borders, with illegal crossings and activities reported in the past. These issues are handled by national authorities and are not indicative of formal land rights conflicts.

Indigenous communities: Engage with local communities to ensure there are no undocumented customary land rights.

The search results do not provide information about indigenous or local communities with customary land rights in the specific Cruce Caballero area.

The province of Misiones has a significant population of Mbyá Guaraní communities, who have recognized rights over their traditional lands. We have verified with them that they have no claims or rights over the specific project area.

Community participation: We have carried out consultations with local communities and indigenous leaders in the region who have provided us with valuable information about the non-existence of possible claims or traditional uses of the territory.

Not only has this been ratified at the time of the FPIC, but meetings, interviews and surveys have also been held in the community, which have ratified what was mentioned above.

Historical and anthropological study: through interviews and meetings we have carried out a historical and anthropological study of the area that has allowed us to identify that there has been no traditional occupation or historical claims on the project area.

Social impact assessment: We carry out a social and cultural impact assessment to identify any possible impact on local communities, even if they do not permanently reside in the project area.

Continuous monitoring: We established a continuous monitoring system to detect any claims or conflicts that may arise during the implementation of the project.

2.5.7 National and Local Laws (G5.6)

The project complies with all national and local laws and regulations in the host country that are relevant to the project activities. A complete analysis of the applicability of laws and general regulations to Nideport project was carried out by Nideport CEO and lawyer. Due to the specialized character of this analysis, it was annexed in a separate file called “Analysis of Applicable Regulation in Argentina”.

Below the laws and regulations that relate to the project are summarized:

National Constitution.

National laws:

- Law 20.744 on Employment Contracts and its amendments.
- Law 24.013 on Employment.
- Law 24.557 on Labor Risks.
- Law 26.390 on Prohibition of Child Labour and Protection of Adolescent Labour.
- Law 19.587 on Hygiene and Safety at Work.
- Law 11.544 on Working Hours
- Law 26.727 on the agricultural labor regime.
- Law 23.551 on trade union associations
- Law 24.365 on compulsory conciliation

Provincial regulatory framework:

Provincial Constitution of Misiones.

- Law 26.331 on Minimum budgets for environmental protection of native forests.
- Law 854 on Forest law.
- Law LEY VIII – 37 on Investments for Cultivated Forests.
- Law XVI – 53 Declaration on classification of forests and ecological belts.
- Law XVI - 105 on Management of Native Forests.

2.5.8 Approvals (G5.7)

None is necessary to carry out the project. Regeneration activities of natural ecosystems do not need any approval from authorities in Argentina.

2.5.9 Project Ownership (G5.8)

The land is privately owned by Forestal Belga, and the corresponding notarial documentation are available[49]. Moreover, there is a signed contract for the irrevocable assignment of the right to the certification of reduction of greenhouse gas emission and the right to generate, use, market sell carbon credits and the implementation of corresponding activities in favor of Nideport.[50]

2.5.10 Management of Double Counting Risk (G5.9)

The project has not received any form of environmental or social credit, including tradable climate, community, or biodiversity units.

2.5.11 Emissions Trading Project activities and Other Binding Limits

GHG removals generated by the project will not be used for compliance with binding limits to GHG emissions since Argentina does not have GHG emission compliance nor trading project activities in place.

[49] Property certifications available
[50] Available to VVB during validation

2.5.12 Other Forms of Environmental Credit

The project is a new AFOLU project and is not registered in any other GHG project activities. The project will only generate credits from the storage of carbon in forest pools, and these are claimed only under the VCS and CCB program.

2.5.13 Participation under Other GHG Project activities

The project is a new AFOLU project and is not registered in any other GHG project activities. The project will only generate credits from the storage of carbon in forest pools, and these are claimed only under the VCS and CCB program.

2.5.14 Projects Rejected by Other GHG Project activities

The project has not been registered or is seeking registration under any other GHG project activities.

2.5.15 Double Counting (G5.9)

Double counting is avoided as credits will be only sold through the VERRA platform since Argentina does not have GHG emission compliance nor trading project activities in place.

3 CLIMATE

3.1 Application of Methodology

3.1.1 Title and Reference of Methodology

The project applies methodology VM0005 Methodology for Improved Forest Management: Conversion of Low Productive to High Productive Forest.

Reference	Title	Version
VCS Methodology VM0005	Methodology for Improved Forest Management: Conversion of Low Productive to High Productive Forest	1.2

The applied methodology uses other accessory methodologies and tools.

Reference	Title	Version
CDM Tool	CDM Tool for Calculation of the Number of Sample Plots for Measurements within A/R CDM Project Activities	2.1.0
CDM Tool	AR-ACM0003: Afforestation and reforestation of lands except wetlands	2.0

CDM Tool	Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity	4.0
VCS Tool	VT0002 Tool for the Demonstration and Assessment of Additionality in IFM Project Activities	1.0
VCS Tool	VT0003 Tool for the Estimation of Uncertainty for IFM Project Activities	1.0
VCS Tool	AFOLU Non-Permanence Risk Tool	4.0

3.1.2 Applicability of Methodology

Methodology VM0005, version 1.2, is applicable under the following conditions:

Applicability condition	Project compliance
Project activities aim at the avoidance of relogging of logged-over, degraded natural Evergreen Tropical Rainforest, or the rehabilitation of logged- over natural Evergreen Tropical Rainforest through direct human intervention such as cutting of climbers and vines, liberation thinning and/or enrichment planting, or a combination of these activities;	The project aims to rehabilitate a logged-over and degraded area, the project area, located in the Misiones Forest, part of the Atlantic Forest biome. The project will comprise activities such as: cutting of climbers and vines, liberation thinning and enrichment planting.
Land within the project area must have qualified as forest;	In the submission of its FREL, Argentina applied an operative definition of forest that includes TF (Tierras Forestales) and OTF (Otras Tierras Forestales), as follows: TF: land that forms a natural ecosystem with a tree cover of equal to or greater than 20 per cent native species, with trees that reach a minimum height of 7 m; OTF: land that forms a natural ecosystem with a tree cover of between 5 and 20 per cent native species, with trees that can reach a minimum height of 7 m; or with a tree cover equal to or greater than 20 per cent, where the trees present a height of less than 7 m. The project area is located within the Selva

	Misionera, or Misiones Forest, a type of vegetation formation in the Atlantic Forest biome. As can be seen in the forest inventories, aerial images and site visits, the project area is qualified as a forest (TF or OTF) according to the Argentina definition.
In the baseline, the logged-over forest in the project area is unlikely to revert to normal regrowth patterns due to vines and climbers, which may include climbing bamboos, resulting from high-intensity logging operations in the past. In such cases, and subject to appropriate substantiation, regrowth of tree biomass before and following relogging in the baseline can be assumed to be zero. Where this is not the case, ex-ante estimates of regrowth must be made and monitoring of the baseline for ex-post confirmation of regrowth rates must be conducted;	As the methodology stands, "When accounting for regrowth, ex-ante estimates of tree biomass regrowth in the baseline can be based on peer-reviewed literature providing values for regrowth from comparable residual forest types in comparable areas. If regrowth occurs in the baseline scenario this is assumed to be small compared to regrowth in the with-project scenario. Furthermore, regrowth in the relogged residual stand is assumed to be smaller than regrowth in the pre-relogged residual stand. Regrowth rates will be verified ex post through baseline monitoring, in accordance with Section 3.3.3 (Monitoring Plan), which sets out the sampling design, remeasurement frequency, and QA/QC procedures. Note that the validation and verification process of the PD and the MR were carried out simultaneously.
The soil carbon pool within the project boundary is either in a steady state at project commencement, or, if not, the soil carbon pool is only expected to increase more or decrease less in the with-project scenario in comparison to the baseline, and may therefore, conservatively be omitted;	Due to the absence of logging activities in the project scenario, we only can expect an increase in the soil carbon pool in comparison to the baseline. Therefore, the soil carbon pool will be conservatively omitted.
Site preparation is carried out so as to avoid levels of soil disturbance or soil erosion sufficient to significantly reduce the soil carbon pool over	The site preparation will be carried out so as to avoid levels of soil disturbance or soil erosion sufficient to significantly reduce the soil carbon

the project lifetime;	pool over the project lifetime. The site preparation is based on the plan and strategy outlined in the Forest Management Plan (shared during validation in the file: Restoration & Forest Management Plan-EN_2023-27), which established the characteristics of the degraded forest and the types of structures that should be addressed with active restoration practices. The intervention areas correspond to the gaps and clearings we encounter within the forest, which, due to the forest's own growth dynamics, we must monitor year after year. To prepare the soil for planting, only manual tools such as shovels or other devices used for this function are used. There are no disturbances in the soil beyond the corresponding hole to place the plant. There will be no soil removal with agricultural machinery. The details of the activities involved in the execution of the Management Plan are outlined in the document "*Planning and execution of annual restoration activities*" shared during validation.
The use of nitrogen fertilizer in the project activities is prohibited;	Nitrogen fertilizers will not be applied in the project activities.
During the project crediting period, harvesting must not occur in the with-project scenario;	Harvesting will not occur in the project scenario during the project crediting period.
Biomass burning, fuel gathering, removal of litter, or removal of dead wood do not occur in the baseline scenario and in the with-project scenario within the project boundary;	The project does not involve biomass burning, fuel gathering, removal of litter, or removal of dead wood in the baseline or the project scenarios. The baseline scenario indicates that the local communities are not reliant on the forest for their livelihoods, nor do they depend on living biomass, deadwood, or litter for heating and cooking. This is mainly because they reside at a distance from the project area and can readily satisfy their needs within their natural habitat. To gain a deeper understanding of the

	residents' living conditions and their connection to forest and wildlife resources, we conducted interviews and collected data, as outlined in the 'Forest Safety Network' document. These endeavors have been invaluable in assessing the extent of the communities' dependence on the Selva Paranaense Vida Nativa GS1 forests. The evidence obtained and the surveys carried out only indicate that the communities, occasionally, only require the use of flowers for medicinal purposes. Also, because Forestal Belga SA has maintained ownership and management control of the project area, as private property since the 1960s, their effective oversight has regulated various activities within this domain, deterring practices such as biomass burning, fuel collection, litter removal, and dead wood extraction by neighboring communities. Additionally, Nideport has secured a contractual agreement granting them full possession and control over the entire area, underscoring their commitment to responsible management. By ensuring the absence of these activities within both the baseline and with-project scenarios within the project's boundaries, the project places a high priority on environmental conservation and sustainability.
A reference area may be used to derive relevant parameter values for the baseline scenario. This area must be of similar size as the project area, or larger (ie, 75% of the project area or more), for which similarity with the project area can be demonstrated using criteria outlined in this methodology, and for which it can be demonstrated that the management is not affected by its selection as a reference area; and,	The project will use a reference area located within the Upper Paraná Atlantic Forest ecoregion, selected to be ≥75% of the project area and demonstrably similar in forest type, species composition, canopy stratification, successional stage, topography, disturbance history, and legal status (Category II – Sustainable Use) per the Native Forest Land Use Plan. The reference area will remain outside the project boundary, and it will be demonstrated that its management is independent and not affected by its selection

	as a reference area.
Flood irrigation or drainage of primarily saturated soils are not permitted as part of the project activity, so associated non-CO2 greenhouse gas emissions can be neglected.	The project activity does not involve the flood irrigation or drainage of primarily saturated soils.
There is no peatland within the project area or emissions associated with peatland are not significant.	There is no peatland within the project area. Most Argentinean peatlands are located in Patagonia and Tierra del Fuego. [51]
The methodology is not applicable to grouped projects.	This is not a grouped project

Applicability of the tools

Reference	Title	Version
CDM Tool	CDM Tool for Calculation of the Number of Sample Plots for Measurements within A/R CDM Project Activities	2.1.0
CDM Tool	AR-ACM0003: Afforestation and reforestation of lands except wetlands	2.0
CDM Tool	Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity	4.0
VCS Tool	VT0002 Tool for the Demonstration and Assessment of Additionality in IFM Project Activities	1.0
VCS Tool	VT0003 Tool for the Estimation of Uncertainty for IFM Project Activities	1.0
VCS Tool	AFOLU Non-Permanence Risk Tool	4.0

CDM Tool for Calculation of the Number of Sample Plots for Measurements within A/R CDM Project Activities v2.1.0

Applicability condition	Project compliance
This tool has no internal applicability conditions.	Applicable.

AR-ACM0003: Afforestation and reforestation of lands except wetlands v2.0

[51] https://www.argentina.gob.ar/sites/default/files/regioneshumedbaja2.pdf.

Applicability condition	Project compliance
The land subject to the project activity does not fall in wetland category	The land subject to the project activity falls in the forest category, as its forest indicators comply with the national forest definition in the Argentina FREL. Further geo-referenced evidence is supplied at validation.
Soil disturbance attributable to the project activity does not cover more than 10 percent of the area in each of the following types of land, when these lands are included within the project boundary: (i) Land containing organic soils. (ii) Land which, in the baseline, is subjected to land-use and management practices and receives inputs listed in appendices 1 and 2 to this methodology	Since the project activity mainly consists in stopping relogging activities, soil disturbance will dramatically decrease in the project scenario. Images and footage provided at validation show that soil disturbance will be lower than the threshold required by AR-ACM0003 applicability condition #3. There is no subsoiling or other high soil-disturbing activities to plant the trees. Those images show plantation activities, for which only manual tools are used. Benefits associated to manual planting include: 1. The commitment to reduce GHG emissions from machinery and soil disturbance. 2. Avoiding unnecessary disturbances in the "soil ecosystem" as a machinery would do by removal and compaction of the upper stratum of the soil. 3. The need to enter the forest for several meters, in some cases 500 or more, without affecting the forest structure and its biodiversity. 4. Commitment to generating job offers with a focus on forest restoration. 5. Avoiding noise pollution that affects wildlife. 6. The identification with greater precision of sites with soil quality necessary for the establishment of future trees. The importance of this point lies in the presence of rocky material a few centimeters deep in some areas of the forest. 7. The recognition of the planting site and thus the generation proposals for continuous improvement by those responsible for defining the final location of the hole for planting.

Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity 4.0

Applicability condition	Project compliance
The tool is applicable to all occurrences of fire within the project boundary.	Applicable if fire does occur inside the project area.
Non-CO2 GHG emissions resulting from any occurrence of fire within the project boundary shall be accounted for each incidence of fire which affects an area greater than the minimum threshold area reported by the host Party for the purpose of defining forest, provided that the accumulated area affected by such fires in a given year is ≥5% of the project area.	This project activity does not include burning biomass. In case of a loss event caused by fire, a loss event report will be submitted to Verra as per the VCS Standard. In this case, given the threshold of fire occurrence in ≥5% of the area is met, this tool will be applied.

Applicability condition	Project compliance
The IFM project activity is eligible under the current VCS IFM types (see VCS Tool for AFOLU Methodological Issues)	This project is eligible under the current VCS IFM types because: • The project activity increases carbon sequestration and reduces GHG emissions on forest lands managed for wood products such as sawtimber, pulpwood and fuelwood by increasing biomass carbon stocks through improving forest management practices. • The baseline and project scenarios for the project area qualify as forests remaining as forests. • The project area is approved for wood product management by a national or local regulatory body. Specifically, the project is a Low-Productive to High-Productive Forest (LtHP), because the forest in the project area: • Qualify as a forest as defined by the host country for its UNFCCC national inventory accounting. • It is in a state of arrested succession, where regeneration is inhibited for extended periods of time, due to intensive colonization of bamboos/vines caused by years of logging activity. • Have a very slow growth rate both in the with-project scenario and in the baseline scenario, where relogging is the baseline activity.. In order to transform the low-productive forest to a high productive one, the project will: • Stop relogging; • Adopt enrichment planting to increase the density of trees. • Implement forest management activities such as cutting bamboos/vines that prevent forest regrowth.
Activities within the proposed project boundary performed with or without being registered as IFM project activity shall not lead to violation of any applicable law even if the law is not enforced;	The project fully complies with all national, regional, and local laws and regulations, both in the baseline and in the project scenario.
The use of this tool to	The approach used to determine the most plausible baseline

determine additionality requires the baseline methodology to provide for an approach justifying the determination of the most plausible baseline scenario. Project proponents proposing new baseline methodologies shall ensure consistency between the determination of a baseline scenario and the determination of additionality of a project activity.	scenario follows the instructions of VM0005, the applied methodology, and it is described in section 3.1.4. This project does not propose a new baseline methodology.

VT0002 Tool for the Demonstration and Assessment of Additionality in IFM Project Activities v1.0VT0003 Tool for the Estimation of Uncertainty for IFM Project Activities v1.0.

Applicability condition	Project compliance
This tool is applicable for use under VM0005 Converting from Low to High Productive Forests.	The project uses VM0005 v1.2

AFOLU Non-Permanence Risk Tool v4.0.

Applicability condition	Project compliance
No special applicability condition	Applicable.

3.1.3 Project Boundary

In this section, the geographical and temporal aspects of the project boundary are clearly defined. Also, the carbon pools and GHGs included in the project boundary are identified.

Geographical Project Boundary

Operation Center

The image shows the site called "Reserva GS1 " with a total area of 24,643 hectares. In red lines, the area of the project "Selva Paranaense Vida Nativa GS1" (SPVN GS1) is delimited, containing an area of 22,878.5. A placemark indicates the location of the “Management Operations Center” with respect to the project area. It also indicates the point where the gate of the property is located (Gate-Access Control). There are control and registration activities carried out. Every person who enters is registered whether they are part of the staff or not.



Figure 26: Geographical boundaries of the project area.



Figure 27: Aerial view of the “Management Operations Center” area with facilities where staff perform cabinet work and meet for planning and editing of reports and reports (offices and operations room). In addition, there are two buildings where the bedrooms are.

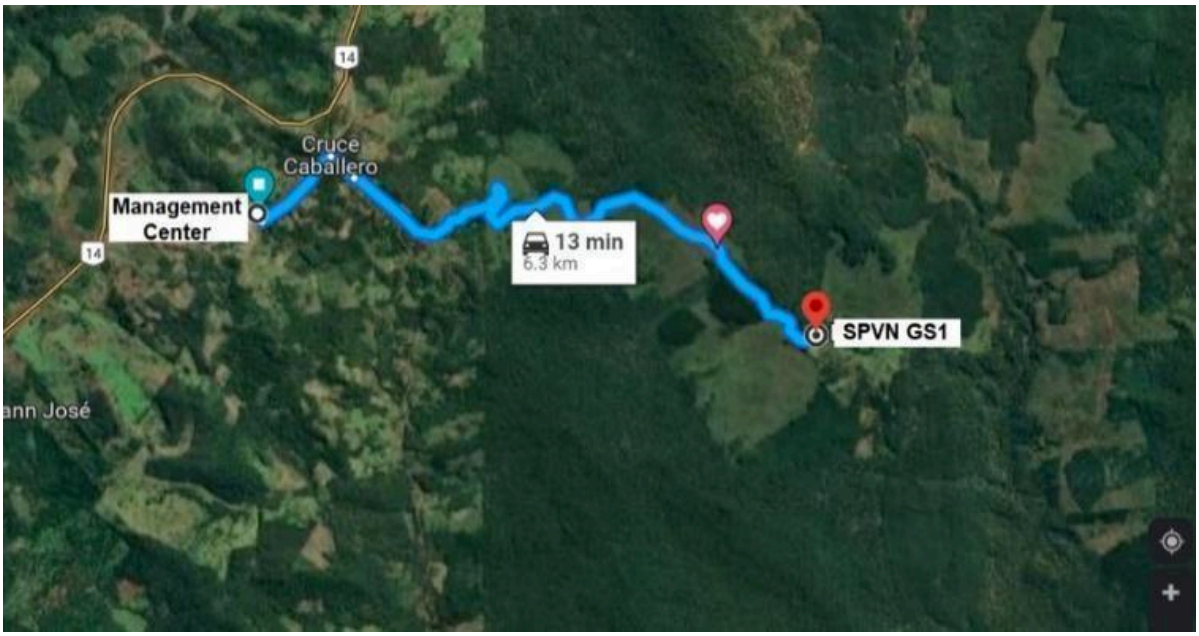


Figure 28: Image indicating the distance from Operations Center to the “Access Control”. It was taken as a point of the property to the site where the entry and exit of people is controlled. The distance to travel is 6.3 kilometers.

The KML files will be submitted along with this PD.

Table 3: The project area comprises five strata.

Strata	Strata subdivision	Area (ha)
Native forest	Closed canopy	2,711.3
	Open canopy	13,517.8
	Scattered canopy	6,069.7
Other native vegetation	Scrubland	298.2
	Shifting agriculture	281.5
Total		22,878.5

Reference Area — Physical Boundaries and Site Description

(Pursuant to VM0005 v1.2, Section 5.1: “When describing physical reference area boundaries, the following information must be provided per discrete area.”)

Methodological Compliance

In accordance with VM0005 v1.2, Section 5.1, the following provides a per-discrete-area description of the reference site, including location, physical boundaries, area, tenure and current use, as well as the biophysical characteristics and the applicable management framework.

The reference areas is located in the Upper Paraná Atlantic Forest ecoregion and comprise the following discrete polygons:

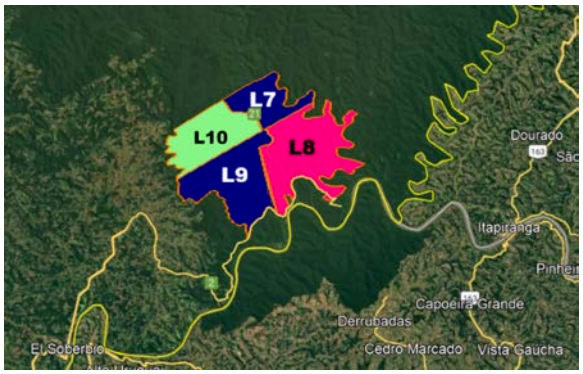


Figure 29. Reference Area Parcels (Detail).

Parcel-level view of the reference area showing the four discrete parcels used for comparative analyses: L5 (green), L7 (light blue), L8 (pink), and L9 (dark blue). Labels indicate parcel IDs. Imagery displayed over a satellite basemap; vector boundaries shown as rendered by the basemap provider.

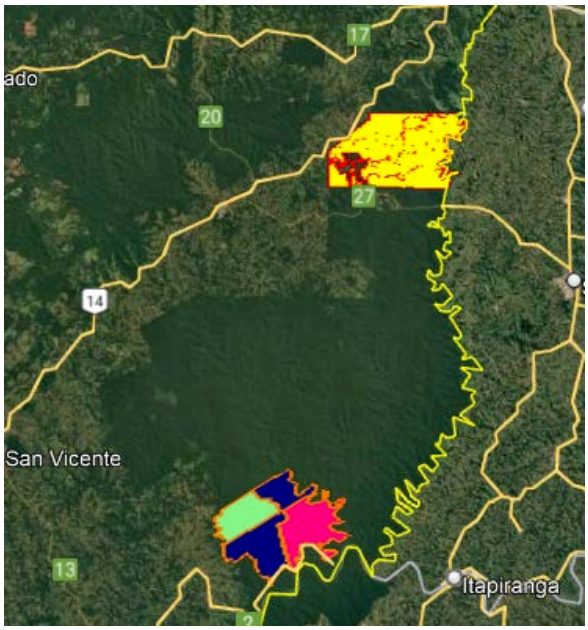


Figure 30. Project–Reference Area Regional Context.

Regional map situating the SPVN project area (red outline with yellow fill) relative to the reference area parcels (green, light blue, pink, dark blue) located ~48.75 km to the south within Misiones Province. This figure illustrates spatial separation while ensuring biogeographic comparability within the Green Corridor landscape. Basemap: satellite imagery; reference and project polygons from the SPVN GIS.

The reference area forms part of the Green Corridor that encompasses the SPVN project landscape, located 48.75 km south within Misiones Province, Argentina. Regulated forest management is permitted in the site

under applicable provincial manuals and regulations, applying selective harvesting of native species and stand-based (compartment) management.
Coordinates: 27°04′36″ S, 53°59′29″ W.

Climate. Subtropical without a dry season, with mean annual precipitation of approximately ~2,300 mm (typical local range 2,000–2,500 mm). Summers are warm and humid, winters cool; prevailing winds originate from the NE, SE, and E.

Landforms and Soils. The site lies on the Meseta Misionera (Missionary Plateau) at ~500–800 m a.s.l. Dominant cartographic soil units are 6 (phases 6A and 6B) and 9, with minor occurrences of 2 and 3. Unit 6B features steep slopes and high erosion risk; 6A is level to gently inclined with low erosion risk; 9 is gently undulating.

Hydrology. The area drains primarily to the Uruguay River basin, including sub-basins of the Yabotí/Pepirí Miní, Paraíso, Garibaldi, and Florida streams, among others.

Phytogeography and Forest Structure. Biogeographical setting: Selva Paranaense (Atlantic Forest). The vegetation is multi-layered, with emergents, large/medium canopy trees, and intermediate/herbaceous strata.
Representative flora: cedro misionero (*Cedrela fissilis*), guatambú blanco (*Balfourodendron riedelianum*), grapia (*Apuleia leiocarpa*). In the subcanopy/intermediate layer: chachí bravo (*Trichipteris atrovirens*), parí paroba (*Piper geniculatum*), yatevó (*Guadua trinii*).
Faunal synopsis: a typical Atlantic Forest assemblage with high-conservation-value mammals and birds, e.g., jaguar (*Panthera onca*), lowland tapir (*Tapirus terrestris*), puma (*Puma concolor*); key birds include bellbird, yacutinga, and harpy eagle. At the provincial scale, more than 120 mammal species and around 554 bird species are reported.

Forest Production and Management Guidelines. Standing volume is determined through forest inventories (Res. 226/04). Harvest operations comply with minimum felling diameters by species (Decree 1617/88). For reduced-impact operations and/or certification, 100% stand census is required (Res. 187/06). Management follows a stand rotation approach.

Methodological Continuity. The reference area operates under the same system, plans, and controls applied within the SPVN project area prior to the suspension of commercial harvesting in 2021.

Discrete Reference Area Information:

Name of the area: Lote 10 - Administration: Puerto Laharrague SA

- Unique identifier: Lote 10 (Cadastral ID 0080)
- Cadastral Parcel ID (Partida): 930
- Coordinates: Lat: -27.072, Long: -54.054
- Total land area: 5,005 ha
- Tenure and rights: Puerto Laharrague S.A.

Name of the area: Lote 7 - Administration: Puerto Laharrague SA

- Unique identifier: Lote 7 (Cadastral ID 0077)
- Cadastral Parcel ID (Partida): 927
- Coordinates: Lat: -27,042 - Long: -53,99
- Total land area: 3,357 ha
- Tenure and rights: El Moconá SA

Name of the area: Lote 8 - Administration: Puerto Laharrague SA

- Unique identifier: Lote 8 (Cadastral ID 078C; 078D; 078L)
- Cadastral Parcel ID (Partida): 19677; 26672
- Coordinates: Lat: -27,079 - Long: -53,938
- Total land area: 8,619 ha
- Tenure and rights: Juan Alberto SA

Name of the area: Lote 9 - Administration: Puerto Laharrague SA

- Unique identifier: Lote 9 (Cadastral ID 079D; 079E: 079F)
- Cadastral Parcel ID (Partida): 19794
- Coordinates: Lat: -27,118 - Long: -54,024
- Total land area: 7,681 ha
- Tenure and rights: El Moconá SA

Tenure, Forest Qualification, and Zoning. Applicable to All Reference Parcels

- Administration: Puerto Laharrague S.A.; Estate structure: aggregated plots of a family-owned group, including parcels titled to different affiliated joint-stock companies, all managed by Puerto Laharrague S.A.
- Forest qualification: Complies with the FAO FRA 2020 forest definition (land >0.5 ha with trees >5 m and canopy cover >10%, or capable of reaching these thresholds in situ; not predominantly agricultural or urban) and aligns with Argentina's national forest definition applied in its REDD+ FREL (SNMBN operational classes: *Tierras Forestales*—native canopy ≥20% with trees ≥7 m; *Otras Tierras Forestales*—native canopy 5–20% with trees capable of reaching ≥7 m, or ≥20% native shrub cover ≥0.5 m).[52]
- Category (OTBN): Category II (Amarillo), as defined under Argentina's native forest zoning (Ley 26.331): medium conservation value areas where sustainable use and restoration are permitted, per national guidance.[53]
- Cadastral source: https://www.mapa.catastro.misiones.gov.ar/mapaCatastro/

[52] FAO, *FRA 2020: Terms and Definitions*, Forest Resources Assessment Working Paper 188 (Rome: FAO, 2018) https://openknowledge.fao.org/server/api/core/bitstreams/531a9e1b-596d-4b07-b9fd-3103fb4d0e72/content?utm_source=chatgpt.com

[53] Ordenamiento Territorial de Bosques Nativos https://www.argentina.gob.ar/ambiente/bosques/ordenamiento-territorial-de-bosques-nativos?utm_source=chatgpt.com

Consistent with VM0005, the reference area is selected to be representative of the project area under the baseline scenario, meeting the applicability condition on minimum size and the similarity criteria, so that the volume of biomass that would have been removed from the project area over the project lifetime can be assessed. The reference area totals 24,662 hectares, thereby exceeding the VM0005 minimum size requirement and being 1,783,55 hectares larger than the SPVN project area (75% of the project area or more).

Temporal Project Boundary

The temporal boundaries are defined by the project start date and length of the project crediting period, as indicated in sections 2.1.14 and 2.1.15. The project duration is 100 years.

Carbon Pools

Carbon Pools	Included?	Justification/Explanation
Above-ground tree biomass	Yes	Major carbon pools are assumed to significantly decrease in the baseline, or increase in the project, or both.
Above-ground non-tree biomass	No	Pool need not to be measured because it is not subject to significant changes or potential changes are transient in nature.
Below-ground biomass	Yes	Major carbon pools are assumed to significantly decrease in the baseline, or increase in the project, or both. In this case, we included it due to the conservative assumption that it would increase in the project scenario.
Dead wood	Yes	In the with-project scenario the dead wood carbon pool is conservatively accounted for as zero. The approach used for quantification of avoided emissions from relogging does not require accounting for dead wood. As described in Section 3.2.1 (Baseline emissions), dead wood in the baseline scenario is derived from peer-reviewed literature sources, whereas in the with-project scenario dead wood has been conservatively accounted as zero. This is conservative, since accounting for dead wood as

		zero in the with-project scenario is conservative[54].
Litter	No	Conservative approach - unlikely to decrease as a result of the project activity, or increase in the baseline
Soil organic carbon	No	Conservative approach - unlikely to decrease as a result of the project activity, or increase in the baseline
Wood products	Yes	Carbon pool likely to decrease as a result of the project activity. Accounting for wood products as zero in the with-project scenario is conservative.

Greenhouse Gases

The emission sources included in or excluded from the project boundary are shown in table below:

Gas	Sources	Selected	Justification/explanation of choice
Carbon dioxide (CO2)	Combustion of fossil fuel in vehicles / machinery	Yes	According to forest management plans, relogging is the baseline activity
	Removal of herbaceous vegetation	No	Excluded based on VCS guidance
Methane (CH4)	Combustion of fossil fuel in vehicles / machinery	Yes	Included as CO2 equivalent emission because relogging is the baseline activity
	Burning of biomass	No	Not included – no burning allowed; not accounting for methane emissions in the baseline scenario is conservative
Nitrous oxide (N2O)	Combustion of fossil fuel in vehicles / machinery	Yes or no	Included as CO2 equivalent emission because relogging is the baseline activity
	Nitrogen based	No	Not included – no use of fertilizer allowed

[54] VM0005 v1.2 (p 38).

	fertilizer		
	Burning of biomass	No	Not included – no burning allowed; not accounting for N2O emissions in the baseline scenario is conservative

3.1.4 Baseline Scenario

The baseline scenario is the Alternative Scenario A, detailed in section Additionality: the continuation of forest degradation with relogging.

For more than 50 years, the project area has been continually harvested. Although subjected to sustainable harvesting practices, the forest area is mostly degraded and only parts of it could be harvested. Table 4 shows the actual (2016-2021) and planned logging activities in the project area, obtained from records and documented history of the forestry operator registered timber cruise volumes, harvesting levels, the species collected and the periodicity of the logging operations.

Table 4: Logging intensity (m3) in the project area. All values are from the legally approved forest management plans. Values until 2021 are actual, and from 2022 onwards obtained from the plan.

Year	m^3	Year	m^3
2016	44,367	2035	82,958
2017	46,702	2036	82,958
2018	49,160	2037	82,958
2019	51,748	2038	82,958
2020	57,513	2039	82,958
2021	71,825	2040	82,958
2022	75,417	2041	91,254
2023	79,187	2042	91,254
2024	83,147	2043	91,254
2025	87,304	2044	91,254
2026	54,335	2045	91,254

2027	59,768	2046	91,254
2028	65,745	2047	91,254
2029	72,320	2048	91,254
2030	79,552	2049	91,254
2031	82,958	2050	91,254
2032	82,958	2051	91,254
2033	82,958	2052	91,254
2034	82,958	2053	91,254

In this scenario, no direct intervention is done to improve the forest quality or rehabilitate it. The areas which are more degraded are left with no harvesting, while those which are less degraded and still have some exploitable trees, are at least partially sustainably harvested. As no activities related to improving the forest quality (cutting of climbers and vines, liberation thinning and enrichment planting, etc.) are done, the forest continues to degrade more over the years.

The harvesting regime has been considered in the baseline stratification. The reason why there are some areas in the baseline left with no harvesting, while others have harvesting, is based on the fact that we have had to estimate the baseline emissions related to relogging, the methodology equations require information about the timber volume extracted from each tree species in each strata in the project area.

In order to estimate the baseline emissions related to relogging, the methodology equations require information about the timber volume extracted from each tree species in each strata in the project area.

However, as presented in section 3.1.6 a request for deviation is presented in order to use only the timber volume annual values extracted (per tree species) to calculate the baseline emissions. Since the weighted average wood density can be calculated from the forest management plans, there is no need to associate each cubic meter of timber extracted with a certain stratum. The crucial factor is the quantity of carbon present in the trees to be harvested, irrespective of their specific strata of origin. Forestal Belga possesses the necessary permits to extract a defined quantity of trees from each species annually, without regard to their strata within the forest. This is especially true because in order to have a more accurate result of the carbon stocks in the tree biomass at t=0, the area was stratified (for the forest inventories) in order to reduce the error in the carbon estimations, i.e., considering the forest physiognomy and not the forest management plans and permits.

Having used the system of measuring species by species and tree by tree, provides much more precise information than that which would be obtained by strata, and provides strong evidence that allows us to be more conservative and accurate taking into account the characteristics of biodiversity and existing species in the forest.

These differences by no means significantly impact the homogeneity within each of the project strata.

Despite the aforementioned, the concept is closely aligned with the principles outlined in VCS Standard 4.5. This standard allows projects to diverge from established methodologies in specific scenarios where alternative approaches prove to be more efficient for project-specific conditions. Such deviations are permitted as long as they maintain an equivalent level of accuracy or exhibit a higher level of conservatism than the methodology's prescribed procedures.

Furthermore, it is important to note that these deviations do not compromise the overall conservatism of the quantification of greenhouse gas emission reductions or removals, as detailed in section 3.20.2 of VCS Standard 4.5.

The records and documented history of the forestry operator register timber cruise volumes, harvesting levels, the species collected and the periodicity of the logging operations. Evidence of Forestal Belga's intention to continue deforestation is presented during validation in the document "*Forestal Belga native logging plan 2015.21-2055.xlsx*" and "*Proyección de extracción - Forestal Belga 2015 -2030*".

Forest exploitation in the baseline area has led to significant degradation of the forest structure and an annual decline in biomass stock. This degradation results from harvesting activities, which surpass the forest's natural capacity for recovery. The baseline assessment, as documented in "*Nideport_SPVN GS1_Forest Inventory 2021,*" revealed that the biomass stock, species distribution, and individual diameter distribution fall below expected levels for a forest with these characteristics. To reinforce the assertion of forest degradation in the region, supporting evidence is provided during validation in the document "*Línea Temporal de Los Bosques Nativos de Misiones, Argentina*". This document presents a historical timeline, illustrating the progressive degradation leading to the disappearance of native forests in Misiones province.

The project proponent has the right to sustainably harvest the trees in the project area. This right is assured by Law 26.331/07[55] and the legal permits to sustainably harvest and manage the forest that the project proponent has. The legal requirements are further detailed in section Additionality. Therefore, the project proponent has the right to continue harvesting the forest trees and it would do so in the absence of the project.

It was not possible to verify whether the management practices of Forestal Belga are equal or exceed those commonly considered a minimum standard among similar landowners in the area, because the management practices of other companies are confidential and not accessible to the public.

However, an analysis of the forest management practices common in the province of Misiones was carried out. National and Provincial Laws were checked to see whether there is a forest management practice that is recommended or mandatory by the state. Initially, the laws checked were:

- Law 26.331/07
- Law XVI – Nº 7[56]
- Law XVI – Nº 47[57]
- Law XVI – N.º 53[58]

[55] *Presupuestos mínimos de protección ambiental de los bosques nativos Ley 26.331* http://servicios.infoleg.gob.ar/infolegInternet/anexos/135000-139999/136125/norma.htm.

[56] http://digestomisiones.gob.ar/uploads/documentos/leyes/LEY%20XVI%20-%20N%207.pdf.

[57] http://digestomisiones.gob.ar/uploads/documentos/leyes/LEY%20XVI%20-%20N%2047.pdf?v=23032021120859.

[58] http://digestomisiones.gob.ar/uploads/documentos/leyes/Ley%20XVI%20-%20N%2053%20-%20Texto%20definitivo.pdf?v=24/06/2021%2011:29:37.

- Law XVI – Nº 105[59]

No criteria, set of rules or recommendations of forest management practices were found. The only reference of a common standard for forest management was found in Gauto et al. (2018). The authors point out to the fact that the forest management in Misiones considers a minimum diameter value to allow or not the harvesting of trees (GAUTO et al., 2018)[60].

Additionally other evidence was found to support the use of a minimum diameter as a relevant criterion for forest management and tree harvesting: Resolution N° 357/19 that modifies Decree 1617-86 sets the minimum diameter cut for different tree groups. This regulation is available for the VVB. Florestal Belga complies with this regulation, but there is no document that is issued by a national or local authority to prove that. No authorities qualify companies with regards to the compliance or not to this regulation. They enforce the law by conducting inspections randomly in the forest companies and in companies that buy their wood.

3.1.5 Additionality

In accordance with the applied methodology, additionality is assessed using VCS Tool for the Demonstration and Assessment of Additionality in IFM Project Activities.

STEP 0. Preliminary screening based on the starting date of the IFM project activity:

The project crediting start date and project start date are in accordance with the most recent version of the applicable VCS requirements in VCS Methodology VM0005, version 1.2 and VCS Standard version 4.2.

STEP 1. Identification of alternative land use scenarios to the IFM project activity:

“This step serves to identify alternative land use scenarios to the proposed IFM project activity(s) that could be the baseline scenario, through the following sub-steps”:

Sub-step 1a. Identify credible alternative land use scenarios to the proposed IFM project activity.

- Scenario A - Continued Forest degradation with relogging: harvesting activities in the project area have been going on for more than 50 years. As a result of these practices, the forest area is mostly degraded and only parts of it could be harvested. Therefore, in this scenario, no direct intervention is done to improve the forest quality or rehabilitate it. The areas which are more degraded are left with no harvesting, while those which are less degraded and still have some exploitable trees, are at least partially harvested. As no activities related to improving the forest quality (cutting of climbers and vines, liberation thinning and enrichment planting, etc.) are done, the forest continues to degrade more over the years.
- Scenario B - Protection and enrichment of the forest without developing a carbon project: this scenario involves the protection of the project area and the development of all project activities (cutting of climbers and vines, liberation thinning and enrichment planting) without the revenue from carbon credits. Relogging does not occur, as the entire area is protected. Therefore, this scenario is similar to the project scenario, but without the development of a carbon project. This option is not financially feasible.

Outcome of Sub-step 1a: two scenarios, A and B, are listed as credible alternative scenarios to occur on the project area.

[59] http://digestomisiones.gob.ar/uploads/documentos/leyes/LEY%20XVI%20-%20N%20105.pdf?v=23032021121808.
[60] https://rid.unam.edu.ar/bitstream/handle/20.500.12219/2642/Gauto%20OA_2018_Situaci%C3%B3n%20de%20los%20planes.pdf?sequence=1&isAllowed=y.

Sub-step 1b. Consistency of credible land use scenarios with enforced mandatory applicable laws and regulations

In Argentina, Law 26.331/07[61] legislates on territorial planning, as well as the minimum standards of environmental protection of native forests. In its chapter II, the law establishes three territorial categories for conservation of native forests:

- Red: very high conservation value areas where land use change and transformation is not allowed.
- Yellow: medium conservation value areas where forests may be degraded but which, in the judgment of the jurisdictional enforcement authority, with the implementation of restoration activities, may have a high conservation value and which may be subjected to sustainable management, tourism, collection and scientific research.
- Green: low conservation value areas that can be partially or totally transformed within the criteria of this law.

The project area consists mostly of areas classified as “yellow”, with a few patches classified as “green”, as shown in Figure 19. The strata displayed in Table 1 cannot be entirely harvested or deforested, only sustainably managed. In addition to complying with Law 26.331/07, the project proponent also holds legal permits to sustainably harvest and manage the yellow classified area, conceded by Misiones province government, more specifically the Ministry of Ecology and Renewable Natural Resources.

According to Law 26,331, Article 9:

- Category II (yellow): sectors of medium conservation value, which may be degraded but which, in the judgment of the enforcement authority with the implementation of restoration activities, may have a high conservation value and which may be subject to the following uses: sustainable use, tourism, collection and scientific research.

Territorial planning does not classify the plantation because it is not native. The forest region that contained the surface, which is now a plantation, is conditioned by its edaphic and topographical characteristics and can be exploited. And therefore, the change of land use is authorized.

In addition to that area, there is an extensive region of land Series 9 and 6-A (7,850 hectares) in which, as above, the change of land use could be authorized. Therefore, the project proponent could request the change from yellow to green land use classification, which would allow them to expand even further the alternative activities that could be developed in the area.

Table 5: Soil types inside the reserve

	Forestal Belga S.A - Area (ha.)				
Plot N°	Plot total	Soil 6A	Soil 9	Total reforestable land	Soil 6B Not reforestable
2	3,964	1751		1751	2213
3	4,000	1322		1322	2678
4	4,164	947		947	3217

[61] http://servicios.infoleg.gob.ar/infolegInternet/anexos/135000-139999/136125/norma.htm.

5	3,684	372		372	3312
6	3,631	608	70	678	2953
Sub-total Plot 2-6	19,443	5000	70	5070	14373
7 (*)	5400	3975	805	4780	620
Total	24843	8975	875	9850	14993

In Scenario A, a reduced sustainable harvesting activity happens in the land since it is mostly degraded. The sustainable harvest of this area is allowed by Law 26.331/07 and the legal permits the project proponent has. Therefore, the project proponent would act in accordance with the regulations and requirements set for the area.

In Scenario B, the strata will not be relogged anymore as it will only host activities to improve the forest quality. There is no law, regional and national, that requires the continuation of the sustainable harvesting of native tree species. Therefore, choosing not to harvest any more native tree species is in accordance with the regulations and requirements set for the area.

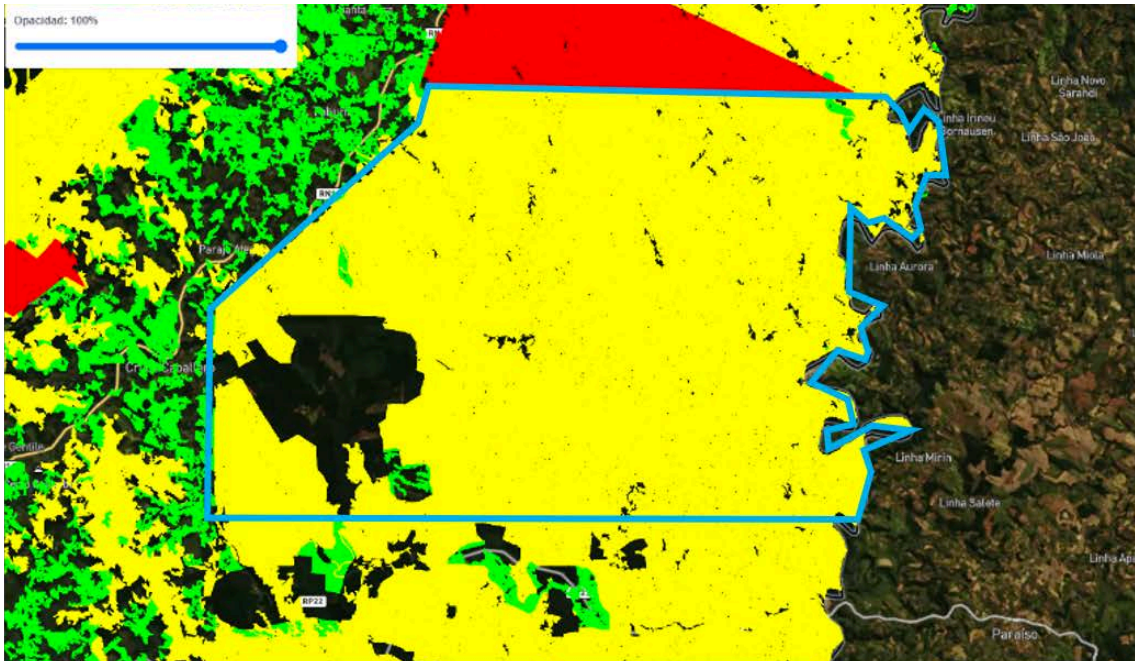


Figure 31: Project area territorial planning classification[62]. The project area is delimited by the blue line.

Outcome of Sub-step 1b: scenarios A and B are both plausible alternative land use scenarios to the IFM project activity that are in compliance with mandatory legislation and regulations in Argentina.

[62] https://www.crea.org.ar/mapalegal/otbn/misiones.

Sub-step 1c. Selection of the baseline scenario

As mentioned above, Scenarios A and B have no legal barriers that prevent them from happening. However, Scenario B is not plausible, as it is not financially possible to protect the land and develop activities to improve the forest quality without the revenues from carbon credits. Even if no enrichment or management activities are developed in the area, it is still not financially attractive to protect a land that will not generate revenue for the project proponent, who would benefit more from investing in other activities. In Step 2 of this additionality assessment, the financial analysis is better detailed.

In Scenario A, the company continues to profit from the remaining trees in the native forest. Although the revenue is lower than it could be if the area was in a good state of preservation, the company still profits from relogging activities in both strata, the native forest and the commercial forest. Therefore, this is the most plausible scenario to happen, as the company has no legal obligation to improve the quality of the forest and it could still exploit it.

Outcome of Sub-step 1c: Scenario A, continued forest degradation with relogging, is the baseline scenario.

STEP 2 – Investment Analysis

Sub-step 2a. Determine appropriate analysis method.

The project is an IFM activity that aims to stop the harvesting activities that have been going on in the project area for more than 40 years. The IFM project activity involves no commercial harvesting nor any other activity that could generate revenues. It is exclusively focused on the cessation of logging activities and the regeneration/conservation of the forest. Additionally, the project proponent has not applied to any private or public scheme that could contribute financially to implementing and maintaining the proposed project activity. Therefore, the project will not receive payment for environmental services, or any such activity since there is no framework in place for this at a national or provincial level. Being that the project activity involves enrichment planting and other management activities, the project requires financial investments, without generating any revenue, and is therefore not considered financially attractive or viable. So, in conclusion, the IFM project activity generates no financial or economic benefits other than carbon market-related income. In that case, the simple cost analysis (Option I) should be applied.

Sub-step 2b. – Option I. Apply simple cost analysis

The IFM project activities involve the cessation of logging activities and enrichment planting to regenerate the degraded forest. Additionally, security, management and patrolling activities are required for the purpose of conserving the forest and avoiding any new disturbances from natural or anthropic occurrences. The project also included activities involving the community and biodiversity components.

This generates an expected cash flow for the first 10 years of the project, as follows[63].

Scenario	Year	Total Costs	Total Revenues	Cash Flow
A	2021	572,747	272,172	-572,747
	2022	126,320	277,409	145,853

[63] More detailed cash flow, month by month, of Scenarios A and B are available to the VVB.

	2023	126,320	282,909	151,089
	2024	126,320	288,673	156,589
	2025	126,320	242,881	162,353
	2026	126,320	250,436	116,561
	2027	126,320	258,742	124,116
	2028	126,320	267,867	132,422
	2029	126,320	277,909	141,547
	2030	126,320	283,436	151,589
	2031	126,320	272,172	157,117
	Total	1,835,944	2,702,433	866,488
B	2021	-53.635	0	-53.635
	2022	-439.413	0	-439.413
	2023	-2.422.861	0	-2.422.861
	2024	-2.149.302	0	-2.149.302
	2025	-2.185.893	0	-2.185.893
	2026	-27.758.815	0	-27.758.815
	2027	-1.821.079	0	-1.821.079
	2028	-1.865.388	0	-1.865.388
	2029	-1.912.085	0	-1.912.085
	2030	-1.961.352	0	-1.961.352
	2031	-2.013.388	0	-2.013.388

	Total	-44.583.211	0	-44.583.211

The financial indicators of each Scenario are available below. Notice that the IRR of Scenario B could not be calculated, since this Scenario has no revenues, only costs.

Financial Indicator	Scenario A	Scenario B
IRR	24.1%	15%
NPV	$1,750,167	-$28,144,748

If it is concluded that the proposed IFM project activity produces no financial benefits other than carbon market-related income, then proceed to Step 4 (Common practice analysis).

STEP 4. Common practice analysis.

This step requires an analysis of the extent to which similar activities improving forest management have already diffused in the geographical area of the proposed IFM project activity. Until the date of the development of this PD, there is no documented evidence that other logging concessions/private area holders in Misiones have converted (any part of) their logging operations into active forest regeneration/conservation projects. Additionally, there are no registered projects with similar IFM activities in the VCS Standard (or any other standard), located in the Misiones province, or even Argentina.

Considering that there is no open-source database available, with information on such activities and similar projects, a historic analysis (10 years prior) of the forestry section in Misiones was done. Between the years of 2011 and 2019 (most recent data), the area of natural forests in the Misiones Province decreased from 1,728,084.03 ha to 1,657,721.42 ha[64], which represents a loss of 70,362.61 or 4.07%. Meanwhile, the area of commercial plantations increased from 192,557.27 ha to 268,148.82 ha, this represents a growth of 75.591,55 ha or 139,26%. This scenario clearly indicates a historic trend in the region, of prioritizing commercial forestry activities in detriment to the preservation of natural forests.

In order to exhaust all possibilities of investigating similar projects, an analysis was done regarding the main forestry companies present in Misiones, and their activities.

Forestal El Dorado

Forestal El Dorado is a forestry company that works with the following stages of forestry production: plantation and management, sawmill, drying, remanufacture and delivery. The company owns 1,500 of planted forests and claims to promote sustainable management practices of its commercial forests; however, their website does not indicate if they implement or manage any reserve for conservation purposes[65].

[64] Available at: https://plataforma.bosqueatlantico.mapbiomas.org/. Accessed on 30/09/2022.
[65] Available at: https://forestaleldorado.com.ar/rse/. Accessed on 10/10/2022.

Forestal Bosques del Plata S.A.

Forestal Bosques del Plata S.A.is based in Misiones and Corrientes and is involved in the production and commercialization of cellulose and a variety of cellulose-derived products, such as papers, cardboards, tissues, etc. The company has 57,000 ha of forest plantations and protects 7 high conservation value areas (AAVC – Áreas con Alto Valor de Conservación)[66]. However, unlike this project, the protected areas only correspond to 20% of the total land area owned by the company, being that just 4.3% are native forest and approximately 15% is pasture[67]. Therefore, despite the company's conservation effort, this activity is not similar to the proposed project activity, which consists of conserving more than 85% of the land under Florestal Belga ownership, mainly native forest.

LIPSIA S.A.

LIPSIA is a family forestry company that owns 5,000 ha of forest land in Misiones and operates in forestry production and energy generation. Currently, the company protects 14% of its lands, or approximately 700 ha[68]. Similarly, this conservation activity is not comparable to the proposed project activity, since it is implemented only in a small portion of the lands owned by the company, in opposition to the project activity. Besides this, LIPSIA does not detail the biome, or the ecosystems present in each of these conservation areas, which also makes it difficult to draw any parallels with the proposed project activity.

PINDÓ S.A.

PINDÓ is a forestry company that owns approximately 6,764 ha of forest land in Misiones and operates in forestry production and energy generation. Currently, the company protects 18% of its lands[69]. Similarly, this conservation activity is not comparable to the proposed project activity, since it is implemented only in a small portion of the lands owned by the company, in opposition to the project activity. PINDÓ also does not detail the biome or the ecosystems present in each of these conservation areas, which also makes it difficult to draw any parallels with the proposed project activity.

GMF Latinoamericana S.A.

GMF is a consulting firm specialized in sustainable forest management, designing, and operating sustainable forestry projects. San Francisco is a silvopastoral project, located in Misiones. It consists of implementing an integrated system, with cattle and eucalyptus, in an 84 hectares area[70]. Therefore, the scale and activities developed have no similarity to the IFM project.

Arauco Argentina S.A.

Arauco is one of the biggest forestry companies in Argentina. Their business encompasses different sectors, such as: forestry, cellulose, wood/timber, panels, and renewable energy. One of the axes of Araucos's sustainability governance involves identifying and protecting areas with high conservation values (AAVC – Áreas con Alto Valor de Conservación)[71]. Two of these areas are located in close proximity to the project area: Bosque Nativo Piray-San

[66] Available at: https://bosquesdelplata.com.ar/wp-content/uploads/2021/11/Plan-de-Manejo-BDP_resumen-publico_v1_2021.pdf. Accessed on 10/10/2022.
[67] Available at: https://bosquesdelplata.com.ar/comprometidos-con-la-naturaleza. Accessed on 10/10/2022.
[68] Available at: https://lipsia.com.ar/forestal/areas_de_conservacion/. Accessed on 10/10/2022.
[69] Available at: https://www.pindosa.com.ar/wp- content/uploads/2020/01/resumen_publico_plan_de_gestion_forestal_sostenible_pindo-sa.pdf . Accessed on 10/10/2022.
[70] Available at: https://gmfsa.com.ar/proyectos/san-francisco/. Accessed on 06/10/2022.
[71] Available at: https://www.arauco.cl/argentina/biodiversidad/areas-de-alto-valor/. Accessed on 06/10/2022.

Pedro (19.000 hectares) and Alegría stream valley (9.200 hectares). However, these are not comparable to the IFM project, considering that Arauco develops other activities that produce revenues, therefore facilitating the conservation activities.

Conclusion: no similar activity to the proposed project activity was identified in terms of location, scale and historical land use. No activity that converts or has converted a logged forest to a IFM forest, entirely for conservation purposes, was identified. Some forestry companies maintain conservation areas, though they only represent a small portion of the lands owned by such companies (maximum of 20%). Furthermore, it was not clear whether these conservation areas are maintained by such companies for reasons of compliance with legislation or not. In the case of the proposed project activity, there is no legal obligation of preserving the land and stopping the forestry activities. Therefore, the project activity is considered additional.

3.1.6 Methodology Deviations

According to VCS Standard 4.4, projects may deviate from the procedures set out in methodologies in certain cases, where alternative methods may be more efficient for project-specific circumstances, and where the deviation will achieve the same level of accuracy or is more conservative than what is set out in the methodology.

In VM0005, in order to estimate the baseline emissions related to relogging, the methodology equations require information about the timber volume extracted from each tree species in each strata in the project area.

However, we request a deviation in order to use only the timber volume annual values extracted (per tree species) in order to calculate the baseline emissions. Since we can calculate the weighted average wood density from the forest management plans, there is no need to associate each cubic meter of timber extracted with a certain stratum. The crucial factor is the quantity of carbon present in the trees to be harvested, irrespective of their specific strata of origin. Forestal Belga possesses the necessary permits to extract a defined quantity of trees from each species annually, without regard to their strata within the forest. This is especially true because, in order to have a more accurate result of the carbon stocks in the tree biomass at t=0, the area was stratified (for the forest inventories) in order to reduce the error in the carbon estimations, i.e., considering the forest physiognomy and not the forest management plans and permits. Having used the system of measuring species by species and tree by tree, provides much more precise information than that which would be obtained by strata, and provides strong evidence that allows us to be more conservative and accurate taking into account the characteristics of biodiversity and existing species in the forest. These differences by no means significantly impact the homogeneity within each of the project strata.

This is especially true because in order to have a more accurate result of the carbon stocks in the tree biomass at t=0, the area was stratified (for the forest inventories) in order to reduce the error in the carbon estimations, i.e., considering the forest physiognomy and not the forest management plans and permits.

This deviation fully complies with the VCS Standard 4.4 because:

- It represents a deviation from the criteria and procedures relating to monitoring or measurement set out in the methodology (i.e., deviations are permitted where they relate to data and parameters available at validation, data and parameters monitored, or the monitoring plan (section 3.19.1 of the VCS Standard 4.4).
- It does not impact the conservativeness of the quantification of GHG emission reductions or removals (section 3.19.2 of the VCS Standard 4.4).

Methodology deviations shall be permitted at validation or verification and their consequences shall be reported in the validation or verification report, as applicable, and all subsequent verification reports. Methodology deviations are not considered to be precedent setting (section 3.19.3 of the VCS Standard 4.4).

3.2 Quantification of GHG Emission Reductions and Removals

3.2.1 Baseline Emissions

The baseline scenario is characterized by emissions from relogging, which in the project scenario are absent. The volume of biomass that would have been removed from the project area over the lifetime of the project is determined by harvesting levels, defined in terms of cubic meters, as determined in advance, and reflected in the forest management plans for the project area.

Net CO_2 equivalent emissions in the baseline will be determined as:

$$\Delta C_{BSL} = \sum_{t=1}^{t^*} \sum_{i=1}^{M_{BSL}} \left(\Delta C_{REL,\,i,\,t} + \Delta C_{tree-exist,\,i,\,t} \right) + GHG_{BSL-E,\,t} \quad (2)$$

Where:

Parameter	Description	unit
ΔC_{BSL}	Net CO_2 equivalent emissions in the baseline scenario up to year t*	tCO_2-e
$\Delta C_{REL,\,i,\,t}$	Net carbon stock change due to relogging in the baseline scenario in stratum i at year t	tCO_2-e yr^{-1}
$\Delta C_{tree-exist,\,i,\,t}$	Net carbon stock change in existing tree vegetation in the baseline scenario in stratum i at year t	tCO_2-e yr^{-1}
$GHG_{BSL-E,\,t}$	Greenhouse gas emissions as a result of relogging within the project boundary in stratum i at year t	tCO_2-e yr^{-1}
i	1, 2, 3 …M_{BSL} strata in the baseline scenario	
t	1, 2, 3, … t^* years elapsed since the project start	

In this project, net carbon stock change in existing tree vegetation ($\Delta C_{tree-exist}$) in the baseline scenario is assumed to follow the rate proposed by Bedrij et. al (2022)[72], *Selective logging of a subtropical forest: Long-term impacts on*

[72] Bedrij et al. (2022) Selective logging of a subtropical forest: Long-term impacts on stand structure, timber volumes, and biomass stocks https://drive.google.com/file/d/16yMQuzFY6OojHOcubLFXjc0QF1SXd4_o/view?usp=drive_link, and Supplementary Tables

stand structure, timber volumes, and biomass stocks[73], published in *Forest Ecology and Management*—presents a 20-year longitudinal analysis of forest recovery following selective logging in the Atlantic Forest of Misiones, Argentina.

The study site is located approximately 100 km from the SPVN GS1 project area, within the same Upper Paraná Atlantic Forest ecoregion, and shares comparable characteristics in terms of forest type, species composition, topography, and logging history. The study included 16 permanent 1-hectare plots, monitored across three treatment types: Conventional Logging (CL), Reduced Impact Logging (RIL), and Control (unlogged forest). Forest structure and biomass were repeatedly measured over a 20-year post-harvest period, providing robust insights into long-term regrowth dynamics in selectively logged forests.

Specifically, Table S8 of the supplementary material reports[74] that the linear mixed-effects model for the Conventional Logging treatment yielded a mean annual bole volume increment of 1.22 m³/ha/year (95% CI: 0.82–1.62; $p < 0.001$). To convert this value into an estimate of aboveground carbon accumulation, the following conservative conversion factors were applied: a wood density of 0.70 t/m³, a biomass expansion factor (BEF) of 1.15, and a carbon fraction of 0.47. These result in an estimated mean annual carbon stock increment of 0.47 tC/ha/year in aboveground biomass.

This value was adopted as a proxy for regrowth in the residual forest under the baseline scenario of the SPVN GS1 project. It is methodologically justified, ecologically appropriate, and precise.

The emissions due to relogging in the baseline scenario are determined as:

$$\Delta C_{REL,i,t} = \left[A_{REL,i,t} \times \left(C_{harvest,i} + \left(C_{damage,i} - C_{DW,i,t}\right) - \left(C_{WP100,i} + C_{WP20,i,t}\right)\right) + \sum_{t-20}^{t}\left(A_{REL,i,t} \times C_{WP20,i,t} \times \frac{1}{20}\right) + \sum_{t-10}^{t}\left(A_{REL,i,t} \times C_{DW,i,t} \times \frac{1}{20}\right)\right] \times \frac{44}{12} \quad (3)$$

Where:

Parameter	Description	Unit
$\Delta C_{REL,i,t}$	Net carbon stock change due to relogging in the baseline scenario in stratum i at year t, in t CO_2e/year.	tCO2-e yr^{-1}
$A_{REL,i,t}$	Area relogged in baseline stratum i at year t, ha/year.	ha/yr
$C_{harvest,i}$	Carbon stock in harvested timber in stratum i, t C/ha.	tC/ha
$C_{damage,i}$	Carbon loss due to damage to the residual stand in stratum i, t C/ha.	tC/ha

https://docs.google.com/document/d/1__bDSPPaNCux7wyKljrZvha6B9nil4un/edit?usp=drive_link&ouid=108646281459258903691&rtpof=true&sd=true

[73] Bedrij et al. (2022) Selective logging of a subtropical forest: Long-term impacts on stand structure, timber volumes, and biomass stocks. https://drive.google.com/file/d/16yMQuzFY6OojHOcubLFXjc0QF1SXd4_o/view?usp=drive_link

[74] Bedrij et al. (2022) supplementary material https://docs.google.com/document/d/1__bDSPPaNCux7wyKljrZvha6B9nil4un/edit?usp=drive_link&ouid=108646281459258903691&rtpof=true&sd=true

$C_{DW,i,t}$	Post-relogging carbon stock in dead wood in the baseline scenario (stock emitted is quantified over 10 years with a linear decay function) in stratum i at year t	tC/ha
$C_{WP100,i,t}$	Post-relogging carbon stock stored in long-term wood products (stock remaining in wood products after 100 years) in the baseline scenario in stratum i, t C/ha.	tC/ha
$C_{WP20,i,t}$	Post-relogging carbon stock stored in short-term and medium-term wood products (stock emitted is quantified over 20 years with a linear decay function) in the baseline scenario in stratum i at year t, t C/ha.	tC/ha
i	1, 2, 3 …M_{BSL} strata in the baseline scenario.	
44/12	The ratio of molecular weight of carbon dioxide to carbon, in t CO_2e/ t C.	44/12

In this project, baseline carbon stock estimates for harvested wood ($C_{harvest,i}$), wood products, and collateral damage are derived from total extracted volume as recorded in historical forest management plans. In alignment with VM0005 guidance, collateral emissions due to logging damage (C_{damage}) and deadwood (C_{DW}) are also accounted for using peer-reviewed sources.

Therefore, for the calculation of $\Delta C_{REL,i,t}$, equation (3):

$$\Delta C_{REL,i,t} = \left(\begin{array}{l} A_{REL,i,t} \times \left(C_{harvest,i} + \left(C_{damage,i} - C_{DW,i,t} \right) - \left(C_{WP100,i} + C_{WP20,i,t} \right) \right) \\ + \sum_{t-20}^{t} \left(A_{REL,i,t} \times C_{WP20,i,t} \times \frac{1}{20} \right) + \sum_{t-10}^{t} \left(A_{REL,i,t} \times C_{DW,i,t} \times \frac{1}{10} \right) \end{array} \right) \times \frac{44}{12}$$

The relogged area ($A_{REL,i,t}$) was estimated as one fifteenth of the total project area subject to harvesting (22,298.9 ha), based on the baseline management plan which established a 15-year logging rotation. This results in an annual relogging area of 1,486.6 ha, reflecting the portion harvested each year under the assumed rotation cycle.

Carbon Stock in Harvested and Damaged Wood

$$C_{harvest,i} = \sum_{j=1}^{S} \left(V_{harvest,i,j} \times D_j \times CF \right) \quad (4)$$

Where:

Parameter	Description	Unit

$C_{harvest,i}$	Carbon stock in harvested timber in stratum i, t C/ha.	tC/ha
$V_{harvest,i,j}$	Volume of timber harvested in the baseline scenario of species j in stratum i, m³/ha/year	$m^3ha^{-1}yr^{-1}$
D_j	Basic density of the harvested wood of species j, t d.m. M³	t $dm.m^{-3}$
CF	Carbon fraction of dry matter, t d.m-1.	0.47
i	1, 2, 3 …M_{BSL} strata in the baseline scenario.	
j	1, 2, 3 … S tree species.	

$C_{harvest,I}$ calculation in based on the total annual volume of timber harvested ($V_{harvest,i,j}$) contained in the forest management plan.

Wood density (D_j) is based on the weighted average of the annual volumes of tree species harvested. The specific wood densities are in Appendix 4: Wood density of timber species extracted in the baseline scenario:

Therefore,

$D_j = 0.71$

$$C_{damage,i} = C_{harvest,i} \times f_{damage} \quad (5)$$

Where:

Parameter	Description	Unit
$C_{damage,i}$	Loss of carbon due to damage to the residual stand in the baseline scenario, in stratum i	t C ha-1
$C_{harvest,i}$	Carbon stocks in harvested timber in the baseline scenario in stratum i	t C ha-1
f_{damage}	Factor for damage to the residual stand caused by relogging	
i	1, 2, 3 … MBSL strata in the baseline scenario	

In this project, baseline carbon stock estimates for harvested wood ($C_{harvest,i}$), wood products, and collateral damage are derived from total extracted volume as recorded in historical forest management plans. In alignment with VM0005 guidance, collateral emissions due to logging damage (C_{damage}) and deadwood (C_{DW}) are also accounted for using peer-reviewed sources.

Use of Peer-Reviewed Literature for f_{damage} Determination:

In accordance with VM0005 v1.2, Section 9.1.2, the damage factor (f_{damage}) may be derived from peer-reviewed literature, provided the source is demonstrably representative of the project area. For the SPVN project, f_{damage} is estimated based on quantitative field data published in peer-reviewed scientific literature by Pearson et al. (2014), which reports carbon losses associated with logging damage in a selectively logged forest in Bolivia.

A detailed technical comparison—provided in the *Comparative Technical Report for Factor Damage – Pearson et al. (2014)*[75]—confirms that the forest structure, biomass levels, dominant species families, and historical logging practices in the SPVN area are highly comparable to those of the Bolivian site. Furthermore, the SPVN baseline scenario reflects conventional logging activities with fewer control measures than the Reduced Impact Logging (RIL) employed in the Bolivian reference site, reinforcing the conservative nature of the adopted factor.

The damage factor was converted from volume-based units (1.23 Mg C/m³) to the required carbon-based metric (tC $_{damage}$ per tC $_{extracted}$), following the equation specified in the methodology. The resulting value, f_{damage} = 3.71, is fully traceable, conservative, and its derivation complies with the peer-reviewed literature pathway explicitly permitted by VM0005.

This value is considered appropriate for application in the SPVN project given the strong ecological and operational alignment with the conditions described by Pearson et al. (2014)[76]. Both sites are located within evergreen forest, characterized by high biomass, stratified canopy structures, and similar physiognomic complexity. While the specific species composition varies, the dominant tree families and average wood density values are comparable; in fact, SPVN exhibits a higher average wood density (0.70 t/m³) than the Bolivian reference site (0.59 t/m³), making the use of the adopted factor conservative. Furthermore, the logging practices assumed in the SPVN baseline reflect conventional selective harvesting, typically associated with greater residual stand damage than the Reduced Impact Logging (RIL) practices applied in the Bolivian case. These factors, together with the methodological rigor of the Pearson et al. study and its peer-reviewed status, provide strong justification for the use of the selected f_{damage} value and confirm its appropriateness for characterizing logging-related carbon losses in the project area.

To express f_{damage} in the required unit of tC per tC extracted (rather than per m³), we calculated:

$$LDF\ (MgC/m^3) \times 1/D_j\ (t/m^3) \times 1/CF\ (tC/t\ biomass) = f_{damage}\ (tC_{damage} / tC_{extracted})$$

Where:
D_j: Basic wood density for species j
CF:Carbon fraction of dry matter

Therefore:

[75] Comparative Technical Report for factor damage - *Pearson et al 2014*
https://drive.google.com/file/d/17VPJw6PlS0MpjH50YvBR0mGvIMWXZFsG/view?usp=drive_link
[76] Pearson et al 2014 - Carbon emissions from tropical forest degradation caused by logging
https://drive.google.com/file/d/1MsGKzs5Hl86OfrUMV1x9x0Tq-PynD_r7/view?usp=sharing

f_{damage} (tC/tC) = (1.23 tC/m³) × (1 / 0.71 t/m³) × (1 / 0.47 tC/t biomass) ≈ 3.71 tC_{damage} / $tC_{extracted}$

Use of Peer-Reviewed Literature for C_{DW} (Post-Relogging Carbon Stock in Dead Wood in the Baseline Scenario) Determination

For the estimation of C_{DW} (dead wood carbon stock after re-logging in the baseline scenario), values were derived from Winrock International's synthesis report *Carbon Impacts from Selective Logging*[77]. Specifically, Table 6 of the report presents an average of 1.92 Mg C/m³ for dead biomass generated per cubic meter of timber removed, including both felled-tree residues and collateral damage.

This factor was applied to the projected extracted volume for the baseline scenario, resulting in an estimated 1.20 tC/ha. The use of this literature-based parameter ensures methodological consistency and incorporates a conservative approach by referencing a widely recognized, peer-reviewed source with robust empirical underpinnings.

Harvested Wood Products

Step 1: Estimate the biomass carbon of the volume extracted by wood product type ty at year t from within the project boundary:

$$C_{XB,ty,i,t} = \frac{1}{A_i} \times \sum_{j=1}^{S} \left(V_{ex,ty,j,i,t} \times D_j \times CF \right) \quad (6)$$

Where:

Parameter	Description	Unit
$C_{XB,ty,i,t}$	Mean stock of extracted biomass carbon by class of wood product ty from stratum i at year t, t C/ha.	tC/ha
A_i	Total area of stratum i, ha.	ha
$V_{ex,ty,j,i,t}$	Volume of timber extracted from within stratum i (does not include slash left onsite) by species j and wood product class ty at year t, m³.	m^3
D_j	Mean wood density of species j, t d.m.m-3.	$td.m.m^3$
CF	Carbon fraction of biomass, t C t-1 d.m.	0.47
t	1, 2, 3, … t* years elapsed since the project started.	

[77] Winrock_Carbon Impacts from Selective Logging. Table 6
https://drive.google.com/file/d/1O81Kn0bBj1hYVkSj77M3rqlTVN7l5but/view?usp=drive_link

j	1, 2, 3 … S tree species.	

Volume of extracted timber used in the estimations are related to total volume extracted annually. Wood density (D_j) is based on the weighted average tree density of the annual volumes of tree species harvested.

Wood product class is sawn wood. Total area of stratum i is related to the total project area.

Since all timber is extracted for sawn wood, $C_{harvest} = C_{XB.}$

Table shows the C_{xb} results for the first 30 crediting years:

Table 6 Carbon stocks in harvested wood products for the first 30 crediting years in the baseline scenario.

Annual Extraction volume			
Year	C_{XB} (tC)	$C_{harvest}$ (tC)	$V_{harvest}$ (m3)
2022	25,192	25,192	75,417
2023	26,452	26,452	79,187
2024	27,774	27,774	83,147
2025	29,163	29,163	87,304
2026	18,150	18,150	54,335
2027	19,965	19,965	59,768
2028	21,961	21,961	65,745
2029	24,157	24,157	72,320
2030	26,573	26,573	79,552
2031	27,711	27,711	82,958
2032	27,711	27,711	82,958
2033	27,711	27,711	82,958
2034	27,711	27,711	82,958
2035	27,711	27,711	82,958
2036	27,711	27,711	82,958
2037	27,711	27,711	82,958
2038	27,711	27,711	82,958
2039	27,711	27,711	82,958
2040	27,711	27,711	82,958
2041	30,482	30,482	91,254
2042	30,482	30,482	91,254
2043	30,482	30,482	91,254
2044	30,482	30,482	91,254
2045	30,482	30,482	91,254
2046	30,482	30,482	91,254
2047	30,482	30,482	91,254

2048	30,482	30,482	91,254
2049	30,482	30,482	91,254
2050	30,482	30,482	91,254
2051	30,482	30,482	91,254

Step 2: Estimate the proportion of biomass carbon extracted at year t that remains sequestered in long-term wood products after 100 years and estimate the proportion of biomass carbon extracted at year t that is expected to be emitted from short-term and medium-term wood products over 20 years with a linear decay function.

$$C_{WP100,i,t} = \sum_{s,w,oir,p,o}^{ty} C_{XB,ty,i,t} \times \left(1 - ww_{ty}\right) - C_{WP20,i,t} \quad (7a)$$

$$C_{WP20,i,t} = \sum_{s,w,oir,p,o}^{ty} \left(\left(C_{XB,ty,i,t} \times slp_{ty}\right) + \left(C_{XB,ty,i,t} \times \left(1 - slp_{ty}\right) \times fo_{ty}\right)\right) \quad (7b)$$

Where:

Parameter	Description	Unit
$C_{WP100,i,t}$	Carbon stock in long-term wood products pool (stock remaining in wood products after 100 years) in stratum i at year t, t C/ha.	tC/ha
$C_{WP20,i,t}$	Post-relogging carbon stock in short-term and medium-term wood products pool (stock emitted is quantified over 20 years with a linear decay function) in the baseline scenario in stratum i at year t, t C/ha.	tC/ha
$C_{XB,ty,i,t}$	Mean stock of extracted biomass carbon by class of wood product ty from stratum i at year t, t C/ha.	tC/ha
ww_{ty}	Wood waste fraction. The fraction immediately emitted through mill inefficiency.	
slp_{ty}	Fraction of wood products that will be emitted to the atmosphere within 5 years of timber harvest.	
fo_{ty}	Fraction of wood products that will be emitted to the atmosphere between 5 and 100 years of timber harvest.	
ty	Wood product class – defined here as sawn wood, wood-based panels, other industrial roundwood, paper and paper board, and other.	

i	1, 2, 3, … M_{BSL} strata in the baseline scenario.	

t: 1, 2, 3, … t* years elapsed since the project started.

For this calculation, the following parameters are used:

ww_{ty}: 0.24 (default value for developing countries).

slp_{ty}: 0.20 (sawn wood)

fo_{ty}: 0.84 (sawn wood)

ty: the wood product class is sawn wood.

Logging rate

VM0005 states that where a management plan exists outlining the phasing of logging activities for either the project area, or the reference area, that management plan may be used.

In this case, the approved Forest Management Plan does not state a logging rate, but the volume of timber that would be extracted each year. Thus, the annual timber volumes that would be extracted are used as a proxy for the estimation of the baseline net carbon loss for the entire project area.

Table 7: Planned logging volume (m^3) for the entire project area in the baseline scenario up to year 2051.

Year	m^3	Year	m^3
2022	75,417	2037	82,958
2023	79,187	2038	82,958
2024	83,147	2039	82,958
2025	87,304	2040	82,958
2026	54,335	2041	91,254
2027	59,768	2042	91,254
2028	65,745	2043	91,254
2029	72,320	2044	91,254
2030	79,552	2045	91,254
2031	82,958	2046	91,254

2032	82,958	2047	91,254
2033	82,958	2048	91,254
2034	82,958	2049	91,254
2035	82,958	2050	91,254
2036	82,958	2051	91,254

Therefore, carbon stock changes due to relogging in the baseline are shown in Table 8.

Table 8: Net carbon stock changes (tCO2) due to relogging in the baseline scenario during the first 30 crediting years

Year	C_{XB} (tC)	$C_{harvest}$ (tC)	$V_{harvest}$ (m3)	C_{WP100} (tC)	C_{WP20} (tC)	$\Delta C_{REL,i,t}$ (tCO_2)
2022	25,191.92	25,191.92	75,416.61	-2,821.49	21,967.35	363,312
2023	26,451.51	26,451.51	79,187.44	-2,962.57	23,065.72	386,468
2024	27,774.09	27,774.09	83,146.81	-3,110.70	24,219.00	410,750
2025	29,162.79	29,162.79	87,304.15	-3,266.23	25,429.95	436,212
2026	18,149.86	18,149.86	54,334.92	-2,032.78	15,826.68	280,098
2027	19,964.84	19,964.84	59,768.41	-2,236.06	17,409.34	310,270
2028	21,961.33	21,961.33	65,745.25	-2,459.67	19,150.28	343,393
2029	24,157.46	24,157.46	72,319.77	-2,705.64	21,065.31	379,762
2030	26,573.21	26,573.21	79,551.75	-2,976.20	23,171.84	419,702
2031	27,711.11	27,711.11	82,958.27	-3,103.64	24,164.09	441,295
2032	27,711.11	27,711.11	82,958.27	-3,103.64	24,164.09	445,725
2033	27,711.11	27,711.11	82,958.27	-3,103.64	24,164.09	450,155
2034	27,711.11	27,711.11	82,958.27	-3,103.64	24,164.09	454,585
2035	27,711.11	27,711.11	82,958.27	-3,103.64	24,164.09	459,015
2036	27,711.11	27,711.11	82,958.27	-3,103.64	24,164.09	463,445
2037	27,711.11	27,711.11	82,958.27	-3,103.64	24,164.09	467,875
2038	27,711.11	27,711.11	82,958.27	-3,103.64	24,164.09	472,306
2039	27,711.11	27,711.11	82,958.27	-3,103.64	24,164.09	476,736
2040	27,711.11	27,711.11	82,958.27	-3,103.64	24,164.09	481,166
2041	30,482.22	30,482.22	91,254.09	-3,414.01	26,580.49	526,218
2042	30,482.22	30,482.22	91,254.09	-3,414.01	26,580.49	527,064
2043	30,482.22	30,482.22	91,254.09	-3,414.01	26,580.49	527,708
2044	30,482.22	30,482.22	91,254.09	-3,414.01	26,580.49	528,141
2045	30,482.22	30,482.22	91,254.09	-3,414.01	26,580.49	528,352

2046	30,482.22	30,482.22	91,254.09	-3,414.01	26,580.49	530,324
2047	30,482.22	30,482.22	91,254.09	-3,414.01	26,580.49	532,005
2048	30,482.22	30,482.22	91,254.09	-3,414.01	26,580.49	533,367
2049	30,482.22	30,482.22	91,254.09	-3,414.01	26,580.49	534,378
2050	30,482.22	30,482.22	91,254.09	-3,414.01	26,580.49	535,003
2051	30,482.22	30,482.22	91,254.09	-3,414.01	26,580.49	535,446

Logging rate

To estimate the baseline net carbon loss for the entire project area, the total carbon loss in relogged strata under the baseline scenario is calculated by multiplying the total project area by the logging fraction, which represents the rate at which logging would have occurred annually in the absence of the project. In this case, the logging fraction is derived directly from the official forest management plan, which establishes a 15-year cutting cycle, resulting in an annual logging rate of 0.0667 (i.e., 1/15)[78]. This approach ensures that the estimation of logged area reflects a realistic and project-specific logging schedule. When a forest management plan exists, as is the case here, it provides the most accurate and conservative basis for determining the spatial and temporal distribution of baseline logging activities.

$$A_{i,t} = D\%_{i,t} \times A_{TOT,i} \qquad (17)$$

Where:

Parameter	Description	Unit
$A_{i,t}$	Area logged in stratum i at year t	ha
$D\%_{i,t}$	Projected annual proportion of land that will be logged in stratum i at year t.	% yr^{-1}
$A_{TOT,i}$	Total area logged in stratum i	ha
i	1, 2, 3 …MBSL strata in the baseline scenario	
t	1, 2, 3, … t* years elapsed since the project start	

Therefore:

[78] Forestal Belga SA Forest Management Plan
https://drive.google.com/file/d/1UpL488PrXUTliCHur1kbiWp-Gh2QBb0M/view?usp=sharing

$A_{i,t}$	$D\%_{i,t}$	$A_{TOT,i}$
1,486.6	6.67 %	22,298.8

Forest regrowth

Due to harvesting activities and disturbances associated with selective logging in the project area since at least 1967, when Forestal Belga commenced its extraction operations, bamboos, climbers, and vines have constituted a significant portion of the total biomass. Bamboo carbon stocks represent 26% of the total carbon in the project area, a proportion considerably higher than in other preserved forests within the region. It is widely acknowledged that bamboos, climbers, and vines significantly impede or slow down forest regrowth long after logging activities have ceased[79],[80]. Given that logging would occur under the baseline scenario, it is most conservative to assume that no net forest regrowth will occur in the baseline scenario; in other words, the forest would continue to lose carbon in this scenario.

Desk analyses based on empirical observations and inventory data have been conducted by recognized forestry engineers such as Heinrich Burschel and Federico Russo, both members of the Fotosíntesis technical team. They infer that the development of a forest and its carbon accumulation are influenced by its growth dynamics and the levels of extraction and associated degradation. In the case of a forest under selective logging management, as has been practised for many decades throughout the Misiones forest region, carbon accumulation is evidently negative. Specifically, growth occurring between logging periods is centered on pioneer species, such as Fumo Bravo, which exhibit high initial growth rates but have very limited potential for further development. Additionally, growth includes bamboo species, which are non-woody, highly invasive grasses. Consequently, they conclude that the SPVN project forest, having been subjected to selective logging, does not achieve carbon sequestration levels exceeding the losses caused by extraction and associated damage. The degradation is gradual with a “progressive loss of stock” [81],[82]

This can be demonstrated by examining carbon stocks in the aboveground biomass of other forests in the Misiones region[83]. The carbon content in the biomass of the project area (Nideport – logged at least from 1967 to 2021) is 50.24% lower than that in a preserved native forest, such as the Iguazú National Park Forest, which experienced extractive management until 1934 and has undergone 86 years of recovery. In contrast, the SPVN forest's carbon stock corresponds to 62.19% of that in the Puerto Península National Park Forest, which was logged from 1949 to 1998 and is considered degraded, with 22 years of recovery. (Figure 32). This evidence demonstrates that growth is negligible because extraction and its associated activities result in a greater loss of biomass than the forest can accumulate. Harvesting not only extracts wood but also destroys the forest in the search for logs [(74)].

The logged-over forest in the project area is unlikely to revert to normal regrowth patterns due to the presence of vines and climbers, including climbing bamboos, resulting from high-intensity logging operations in the past. In this

[79] https://www.sciencedirect.com/science/article/abs/pii/S0378112723001287
[80] https://www.sciencedirect.com/science/article/abs/pii/S0378112721000505
[81] https://pdf.usaid.gov/pdf_docs/Pnade434.pdf
[82] https://www.sciencedirect.com/science/article/abs/pii/S0378112723001287
[83] *Diaz Villa et al 2021. Primary Productivity Determinants of Different Land Uses in Humid Subtropical Ecosystems: From Native Forests to Tree Plantation. Ecosystems. 24:489-501*

context, the project proponent adopts regrowth rates of tree biomass before and following relogging in the baseline from peer-reviewed literature sources.

In summary, a degraded forest reflects its carbon sequestration capacity, which is evident both in the baseline scenario and in the project scenario. In the baseline scenario, empirical evidence and literature demonstrate that extraction practices and associated activities (such as the creation of gaps, trails, and forest roads) lead to degradation and biomass loss that surpass the forest's capacity for carbon capture. In other words, net carbon sequestration remains negative, resulting in a systematic reduction in forest biomass year after year and logging after logging. While, in the project scenario, where extraction practices and associated activities have been ceased, the forest's growth results in a net gain in carbon sequestration.

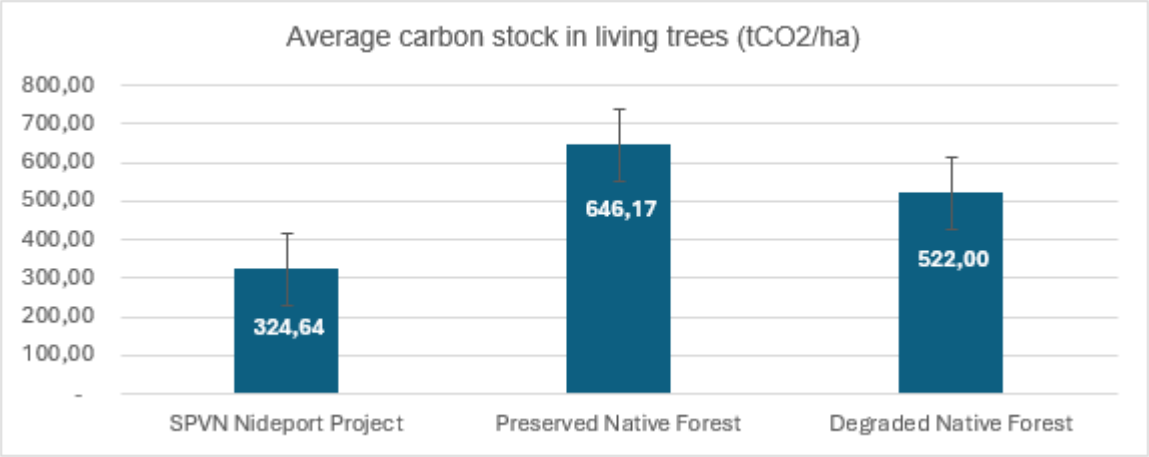


Figure 32: Average carbon stocks in evergreen forests located in Misiones, Argentina.

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However, when accounting for regrowth, ex-ante estimates of tree biomass regrowth in the baseline are based on peer-reviewed literature that provides regrowth values for comparable residual forest types in comparable areas.

Therefore, the value for the parameter 'Change in carbon stock in existing tree vegetation in the baseline in stratum *i* at year *t* ($\Delta C_{tree\text{-}exist,i,t}$)' is derived from the literature by Bedrij et al. (2022).[84]

$$\Delta C_{tree-exist,i,t} = A_{i,t} \times \sum_{j=1}^{S} \Delta C_{tree-exist,j,i,t} \quad (19)$$

Where:

[84] Selective logging of a subtropical forest: Long-term impacts on stand structure, timber volumes, and biomass stocks https://drive.google.com/file/d/16yMQuzFY6OojHOcubLFXjc0QF1SXd4_o/view?usp=drive_link, and Supplementary Tables https://docs.google.com/document/d/1__bDSPPaNCux7wyKljrZvha6B9nil4un/edit?usp=drive_link&ouid=108646281459258903691&rtpof=true&sd=true

Parameter	Description	Unit
$\Delta C_{tree-exist,i,t}$	Change in carbon stock in existing tree vegetation in the baseline in stratum i at year t	t CO2-e yr-1
Ai,t	Area of baseline stratum i at year t	ha
$\Delta C_{tree-exist,j,i,t}$	Change in carbon stock in existing tree vegetation in the baseline in species j in stratum i at year t	t CO2-e ha-1 yr-1
j	1, 2, 3 … S tree species	
i	1, 2, 3 … MBSL strata in the baseline scenario	
t	1, 2, 3, … t* years elapsed since the project start	

Therefore, change in carbon stock in existing tree vegetation in the baseline in stratum i at year t

Year	$\Delta C_{tree-exist,i,t}$	Ai,t	$\Delta C_{tree-exist,j,i,t}$
2022	3,062.36	1,486.6	2.06

$\Delta C_{tree-exist,j,i,t}$ is estimated as follows:

$$\Delta C_{tree-exist,j,i,t} = \Delta C_{tree-exist-AB,j,i,t} + \Delta C_{tree-exist-BB,j,i,t} \quad (20)$$

Where:

Parameter	Description	Unit
$\Delta C_{tree-exist,j,i,t}$	Change in carbon stock in existing tree vegetation in the baseline in species j in stratum i at year t	tCO2-e ha-1 yr-1
$\Delta C_{tree-exist-AB,j,i,t}$	Change in above-ground carbon stock in trees in the baseline in species j in stratum i at year t	tCO2-e ha-1 yr-1
$\Delta C_{tree-exist-BB,j,i,t}$	Change in below-ground carbon stock in trees in the baseline in species j in stratum i at year t	tCO2-e ha-1 yr-1

j	1, 2, 3 … S tree species	
i	1, 2, 3 … MBSL strata in the baseline scenario	
t	1, 2, 3, … t* years elapsed since the project start	

Therefore, change in carbon stock in existing tree vegetation in the baseline in species j in stratum i at year t

Year	$\Delta C_{tree\text{-}exist,j,i,t}$	$\Delta C_{tree\text{-}exist\text{-}AB,j,i,t}$	$\Delta C_{tree\text{-}exist\text{-}BB,j,i,t}$
2022	2.06	1.72	0.34

Baseline Activity Emissions

The emissions associated with activities in the baseline are estimated as:

$$GHG_{BSL\text{-}E,t} = E_{clearing,t} + E_{harvesting,t} + E_{extraction,t} + E_{transport,t} \quad (21)$$

Where:

Parameter	Description	Unit
$GHG_{BSL\text{-}E,t}$	Baseline emissions from sources in the baseline scenario at year t	t CO_2-e yr^{-1}
$E_{clearing,t}$	Emissions due to the new establishment of infrastructure such as the construction of roads or log landings for baseline logging at year t	t CO_2-e yr^{-1}
$E_{harvesting,t}$	Emissions due to the harvesting operations such as felling and debranching, etc. at year t	t CO_2-e yr^{-1}
$E_{extraction,t}$	Extraction of logs from the tree stump to the log landing at year t	t CO2-e yr^{-1}
$E_{transport,t}$	Emissions due to transport of the logs from the log landing to the wharf for export, the sawmill, or to the depot for onward sale at year t	t CO_2-e yr^{-1}

t	1, 2, 3, … t* years elapsed since the project start	

Eclearing,t: Emissions due to clearing of the area for infrastructure establishment

Emissions due to the establishment of infrastructure such as the construction of roads and log landings is estimated by considering the emissions due to the removal of biomass, the emissions from the equipment used to remove the biomass and the emissions from the equipment used to grade the roads (fuel emissions).

$$E_{clearing,t} = E_{biomass,t} + E_{felling,t} + E_{grading,t} \quad (22)$$

Where:

Parameter	Description	Unit
$E_{clearing,t}$	Emissions due to the establishment of infrastructure at year t	t CO_2-e yr^{-1}
$E_{biomass,t}$	Emissions due to the removal of the biomass itself at year t	t CO_2-e yr^{-1}
$E_{felling,t}$	Emissions due to the equipment use for felling the biomass (fuel emissions) at year t	t CO_2-e yr^{-1}
$E_{grading,t}$	Emissions due to the equipment used for the grading of the roads (fuel emissions) at year t	t CO_2-e yr^{-1}

Therefore:

$E_{clearing,t}$	$E_{biomass,t}$	$E_{felling,t}$	$E_{grading,t}$
60,588.13	60,478.89	82,75	26,49

As proposed by the methodology, to determine emissions resulting from the removal of biomass in areas where infrastructure will be established, it is necessary to estimate the extent of land affected. This can be achieved by applying a standard percentage that reflects typical land use patterns in the region. Such percentage values must be

sourced either from peer-reviewed literature relevant to the project area, or alternatively, from Pulkki (1997), who reported a conservative estimate of 12% of area cleared for infrastructure under conventional logging practices in evergreen tropical rainforests.[85]

Emissions due to the loss of biomass from felling is quantified as follows:

$$E_{biomass,t} = C_{biomass} \times A_{infrastructure,t} \times (44/12) \quad (23)$$

Where:

Parameter	Description	Unit
$E_{biomass,t}$	Emissions due to the removal of the biomass itself at year t	t CO_2-e yr^{-1}
$C_{biomass}$	Carbon in biomass lost due to the clearing for infrastructure	t C har^{-1}
$A_{infrastructure,t}$	Area designated for infrastructure at year t	ha yr^{-1}
44/12	The ratio of molecular weight of carbon dioxide to carbon	t CO_2-e t C^{-1}

Therefore:

$E_{biomass,t}$	$C_{biomass}$	$A_{infrastructure,t}$
60,478.9	92.5	178.4

To estimate the area affected by infrastructure development ($A_{infrastructure}$) associated with logging operations, Equation 23 was applied using a combination of literature-based assumptions and project-specific data. The *percent of area cleared* was set at 12%, as proposed by Pulkki (1997) for conventional logging in evergreen tropical rainforests. This value reflects a conservative estimate of the proportion of harvested area typically converted to roads, skid trails, and other infrastructure. The *logging fraction* was derived from the management plan, which establishes a 15-year rotation cycle, resulting in an annual logging fraction of 0.07 (i.e., 1/15). The total project area under relogging was determined to be 1,486.6 ha, within a total project area of 22,298.76 ha. Applying these parameters yields an

[85] Pulkki, R.E. (1997). Literature synthesis on logging impacts in moist tropical forests. FAO Working Paper GFSS/WP/06. Here a range of 12-17% is reported and hence for the baseline scenario a value of 12% is considered conservative. https://drive.google.com/file/d/1q9wD268EhU9uAc6tqBgGs9ps7Sm1I9tL/view?usp=drive_link

estimated infrastructure area of 178.39 ha, which is used to calculate biomass removal due to infrastructure establishment.

Emissions due to the use of equipment for the removal of biomass are quantified as follows:

$$E_{felling,t} = FC_{equip} \times EF_{fuel} \times V_{infrastructure,t} \quad (24)$$

Where:

Parameter	Description	Unit
$E_{felling,t}$	Emissions due to the use of equipment for removal of the biomass on the area dedicated to infrastructure at year t	t CO_2-e yr^{-1}
FC_{equip}	Fuel consumption of equipment employed for felling	KL m^{-3}
EF_{fuel}	Fuel emission factor	t CO2-e kL^{-1}
$V_{infrastructure,t}$	Volume of trees felled to clear the area designated for infrastructure at year t	m^3 yr^{-1}

Therefore:

$E_{felling,t}$	FC_{equip}	EF_{fuel}	$V_{infrastructure,t}$
82.75	0.00173	2.90	16,494.2

The following parameters values are considered:

FC_{equip} = 1.73 kL m^{-3}

As proposed by the methodology, in the absence of specific fuel consumption data, a default fuel consumption (FC) value of 1.73 liters per cubic meter must be used when logging operations are assumed to be carried out with old and inefficient machinery. This conservative default reflects typical diesel use in conventional logging systems under such conditions and ensures consistency with the methodological requirements for estimating baseline emissions.

EF_{fuel} = 2.9 t CO_2-e kL^{-1}

$E_{grading,t}$: emissions due to the use of equipment for the grading of the roads

Emissions due to the use of equipment for grading roads are quantified as follows:

$$E_{grading,t} = FC_{grader} \times EF_{fuel} \times A_{infrastructure,t} \quad (25)$$

Where:

Parameter	Description	Unit
$E_{grading,t}$	Emissions due to road grading at year t	t CO_2-e yr^{-1}
FC_{grader}	Fuel consumption of equipment employed for road grading	KL m^{-3}
EF_{fuel}	Fuel emission factor	t CO2-e kL^{-1}
$A_{infrastructure,t}$	Area designated for infrastructure at year t	ha yr^{-1}

The fuel consumption factor for road grading equipment (FC_{grader}) applied in this calculation is based on the default value specified in VM0005 v1.2 for old and inefficient machinery, set at 1.73 liters of fuel per cubic meter of harvested timber. This default factor was multiplied by the total harvested volume in the baseline scenario (75,417 m³) and divided by the harvested area (1,486.6 ha), yielding a value of 51.20 liters per hectare. This parameter is subsequently used in the relevant VM0005 equations to estimate fossil fuel emissions from road grading activities in the baseline scenario.

Therefore:

$E_{grading,t}$	FC_{grader}	EF_{fuel}	$A_{infrastructure,t}$
26.49	0.051	2.90	178.4

Emissions due to the extraction of logs from the forest are estimated as:

$$E_{harvesting,t} = FC_{equip} \times EF_{fuel} \times V_{harvest,t} \quad (26)$$

Where:

Parameter	Description	Unit
$E_{harvesting,t}$	Emissions due to harvesting at year t	t CO_2-e yr^{-1}
FC_{equip}	Fuel consumption of the equipment employed for harvesting	kL m^{-3}
EF_{fuel}	Fuel emission factor	t CO_2-e kL^{-1}
$V_{harvested,t}$	Volume harvested at year t	m^{-3} yr^{-1}

Emissions from log extraction and transport to log landing are estimated as:

$$E_{extraction,t} = \left(\frac{D_{extr_{total}}}{Eff_{fuel}}\right) \times EF_{fuel}$$	(27)
$$D_{extr_{total}} = D_{aver\ extrac} \times N_{trucks} \times 2$$	(28)
$$N_{trucks} = \frac{V_{extr}}{Cap_{truck}}$$	(29)

The following parameters values are considered:

FC_{equip} = 1.73 kL m^{-3}

EF_{fuel} = 2.9 t CO_2-e kL^{-1}

Eff_{fuel} = 3,000 km kL^{-1}

Cap_{truck} = 10 m^3 $truck^{-1}$

Where:

Parameter	Description	Unit
$E_{extraction,t}$	Emissions due to extraction of timber from the forest to the log landings at year t	t CO_2-e yr^{-1}
D_{extr_total}	Total timber extraction distance	km
Ef_{ffuel}	Fuel efficiency for medium-sized bulldozers/trucks/trailers	km kL^{-1}
EF_{fuel}	Fuel emission factor	t CO_2-e kL^{-1}
$D_{aver\ extrac}$	Average extraction distance of logs from stump to log landing	km

N_{trucks}	Number of trucks	
V_{extr}	Volume of timber extracted from the forest	m^3
Cap_{truck}	Capacity of the truck	m^3 $truck^{-1}$

Emissions from log extraction and transport to log landing are estimated as:

$$E_{transport,t} = \left(\frac{D_{trans_{total}}}{Eff_{fuel}}\right) \times EF_{fuel} \quad (30)$$

$$D_{trans_{total}} = D_{aver\ extrac} \times N_{trucks} \times 2 \quad (31)$$

$$N_{trucks} = \frac{V_{trans}}{Cap_{truck}} \quad (32)$$

Where:

Parameter	Description	Unit
$E_{transport,t}$	Emissions due to the transport of the timber from the log landings to point of onward sale/transport at year t	t CO_2-e yr^{-1}
D_{trans_total}	Total timber transport distance	km
Ef_{ffuel}	Fuel efficiency for medium-sized bulldozers/trucks/trailer	km kL^{-1}
EF_{fuel}	Fuel emission factor	t CO_2-e kL^{-1}
$D_{aver\ trans}$	Average transport distance of logs log landing to point of onward sale/transport	km
N_{trucks}	Number of trucks	
V_{trans}	Volume of timber transported	m^{-3}
Cap_{truck}	Capacity of the truck	m^3 $truck^{-1}$

Figure 33: BSL activity emissions.

YEAR	Timber (m3)	$GHG_{BSL-E,t}$	N_{trucks}	D_{trans_total}	$E_{transport,t}$	N_{trucks}	D_{extr_total}	$E_{extraction,t}$	$E_{harvesting,t}$	$E_{clearing,t}$

2022	75,417	158,134	7,542	1,616,932	1,563	7,542	30,167	29	378	60,588
2023	79,187	158,233	7,919	1,697,779	1,641	7,919	31,675	31	397	60,588
2024	83,147	158,336	8,315	1,782,668	1,723	8,315	33,259	32	417	60,588
2025	87,304	158,445	8,730	1,871,801	1,809	8,730	34,922	34	438	60,588
2026	54,335	157,584	5,433	1,164,941	1,126	5,433	21,734	21	273	60,588
2027	59,768	157,725	5,977	1,281,435	1,239	5,977	23,907	23	300	60,588
2028	65,745	157,882	6,575	1,409,578	1,363	6,575	26,298	25	330	60,588
2029	72,320	158,053	7,232	1,550,536	1,499	7,232	28,928	28	363	60,588
2030	79,552	158,242	7,955	1,705,590	1,649	7,955	31,821	31	399	60,588
2031	82,958	158,331	8,296	1,778,625	1,719	8,296	33,183	32	416	60,588
2032	82,958	158,331	8,296	1,778,625	1,719	8,296	33,183	32	416	60,588
2033	82,958	158,331	8,296	1,778,625	1,719	8,296	33,183	32	416	60,588
2034	82,958	158,331	8,296	1,778,625	1,719	8,296	33,183	32	416	60,588
2035	82,958	158,331	8,296	1,778,625	1,719	8,296	33,183	32	416	60,588
2036	82,958	158,331	8,296	1,778,625	1,719	8,296	33,183	32	416	60,588
2037	82,958	158,331	8,296	1,778,625	1,719	8,296	33,183	32	416	60,588
2038	82,958	158,331	8,296	1,778,625	1,719	8,296	33,183	32	416	60,588
2039	82,958	158,331	8,296	1,778,625	1,719	8,296	33,183	32	416	60,588
2040	82,958	158,331	8,296	1,778,625	1,719	8,296	33,183	32	416	60,588
2041	91,254	158,548	9,125	1,956,488	1,891	9,125	36,502	35	458	60,588
2042	91,254	158,548	9,125	1,956,488	1,891	9,125	36,502	35	458	60,588
2043	91,254	158,548	9,125	1,956,488	1,891	9,125	36,502	35	458	60,588
2044	91,254	158,548	9,125	1,956,488	1,891	9,125	36,502	35	458	60,588
2045	91,254	158,548	9,125	1,956,488	1,891	9,125	36,502	35	458	60,588
2046	91,254	158,548	9,125	1,956,488	1,891	9,125	36,502	35	458	60,588
2047	91,254	158,548	9,125	1,956,488	1,891	9,125	36,502	35	458	60,588
2048	91,254	158,548	9,125	1,956,488	1,891	9,125	36,502	35	458	60,588
2049	91,254	158,548	9,125	1,956,488	1,891	9,125	36,502	35	458	60,588
2050	91,254	158,548	9,125	1,956,488	1,891	9,125	36,502	35	458	60,588
2051	91,254	158,548	9,125	1,956,488	1,891	9,125	36,502	35	458	60,588

With these results, Net CO_2 equivalent emissions in the baseline for the first 30 crediting years are:

Table 9: Net CO2 equivalent emissions in the baseline scenario

Year	ΔCBSL	ΔCREL,i,t	ΔCtree-exist,i,t	GHGBSL-E,t
2022	518,384	363,312	-3,062	62,559
2023	538,577	386,469	-6,125	62,657
2024	559,899	410,750	-9,187	62,761

2025	582,407	436,212	-12,249	62,869
2026	422,369	280,098	-15,312	62,008
2027	449,621	310,270	-18,374	62,150
2028	479,838	343,393	-21,437	62,306
2029	513,317	379,762	-24,499	62,478
2030	550,383	419,702	-27,561	62,667
2031	569,003	441,295	-30,624	62,756
2032	570,370	445,725	-33,686	62,756
2033	571,738	450,155	-36,748	62,756
2034	573,106	454,585	-39,811	62,756
2035	574,474	459,015	-42,873	62,756
2036	575,841	463,445	-45,935	62,756
2037	580,271	467,875	-45,935	62,756
2038	584,702	472,306	-45,935	62,756
2039	589,132	476,736	-45,935	62,756
2040	593,562	481,166	-45,935	62,756
2041	638,831	526,218	-45,935	62,973
2042	639,677	527,064	-45,935	62,973
2043	640,321	527,708	-45,935	62,973
2044	640,754	528,141	-45,935	62,973
2045	640,965	528,352	-45,935	62,973
2046	642,936	530,324	-45,935	62,973
2047	644,618	532,005	-45,935	62,973
2048	645,980	533,367	-45,935	62,973
2049	646,991	534,378	-45,935	62,973
2050	647,616	535,003	-45,935	62,973
2051	648,059	535,446	-45,935	62,973

3.2.2 Project Emissions

GHG emissions and removals in the with-project scenario are related to regrowth of the residual forest, silvicultural interventions such as climber cutting, liberation thinning, enrichment planting and/or harvesting, or a combination of these activities, and project implementation activities Net CO2 equivalent emissions in the with-project scenario (WPS) are estimated as:

$$\Delta C_{WPS} = \sum_{t=1}^{t^*} \sum_{i=1}^{M_{WPS}} \Delta C_{P,i,t} + GHG_{WPS-E,t} \quad (33)$$

Where:

Parameter	Description	Unit
ΔC_{WPS}	Net CO_2 equivalent emissions in the with-project scenario up to year t*	t CO_2-e yr^{-1}
$\Delta C_{P,i,t}$	Net carbon stock change due to forest regrowth and silvicultural interventions in the with-project scenario in stratum i at year t	t CO_2-e yr^{-1}
$GHG_{WPS-E,t}$	Greenhouse gas emissions related to project implementation at year t	t CO_2-e yr^{-1}

Net carbon stock changes due to forest regrowth and silvicultural interventions

Estimation of $\Delta C_{P,i,t}$

Net carbon stock changes due to forest regrowth and silvicultural interventions in the with-project scenario are estimated as follows:

$$\Delta C_{P,i,t} = \Delta C_{AGB,i,t} + \Delta C_{BGB,i,t} + \Delta C_{DW,i,t} + \Delta C_{WP,i,t} + E_{biomassloss,i,t} \quad (34)$$

Where:

Parameter	Description	Unit
$\Delta C_{P,i,t}$	Net carbon stock change due to forest regrowth and silvicultural interventions in the with-project scenario in stratum i at year t	tCO_2-e.yr^{-1}
$\Delta C_{AGB,i,t}$	Net carbon stock change in above-ground tree (DBH≥5 cm) biomass in the with-project scenario in stratum i at year t	tCO_2-e.yr^{-1}
$\Delta C_{BGB,i,t}$	Net carbon stock change in below-ground tree biomass in the with-project scenario in stratum i at year t	tCO_2-e.yr^{-1}
$\Delta C_{DW,i,t}$	et carbon stock change in dead wood in the with-project scenario in stratum i at year t	tCO_2-e.yr^{-1}
$\Delta C_{WP,i,t}$	Net carbon stock change in wood products in the with-project scenario in stratum i at year t	tCO_2-e.yr^{-1}
$E_{biomassloss,i,t}$	Emissions due to site preparation for project activities in stratum i at year t	tCO_2-e.yr^{-1}

t	1, 2, 3 … t* years elapsed since the start of the project activity	
i	1, 2, 3 … M_{WPS} strata in the with-project scenario	

Accounting for dead wood in the with-project scenario as zero is conservative. Accounting for wood products in the with-project scenario as zero is conservative. Therefore:

$\Delta C_{DW,i,t} = 0$

$\Delta C_{WP,i,t} = 0$

Since the removal of herbaceous vegetation (including climbers and vines) is deemed an insignificant emissions source and therefore is not accounted for in the with-project scenario.

Therefore,

$E_{biomassloss,i,t} = 0$

Therefore, equation (34) from the original methodology is changed to:

$$\Delta C_{P,i,t} = \Delta C_{AGB,i,t} + \Delta C_{BGB,i,t} \quad (34a)$$

Estimation of $\Delta C_{AGB,i,t}$

The changes in the carbon stock in above-ground tree biomass within the project boundary are estimated using the following approach:

$$\Delta C_{AGB,i,t} = A_{i,t} \times (C_{AGB,i,t} - C_{AGB,i,t-T}) \times 44/12 / T \quad (35)$$

Where:

Parameter	Description	Unit
$\Delta C_{AGB,i,t}$	Net carbon stock change in above-ground tree biomass in stratum i at year t	t CO_2-e
$C_{AGB,i,t}$	Carbon stock in above-ground tree biomass in stratum i at year t	t C ha^{-1}
t	1, 2, 3 … t* years elapsed since the start of the project activity	
i	1, 2, 3 … MWPS strata in the with-project scenario	
44/12	Ratio of molecular weights of CO2 and carbon	t CO_2-e t C^{-1}

$A_{i,t}$	Area of stratum i at year t	ha
T	Number of years between monitoring times tm and tm-1	

Changes in C Stock in Above-ground Tree Biomass

The mean carbon stock in above-ground tree biomass per unit area is estimated for each stratum on the basis of field measurements in permanent sample plots. In this project both BEF and allometric equations methods will be used, depending on the availability of allometric equations. In the absence of allometric functions, the BEF method is used.

Allometric method.

The following sources of allometric equations are used (in order of preference):

Biomass and stored carbon were estimated from biometric data collected in more than 98 permanent plots. For each tree individual, height was recorded, which was estimated through indirect methods, and the circumference at breast height (1.3 m), and the diameter (DBH) of each specimen was obtained from the latter.

For biomass estimation, a hierarchical strategy was implemented in the selection of models. First, specific allometric models (shown below) were prioritized for each species, as long as the diameter ranges of the sampled individuals were within the limits established in said models. In the event that the individuals exceeded the applicability ranges of the specific models, the general biomass model proposed by Chave et al. (2014) was used. For those species without allometric models available, volumetric models were used, either stem or total, as appropriate. These latter models, combined with biomass expansion factors (BEF) (1) and species-specific wood densities, allowed the total biomass to be estimated from the volume.

The root biomass or below-ground biomass was estimated as a constant proportion of 20% of the above-ground biomass. (2)

The carbon content in the biomass was calculated by multiplying the total biomass (above-ground and root) by a conversion factor of 0.47. (3)

Finally, the total carbon is calculated. The calculation of the volume in tons per hectare results from taking the volume values of the subplot (A or B) and converting them to hectares. Through this equation, the transition from kilos to tons is also obtained as a result.

The next step consisted of grouping the values of each specimen into strata. To do this, in the “CO2e CALCULATION” tab of the *Nideport_Raw_Forest_Inventories_Data_2021-22.xls* file, the values that resulted from all the individuals of the sample units that make up each stratum are added. Thus, we have the total carbon of the plots in each stratum and we locate it in the TOTAL CARBON IN SAMPLE UNIT column.

Then, this value is converted to volume by stratum. To do this, the value we obtained in each sample unit is projected to the surface of the stratum. We locate it in the TOTAL CARBON STRATA column.

Then we must obtain the CO2eq value from the carbon value. To do this, we multiply it by the ratio 44/12 and obtain the volume in tons of CO2eq available in each stratum. We locate it in the column TOTAL CO2e (tn)

Finally, we must project it to the unit per surface in a hectare, for this we divide the value of CO2e by the surface of the stratum. In this way we obtain the CO2e in tons per hectare and we locate it in the column TOTAL CO2e (tn/ha)

Finally, to obtain the values shown in Table 5 of the MR, the value of TOTAL CO2e is taken and discounting 20% of the volume corresponding to underground biomass, the value shown in table 5 is obtained

1) Biomass expansion factor (BEF)
Value: 1,15
Source: https://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_files/Chp3/Anx_3A_1_Data_Tables.pdf page*: 178*

2) Below-ground biomass
Value: 0,2
Source: https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_04_Ch4_Forest_Land.pdf page*: 49*

3) Carbon fraction
Value: 0,47
Source: https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_04_Ch4_Forest_Land.pdf page*: 48*

CITATION	MODEL
Maggio & Cellini (2016)	V[m3]=a*DAP[cm]^b*H[m]^c
Chave et al. (2014)	AGBest = 0,0673 * (d * DAP^2 * HT)^0,976
Conti et al. (2019)	AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)
Costas, R.; Vera, N.; Lorán, D.; López Cristóbal, L.; Fosco, I.; González, J. 2006. Funciones de volumen para especies de bosque secundario de la Reserva Guaraní. Misiones (Argentina). Rev. FCA UNCuyo 38 (2): 49---57 pp.	VT[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m]+d*DAP[cm]*H[m]^2
Fassola, H.E.; Crechi, E.H.; Barth, S.R.; Keller, A.E.; Winck, R.A.; Martiarena, R.; Von Wallis, A.; Pinazo, M.; Knebel, O. 2010. Modelos regionales de biomasa aérea de Pinus taeda para Misiones y NE de Corrientes, Argentina. XIV Jornadas Técnicas Forestales y Ambientales. Facultad de Ciencias Forestales, UNaM.	B[Kg]=EXP(a+b*ln(DAP[cm]))
Friedl, R.; Costas, R.; Maiocco, D.; Grance, L.; Palavecino, A. 1991. Construcción de tablas de volumen estándar para Araucaria angustifolia. VI Jornadas Técnicas. Inventarios, Modelos de Producción y Crecimientos Forestales. El Dorado, Misiones. pág.: 57---68.	V[m3]=a+b*DAP[cm]^2*H[m]
Sevola, Y.1975. Cubicación de árboles en el inventario forestal del noroeste argentino. Documento de trabajo Nº 20. FAO:DP/ARG/70/536. Salta, Argentina.	V[dm3]=EXP(a+b*ln(DAP[cm]^2*H[m])+c*(H[m]/DAP[cm])) V[dm3]=EXP(a+b*ln(H[m]^2)+c*ln(DAP[cm]^2*H[m]))

The equations published in the paper: *Recopilación de ecuaciones de volumen y biomasa de especies forestales de la República Argentina* (Maggio & Cellini 2016)[86]. If there were any species that are not present in this bibliography (or are outside the range of applicability of the models), then.

The allometric equations of Chave et al. (2014)[87] will be used.

In cases where the species does not contain biomass models, the volume models (stem or total) will be used together with the density and the biomass expansion factor (BEF). For all cases, the ratio of aerial biomass and root biomass proposed by IPCC was taken into account, in addition to the equivalent carbon and CO_2 conversion factor. Which are presented below:

BEF	Root-shoot ratio	Carbon fraction	C-CO2 conversion
1.15	0.20	0.47	44/12

[86] Maggio, A.D. & Cellini, J.M. 2016. Recopilación de ecuaciones de volumen y biomasa de especies forestales de la República Argentina. Ministro de Ambiente y Desarrollo Sustentable de la Nación. https://libros.unlp.edu.ar/index.php/unlp/catalog/book/606#accordion-1.
[87] Chave et al 2014. Improved allometric models to estimate the aboveground biomass of tropical trees. Global Change Biology. (20)10: 3177-3190.

The methodology combines species-specific allometric models with globally recognized generic equations, ensuring a comprehensive approach to estimating forest biomass

Locally developed species-specific allometric models were prioritized. Where species-specific models were unavailable or exceeded their validity ranges, allometric equations from Chave et al. (2014) were utilized.

A comprehensive review of the http://www.globallometree.org/ database was made and expanded this analysis by consulting additional scientific publications and datasets. This exhaustive effort confirmed the absence of more suitable models for the PA and validated the decision to apply the models used.

Additional scientific publications and web sites:

- Vachellia caven Biomass Models: Developed for forests in the Espinal region, part of the Atlantic Forest in Argentina.
  Source: Facultad de Ciencias Exactas y Naturales
- Leguminous Species in the Arid Chaco: While focusing on a different biome, these models offer transferable insights for species common to the Atlantic Forest.
  Source: Ecología Austral
- Prosopisnigra Biomass Equations: Tailored for forests in Entre Ríos, applicable to overlapping species distributions.
  Source: Repositorio INTA
- Volume and Biomass Compilation for Argentina: A comprehensive database of forest species equations, enhancing the robustness of the analysis.
  Source: Ministerio de Ambiente (Maggio et al., 2016)
- FAO Forest Resources Assessment (FRA):

  http://www.fao.org/forest-resources-assessment/en/
- Global Forest Watch (GFW)

  https://www.globalforestwatch.org/
- Carbon Monitoring System (CMS)

  https://carbon.nasa.gov/
- Tropical Forest Alliance (TFA)

  https://www.tropicalforestalliance.org/
- World Resources Institute (WRI)

  https://www.wri.org/

It is important to note that the allometric models of Chave et al. (2014) are widely recognized globally for their robustness and applicability in a wide variety of tropical ecosystems. These models, which have been successfully applied in studies throughout Latin America, Africa and Asia, are the reference standard in projects related to carbon quantification, forest restoration and REDD+ (Reducing Emissions from Deforestation and Forest Degradation). For example, research in the Amazon (Saatchi et al., 2011), Central Africa (Fayolle et al., 2013) and Southeast Asia (Goodman et al., 2014) has demonstrated the effectiveness of these models for accurate biomass estimation, even under conditions of limited data on forest structure.

The main strength of Chave's models lies in their general applicability, as they integrate key variables such as wood density, total height and DBH, providing robust estimates from a minimal data set. However, in certain contexts, such as the Atlantic Forest in Argentina, local models may offer greater accuracy, given that they are specifically calibrated to the species and ecological conditions of the region. In this regard, local equations validated are used when available and applicable (add number of species applied) and employed Chave models in those cases where no specific equations exist or the recorded individuals do not fit within the applicability ranges (add number of species applied).

This approach allowed Nideport to take advantage of the generality and reliability of the Chave et al. models for tropical forests, together with the precision of local models when available, thus ensuring the accuracy of our biomass estimates.

Evaluation of the Bioclimatic Stress Variable 'E'

The variable 'E,' introduced in Chave et al. (2014), accounts for environmental stress factors and is particularly useful in the absence of direct measurements. Nideport opted not to employ this variable citing the following justifications:

- Direct Measurements Available: Tree height was measured directly during field surveys, providing more precise data than indirect adjustments through 'E.'
- Regional Stability: The Atlantic Forest exhibits relatively stable climatic conditions, reducing the necessity for environmental stress adjustments.
- Methodological Integrity: The exclusion of 'E' minimizes the introduction of uncertainties associated with additional model parameters.

This decision adheres to the principle of prioritizing direct, high-quality data over indirect estimations when such data is accessible. The approach enhances the robustness and reliability of biomass calculations, particularly in areas with sufficient field data.

Regarding the bioclimatic stress variable 'E', proposed by Chave et al. (2014), its inclusion has proven to be highly beneficial in situations where complete data on tree height are not available. This factor allows allometric estimates to be adjusted to compensate for variations in environmental conditions such as rainfall seasonality, temperature variability and drought intensity, all variables that affect tree growth. However, in the Nideport project, the height of each tree is recorded, which eliminates the need to use an indirect estimate through 'E'. In this way, Nideport maintains precision in the biomass estimation without the need to introduce additional factors that do not provide significant improvements in this specific context.

For the BEF method

Step 1: Determine on the basis of available data, eg, volume tables (ex-ante) and measurements (ex-post) the diameter at breast height (DBH, at typically 1.3 m above-ground level), and also preferably height (H), of all the trees above some minimum DBH in the permanent sample plots. The exact tree dimensions to be measured will be specified by the information obtained in Step 2.

Step 2: Estimate the stem volume of trees based on available equations or yield tables (if locally derived equations or yield tables are not available use relevant regional, national or default data as appropriate).

It is possible to combine Steps 1 and 2 if volume tables allow for deriving average volume of trees, or field instruments (e.g., a relascope) that measure the volume of each tree directly are applied.

Step 3: Choose BEF.

Step 4: Convert the stem volume of trees into carbon stock in above-ground tree biomass via basic wood density, the BEF and the carbon fraction:

$$C_{AGB,I,j,i,sp,t} = V_{I,j,i,sp,t} \times D_j \times BEF_j \times CF_j \quad (36)$$

Where:

Parameter	Description	Unit
$C_{AGB,I,j,i,sp,t}$	Carbon stock in above-ground biomass of tree I of species j in plot sp in stratum i at year t	tC tree^{-1}
$V_{I,j,i,sp,t}$	Stem volume of tree I of species j in plot sp in stratum i at year t	m^3 tree^{-1}
D_j	Basic wood density of species j	t d.m. m^{-3}
BEF_j	Biomass expansion factor for conversion of stem biomass to above-ground tree biomass for species j	
CF_j	Carbon fraction of biomass for tree species j	t C t d.m.$^{-1}$
I	1, 2, 3 … Nj,i,sp,t individual trees of species j in sample plot sp in stratum i at year t	
i	1, 2, 3 … MWPS strata in the with-project scenario	
j	1, 2, 3 … SWPS tree species in the with-project scenario	
t	1, 2, 3 … t* years elapsed since the start of the project activity	

Step 5: Calculate carbon stock in above-ground biomass of all trees present in plot sp in stratum i at time t (i.e., summation over all trees l by species j followed by summation over all species j present in plot sp).

$$C_{AGB,i,sp,t} = \sum_{j=1}^{S_{WPS}} \sum_{l=1}^{N_{j,i,sp,t}} C_{AGB,l,j,i,sp,t} \quad (37)$$

Where:

Parameter	Description	Unit
$C_{AGB,i,sp,t}$	Carbon stock in above-ground biomass of trees on plot sp in stratum i at year t	tC
$C_{AGB,I,j,i,sp,t}$	Carbon stock in above-ground biomass of trees I of species j on plot sp in stratum i at year t	tC tree^{-1}
l	1, 2, 3 … $N_{j,l,sp,t}$ individual trees of species j in sample plot sp in stratum I at year t.	
i	1, 2, 3 … MWPS strata in the with-project scenario	
j	1, 2, 3 … S_{WPS} tree species in the with-project scenario	
t	1, 2, 3 … t* years elapsed since the start of the project activity	

Step 6: Estimate the mean carbon stock in above-ground tree biomass for each stratum:

$$C_{AGB,i,t} = \frac{1}{A_{sp_i}} \sum_{sp=1}^{P_i} C_{AGB,i,sp,t} \quad (38)$$

Where:

Parameter	Description	Unit
$C_{AGB,i,t}$	Carbon stock in above-ground in trees in stratum i at year t	tC ha^{-1}
$C_{AGB,i,sp,t}$	Carbon stock in above-ground in trees on plot sp in stratum i at year t	tC

$A_{SP,i}$	Total area in all sample plots in stratum i	ha
sp	1, 2, 3 … P_i sample plots in stratum i in the with-project scenario	
i	1, 2, 3 … M_{WPS} strata in the with-project scenario	
t	1, 2, 3 … t* years elapsed since the start of the project activity	

For the allometric method

Step 1: Determine on the basis of available data, eg, volume tables (ex-ante) and measurements (ex-post) the diameter at breast height (DBH, at typically 1.3 m above-ground level), and also preferably height (H), of all the trees above some minimum DBH in the permanent sample plots. The exact tree dimensions to be measured will be specified by the information obtained in Step 2.

Step 2: Select or develop an appropriate allometric equation (if possible species-specific, or if not, from a similar species).

Step 3: Estimate carbon stock in above-ground biomass for each individual tree l of species j in the sample plot located in stratum i using the selected or developed allometric equation applied to the tree dimensions determined in Step 1, and sum the carbon stocks in the sample plot:

$$C_{AGB,j,i,sp,t} = \sum_{l=1}^{N_{j,sp}} fj(X,Y,...) \times CF_j \qquad (39)$$

Where:

Parameter	Description	Unit
$C_{AGB,j,l,sp,t}$	Carbon stock in above-ground biomass of trees of species j on sample plot sp of stratum i at year t;	tC
CF_j	Carbon fraction of dry matter for species or type j	0.47
$f_{j(X, Y, ...)}$	Allometric equation for species j linking measured tree dimension variables (eg, diameter at breast height (DBH) and possibly height (H)) to above-ground biomass of living trees	t d.m. $tree^{-1}$
i	1, 2, 3 … MP strata in the with-project scenario	

j	1, 2, 3 … S_{WPS} tree species in the with-project scenario	
l	1, 2, 3 … $N_{j,i,sp,t}$ individual trees of species j in sample plot sp in stratum i at year t	
t	1, 2, 3 … t* years elapsed since the start of the project activity	

Step 4: Estimate the mean carbon stock in above-ground tree biomass for each stratum, as per the BEF method.

Estimation of $\Delta C_{BGB,i,t}$

The annual changes in below-ground tree biomass are estimated for each stratum on the basis of above-ground tree biomass. By using a root: shoot ratio, below-ground biomass is calculated from above-ground biomass, following Equation (40) below. Calculation of the parameter $\Delta C_{AGB,i,t}$ is described in "Estimation of $\Delta C_{AGB,i,t}$".

$$\Delta C_{BGB,i,t} = \Delta C_{AGB,i,t} \times R_j \quad (40)$$

Where:

Parameter	Description	Unit
$\Delta C_{BGB,i,t}$	Net carbon stock change in below-ground tree biomass in the with-project scenario in stratum i at year t	t CO_2 yr^{-1}
$\Delta C_{AGB,i,t}$	Net carbon stock change in above-ground tree biomass in the with-project scenario in stratum i at year t	t CO_2 yr^{-1}
R_j	Root: shoot ratio for tree species j	0.2
t	1, 2, 3 … t* years elapsed since the start of the project activity	
i	1, 2, 3 … MWPS strata in the with-project scenario	

Changes in carbon stocks in dead wood

Not applicable. Carbon stocks in the dead wood pool were conservatively excluded.

Changes in carbon stocks in wood products

Not applicable. There is no logging in the project scenario.

Emissions due to site preparation for project activities

According to VM0005 v1.2, the removal of herbaceous vegetation (including climbers and vines) is deemed an insignificant emissions source and therefore is not accounted for in the with-project scenario.

Ex ante estimations of project emissions and removals.

In accordance with the methodological provisions of VM0005 (v1.2), the ex-ante estimation of total net GHG emission reductions or removals (tCO_2e) for the SPVN GS1 project incorporates a baseline regrowth rate derived from long-term, peer-reviewed data rather than modeled growth curves. Specifically, the parameter *Change in carbon stock in existing tree vegetation in the baseline scenario ($\Delta Ct_{ree\text{-}exist,i,t}$)*, as applied in Equation 19 of VM0005, was sourced from Bedrij et al. (2022), *Selective logging of a subtropical forest: Long-term impacts on stand structure, timber volumes, and biomass stocks* (*Forest Ecology and Management*, 518, 120290)[88]. This study monitored 16 permanent 1-ha plots over a 20-year period following selective logging in the Upper Paraná Atlantic Forest of Misiones, Argentina — the same ecoregion as the SPVN GS1 project — under comparable forest type, floristic composition, disturbance history, and management regimes.

The mean annual bole volume increment reported for conventionally logged forests was 1.22 m³/ha/year (95% CI: 0.82–1.62; $p < 0.001$). This value was converted to aboveground biomass carbon using a wood density of 0.70 t/m³, a biomass expansion factor (BEF) of 1.15, and a carbon fraction of 0.47, consistent with IPCC Tier 3 guidance. The resulting baseline regrowth rate is 0.47 tC/ha/year, equivalent to 1.72 tCO_2e/ha/year. No additional adjustments were applied, ensuring methodological transparency and replicability.

To establish the maximum attainable carbon stock for each stratum, the reference value was sourced from Díaz Villa et al. (2021), *Primary productivity determinants of different land uses in humid subtropical forests of Argentina*[89], which reports an aboveground biomass stock of 312.7 t/ha (≈538 tCO_2e/ha) for Iguazú National Park. This site, located in the same ecoregion, has remained free from official logging or extractive activities for at least 80 years, providing an undisturbed benchmark for maximum biomass accumulation. This value was adopted as the asymptotic maximum (MAX) in the ex-ante projections, ensuring that projected carbon stocks never exceed those observed in the most preserved forests of the region.

Stratum	Area (ha)	Carbon density AGB tree biomass (tCO_2/ha)	Potential gain in relation to baseline (tCO_2/ha)
Natural Forest with Close Canopy (FCC)	2,711.3	391.23	147.24
Natural Forest with Open Canopy (FOC)	13,517.8	271.06	267.41

[88] Bedrij et al. (2022) Selective logging of a subtropical forest: Long-term impacts on stand structure, timber volumes, and biomass stocks https://drive.google.com/file/d/16yMQuzFY6OojHOcubLFXjc0QF1SXd4_o/view?usp=drive_link, and; Supplementary Tables https://docs.google.com/document/d/1__bDSPPaNCux7wyKljrZvha6B9nil4un/edit?usp=drive_link&ouid=108646281459258903691&rtpof=true&sd=true

[89] Díaz Villa et al. (2021), *Primary productivity determinants of different land uses in humid subtropical forests of Argentina* https://drive.google.com/file/d/1u-uDSTfg70Kkm_owxpVCJQ1xmJJx5WXF/view?usp=drive_link

Natural Forest with Scattered Canopy (FSC)	6,069.7	273.40	265.07
Scrubland	298.2	147.09	391.38
Shifting-agriculture	281.50	125.83	412.64

Table 11: Net carbon stocks gains due to forest regrowth in the project scenario (tCO_2).

Year	Closed Canopy	Open Canopy	Scattered Canopy	Scrubland	Shifting Agriculture	Total
1	372	1,856	834	41	39	3,142
2	1,117	5,569	2,501	123	116	9,426
3	2,234	11,139	5,001	246	232	18,852
4	3,724	18,564	8,336	410	387	31,420
5	5,585	27,847	12,504	614	580	47,130
6	7,819	38,985	17,505	860	812	65,981
7	10,426	51,980	23,340	1,147	1,082	87,975
8	13,405	66,832	30,009	1,474	1,392	113,111
9	16,756	83,540	37,511	1,843	1,740	141,389
10	20,479	102,104	45,846	2,252	2,126	172,809
11	24,575	122,525	55,016	2,703	2,552	207,370
12	29,043	144,802	65,019	3,194	3,015	245,074
13	33,884	168,936	75,855	3,727	3,518	285,920
14	39,097	194,926	87,525	4,300	4,059	329,907
15	44,682	222,773	100,029	4,914	4,639	377,037
16	50,267	250,620	112,532	5,529	5,219	424,167
17	55,853	278,466	125,036	6,143	5,799	471,296
18	61,438	306,313	137,539	6,757	6,379	518,426
19	67,023	334,160	150,043	7,371	6,959	565,556
20	72,609	362,006	162,546	7,986	7,539	612,685
21	78,194	389,853	175,050	8,600	8,118	659,815
22	83,779	417,699	187,553	9,214	8,698	706,945
23	89,364	445,546	200,057	9,829	9,278	754,074
24	94,950	473,393	212,561	10,443	9,858	801,204
25	100,535	501,239	225,064	11,057	10,438	848,333
26	106,120	529,086	237,568	11,672	11,018	895,463

27	111,705	556,933	250,071	12,286	11,598	942,593
28	117,291	584,779	262,575	12,900	12,178	989,722
29	122,876	612,626	275,078	13,514	12,758	1,036,852
30	128,461	640,472	287,582	14,129	13,337	1,083,982

The presented values are incorporated in Equation 35, defining the $\Delta C_{AGB,i,t}$ parameter. $\Delta C_{BGB,i,t}$ is then defined through Equation 40. Equation 34 is then developed adding the $\Delta C_{AGB,i,t}$ and $\Delta C_{BGB,i,t}$ parameters, as $\Delta C_{DW,i,t}$, $\Delta C_{WP,i,t}$ and E biomass loss,i,t are deemed de minimis.

GHG emissions as a result of the implementation of the project activity

There are various sources of emissions resulting from the general project implementation. These can include, but may not be limited to:

Emissions due to administration, data-processing, and/or operating field station(s): grid or generator powered electricity.

Emissions due to travel of project staff (ground transport, flights, etc.).

Emissions due to travel and transport of external visitors (e.g., auditing companies, consultants, etc.).

Since it is reasonable to assume the emissions are expected to be lower in the project scenario , we conservatively assume:

$GHG_{WPS-E} = 0$

3.2.3 Leakage

VM0005 only provides for the determination of leakage due to market effects:

$$\Delta C_{LK} = \Delta C_{LK-ME} \quad (43)$$

This methodology applies to project activities, which reduce harvest levels in comparison with the baseline and possible reference areas. Therefore, the following leakage credit adjustment can be applied.

Project Action	Leakage Risk	Leakage credit adjustment (discount)
Substantially reduce harvest levels permanently (e.g., RIL activity that reduces timber harvest by 25% or more across the project area; or, a forest protection/no logging project)	Moderate to High Depends on where timber harvest is likely to be shifted	Depends on where timber harvest is likely to be shifted to: Similar carbon dense forests within the country: 40% Less carbon dense forests within the country: 20% More carbon dense forests within

		country: 70% Out of country: 0% (according to stated VCS and CDM policy of not accounting for international leakage)

$$\Delta C_{LK\text{-}ME} = LF_{ME} \times \Delta C_{REL} \quad (44)$$

Where:

Parameter	Description	Unit
$\Delta C_{LK\text{-}ME}$	Total GHG emissions due to market-effects leakage	t CO_2-e
LF_{ME}	Leakage factor for market-effects calculations	
ΔC_{REL}	Emissions from relogging displaced through implementation of the project activities across strata	t CO_2-e

LF_{ME}, the leakage factor, depends upon where in the country logging might be increased, as a result of a decrease in timber supply from the project area.

LF_{ME} = 0 if it can be demonstrated to the verifier that no market-effects leakage will occur within national boundaries, e.g., if no new concessions are being assigned AND annual extracted volumes per hectare in existing concessions have not increased in comparison to previously documented and projected and authorized extraction levels within existing concessions in the host country.

$LF_{ME} = 0.4$ if CBSLpre = NCS

(if CBSLpre ≤ NCS × 1.15 and ≥ NCS × 0.85)

$LF_{ME} = 0.7$ if CBSLpre < NCS × 0.85

$LF_{ME} = 0.2$ if CBSLpre > NCS × 1.15

Where:

Parameter	Description	Unit
LF_{ME}	Leakage factor for market-effects calculations	

NCS	The mean national forest carbon stock	t C ha^{-1}
C_{BSLpre}	Pre-relogging mean carbon stock in above-ground tree biomass across strata in the baseline scenario	t C ha^{-1}

In this case:

The market leakage adjustment factor (LF_{ME}) must be determined based on the comparison between the carbon stock in the baseline prior to project implementation (C_{BSLpre}) and the Net Carbon Stock (NCS) of timber harvested under the with-project scenario.

For the SPVN GS1 project, the following values were established:**C_{BSLpre}**: 78.08 tC/ha[90]

NCS: 85.73 tC/ha[91]

±15% of NCS = 72.87 - 98.59 → 78.08 ∈ [72.87 - 98.59]

The ±15% threshold around the NCS defines the interval [72.87 – 98.59] tC/ha. Since C_{BSLpre} falls within this range, as specified in VM0005 Section 3.2.3, the methodology mandates the application of the default LF_{ME} value of 0.4.

This value has therefore been adopted in the current monitoring period. The use of this default factor ensures methodological compliance and maintains a conservative estimation of market leakage risk, as required by the VCS Standard.

Estimating C_{BSLpre} involves area-weighting the stocks across the strata:

[90] **Source of C_{BSLpre}** The CBSLpre value (78.08 tC/ha) is based on field-based assessments of the pre-relogging mean above-ground tree biomass carbon stock across all strata defined in the baseline scenario.
https://docs.google.com/spreadsheets/d/1uNnXVtnZ3vZEjEaifXSkIR7uCiFIUUW6/edit?usp=sharing&ouid=108646281459258903691&rtpof=true&sd=true

[91] **Source of NCS Value** The NCS value used corresponds to the Mean National Forest Carbon Stock in native forests for the year 2020. According to the FRA 2020 country report for Argentina, the average carbon content in forest biomass (above ground) in native forests was estimated at 85.73 tC/ha in 2020. This estimate was derived by applying IPCC 2006 default coefficients across forest biomes and were weighted by forest area class (FAO, 2020, p. 34).
Food and Agriculture Organization of the United Nations (FAO). (2020). *Global Forest Resources Assessment 2020: Argentina – Country Report*. Rome. Available from:
https://www.fao.org/forest-resources-assessment/fra-2020/country-reports/en/
PDF report:
https://openknowledge.fao.org/server/api/core/bitstreams/d021a014-f561-448b-a960-61bfd044dded/content

$$C_{BSLpre} = \frac{\sum_{i=1}^{M_{BSL}} (C_{BSLpre,i} \times A_{REL,i})}{\sum_{i=1}^{M_{BSL}} A_{REL,i}} \quad (45)$$

Where:

Parameter	Description	Unit
C_{BSLpre}	Mean carbon stock across strata in all pools selected in the baseline	t C ha^{-1}
$C_{BSLpre,i}$	Carbon stock in all pools selected in the baseline in stratum i	t C ha^{-1}
$A_{REL,i}$	Area relogged in baseline stratum i	ha
I	1, 2, 3 …MBSL strata in the baseline scenario	
M_{BSL}	The total number of strata in the baseline scenario	

For the relogged area of the project:

Stratum	Area (ha)	AGB (tC/ha)	Total (tC/ha)
Close Canopy Forest	2,711.33	106.7	128.04
Open Canopy Forest	13,517.80	73.93	88.71
Scattered Canopy Forest	6,069.66	74.56	89.48

Therefore:

$$C_{BSLpre} = \frac{(2.711.3\times106.7)+(13,517,80\times73.93)+(6.069,66\times89.48)}{(2,711,33+13.517,80+6.069,66)} = 78.08\ tC/ha$$

3.2.4 Net GHG Emission Reductions and Removals

The total net GHG benefits from the IFM project activity (ΔC_{IFM}) are calculated as the result of the total carbon loss in the baseline scenario (ΔC_{BSL}) and the net removals through the enhancement of forest growth due to liberation thinning and enrichment planting (ΔC_{WPS}), minus any potential leakage (ΔC_{LK}) that might occur.

$$\Delta C_{IFM} = \Delta C_{BSL} - \Delta C_{WPS} - \Delta C_{LK} \quad (46)$$

Where:

Parameter	Description	Unit
ΔC_{IFM}	Total net GHG emission reductions from the IFM project activity up to year t	t CO_2-e
ΔC_{BSL}	Sum of the carbon stock changes and greenhouse gas emissions under the baseline scenario up to year t	t CO_2-e
ΔC_{WPS}	Sum of the carbon stock changes and greenhouse gas emissions under the with-project scenario up to year t	t CO_2-e
ΔC_{LK}	Sum of the carbon stock changes and greenhouse gas emissions due to leakage up to year t	t CO_2-e

ΔC_{IFM} must be corrected for uncertainty, as follows:

$$C_{IFM_{ERROR}} = \sqrt{Uncertainty_{BSL}^{2} + Uncertainty_{WPS}^{2}} \qquad (47)$$

Where:

Parameter	Description	Unit
$C_{IFM_{ERROR}}$	Total uncertainty for IFM project activity	%
$Uncertainty_{BSL}$	Total uncertainty in baseline scenario	%
$Uncertainty_{WPS}$	Sum of the carbon stock changes and greenhouse gas emissions under the with-project scenario up to year t	%

The procedure for estimating C_{IFM_ERROR} must be in accordance with the most recent version of the Tool for Estimating Uncertainty in IFM Project Activities.

If $C_{IFM\_ERROR} \leq 10\%$ of $\Delta C_{IFM,\ t}$ then no deduction must result for uncertainty.

If $C_{IFM\_ERROR} > 10\%$ of $\Delta C_{IFM,\ t}$ then the modified value for $\Delta C_{IFM,\ t}$ to account for uncertainty must be:

$$= \frac{100 - C_{IFM_{ERROR}}}{100} \times C_{IFM,t} \quad (48)$$

Where:

Parameter	Description	Unit
$C_{IFM,\ t}$	Total net GHG emission reductions from the IFM project activity up to year t	t CO_2-e
C_{IFM_ERROR}	Total uncertainty for IFM project activity	%

Year	Estimated baseline emissions or removals (tCO2e)	Estimated project emissions or removals (tCO2e)	Estimated leakage emissions (tCO2e)	Estimated net GHG emission reductions or removals (tCO2e)
Year 1	422,808	-3,142	145,325	280,626
Year 2	443,001	-6,284	154,587	294,698
Year 3	464,323	-9,426	164,300	309,449
Year 4	486,832	-12,568	174,485	324,915
Year 5	326,794	-15,710	112,039	230,465
Year 6	354,046	-18,852	124,108	248,790
Year 7	384,263	-21,994	137,357	268,899
Year 8	417,741	-25,136	151,905	290,972
Year 9	454,807	-28,278	167,881	315,204
Year 10	473,427	-31,420	176,518	328,329
Year 11	474,795	-34,562	178,290	331,067
Year 12	476,163	-37,704	180,062	333,804
Year 13	477,530	-40,846	181,834	336,542
Year 14	478,898	-43,988	183,606	339,280
Year 15	480,266	-47,130	185,378	342,017
Year 16	484,696	-47,130	187,150	344,675
Year 17	489,126	-47,130	188,922	347,333
Year 18	493,556	-47,130	190,694	349,991
Year 19	497,986	-47,130	192,466	352,649
Year 20	543,255	-47,130	210,487	379,898
Year 21	544,101	-47,130	210,825	380,405
Year 22	544,745	-47,130	211,083	380,792

Year 23	545,178	-47,130	211,256	381,051
Year 24	545,389	-47,130	211,341	381,178
Year 25	547,361	-47,130	212,129	382,361
Year 26	549,042	-47,130	212,802	383,370
Year 27	550,404	-47,130	213,347	384,187
Year 28	551,415	-47,130	213,751	384,794
Year 29	552,040	-47,130	214,001	385,169
Year 30	552,483	-47,130	214,178	385,434
TOTAL	**14,606,471**	**-1,083,982**	**5,512,110**	**10,178,342**

Expected net GHG emissions reductions in a 30-year period: 10,178,342 tCO_2e.

3.3 Monitoring

3.3.1 Data and Parameters Available at Validation

Data / Parameter	A_i
Data unit	Ha
Description	Area of stratum i
Source of data	Equation (2)
Value applied	

Stratum	Area (ha)
Closed Canopy (FCC)	2,711.33
Open Canopy (FOC)	13,517.80
Scattered Canopy (FSC)	6,069.66
Scrubland (S)	298.20
Shifting agriculture	281.5
TOTAL	22,878.5

Justification of choice of data or description of measurement methods and procedures applied	The stratification was carried out by interpreting and processing Sentinel-2 satellite images using the Google Earth Engine platform. Two multi-temporal mosaics were used for this; the first is from the year 2020 (144 Sentinel-2 images) and the second from 2021 (88 Sentinel-2 images). From these two mosaics, the median of the values at the pixel level was calculated, hoping that it represents the state of the coverage at that level. In addition, NDVI vegetation indices, terrain elevation and the Random Forest algorithm were used.
Purpose of data	Determination of baseline scenario Calculation of project emissions
Comments	-

Data / Parameter	GHG_{BSL-E}
Data unit	t CO_2-e yr-1
Description	Greenhouse gas emissions as a result of relogging within the project boundary in stratum i
Source of data	Equation (2)
Value applied	62,559(2022)
Justification of choice of data or description of measurement methods and procedures applied	Calculated per logging plans and permits.
Purpose of the data	Calculation of baseline emissions
Comments	-

Data / Parameter	$A_{REL,i}$

Data unit	Ha
Description	Area relogged in baseline stratum i
Source of data	Equation (17); Equation (3)
Value applied	1,486.6
Justification of choice of data or description of measurement methods and procedures applied	The relogged area was estimated as one fifteenth of the total project area subject to harvesting (22,298.9 ha), based on the baseline management plan which established a 15-year logging rotation. This results in an annual relogging area of 1,486.6 ha, reflecting the portion harvested each year under the assumed rotation cycle[92].
Purpose of the data	Calculation of baseline emissions Calculation of leakage
Comments	Derived from the application of Equation (17), as presented in the "Logging Rate" subsection of Section 3.2.1 (Baseline Emissions). Reflects the annual relogged area projected under the baseline scenario, based on a 15-year harvesting rotation established in the forest management plan of Forestal Belga.-

Data / Parameter	$C_{harvest,i}$
Data unit	t C ha^{-1}
Description	Carbon stock in harvested timber in stratum i
Source of data	Equation (4)
Value applied	1.13 (year 2022)
Justification of choice of data or description of measurement methods and procedures applied	GHG emissions were calculated based on timber volumes, not area logged. Total carbon stocks were divided by the logged area (22,878.5)

[92] Forestal Belga SA, Forest Fanagement Planning Document - Page 54
https://drive.google.com/file/d/1UpL488PrXUTliCHur1kbiWp-Gh2QBb0M/view?usp=sharing

Purpose of the data	Calculation of baseline emissions Calculation of leakage
Comments	-

Data / Parameter	$C_{WP100,i,t}$
Data unit	t C ha^{-1}
Description	Post-relogging carbon stock stored in long-term wood products (stock remaining in wood products after 100 years) in the baseline scenario in stratum i
Source of data	Equation (3), (7a) and (8)
Value applied	-0.13 (year 2022)
Justification of choice of data or description of measurement methods and procedures applied	According to VM0005 requirements, we used the waste wood fraction value of 0.24, adequate for developing countries in the calculations.
Purpose of the data	Calculation of baseline emissions Calculation of leakage
Comments	-

Data / Parameter	$C_{WP20,i,t}$
Data unit	t C ha^{-1}
Description	Post-relogging carbon stock stored in short-term and medium-term wood products (stock is expected to be emitted over 20 years with a linear decay function) in the baseline scenario in stratum i at year t
Source of data	Equation (3), (7b) and (8)

Value applied	0.99 (year 2022)
Justification of choice of data or description of measurement methods and procedures applied	According to VM0005 requirements and forest management plans and permits, wood extracted is used as sawn wood.
Purpose of the data	Calculation of baseline emissions Calculation of leakage
Comments	

Data / Parameter	$V_{harvest,j,i}$
Data unit	m^3 ha-1 yr^{-1}
Description	Volume of timber harvested in the baseline scenario of species j in stratum i
Source of data	Equation (4)
Value applied	3.38 (year 2022)
Justification of choice of data or description of measurement methods and procedures applied	Forest management plan and permits
Purpose of the data	Calculation of baseline emissions Calculation of leakage
Comments	

Data / Parameter	D_j
Data unit	t d.m. m^{-3}

Description	Basic wood density for species j
Source of data	Equation (4)
Value applied	0.70
Justification of choice of data or description of measurement methods and procedures applied	The value represents a weighted average of the density of all timber species identified in the inventory. This figure is used exclusively for EX ANTE calculations. Specific information available in appendix 4: Wood density of timber species extracted in the baseline scenario.
Purpose of the data	Calculation of baseline emissions
Comments	Maggio, A.D. & Cellini, J.M. 2016. Recopilación de ecuaciones de volumen y biomasa de especies forestales de la República Argentina. Ministro de Ambiente y Desarrollo Sustentable de la Nación[93].

Data / Parameter	CF
Data unit	t d.m.$^{-1}$
Description	Carbon fraction of dry matter
Source of data	IPCC
Value applied	0.47 t d.m.$^{-1}$
Justification of choice of data or description of measurement methods and procedures applied	
Purpose of the data	Calculation of baseline emissions Calculation of project emissions

[93] https://libros.unlp.edu.ar/index.php/unlp/catalog/book/606#accordion-1.

Comments	-

Data / Parameter	f_{damage}
Data unit	Dimensionless
Description	Factor for damage to the residual stand caused by relogging
Source of data	Equation (5)
Value applied	3.71
Justification of choice of data or description of measurement methods and procedures applied	A value of **1.23 Mg C/m³** from Pearson et al. (2014)[94] is applied, reflecting similar forest conditions and ensuring a conservative estimate due to less controlled logging practices in the SPVN baseline scenario.
Purpose of the data	To estimate collateral carbon losses (non-commercial biomass) associated with selective logging, including damage to residual trees, understory, and infrastructure clearing, as required by Equation 22 of VM0005 v1.2.
Comments	The value is sourced from Pearson et al. (2014), based on field measurements in Bolivian tropical forests. Its use is conservative given the less controlled logging observed in the SPVN baseline scenario. A comparative technical assessment confirms high ecological and operational similarity between the Bolivian site and the SPVN project area, with the SPVN baseline scenario reflecting less controlled and potentially more impactful harvesting practices.[95]

Data / Parameter	$C_{XB,ty,i}$
Data unit	t CO_2-e ha-1
Description	Mean stock of extracted biomass carbon by class of wood

[94] Pearson, T. R. H., Brown, S., Murray, L., & Sidman, G. (2014). Carbon emissions from tropical forest degradation caused by logging. Environmental Research Letters, 9(3), 034017. https://doi.org/10.1088/1748-9326/9/3/034017

[95] Comparative Technical Report for factor damage - Pearson et al 2014 https://drive.google.com/file/d/17VPJw6PlS0MpjH50YvBR0mGvIMWXZFsG/view?usp=drive_link

	product ty from stratum i
Source of data	Equation (6)
Value applied	2.62 for year 2022
Justification of choice of data or description of measurement methods and procedures applied	Forest management plan and permits. Extracted wood is for sawn wood.
Purpose of the data	Calculation of baseline emissions Calculation of leakage
Comments	-

Data / Parameter	$V_{ex,ty,j,i}$
Data unit	m^3
Description	Volume of timber extracted from within stratum i (does not include slash left onsite) by species j and wood product class ty
Source of data	Equation (6)
Value applied	75,416.61 (year 2022) for all species and wood product class sawn wood
Justification of choice of data or description of measurement methods and procedures applied	Forest management plan and permits. Data for the entire project area to be extracted in 2022
Purpose of the data	Calculation of baseline emissions Calculation of leakage
Comments	-

Data / Parameter	t_y
Data unit	Dimensionless
Description	Wood product class (e.g., sawn wood, wood-based panels, other industrial roundwood, paper and paper board, and other)
Source of data	Equation (6)
Value applied	Sawn wood
Justification of choice of data or description of measurement methods and procedures applied	
Purpose of the data	Calculation of baseline emissions Calculation of leakage
Comments	-

Data / Parameter	ww_{ty}
Data unit	Dimensionless
Description	The fraction immediately emitted through mill inefficiency
Source of data	Equation (7a)
Value applied	0.24
Justification of choice of data or description of measurement methods and procedures applied	Value applicable to developing countries as per VM0005 recommendations for developing countries.
Purpose of the data	Calculation of baseline emissions

	Calculation of leakage
Comments	-

Data / Parameter	slp_{ty}
Data unit	Dimensionless
Description	Fraction of wood products that will be emitted to the atmosphere within 5 years of timber harvest
Source of data	Equation (7b)
Value applied	0.2
Justification of choice of data or description of measurement methods and procedures applied	Applicable to sawn wood as per VM0005 guidance for sawn wood.
Purpose of the data	Calculation of baseline emissions Calculation of leakage
Comments	-

Data / Parameter	fo_{ty}
Data unit	Dimensionless
Description	Fraction of wood products that will be emitted to the atmosphere between 5 and 100 years of timber harvest
Source of data	Equation (8)
Value applied	0.84

Justification of choice of data or description of measurement methods and procedures applied	Applicable to sawn wood as per VM0005 guidance for sawn wood
Purpose of the data	Calculation of baseline emissions Calculation of leakage
Comments	-

Data / Parameter	$E_{biomass}$
Data unit	$tCO_2\text{-}e\ yr^{-1}$
Description	Emissions due to the removal of the biomass itself at year t
Source of data	A reported percentage typical for the area is used, based on Pulkki (1997), who estimated a 12% infrastructure impact under conventional logging in evergreen tropical forests. This is multiplied by the average carbon stock per hectare to estimate emissions.
Value applied	60,478.89
Justification of choice of data or description of measurement methods and procedures applied	Conservatively assumed following the methodological approach proposed by Pulkki (1997), ensuring consistency with standard estimates for biomass removal during logging operations, which are consistent with field conditions observed at the project site.
Purpose of the data	Calculation of baseline emissions
Comments	-

Data / Parameter	$E_{felling}$
Data unit	$tCO_2\text{-}e\ yr^{-1}$

Description	Emissions due to the use of equipment for removal of the biomass on the area dedicated to infrastructure
Source of data	Equation (24)
Value applied	82.75
Justification of choice of data or description of measurement methods and procedures applied	Conservatively assumed using default values proposed by the methodology, which are consistent with field conditions observed at the project site.
Purpose of the data	Calculation of baseline emissions
Comments	-

Data / Parameter	$E_{grading}$
Data unit	$tCO_2\text{-}e\ yr^{-1}$
Description	Emissions due to road grading
Source of data	Equation (25)
Value applied	26.49
Justification of choice of data or description of measurement methods and procedures applied	Conservatively assumed using default values proposed by the methodology, which are consistent with field conditions observed at the project site.
Purpose of the data	Calculation of baseline emissions
Comments	-

Data / Parameter	$E_{harvesting}$

Data unit	tCO_2-e yr^{-1}
Description	Emissions due to harvesting
Source of data	Equation (26)
Value applied	378.37 (year 2022)
Justification of choice of data or description of measurement methods and procedures applied	Calculated using timber volumes harvested as well as default parameters provided by VM0005
Purpose of the data	Calculation of baseline emissions
Comments	-

Data / Parameter	$E_{extraction}$
Data unit	tCO_2-e yr^{-1}
Description	Emissions due to extraction of timber from the forest to the log landings
Source of data	Equations (27), (28) and (29)
Value applied	29 (year 2022)
Justification of choice of data or description of measurement methods and procedures applied	Calculated using timber volumes harvested, distance traveled as well as default parameters provided by VM0005
Purpose of the data	Calculation of baseline emissions
Comments	-

Data / Parameter	$E_{transport}$
Data unit	tCO_2-e yr^{-1}
Description	Emissions due to the transport of the timber from the log landings to point of onward sale/transport
Source of data	Equations (30), (31) and (31)
Value applied	912 (year 2022)
Justification of choice of data or description of measurement methods and procedures applied	Calculated using timber volumes harvested, distance traveled as well as default parameters provided by VM0005
Purpose of the data	Calculation of baseline emissions
Comments	-

Data / Parameter	BEF
Data unit	Dimensionless
Description	Biomass expansion factor for the conversion of annual net increment (including bark) in stem biomass to total above-ground tree biomass increment for species j
Source of data	Table 3A.1.10 of the GPG-LULUCF (IPCC 2003)
Value applied	1.15
Justification of choice of data or description of measurement methods and procedures applied	To be conservative, the lower value was used
Purpose of the data	Calculation of project emissions

Comments	-

Data / Parameter	R
Data unit	t root d.m. t^{-1} shoot d.m.
Description	Root: shoot ratio appropriate to species or forest type / biome
Source of data	Table 3A.1.18 of the GPG-LULUCF (IPCC 2003)
Value applied	0.2
Justification of choice of data or description of measurement methods and procedures applied	Used in forest inventories. Conservative values.
Purpose of the data	Calculation of project emissions
Comments	

Data / Parameter	$f_i(X,Y\ldots)$
Data unit	t d.m. $tree^{-1}$
Description	Allometric equation for species j linking, for example, diameter at breast height (DBH) and tree height (H) to above-ground biomass of living trees
Source of data	Used in Equation (39). Species specific equations were used whenever available.
Value applied	Provided in the forest inventories and in Appendix 3

Justification of choice of data or description of measurement methods and procedures applied	Most specific equations were selected.
Purpose of the data	Calculation of project emissions
Comments	-

Data / Parameter	LF_{ME}
Data unit	Dimensionless
Description	Leakage factor for market-effects calculations
Source of data	Analysis of issuance of new concessions being assigned within the national boundaries and associated annual extracted volumes. Used in Equation (44).
Value applied	0.4
Justification of choice of data or description of measurement methods and procedures applied	Since C_{BSLpre} falls within the ±15% range of the NCS (i.e., 78.08 tC/ha is between 72.87 and 98.59 tC/ha), the methodology requires the application of the default 40% market leakage adjustment factor.
Purpose of the data	Calculation of leakage
Comments	-

Data / Parameter	NCS
Data unit	t CO_2-e ha^{-1}
Description	The mean national forest carbon stock (AGB)
Source of data	FAO (2020). The State of the World Forests. Informe Argentina

Value applied	314.34
Justification of choice of data or description of measurement methods and procedures applied	
Purpose of the data	Calculation of leakage
Comments	www.fao.org/3/cb0096es/cb0096es.pdf

3.3.2 Data and Parameters Monitored

Data / Parameter	Dj
Data unit	t d.m. m-3
Description	Basic wood density for species j
Source of data	Equation (4)
Value applied	To be monitored in verification.
Justification of choice of data or description of measurement methods and procedures applied	This parameter will be calculated based on the weighted average of all species present during the monitoring period. For individual tree calculations, the specific density value will be used if available. If not, the resulting weighted average value will be applied.
Purpose of the data	Calculation of project emissions
Comments	Maggio, A.D. & Cellini, J.M. 2016. Recopilación de ecuaciones de volumen y biomasa de especies forestales de la República Argentina. Ministro de Ambiente y Desarrollo Sustentable de la Nación[96].

[96] https://libros.unlp.edu.ar/index.php/unlp/catalog/book/606#accordion-1.

<table>
<tr><td>Data / Parameter</td><td>$A_{i,t}$</td></tr>
<tr><td>Data unit</td><td>Ha</td></tr>
<tr><td>Description</td><td>Area of stratum i at year t</td></tr>
<tr><td>Source of data</td><td>Geographical Information System (GIS). Used in Equation (35)</td></tr>
<tr><td>Description of measurement methods and procedures to be applied</td><td>The stratification was carried out by interpreting and processing Sentinel-2 satellite images using the Google Earth Engine platform. Two multi-temporal mosaics were used for this; the first is from the year 2020 (144 Sentinel-2 images) and the second from 2021 (88 Sentinel-2 images). From these two mosaics, the median of the values at the pixel level was calculated, hoping that it represents the state of the coverage at that level. In addition, NDVI vegetation indices, terrain elevation and the Random Forest algorithm were used.</td></tr>
<tr><td>Frequency of monitoring/recording</td><td>Each time verification is conducted</td></tr>
<tr><td>Value monitored</td><td><table>
<tr><td>Stratum</td><td>Area (ha)</td></tr>
<tr><td>Closed Canopy (FCC)</td><td>2.711,3</td></tr>
<tr><td>Open Canopy (FOC)</td><td>13.517,8</td></tr>
<tr><td>Scattered Canopy (FSC)</td><td>6.069,7</td></tr>
<tr><td>Scrubland (S)</td><td>298.2</td></tr>
<tr><td>Shifting agriculture</td><td>281.5</td></tr>
<tr><td>TOTAL</td><td>22,878.49</td></tr>
</table></td></tr>
</table>

Monitoring equipment	GIS and Remote sensing data
QA/QC procedures to be applied	Stratification is conducted every forest inventory by an experienced technical team. Variables considered for the GIS analysis included: coloration, texture, crown density and reflectance of the plant cover, among others. The parameters considered for the separation of strata included: type of forest mass (plantations or native forest), past disturbances, crown density, among others.
Purpose of the data	Calculation of project emissions.
Calculation method	GIS analysis
Comments	-

Data / Parameter	$A_{sp,i}$
Data unit	Ha
Description	Total area of all sample plots in stratum i
Source of data	Field measurements provided in the forest inventories. Used in Equation (38).
Description of measurement methods and procedures to be applied	Permanent circular plots (radius of 17.8 m) were used. Each sampling plot will have 2 subplots (A and B) with different radius where all woody individuals that met the DBH requirements defined for each type of plot were recorded. For more information see forest inventories
Frequency of monitoring/recording	Every time verification is conducted
Value monitored	

Stratum	Sample plots area (ha)
Closed Canopy (FCC)	2.13

	<table><tr><td>Open Canopy (FOC)</td><td>5.77</td></tr><tr><td>Scattered Canopy (FSC)</td><td>3.26</td></tr><tr><td>Scrubland (S)</td><td>1.13</td></tr><tr><td>Shifting agriculture</td><td>1.00</td></tr><tr><td>TOTAL</td><td>13.30</td></tr></table>
Monitoring equipment	All the permanent plots were properly numbered, geo-referenced, and located within a coverage/layer map of the project area.
QA/QC procedures to be applied	Plots will be remeasured in the subsequent inventories
Purpose of the data	Calculation of project emissions.
Calculation method	Measurement
Comments	-

Data / Parameter	DBH
Data unit	cm
Description	Diameter at breast height of tree
Source of data	Field measurement in sample plots.
Description of measurement methods and procedures to be applied	Tree diameter is measured over bark at breast height, 1.3 m above the ground, with some. The measurement may be carried out with a diameter tape or with the use of a caliper. The field data collected will be recorded using specifically designed forms and recorded on paper and digitally.

Frequency of monitoring/recording	Each time verification is conducted
Value monitored	The forest inventory database is provided separately.
Monitoring equipment	Diameter tape or caliper
QA/QC procedures to be applied	Plots will be remeasured in the subsequent inventories
Purpose of the data	Calculation of project emissions.
Calculation method	Measurement
Comments	-

Data / Parameter	H
Data unit	m
Description	Height of tree
Source of data	Field measurement in sample plots
Description of measurement methods and procedures to be applied	Height measurements will be taken with a clinometer and the process for measuring tree heights is: (i) A point is chosen from which the person measuring the tree can see its crown. (ii) Measure of the horizontal distance (HD) from the point chosen, to the base of the tree. Slope corrections must be applied when needed. The field data collected will be recorded using specifically designed forms and recorded on paper and digitally.
Frequency of monitoring/recording	Each time verification is conducted
Value monitored	The forest inventory database is provided separately.
Monitoring equipment	Clinometer

QA/QC procedures to be applied	Plots will be remeasured in the subsequent inventories
Purpose of the data	Calculation of project emissions.
Calculation method	Measurement
Comments	-

Data / Parameter	V_{extr}
Data unit	m^3
Description	The volume of timber extracted from within the project boundary (does not include slash left onsite), preferably reported by species and wood product class. Where no direct information on volume by wood product class is available (e.g., illegal logging) it is acceptable practice to assign gross percentages of volume extracted to wood product classes on the basis of local expert knowledge of harvest activities and markets.
Source of data	Timber harvest records and forest management plan
Description of measurement methods and procedures to be applied	Forest management plans and permits.
Frequency of monitoring/recording	Specify measurement and recording frequency
Value monitored	NA. There is no relogging in the project scenario.
Monitoring equipment	-
QA/QC procedures to be applied	Data will be cross checked
Purpose of the data	Calculation of baseline emissions. Calculation of leakage.
Calculation method	Records were provided by the project proponent in an

	excel spreadsheet.
Comments	-

Data / Parameter	$\Delta C_{P,i,t}$
Data unit	t CO_2-e yr^{-1}
Description	Net carbon stock change due to forest regrowth and silvicultural interventions in the with-project scenario in stratum i at year t
Source of data	Used in Equation (34)
Description of measurement methods and procedures to be applied	Calculation based on the measured variables DBH, height and $A_{i,t}$
Frequency of monitoring/recording	Once for each monitoring period
Value monitored	
Monitoring equipment	
QA/QC procedures to be applied	Results will be cross checked by team members
Purpose of the data	Calculation of project emissions.
Calculation method	The GHG emissions measured in the forest inventories during the beginning and the end of the monitoring period were subtracted.
Comments	-

Data / Parameter	$\Delta C_{AGB,i,t}$

Data unit	t CO_2-e yr^{-1}
Description	Net carbon stock change in above-ground tree biomass in the with-project scenario in stratum i at year t
Source of data	Used in Equation (34) and (35)
Description of measurement methods and procedures to be applied	Calculation based on the measured variables DBH, height and $A_{i,t}$
Frequency of monitoring/recording	Once for each monitoring period
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	Results will be cross checked by team members
Purpose of the data	Calculation of project emissions.
Calculation method	The GHG emissions of above-ground biomass measured in the forest inventories during the beginning and the end of the monitoring period were subtracted.
Comments	-

Data / Parameter	$\Delta C_{BGB,i,t}$
Data unit	t CO_2-e yr^{-1}
Description	Net carbon stock change in below-ground tree biomass in the with-project scenario in stratum i at year t
Source of data	Used in Equation (34) and (40)
Description of measurement methods and procedures to be applied	Calculation based on ΔC_{AGB},i,t and the root:shoot ratio

Frequency of monitoring/recording	Once for each monitoring period
Value monitored	-
Monitoring equipment	-
QA/QC procedures to be applied	Results will be cross checked by team members
Purpose of the data	Calculation of project emissions.
Calculation method	The GHG emissions of above-ground biomass measured in the forest inventories during the beginning and the end of the monitoring period were subtracted.
Comments	-

Data / Parameter	$C_{AGB,l,j,sp,i,t}$
Data unit	t C tree^{-1}
Description	Carbon stock in above-ground biomass of tree l of species j in plot sp in stratum i at year t
Source of data	Used in Equation (36), (37) and (39)
Description of measurement methods and procedures to be applied	Calculation based on the measured variables DBH, height
Frequency of monitoring/recording	Once in each forest inventory
Value monitored	Provided in the forest inventories
Monitoring equipment	-
QA/QC procedures to be applied	Results will be cross checked by team members
Purpose of the data	Calculation of project emissions.

Calculation method	-
Comments	-

Data / Parameter	$V_{l,j,sp,i}$
Data unit	m^3 $tree^{-1}$
Description	Stem volume of tree l of species j in plot sp in stratum i
Source of data	Used in Equation (36)
Description of measurement methods and procedures to be applied	Calculation based on the measured variable DBH
Frequency of monitoring/recording	Once in each forest inventory
Value monitored	Provided in the forest inventories
Monitoring equipment	-
QA/QC procedures to be applied	Results will be cross checked by team members
Purpose of the data	Calculation of project emissions.
Calculation method	-
Comments	

Data / Parameter	$C_{AGB,sp,i,t}$
Data unit	t C
Description	Carbon stock in trees in plot sp in stratum i at year t
Source of data	Used in Equation (37) and (38)

Description of measurement methods and procedures to be applied	Described in the monitoring plan
Frequency of monitoring/recording	Once in each forest inventory
Value monitored	Provided in the forest inventories
Monitoring equipment	-
QA/QC procedures to be applied	Results will be cross checked by team members
Purpose of the data	Calculation of project emissions.
Calculation method	-
Comments	-

3.3.3 Monitoring Plan

Monitoring Plan for Baseline Regrowth

In accordance with Section 10.2 of the VM0005 methodology (v1.2), the monitoring of regrowth in the baseline scenario will be carried out using a reference area that will fully meet the applicability conditions and similarity criteria set out in Sections 4 and 9.1.1 of the methodology.

This reference area will be located within the same Upper Paraná Atlantic Forest ecoregion as the project area, and will present comparable characteristics in terms of forest type, species composition, canopy stratification, successional stage, topography, disturbance history, and legal classification (Category II – Sustainable Use under the Native Forest Land Use Plan). It will have been historically managed under the same silvicultural policies and harvesting intensities as the project area, thereby ensuring methodological and ecological equivalence. Its total area will be equal to or greater than 75% of the total project area, meeting the size requirement established by the methodology, and will be selected following a comparative evaluation of candidate sites to ensure representativeness from growth performance expectations.

Monitoring will be conducted through the establishment and measurement of permanent sample plots, designed and implemented in full compliance with Tier 3 requirements. The sampling design, plot size, inclusion thresholds (e.g., DBH, height), biomass estimation equations, and field measurement protocols will be selected to ensure methodological rigor, representativeness, and accuracy in line with VM0005 requirements, while maintaining full comparability with the parameters applied in the with-project scenario. Parameters to be recorded will include tree species identification, DBH, and total height. The sample size will be calculated to achieve the same level of

statistical precision and confidence as in the with-project scenario, in compliance with IPCC Tier 3 standards for tropical forest inventories.

The monitoring frequency in the reference area will be synchronized with the project's monitoring periods, ensuring that data from both scenarios will be directly comparable. All measurements will be carried out by qualified technical teams using calibrated equipment and applying quality assurance for fieldwork, data entry, and analysis. Data will be archived and independently validated by recognized institutions, ensuring transparency and replicability.

This approach will ensure that all parameters monitored in the reference area meet the similarity criteria required by the VM0005 methodology, that estimates are ecologically representative, and that regrowth values used in the baseline scenario remain scientifically robust and precise, avoiding the risk of overestimation.

Operational and management structure

The operational structure and responsibilities for the project are divided into three basic departments:

- General management
- Technical management
- Operators.

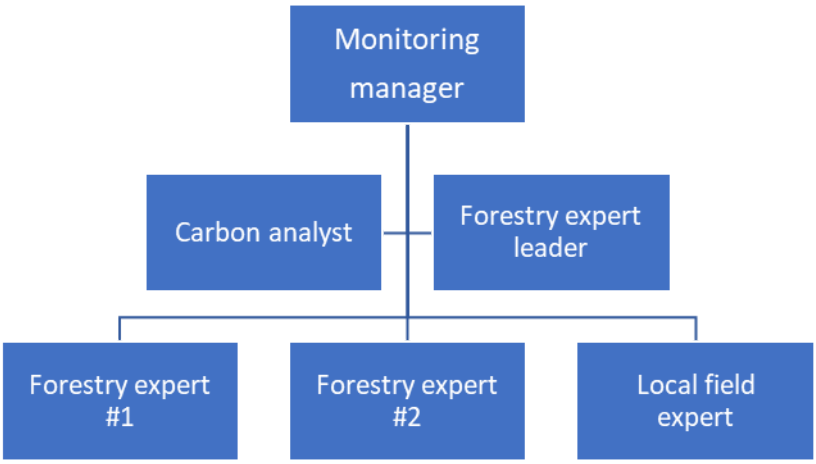


Figure 34: Operational monitoring management structure.

For monitoring purposes, the plantation manager and human resources coordinator will oversee contracting field crews that will carry out the data collection for all the parameters mentioned earlier.

The first phase of data collection is the establishment of groups of work. For these tasks the use of local, experienced staff is preferable. The project proponent is committed to acting responsibly to guarantee the quality of the silvicultural activities performed in the field, and also ensure that the environmental aspects, industrial safety, and occupational health standards are in line with the development of all the processes, products and projects.

The skills required by the staff to work in the project are as follows:

- Specialized staff: composed of professionals that perform specific technical and administrative tasks that usually have experience with this type of project. The project owners hire this group of people, and many of

them belong to the permanent team of workers. The team consists of forestry and agricultural engineers, accountants, business managers, among others.

- Qualified staff: corresponds to the staff who have acquired training and experience in forestry projects through their ongoing work on these projects and that have specialized in a particular task.
- Non-qualified staff: workers engaged in unskilled activities that do not require training to perform their duties. The company will prioritize giving these jobs to the local community and other communities in the area where the project is developed.

Once the staff has been contracted for monitoring the project activities, the data collecting process will start. Permanent and temporary plots will be the basis of data gathering. The field crews, of at least four people, will collect data. Additional people may be employed to improve the performance of the field crews when conditions require greater human resources.

The team will be composed of three forestry experts (qualified staff), one of them being the crew leader, and one additional person (qualified or not) that is familiar with the local site, routes, strata, etc. The responsibilities for each member of the team are summarized in the table below.

Crew member	Duties
Monitoring manager	Management and supervision of the entire process
Carbon analyst	Analyzes all inventory data as per the methodology recommendation
Forestry expert (crew leader)	Organizing all the phases of the fieldwork, from the preparation to the data collection. This includes: preparing the field work by carrying out bibliographic research, preparing field forms and maps, planning the tasks for the crew, administering of the location of plots, ensuring that field forms are properly filled in and that collected data is reliable, organizing meetings after field work in order to sum up daily activities, and creation of a work safety plan. When necessary, the crew leader will be responsible for training the team to guarantee the accuracy of the data collection. Additionally, he/she will have to contact and maintain a good relationship with the plantation manager and have an overview of the progress achieved by the fieldwork

Forestry expert #1 (assistant to the crew leader)	Help the crew leader to carry out his/her tasks, the necessary measurements and observations, make sure that the team's equipment is always complete and operational, supervise and guide workers.
Forestry expert #2	Measure DBH and height of trees
Local field expert	Help to measure distances, facilitate access and visibility to technicians and inform about access to the strata.

It is important to emphasize that before the teams start the data collection process, the crew leader, together with the plantation manager, must prepare field work (bibliographic research, contact with locals, preparation of the field forms, preparation of the maps and access itinerary, field equipment preparation, etc.). In this phase, it is expected that the crew leaders train the field crews, organize and plan mobilization and the preparation of necessary resources and equipment, such as vehicles, maps with plots location, and prepare and print valid field forms (the form is described in the section "Recording the data"). For this form, some information will be filled-in before going out in the field such as sections for identification of the strata and plots (header of each page), general information about strata location and coordinates of the plots.

The crew leader must ensure that enough forms are available to carry out the planned field data collection. In terms of the maps, they must be prepared to help with orientation in the field, so the maps must contain all the project strata and the location of plots for each one of the strata. The strata limits and plot locations will be delineated on topographic maps and, if available, on aerial photographs/satellite images. The plots in the strata are to be indicated, together with their respective coordinates, in decimal degrees (latitude and longitude), traceable in GPS. The point coordinates of the plots must be entered into the GPS receiver.

The plot visit order for data collection will vary according to accessibility. This is determined during the preparation phase. The plots will have unique IDs following: # (=Stratum number) + # (=Plot number).

Field equipment checklist:

- Compass (360°)
- GPS receiver (Geographic Positioning System) and spare batteries
- 1 self-rolling measuring tapes 30m (metric)
- 1 Self-rolling measuring tapes 5m (metric)
- 2 diameter tapes or caliper (metric)
- 1 clinometer
- ropes 8 mm thick and 18 m long. Marked at 9 and 17.8m
- 50m measuring tape or a 50m wire, marked every 5 meters
- Waterproof bags to protect measurement instruments and forms
- Mobile phone
- Digital camera (or Mobile phone)
- Waterproof boots and outfits

- 1 Hummer
- 1 Machetes
- First aid
- Antiallergic
- Snake Venom Serum
- Topographic maps
- Clipboards to take notes
- Data collections forms
- Field manual
- Permanent markers and pens
- 2 Spray paint
- 1 hazard tape roll
- 1 soil sampling auger
- Nylon bags for soil sample

Verification of changes in carbon stocks in the pools selected

This document provides guidance on monitoring and standard operational procedures for the Nideport project activity, to provide credible and accurate monitoring procedures to enable the evaluation of project performance and verification of the net anthropogenic GHG emission removals. The following carbon pools will be monitored in the Nideport project:

- Aboveground tree biomass: All living tree biomass above the soil including stem, stump, branches, bark, seeds, and foliage.
- Belowground biomass: this pool will be estimated using allometric equations for root-to-shoot ratio.

Stratification, number, and location of plots

Due to the heterogeneity of the forest area as well as its state of degradation, a stratification of the total area of the property was carried out.

The stratification of the forest consists of dividing it into internally homogeneous units and increasing the heterogeneity between the different units. This processing is achieved efficiently using satellite images and analysis tools. The variables and parameters that are considered for the analysis are the coloration, the texture, the density of the cups and the reflectance of vegetation cover, among others. The most common result is a map with the different types of forest, being able to also differentiate non-forest strata.

In this way, sample plots are installed and measured within the strata. This method is more efficient when the strata were diagrammed considering the expected forest biomass per hectare. The criteria for the separation of strata included the type of forest physiognomy (plantations or native forest), past disturbances, crown density, among others.

The stratification itself was carried out by interpreting and processing Sentinel-2 satellite images using the Google Earth Engine platform. Two multi-temporal mosaics were used for this; the first is from the year 2020 (144 Sentinel-2 images) and the second from 2021 (88 Sentinel-2 images). From these two mosaics, the median of the values at the pixel level was calculated, hoping that it represents the state of the coverage at that level. In addition, NDVI vegetation indices, terrain elevation and the Random Forest algorithm were used.

In this way, it was possible to obtain strata that are internally more homogeneous than if they were treated as a single stratum. The fundamental advantage of stratification is associated with the smaller number of sampling units to be installed, maintaining a certain degree of certainty in the estimates.

Therefore, the data sampling scheme was designed according to strata defined for the project performed as explained above. The following strata were identified, and all the permanent plots were properly numbered, geo-referenced, and located within a coverage/layer map of GS1 area (Figure 22).

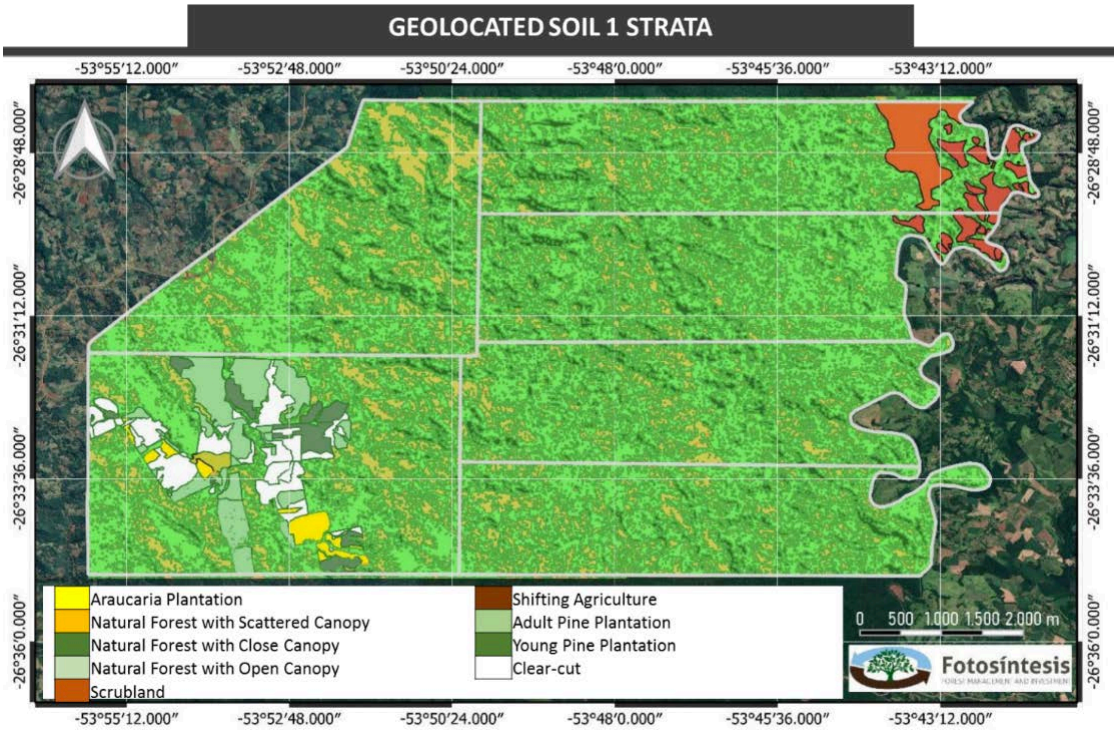


Figure 35: GS1 area.

The number of plots required for measuring the variation within the project boundary and strata were estimated by using the CDM tool "A/R Methodological Tool" for "Calculation of the number of sample plots for measurements within A/R CDM project activities."

Before each verification event, the strata will be monitored to identify different carbon accumulation patterns inside each stratum that can lead to a more cost-effective stratification and monitoring.

As indicated in the "Restoration & Forest Management Plan-EN_2023-27", the implementation of project activities considers the stratification plan. Planting, for example, is defined according to the preliminary situation of the area to be enriched. The selection of planting sites and planting scheme is determined through the initial stratification and inventory. Liana cutting is also determined according to the strata.

The monitoring for project activities such as enrichment planting and liana cutting is provided during validation in the documents "*Restoration & Forest Management Plan-EN_2023-27*" and "*Nideport_Restoration Trial with Natives*". Measures such as the amount of height of seedlings, seedling mortality, hectares planted, type of species planted, amount planted, are taken.

STRATA	AREA (Ha)	NUMBER OF PLOTS (n)	SAMPLING RATE (%)
Closed Canopy (FCC)	2,711.3	17	0.08
Open Canopy (FOC)	13,517.8	46	0.04
Scattered Canopy (FSC)	6,069.7	26	0.05
Scrubland (S)	298.2	9	0.38
Shifting agriculture	281.5	8	0.36
TOTAL	22,878.5	106	0.06

Plot type and size

Permanent circular plots (radius of 17.8 m) will be used for sampling of carbon stock in all the areas. This type is considered as more efficient statistically because it permits monitoring of carbon stock changes over time. Each sampling plot will have 3 subplots (A, B and C) with different radius where all woody individuals that met the BDH and DBH requirements defined for each type of plot were recorded (Table 11).

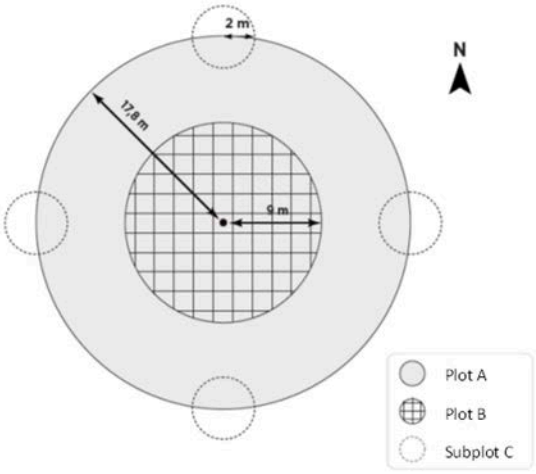


Figure 36: Sampling plot and subplots design.

Table 11: Subplot size and DBH / DB requirements

Subplot	Radius (m)	Area (m2)	DBH (cm)

A	17.8	1,000.0	DBH ≥ 20
B	9.0	255.0	5 ≤ DBH < 20
C	2.0	12.5	DBh[97] ≥ 2

These plots were measured at the start date of the project activity and will be remeasured each verification. The results will be presented as a Forest Inventory Report and the data will be used in the carbon stock changes calculations as per the methodology recommendations and recorded and kept in a plot file.

Data collection in the field

The data collection begins at the plot starting point and continues in a predefined direction. From the plot center, the northern bearing will be identified (0°), and then trees will be measured in the clockwise direction.

All trees with DBH over 2 cm will be measured according to the subplot sampling scheme (Table 4), and these data will be recorded in a field form. Trees located on the border of the plot will be considered as being inside the plot if at least half of the stem diameter at breast height is within the limit of the plot (Figure 36). Data collected include records of plant species that have been identified (common and scientific name), height and diameter. Tree diameter and height measurement methods are crucial for the accurate reporting of data.

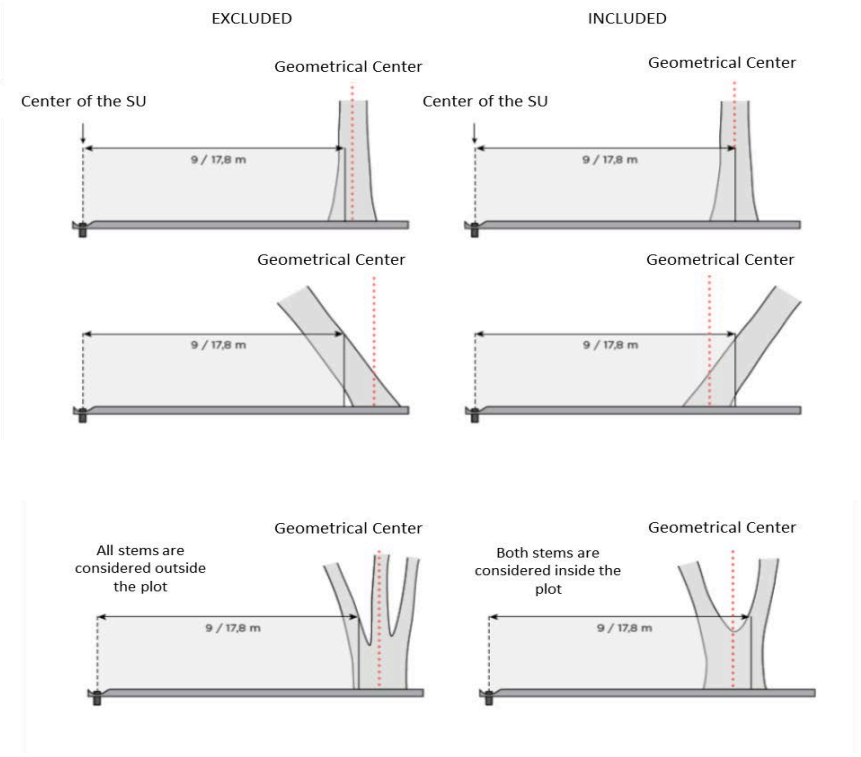


Figure 37: Criteria for tree inclusion in the sampling effort.

[97] Diameter at base height.

Tree DBH measurement

Tree diameter is measured over bark at breast height, 1.3 m above the ground except in the cases mentioned below. The measurement may be carried out with a diameter tape or with the use of a caliper.

For forked trees (trees where the stem or trunk divides), measuring varies depending on the point at which the stem forks. If the fork begins below 1.3m height, each stem having the proper diameter will be considered as a tree and will be measured. Diameter measurement of each stem will be taken at 1.3 m height. If the fork begins at 1.3 m or higher, the tree will be counted as a single tree. The diameter measurement is thus carried out below the crotch intersection point, just below the bulge that could influence the DBH.

Trees with an irregular stem at 1.3 m, like trees with bulges, wound, hollows, and branches, etc. at breast height, are to be measured just above the irregular point, where the irregular shape does not affect the stem (20).

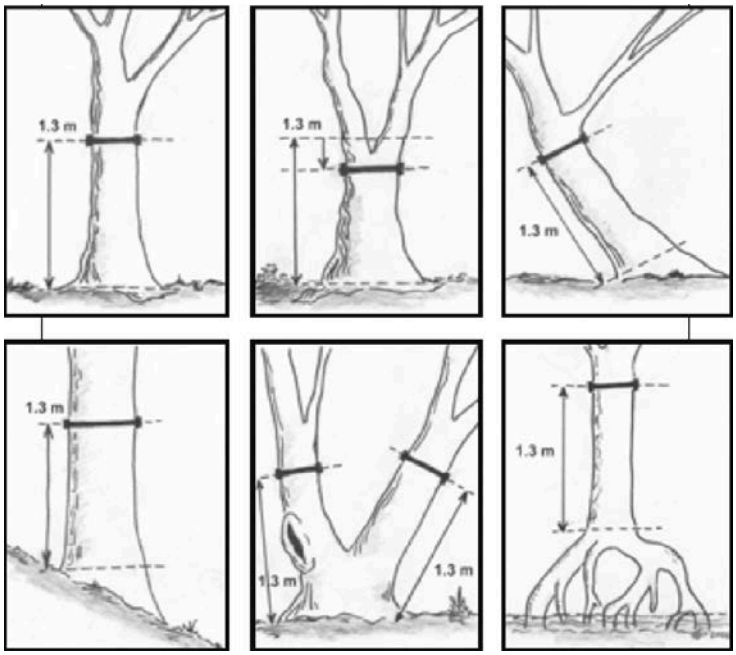


Figure 38: Correct ways for diameter measurement at breast height (Winrock, 2005).

Tree height measurement

Height measurements will be taken with a clinometer and the process for measuring tree heights is:

A point is chosen from which the person measuring the tree can see its crown.

Measure of the horizontal distance (HD) from the point chosen, to the base of the tree. Slope corrections must be applied when needed.

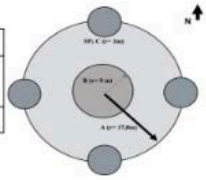
Recording the data

The field data collected will be recorded using specifically designed forms and recorded on paper and digitally. It shows the field form for collecting the data in each plot.

The data collected, calculations and related outputs will be recorded, and backup copies will be made in cloud services. The variations observed by the field staff are monitored again, thus becoming the subject of new processing, and reporting activities.

DATA COLLECTION FIELD FORM

SP ID		SHEET	/	**1** good / **2** regular / **3** bad / **4** no upper canopy	
Date		GPS POINT	/		
Recorder		AZIMUTH (°)	Distance to the center (m)	Time - Start/Finish	/
Soil					



A/B PARCELS

Record N° A/B/C	Plot A/B	Azimuth ° A/B	Center distance A/B	Species A/B	Shank N° A/B	Perimeter (cm) A/B	Total Heigh (m) A/B	Health
1								
2								
3								
4								

C PARCEL

Record N°	Plot N/E/S/O	Total Heigh (m)	Perimeter (cm)	Species	Fallen material & Bambuceas			
					Plot	Length (cm)	DAP	Canopy
1								
2								
3								
4								

Figure 39: Data collection field form.

Monitoring intervals and frequency

According to the VCS rules, the project will be monitored at least once every 5 years. Two monitoring events were already performed at this stage.

Analysis of the monitored data and parameters

The data recorded in the forest inventory (DBH and height) will be the input for allometric equations that will define the total biomass accumulated for the project at the time of monitoring.

For ex-post estimates, the default parameters and equations of the methodology will be the same used for ex-ante, unless there exist better values at the verification time, always looking for compliance with the methodological tools used for carbon stock estimation.

Procedures for internal auditing and QA/QC

The implementing organization will be responsible for centralizing the documentation required for project planning and implementation. Quality assurance (QA) and quality check (QC) procedures will be implemented to ensure that net anthropogenic GHG removals by sinks are measured and monitored precisely, credible, verifiable, and transparently.

The project procedures for QA/QC will be based on the IPCC GPG method in order to ensure that the inventory estimates and their contributing data are of high quality. Since a QA/QC plan is fundamental to create credibility, one that outlines QA/QC activities with a scheduled time frame from preparation to final reporting has been developed. The QA/QC plan describes specific procedures for both assessments. Here are some abstracts from QA/QC plan:

Standard Operating Procedures (SOP) will be established for all procedures such as field measurements, data entry, data documentation, and data storage.

Training will be held for all relevant personnel on all data collection and analysis procedures.

Sampling data and results will be checked by different team members in order to develop a credible plan for measuring and monitoring carbon stock change in the project context. The same procedures shall be used during the project life to ensure continuity.

Procedures for internal auditing

The data and calculations will be reviewed by team members preferably not involved in each part of the process, e.g., carbon stocks calculations will be reviewed by staff not directly involved in the field data collection.

Field data collection

The staff involved in the measurement of carbon pools will be fully trained in field data collection and analysis. SOPs will be developed for each step of the field measuring and followed so that measurements are comparable over time. If different interpretations of the SOPs exist among the field teams, they will be jointly revised to ensure clearer guidance. This procedure will be repeated during the field data collection.

To verify that plots have been installed and the measurements taken correctly, a minimum of 10% of randomly selected plots will be re-measured by a supervisor with a team that was not involved in the initial measurement sampling.

The proper entry of data into the data analyzes spreadsheets is required to produce reliable carbon estimates. All data sheets will include a “Person in charge” field. Direct communication between all staff involved in measuring and analyzing data will be used to resolve any apparent anomalies before final analysis of the monitoring data can be completed. If there are any problems with the monitoring plot data that cannot be resolved, the plot will not be used in the analysis. Expert judgment and comparison with independent data will be used to ensure that results are in line with expectations. Additionally, field data will be reviewed by the crew leader of the monitoring team (Operational and management structure) further ensuring that the data and analysis are reliable.

Due to the long length of the project and the speed at which technology changes, raw data archiving is essential. Data will be archived in several forms and copies of all data will be provided to each project participant. Original copies of the field measurement (data sheets and electronic files) will be stored in a secure location. Copies of all data analysis and models, the final estimate of the amount of carbon sequestered, any GIS products, and the measuring and monitoring reports, will be stored in a dedicated and safe place (preferably offsite). Electronic copies of all data and reports will be updated periodically and converted to any new format required by future software or hardware. An employee involved in the field measurements will be assigned to implement this updating. The data collected shall be archived for a period of at least two years after the end of the last crediting period of the project activity. The main activities to be developed for the QA/QC process, are described in Table 12.

Table 12 Procedures for internal auditing and QA/QC process

QA/QC activity	Procedures
Check that assumptions and criteria for the selection of emission factors and other estimation parameters are documented.	Cross-check descriptions of project activity, emission factors and other estimation parameters with information on source and sink categories and ensure that these are properly recorded and archived
Check for transcription errors in data input and reference.	Confirm that bibliographical data references are properly cited in internal documentation. Cross-check a sample of input data (either measurements or parameters used in calculations) for transcription errors.
Check that removals are calculated correctly.	Redo a representative sample of removal calculations. Selectively mimic complex model calculations with abbreviated calculations to judge relative accuracy
Check that parameters and units are correctly recorded and that appropriate conversion factors are used.	Check that units are properly labeled in calculation sheets. Check that units are correctly carried through from beginning to end of calculations. Check that conversion factors are correct. Check that temporal and spatial adjustment factors are used
Check the integrity of database files.	Confirm that the appropriate data processing steps are correctly represented in the database. Confirm that data relationships are correctly represented in the database. Ensure that data fields are properly labeled and have the correct design specifications. Ensure that adequate documentation of database and model structure and operation are archived
Check that the movement of inventory data among processing steps is correct	Check that removal data is correctly reported when preparing summaries. Check that removal data is correctly transcribed between different intermediate products
Check that uncertainties in removals are	Check that qualifications, assumptions and expert judgments are recorded. Check that

estimated or calculated correctly	calculated uncertainties are complete and calculated correctly, following the methodology requirements
Undertake review of internal documentation	Check that there is detailed internal documentation to support the estimates and to enable reproduction of the emission, removal estimates. Check that inventory data, supporting data, and inventory records are archived and stored to facilitate detailed review. Check integrity of any data archiving arrangements of outside organizations involved in inventory preparation
Check time series consistency	Check for temporal consistency in time series input data for biomass estimation. Check for consistency in the algorithm/method used for calculations throughout the time series
Undertake completeness checks	Confirm that estimates are reported for all years. Check that known data gaps that may result in incomplete emissions estimates are documented and treated in a conservative way
Compare estimates to previous estimates	Current inventory estimates should be compared to previous estimates, if available. If there are significant changes or departures from expected trends, re-check estimates and explain the difference

Uncertainty assessment

The project follows the methods from IPCC GPG for LULUCF, GPG 2003, and the modalities and procedures for A/R project activities to estimate baseline net GHG removal by sinks, leakage, actual net GHG removal by sinks, and net anthropogenic removal by sinks. In the context of this methodology, the major sources of uncertainties associated with changes in carbon stock in the living biomass pool include natural factors, such as fire and pest outbreaks, forest stand variables such as variation in the yield tables, allometric equation, biomass expansion factor (BEF), wood density, carbon fraction, and errors during measuring. Estimates of uncertainty will be developed for all land-use categories involved in the inventory part of the monitoring.

Verification of project emissions

The project will quantify and monitor the non-CO_2 GHG emissions resulting from the occurrence of forest fire within the project boundary, whose accumulated area affected by such fires in a year is ≥ 5% of the project area. These events will be monitored, and the affected area will be recorded.

Emission of non-CO_2 GHG resulting from the loss of aboveground tree biomass due fire will be calculated in each verification period, by using the above ground biomass in trees of relevant strata calculated in the previous verification and the default values for the combustion factor, the emission factors, and the global warming potential.

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

Free, Prior and Informed Consultation with social impact assessment is a fundamental axis of the project. During this instance, surrounding communities were invited to the introduction of the project's main objectives, risks, and benefits, with open instances to comment on it.

During the monitoring process, basic documents will be made, reporting results in a simple and inclusive language and with measures of evaluation of processes and results, they will be available on the website, social networks, publications in local newspapers, information meetings with stakeholders during monitoring instances. Moreover, the project´s documentation (as well as local language summary) will be available on VCS and CCB webpage, and a public consultation period will take place for stakeholders to comment on each project´s design.

3.4 Optional Criterion: Climate Change Adaptation Benefits

3.4.1 Regional Climate Change Scenarios (GL1.1)

The national and sub-national governments have identified climate change scenarios at a subnational and regional level. For the case of Misiones, the expected impacts are[98,99]:

- Increase annual media temperature.
- Increase in heat waves and tropical nights.
- Increase of days with intense precipitation
- Increase in dry days.
- Increase in windstorms intensity.
- Increase in hail events.

Although there are projects at a sub-national level to protect communities from drought and floods through headwater management and forest sustainable management of forest to assure food security, based on current land use maps the project area would have suffered degradation and deforestation, further increased the risks, and impacted of the changes observed and projected due to climate change.

[98] https://cambioclimatico.misiones.gob.ar/plan-de-respuesta-misiones/

[99] Source: Climate Change Ministry for Misiones: presentation on Climate Change Adaptation Plan based on "Cambio Climático en Argentina; Tendencias y Proyecciones" (Secretaría de Ambiente y Desarrollo Sustentable de la Nación, 2014), Plan Nacional de Adaptación y Mitigación al Cambio Climático

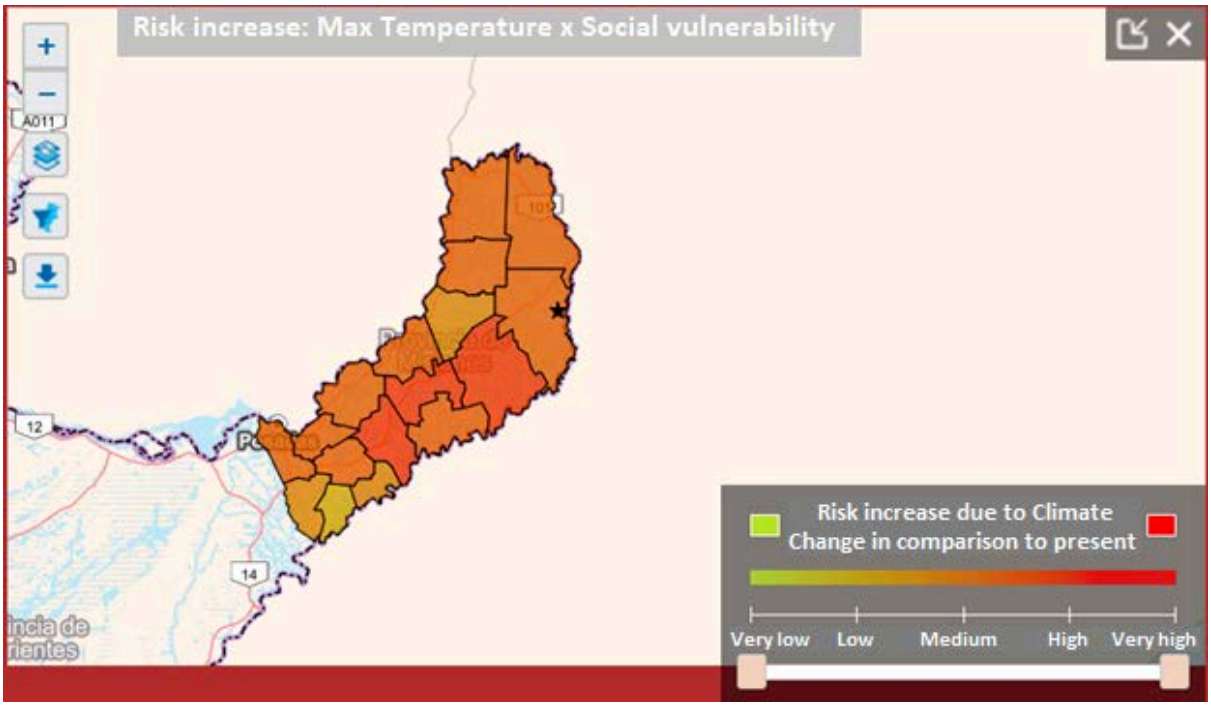


Figure 40: Climate change map risk for max temperature and social vulnerability index. Threat: Medium emission scenario (RCP 4.5) | Projection 2050-2100. Other threats and variables available at SIMARCC platform.

3.4.2 Climate Change Impacts (GL1.2)

In terms of community well-being and biodiversity, the provincial government has anticipated the following impacts due to climate change in the region, evaluated based on national climate change impact analysis[100] [101]:

Community well-being

- Decreased access to drinking water and irrigation due to prolonged droughts.
- Decrease in comfort due to high temperatures with increasing need for cooling systems and water demand.
- Impacts over the food production system and the associated production chain due to prolonged dry days and/or hail leading to an increase in prices.
- Impact on public and private infrastructure due to an increase in extreme events: rural roads, bridges, drains, dams, electricity transmission and distribution networks, and other infrastructure.
- Increased sediment entrainment and obstruction of drainage routes, increased risk of flooding and waterlogging of soils, and soil erosion (changes in physical composition and potential loss of soil fertility).
- Increased impact on indigenous communities due to their close relationship with nature and natural resources.
- Increased heat-related illnesses, water supply, and deficiencies in electricity supply due to high demand, with reduced working days.

[100] National analysis available at: https://simarcc.ambiente.gob.ar/cambio-climatico.

[101] Regional analysis available at: https://cambioclimatico.misiones.gob.ar/wp-content/uploads/2022/04/Presentacion-Plan-de-Respuesta.pdf.

- Increased internal migration in search of better economic livelihood conditions, with increased momentum in rural-urban migration flows.
- Increase in vector-borne diseases (dengue fever, etc.) and water pollution.
- Increased risk of health problems, cardiovascular diseases (due to heat waves) and respiratory diseases (due to pollution).
- Increased risk of health problems, cardiovascular diseases (due to heat waves) and respiratory diseases (due to air pollution caused by an increase in the frequency of fires), mainly in the most socially vulnerable groups.

The level of risk of the population is an indicator resulting from the interaction between climate variables and the vulnerability index of the population. In the case of the rural area, the project zone has a value of 4 out of 5. Specifically, the risks are a consequence of changes in maximum temperature (°C), which by 2030 is expected to increase by 1.17°; annual precipitation and tropical nights increase.

Biodiversity conservation status.

- Impacts on natural ecosystems due to changes in climate.
- Favorable conditions for the development of fires and damage to native forest, biodiversity, primary production and associated industries.
- Increased sediment entrainment and obstruction of drainage routes, increased risk of flooding and waterlogging of soils, and soil erosion (changes in physical composition and potential loss of soil fertility).
- Increased pressure on natural resources due to lack of productivity, price increases, extreme events, job losses, among others.
- Limitation to ecosystem services due to slow adaptation.

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

Based on the summary guideline from IPCC AR5: Climate change, adaptation, and vulnerability[102], and the main risks identified by the communities during consultation, the project proponent has worked on a list of potential adaptation measures based on level of risk in the project zone. The actions needed to reduce the projected risks of climate change and that will be part of the project's activities include adaptation based on ecosystems and communities. Some of the measures include the need for the management and conservation of basin headers against drought and floods; the restoration of native forests; housing improvement; and securing food access as well as participating the community in the identification and implementation of adaptation measures. In this line, different project activities are being or will be designed with the communities to be implemented in line with needs identified in public participation instances.

Moreover, biodiversity is being lost at an exponential rate and climate change is one more pressure that acts in synergy with other important threats such as habitat loss and invasive exotic species. This makes the impacts on biodiversity even more harmful.

Climate change directly impacts birds and their habitats, but at the same time it will complement the already existing pressures. However, biodiversity can play a significant role in climate change adaptation and mitigation strategies. By

[102] Available at: https://fundacion-biodiversidad.es/sites/default/files/informacion-institucional/guia-gt2ar5-final.pdf.

strengthening ecosystems and their capacity to regulate climate, and by preserving carbon-rich environments such as forests, it is possible to ensure that carbon remains sequestered in the system.

For this reason, it is necessary to increase efforts to improve and ensure the resilience of species and their environments by mitigating and adapting to existing threats and those associated with climate change, complementing the activities that ensure carbon sequestration with direct actions on the other mentioned threats.

The increase in green corridors connectivity provides an adaptation strategy for species providing a wider space for basic needs fulfillment (nesting, breeding, and feeding). Moreover, watershed restoration will allow the regeneration of environments for the threatened and lesser-known species that use them (Black-fronted Piping-Guan and Long-tufted Screech-Owl) while protecting the ecosystem services that the streams generate along the entire area. In the same line, anticipated and proactive disaster and disturbance response may limit the impact' extent allowing for "[a] enhanced ability to make management responses to major natural disturbance and [b] reduced risks of such responses on biodiversity (Millar et al., 2007)" (Subrahmanyam, S. 2015).

Table 15: Adaptive measures.

Risk	Potential adaptation measures	Climatic factor	Temporal term	Level of risk	Adaptation potential	Adaptation related project activity
Low water availability	Water reservoirs construction; innovation on water recollection techniques; water use efficiency; rainwater recovery and use	Drought	Short term	High	Medium	Ra yi; payment for ecosystem services;
Low crop yields. Loss of family income	Training on crop cultivation in climate change context; incentives for efficiency in water use for crops; innovation on water recollection techniques; water use efficiency	Drought	Short term	High	Medium	Ra yi; payment for ecosystem services;

Loss of natural resources´ quality	Native forest recovery; native forest conservation; water reservoir construction	Drought	Short term	Medium	High	Payment for ecosystem services;
Food security and housing risks affecting the health and welfare of the population.	Ra yi: 1. Increase in the size of community gardens. 2. Increase in the number and variety of species cultivated. 3: improvement of spring water infrastructure for access, storage and distribution of water construction of water reservoir in natural spring Oga: A: quality of housing materials. B: existence of flooding or leaks in the dwelling. C: existence of adequate ventilation. D: existence of adequate heating. E: existence of fire risk	Drought	Short term	Low	Medium	Ra yi, Oga.
Habitat loss	Anticipate and better preparation for disaster and disturbances; Increased green	Extreme events	Medium	Medium	Medium	Project area management

	area connectivity					
Habitat loss	Increased communication of knowledge to stakeholders; establishment of local collaborations for unified actions	Extreme events	Short	Medium	Medium	Project area management

4 COMMUNITY

4.1 Without-Project Community Scenario

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

It is important to mention that, due to the limited information on the communities in the project boundary, in order to generate useful primary data, a research methodology with a mixed multi-stage -or triangulated- design was elaborated and implemented. With interviews of maximum variation; under the logics of "key actor", "snowball" and "Focus Group". And with censuses[103] in sites, villages and indigenous communities located in the project boundary , with a random sample selection by clusters for the villages, and with a directed sampling selection and by clusters for the indigenous community.

The mixed strategy included:

- Meetings with stakeholders from a convenience-driven sample.
- Ethnographic approach: participant observation, descriptive and detailed recording of social daily life, open anthropological interview, intercultural dialogue.
- Semi-structured interviews on focal themes (human capital, degree of dependence on the field, economy, social capital, climate change) through chain or "snowball" sampling.
- Thematic focal interview or focus group for agriculture and indigenous habitat issues and perception of local problems in Cruce Caballero.
- Participatory rural assessment: SWOT matrix for self-diagnosis of community organization.
- Rural household survey. Three household censuses were conducted. The first one was a pilot or ex ante test, in the rural areas surrounding the property based on a non-probabilistic sample of maximum variation with criteria of gender, income difference and place of residence. The second household census with a sample of 60% of the households of Tekoa Alecrín (24 households), under a cluster sampling. The type of sampling used in this case is the culturally appropriate methodology achieved through intercultural dialogue with the council of authorities of the community group. The third household census will be conducted at the end of October, in Cruce Caballero, Paraje Piñeiro, Colonia Alegría and Tobuna, following a probabilistic sampling procedure, in this case random by clusters.
- Georeferencing and cartographic updating of houses, community infrastructure places, stores, community spaces, access points, roads, routes, services, sites of cultural interest and other points of interest for the

[103] Paula Matheu (2021) MAP public-private solutions. Report on the results of the census carried out.

local population. The methodology combined geolocation, interviews with community members and use of geographic processing software.

Results from these censuses are described throughout the document including section 2.1.6

Settlements history and significant changes in the past

Cruce Caballero is a place administratively dependent on the department of San Pedro, which has an urban center 25 km away. It has its development center at the crossing between National Route 14 and provincial route 22, being the last locality before the Comandante Rosales International Bridge, which links it to the Brazilian town of Paraíso. Its main access route, Route 14, links it to Tobuna, the second most important site in the project area.

This site arises from the former Paraje las Ratas or Paduan, which was located since the late 1950s on the current site of the GS1 and that was established due to the growth and consolidation of logging through different companies, including Celulosa Argentina. Towards the end of the 60s and early 70s, it already had an educational establishment of primary level, which had the support of the inhabitants and the patronage of the Catholic Church.

Towards the end of the 1970s, more precisely in 1978, there was a replacement of the site at the border, motivated by the installation of a store of general branches by a merchant named Caballero. The great traffic and movement between the routes opened new markets in the area and, according to the testimonies of the neighbors, that identification between the warehouse and the place was so strong that it was renamed as Cruce Caballero. The logging activity and sawmill remained as symbols of work and belonging after the disappearance of the warehouse.

The sawmill Cruceca S.A., belonging to Forestal Belga S.A. and located at the access to Cruce Caballero, employed about 30 workers, being the main source of employment during the 1980s, 1990s and 2000s. During the period 2018-2019, the operations of the sawmill came to an end, being dismissed and compensated the 30 workers who were employed there and generating a process of growing unemployment and concern in the community about the sources of economic income. Many of them returned to the farm (*chacra*) and "rummaged" through "*changas*" or other temporary work both inside and outside the project area.

The town of Tobuna dates from around 1924 when a group of immigrants arrived from Brazil and settled in the area founding this town. According to the first data established by the descendants, the first families that arrived at the place were: Maidana, Ferreira, Pedrozo and Bandera, those that gave rise to the name of Tobuna. This name is of Guaraní origin and refers to a small bee class without a stinger that was frequently found in the area. Years later, other families came to the site in search of new fertile lands for cultivation which attracted a hundred Brazilians residents of the rural border areas. In 1935 the first teacher arrived in the area, José Martín, who that same year would inaugurate the National School N°211 with the help of neighbors, which had a total of 15 students. Thus, the population increased due to constant immigration, which brought to the town the birth of industries such as a rolling mill located in the area of Puente Alto, which provided a source of work for the inhabitants; and a brick factory in the area of Santa Rosa a few kilometers from the urban area of the town. This new productive phenomenon resulted in the gradual growth of the school population, so that in 1969 and by Law N° 17.591 the National School N°211 changed its modality to Border School Full Day N°13. After some years, he would be assigned the name Sgt. Eduardo Ramírez (El Chaque Che) in homage to a local policeman recognized as a hero for his acts of reaffirmation of our border. After this boom in the economy of the area, businesses would break up, producing a strong need for migration because of unemployment. Thus, both in this town and in the surrounding areas would remain the population whose economy depended on agriculture and livestock, being so until today.

It is also important to mention that, in its prosperous years, Tobuna had several services for the community that have now ended, like the Argentine Post Office, which was not only used with the postal service, but also involved the payment of other services such as electricity bills. Another significant State benefit for the area has been, and continues to be, a delegation from the National Register of Persons, which was discontinued for a few years until an office in the area was restored.

Since its inception the town has had a police delegation. Another aspect to highlight is the presence of a delegation of Vincentian Sisters of Charity, who worked to promote education and evangelization in the area, since the 1960s they received girls, pupils, who were educated in crafts and female professions. Years later, primary education for adults and open secondary education increased. Tobuna currently has 3 educational institutions, which are: A Border Primary School, a Primary School for Adults and a Polymodal Educational Center (which operates since 2006).

Tekoa Alecrin community

The community of Alecrín was consolidated with this name in the 1980s. Previously, in that area, there was no distinction between Tekoa Arandu, Tekoa Alecrín or Pozo Azul; everything was part of the same territory that until the 1950s had remained outside the advance of colonization. According to historiographic and anthropological research, the current area of Alecrín formerly housed another Tekoa called Tacoaruzú, since it was possible to locate an ancient c*opy* and a cemetery. The testimonies gathered in the community indicate that this village existed in the 40's or earlier. Likewise, an abandoned temple and another cemetery have been found, which seem to have been built before the current route of the provincial road, showing the antiquity of the community in the territory (Salamanca, 2012:66, 126, 219)[104].

Lastly, the Alecrín community used to be characterized for having developed a way of life linked to the forest, both in material, social and cosmological terms. Today, their traditional living conditions have been highly modified due to colonial and private encroachment on their ancestral territories, which has generated not only a series of impediments for the development of their traditional way of life, but also an increase in inter-ethnic contact with the dominant society due to unsatisfied basic needs, forcing the communities to change their patterns of political organization and intermediation with external agents. In any case, interaction with the other localities in the project area is rather limited and confined to state and private indigenous agencies, public services and commercial centers.

Housing and public services:

Cruce Caballero, Tobuna, Paraje Alegría and Paraje Piñeiro:

49.64% of households own land declared as their own, with precarious tenure with legal title pending, there being no conflict or demands for access to land.

In most homes, there are 3 people sleeping in each room, with three-thirds of households having 2, or 3, or 4 rooms.

The predominant material of the floors of homes is cement, while the predominant material of the walls is wood and of the roofs, zinc.

Most stoves run on wood, and most homes are heated by burning wood/charcoal.

Almost all homes have electricity with 58% of households with internet access.

[104] Salamanca, C. (2012). Alecrín, cartografías para territorios en emergencia (1a ed.). Rosario: UNR Editora.

Households obtain water through a public network, through water wells with a pump and through a pump at the nearest natural water source.

Tekoa Alecrín:

Land tenure situation: current and public ancestral right, with de facto recognition by the State, in conflict with company Harriet SA.

Most households are composed of 4-5 members or 8 members.

Almost all households have one (1) room.

Almost all households have between 1 and 3 beds for sleeping.

The predominant material in the floors of households is soil, the walls are made of wood, and roofs predominantly of zinc.

Homes do not have bathrooms.

Stoves run on firewood and homes are heated by burning wood.

Almost all homes have electricity, but most do not have internet connection.

Households obtain water through water wells with a pump and by collecting water with buckets from the nearest natural source.

Governance and social capital:

There are public, private and third sector institutions that address environmental problems, but they work in an isolated, uncoordinated manner, with a high level of institutional fragmentation, which shows that there is no governance scheme. These institutions are: USUBI Project of the Ministry of Environment and Sustainable Development, National Institute of Agricultural Technology (INTA), Wildlife Foundation, Ministry of Ecology of the province of Misiones, Ministry of Environment of the Province of Misiones, Aves Argentinas, Biosfera Yaboti, Asociación Civil de foresto ganaderos, Cooperativa La Nueva Esperanza, Unión vecinal de Cruce Caballero, among others.

Also, community organizations such as churches, neighborhood unions, cooperatives, and picnic areas do not have high participation except in specific problems on certain occasions. The neighborhood relationship is close; however, social cohesion is lacking for the management of community projects, having a medium-low level of trust in actors external to the local population. In this line, although the community tries to promote projects, they perceive themselves as lacking capacities or poorly trained for implementation, which they understand as a weakness they have themselves.

Community integration is therefore of low intensity. Although it is a community that is perceived to be predominantly secure, there are new realities of consumption and migration that make this security questionable in the medium and long term.

Situation of women and gender approach:

Historical trend has reinforced the differentiated allocation of productive and reproductive work, and within the project zone a marked division of labor according to gender can be found. In general, the tasks of production and provision are associated with the figure of man, while the tasks of care and maintenance of domestic activities are associated

with the figure of woman (confirmed through different methodological tools) and strongly influenced by the evangelical religion in the area. This translates into a scenario in which men tend to have paid jobs mostly linked to forestry (wood extraction and processing) and production based on perennial crops (such as yerba mate, tea, etc.) while women tend to engage in unpaid domestic work ranging from sowing and harvesting food for both household consumption and sale, to preparing daily food, cleaning and tidying up the home, the care of children, the elderly and people with disabilities.

In turn, most women also perform productive work both inside and outside the home for which they receive considerably low pay. An example of this is the artisanal processing of food for sale, from which they obtain monetary contribution which, in general, does not exceed US$ 50 per month[105].

Another aspect that deserves to be mentioned is the scarcity and informality of waged labor. Although in rural areas this extends to men and women, it is men who have the most job opportunities, and who have the greatest possibilities to achieve better conditions of recruitment and/or formality. In this regard, during field visits, it was heard that "there is no job for women", a situation resulting not from the educational level achieved, but from a lack of job opportunities for women and a lack of institutions or training spaces.

The same happens with the access to public government offices, since there is a large majority of men in the public sector such as the town hall, mainly in the most senior positions, which is an indicator of gender inequality in access to and control of public resources.

With regards to access to education, we identified a similar access for both genders in the community. According to the survey's results, almost the same number of women and men are literate, mainly interrupting studies during secondary level. One of the reasons may be teenage pregnancy, considering that most of the women surveyed indicated having had their first pregnancy between the ages of 15 and 20.

On the other hand, we have the case of Alecrín. As found in the thematic literature, the symbolic geography of the Mbya Guarani has a strong role in their socialization and in the sexual division of labor. While the Tekoa is considered a feminine space par excellence, destined to the rearing of the youngest children and the domestic activities, the field and the white world are external areas with which only men deal, when they leave the Tekoa Alecrin boundaries. This aspect that characterizes the Mbya largely explains why most women do not speak Spanish and avoid contact with entities outside their community. It could be said, then, that this cultural trait somehow limits them to the tasks of the domestic activities and, in turn, restricts their connection with the "white world" outside. In this regard, we have found that it is only women who are engaged in certain domestic activities such as cleaning, washing clothes and cooking food; and in turn, young men are the only ones who do salaried work outside the community, such as informal work on yerba mate crops.

In terms of access to education and the Spanish language, although there appears to be a cultural impediment for women in Tekoa Alecrin, the formal establishment of the "Vera Poty" school together with the bilingual intercultural education project activities, since 2008, have led to greater schooling for young women and girls, and thus to greater knowledge of Spanish in recent years

[105] Conversion of Argentinean ($) to US Dollar (US$) calculated based on nov-dec 2021 value at time of census equal to $100 per US Dollar.

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

Regarding participation, community organizations such as churches, neighborhood unions, cooperatives, and picnic areas do not have high participation except in specific problems on certain occasions. The neighborhood relationship is close; however, social cohesion is lacking for the management of community projects, having a medium-low level of trust in actors external to the local population. In this line, although the community tries to promote projects, they perceive themselves as lacking capacities or poorly trained for implementation, which they understand as a weakness they have themselves.

For the case of the Alecrín community, as previously mentioned, they used to be characterized for having developed a way of life linked to the forest, both in material, social and cosmological terms. Today, their traditional living conditions have been highly modified due to colonial and private encroachment on their ancestral territories, which has generated not only a series of impediments for the development of their traditional way of life, but also an increase in inter-ethnic contact with the dominant society due to unsatisfied basic needs, forcing the communities to change their patterns of political organization and intermediation with external agents. In any case, interaction with the other localities in the project area is rather limited and confined to state and private indigenous agencies, public services, and commercial centers.

Due to the conditions of isolation typical of rural social life, the predominance of productive family units and the lack of resources for the development of shared activities and leisure time, in addition to the endo-group characteristics of the Mbya way of life, we conclude that social interactions between community groups and the wider community to which they belong are of low intensity.

4.1.3 High Conservation Values (CM1.2)

Due to the perceived impacts of climate change by the community, there is a vision of an immediate future in which, first, water sources will be reduced and, second, low land productivity and damage to crops will be deepened, which will significantly worsen the economic situation of small agricultural producers and the family economy. The lower the household monetary income, the greater the use of natural resources in the surrounding area (medicinal plants, firewood, etc.), thus leading to more dependence on native forests for the provision of these inputs and its ecosystem services.

Based on this, the identified HCV for the community during the public consultation and further specific HCV workshops in Alecrín village are detailed below:

High Conservation Value	Firewood and collection areas in the native forest for household fuel wood (cooking and home heating).
Qualifying Attribute	Firewood collection areas were identified by communities as HCV during surveys, interviews, and the participatory workshops carried out. Showing the main sites are outside the project area due to distances. Communities surrounding the project site have a high dependence on firewood for heating and cooking, being the forest nearer to their homes the main source of this product. According to the census carried out in the communities of the project area,

	74% of the households surveyed use firewood as fuel for cooking and heating their homes[106]. This is what the HCV Resource Network's Generic Guide to Detecting High Conservation Values indicates as an "area that is critical to communities' livelihoods".
Focal Area	Efforts will be made to generate incentives and initiatives to promote native forest conservation in the project's area of influence. Through this program that promotes the protection of native forest on the project zone, it is expected that this high conservation value will remain stable and develop, impacting directly on the surrounding communities.

High Conservation Value	Native forests for its ecosystem services
Qualifying Attribute	Through participatory HCV areas identification workshops conducted with the community, it was identified that the native forest ("mountain") is key to produce oxygen in general and for the mitigation of high temperatures derived from Climate Change in particular. Following the Generic Guide for the Detection of HCV Resource Network we can indicate the native forest areas of the project area as a critical ecosystem service for the community and humanity in general.
Focal Area	The participatory workshops of HCV also demonstrated the concern of communities about the threat of deforestation of native forest for productive purposes.

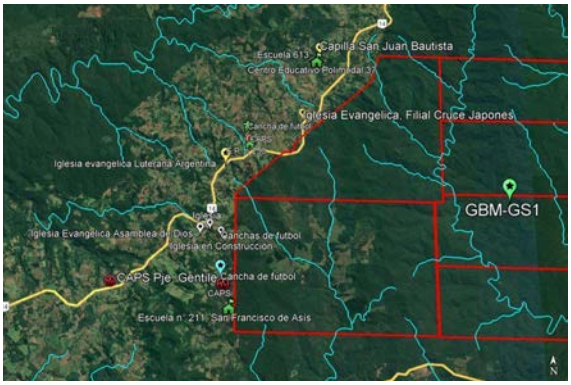
High Conservation Value	Laguna Encantada (Enchanted lagoon)
Qualifying Attribute	From informal interviews with residents, it was found that the Laguna Encantada (located within the project site) is considered a place of landscape relevance (associative cultural landscape) and psychophysical well-being. In addition, the Laguna Encantada is present in some stories of folklore in the area. In this sense, following the Generic Guide this site can be categorized as

[106] Results from census available to VVB during validation

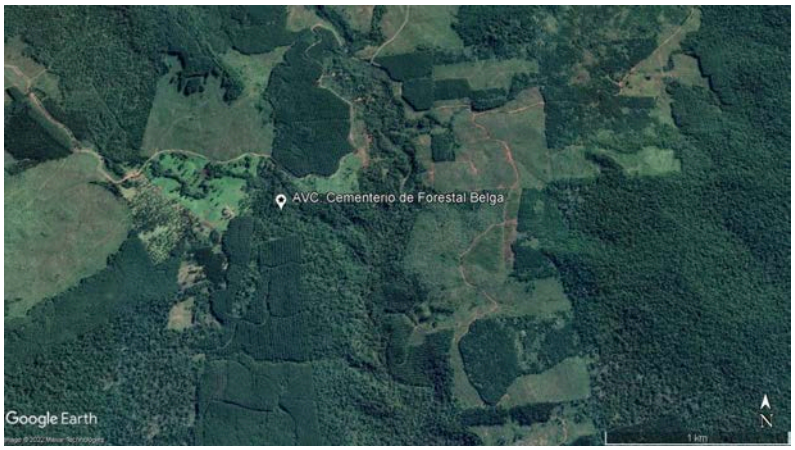
	"Sites, resources, habitats and landscapes significant on a global or national scale for cultural, archaeological or historical reasons, or of cultural, ecological, economic, religious or sacred importance critical to the traditional culture of local communities or people's indigenous people".
Focal Area	Located within the project area. See figure 10

High Conservation Value	Yabotí miní stream; Invernada stream; Toro stream; Guaraní aquifer Streams without nomenclature; Numerous springs and water sinks
Qualifying Attribute	86% of the households surveyed believe that there are environmental problems in the area, being drought and water scarcity the main ones. Only 30% of households surveyed reported having access to water through public water networks. Most local people get their water from drilling or some other natural sources. Within the project area there are different sources and streams that act as an essential water service and a source of water consumed by households or used for the irrigation of their crops: slopes, streams, nappies. In addition to this, the waterways of the area function as sites where members of the community satisfy leisure time and aesthetic-landscape enjoyment. From very small-scale fishing to swimming in basin pots. In this sense, following the Generic Guide for the Detection of High Conservation Values of the HCV Resource Network we can indicate all these water courses and sources and their environment as an HCV as a critical ecosystem service for the community.
Focal Area	See figure 10. Contamination of water streams by companies using agrochemicals, deforestation of areas where water courses are located and no regulation of drilling for water were identified as potential threats.

High Conservation Value	Cultural or Community Values Sites: Churches, Soccer Fields, Community Hall, CAPS, Schools
Qualifying Attribute	From the participatory workshops, it was possible to identify those sites that the community identifies as culturally and communally valuable. The numerous churches, besides functioning as spaces of social gathering,

	are places where people practice and carry out their religious worship. The football fields are important because the community meets and plays sports of different kinds. The Cruce Caballero Community Hall is very important as it is a meeting point for the community. There are popular parties, meetings, and public consultations. CAPS are key to care for community health problems. The different schools: Key places for the education of the community in general. In this sense, following the Generic Guide these sites can be categorized as HCVs, as "Sites, resources, habitats and landscapes significant on a global or national scale for cultural, archaeological or historical reasons, or of cultural, ecological, economic, religious or sacred importance critical to the traditional culture of local communities or indigenous people".
Focal Area	Different buildings and infrastructure in the project zone. Through the NIDEPORT project GS1 that promotes the protection of the native forest on the project site along with initiatives of community inclusion it is expected that these high conservation values remain present and even acquire some revaluation from initiatives proposed by the community. 

High Conservation Value	Forestal Belga´s graveyards
Qualifying Attribute	Surveys of the project site revealed the existence of two cemeteries where the remains of former employees of Forestal Belga and other previous

	companies are buried. There are also visits from relatives of the deceased. This abandoned graveyard is located within the GS1 land, near the farm's hull. It consists of different tombs in different conservation conditions. Some correspond to previous workers of the farm and others are thought to belong to previous communities settled long before Forestal Belga started working in the area (more than 40 years). Relatives were identified for some of the deceased, as they visit the tombs during special occasions. In this sense, following the Generic Guide these sites can be categorized as HCVs, as "Sites, resources, habitats and landscapes significant on a global or national scale for cultural, archaeological or historical reasons, or of cultural, ecological, economic, religious or sacred importance critical to the traditional culture of local communities or indigenous people".
Focal Area	Coordinates for the site are: 26°33'26.21 "S 53°53'37.27 "W S 26° 33' 3.661" 53° 55' 19.894" W Graveyard in the farm's hull and surrounding area. 

For the case of the Tekoa Alecrín community, these are the HCVs identified:

High Conservation Value	Wood/firewood collection areas in Tekoa Alecrín (Mbya Guaraní Community)
Qualifying Attribute	From the census, the surveys and the HCV workshop carried out in the Alecrín Village it is confirmed that the community has a strong vital

	dependence for the forest that is within the limits of the Tekoa. In the absence of a public gas network that reaches the community, the Wood/Firewood collection in the forest on the edge of the Tekoa are essential for cooking and heating homes. 100% of the households surveyed use firewood for cooking or heating[107]. In this sense, following the Generic Guide these collection areas and their environment can be categorized as HCV areas as they are "Key sites and resources to meet the basic needs of local communities or indigenous peoples."
Focal Area	The area is shown in figure 9. The identified participatory risk that threatens these HCVs is the intrusion by settlers of communal lands belonging to the Tekoa. Through a process of interaction of NIDEPORT with the community, it will be sought to jointly establish initiatives for the accompaniment of the community in the protection and respect of this HCV area.

High Conservation Value	Harvesting areas for wild products, medicinal plants, fruits and game in the Tekoa Alecrín (Mbya Guarani Community)
Qualifying Attribute	From the census, the surveys and the HCV workshop carried out in the Alecrín Village it is confirmed that the community of Alecrín has a strong vital dependence to the wildlife, medicinal plants, fruit and game collection areas in the forest surrounding the community, becoming vital inputs for the community's nutrition, health and culture. 100% of households surveyed reported using medicinal plants. Most households collect these plants from collection areas. Other essential products that were declared to be collected were: Wood, fruits, animals, honey, among others. On the other hand, it is worth mentioning that the surrounding space of the Tekoa also constitutes a sacred space, since they inhabit spirits and non-human entities of the forest that have wide importance for the Mbya cosmology. In this sense, following the Generic Guide these collection areas and their environment can be categorized as HCV areas as they are "Key sites and resources to meet the basic needs of local communities or indigenous

[107] Results from census carried out available to VVB

	peoples." as well as "area that is critical to the traditional cultural identity of the community.
Focal Area	The area is shown in figure 9. Native forest that is within the limits of the Alecrin village and surrounding areas. The map below was made in a participatory way by the Alecrín community, identifying their territory land uses and HCV areas. The identified participatory risk that threatens this HCV is the intrusion by settlers of communal lands belonging to the Tekoa. Through a process of interaction of NIDEPORT with the community, it will be sought to jointly establish initiatives for the accompaniment of the community in the protection and respect of this HCV.

High Conservation Value	Fishing zones in the Tekoa Alecrín (Mbya Guarani Community)
Qualifying Attribute	From the census, the surveys and the HCV workshop carried out in the Alecrín Village it is found that the community of Alecrín has a high dependence on fishing in watercourses that are within the territory of the Tekoa Alecrin community. The fishing areas in the territory of the Alecrín community are fundamental because these inputs are essential for the community's feeding. Fishing is one of the main collection activities declared by households surveyed in the census. Also, in several informal interviews it was possible to see the importance of fishing for the feeding of families and for the recreation and socialization of young people in the community. In this sense, following the Generic Guide these water courses and associated basins can be categorized as HCV providing a critical ecosystem service for the community as they are "Key sites and resources to meet the basic needs of local communities or indigenous peoples."
Focal Area	The area is shown in figure 9. The identified risks that threaten these HCVs are interference by settlers in communal lands belonging to the Tekoa and possible droughts. Through a process of interaction of the company with the community, it will be sought to jointly establish initiatives for the accompaniment of the community in the protection and respect of these HCVs.

High Conservation Value	Bodies and streams in the Tekoa Alecrín (Mbya guaraní Community): Alegría stream Piray Guazú stream Suturno stream Streams not named Other sources and streams
Qualifying Attribute	The community of Alecrín has a strong vital dependence for the streams and bodies of water that are in the territory of the Tekoa. In the absence of a public water network, the bodies and watercourses near the Tekoa Alecrín are essential for consumption, food production and other uses by Tekoa's households. The census found that most households receive water through a perforated well or some natural source of water. In this sense, following the Generic Guide these water courses and basins are identified as critical to prove ecosystem service for the community as "Key sites and resources to meet the basic needs of local communities or indigenous peoples."
Focal Area	The area is shown in figure 9. The identified risks that threaten these HCVs are interference by settlers in communal lands belonging to the Tekoa and possible droughts. Through a process of interaction of NIDEPORT with the community, it will be sought to jointly establish initiatives for the accompaniment of the community in the protection and respect of these HCVs.

High Conservation Value	Boundary of Tekoa Alecrín Community Terrain, "Rumbo" (Mbya guaraní Community)
Qualifying Attribute	From the participatory HCV identification workshops held in the Tekoa Alecrín community, it was found that the community considers the existence and respect of the boundaries that demarcate its territory of life as very valuable. The "Rumbo" demarcates the limits that separate the Tekoa from other inhabitants of the area.
Focal Area	Figure 9 shows the boundary of the Community Terrain and the identified HCV.

High Conservation Value	Places of worship of the Tekoa Alecrín, “Opys” (Mbya guaraní Community)
Qualifying Attribute	These spaces are important not only for a religious matter, but also serve as meeting points and various cultural activities. In this sense, following the Generic Guide Opys can be categorized as HCVs as "religious or sacred importance critical to the traditional culture of local communities or indigenous people".
Focal Area	Figure 9 shows the community’s limit and HCVs identified including the Opys. The identified participatory risk that threatens these HCVs is the intrusion by settlers of communal lands belonging to the Tekoa. Through a process of interaction of NIDEPORT with the community, it will be sought to jointly establish initiatives for the accompaniment of the community in the protection and respect of this HCV.

High Conservation Value	Tekoa Alecrín Graveyard (Mbya guaraní Community)
Qualifying Attribute	The community conceives the site where the community graveyard is located as very valuable. The ancestors of the community are buried there. In this sense, following the Generic Guide this site can be categorized as HCV of “religious or sacred importance critical to the traditional culture of local communities or indigenous people".
Focal Area	Figure 9 shows the community’s limit and HCVs identified including the graveyard. The identified participatory risk that threatens this HCV is the intrusion by settlers of communal lands belonging to the Tekoa. Through a process of interaction of NIDEPORT with the community, it will be sought to jointly establish initiatives for the accompaniment of the community in the protection and respect of this HCV.

High Conservation	Tekoa Alecrín School, CAPS, Craft stalls (Mbya guaraní Community)

Value	
Qualifying Attribute	The school (EIB-FJC n°938) is fundamental because it is the space where young people in the community receive education through an intercultural system. The CAPS is the place where medical checks and basic health care are performed for community members. Craft stalls are extremely important because they are part of the income of several of the families in the community through a traditional practice of community culture. In this sense, following the Generic Guide these other sites of cultural, economic and community interest are categorized as HCV for being "of cultural, ecological, economic, religious or sacred importance critical to the traditional culture of local communities or indigenous people".
Focal Area	Figure 9 shows the community's limit and HCVs identified including the HCVs identified.

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

The projections on the expected changes in the land use scenario without a project were made in a participatory manner with the people who are and/or will be part of the different projects to be carried out from the community relations area. The projections have been schematized in flowcharts to facilitate the understanding of the inhabitants of the area of influence of the project or any person who wants to consult them. This means that a flowchart of a scenario without a project is presented for each of the development projects that will be developed with the community, showing different scenarios without projects at different levels of life of the population.

It should be noted that in the absence of updated and disaggregated official data from IPEC and INDEC regarding socioeconomic and socio-demographic variables, the projections are based on probabilistic theoretical models and the "common sense" of the inhabitants of the project's area of influence, based on their assumptions about how their quality of life would deteriorate in a scenario without a project, bearing in mind that the population is below the poverty line, in informal work conditions and with institutional disarticulation that limits assistance for community development.

At the same time, continued ecosystem degradation in the project zone[108] is expected to increase existing poverty and destitution, reduction of ecosystem services -specifically freshwater access-, as well as the absence of education levels that create economic opportunities. As already described in section 4.1.1 and 2.1.6, population in the project zone is already below the poverty line, under informal working conditions, and with institutional disarticulation which limits development assistance for the community.

[108] Degradation largely described in different publications such as: Gil, G. (2022) Propuesta de áreas claves para la biodiversidad en la provincia de Misiones. 1a ed - Ciudad Autónoma de Buenos Aires: Aves Argentinas Aop.

However, by means of flowcharts –participatory design- of expected changes in the welfare condition under scenario of land use without project, we can make a first estimate of this point[109]. Three different conditions projected without a project scenario were identified: low formal job offer, environment degradation, no offer for job training. These conditions impact communities' well-being due to lack of job opportunity, especially formal jobs, leading to lack of professionalization and upgrading of job skills. Moreover, climate change is expected to lead to environment degradation impoverishing communities due to financial fragility and tight dependence on ecosystem services (fresh water, resources -fire wood, medical plants, etc.-, and tourism attraction, among others). As a result of the last, further unemployment and poverty is expected, worsening environmental degradation, when adding to climate change pressure, further exploration and over exploitation of the area; last, communities have identified that lack of training leads to further labor precariousness with consequences on community well-being with lower future skilled job´s opportunities.

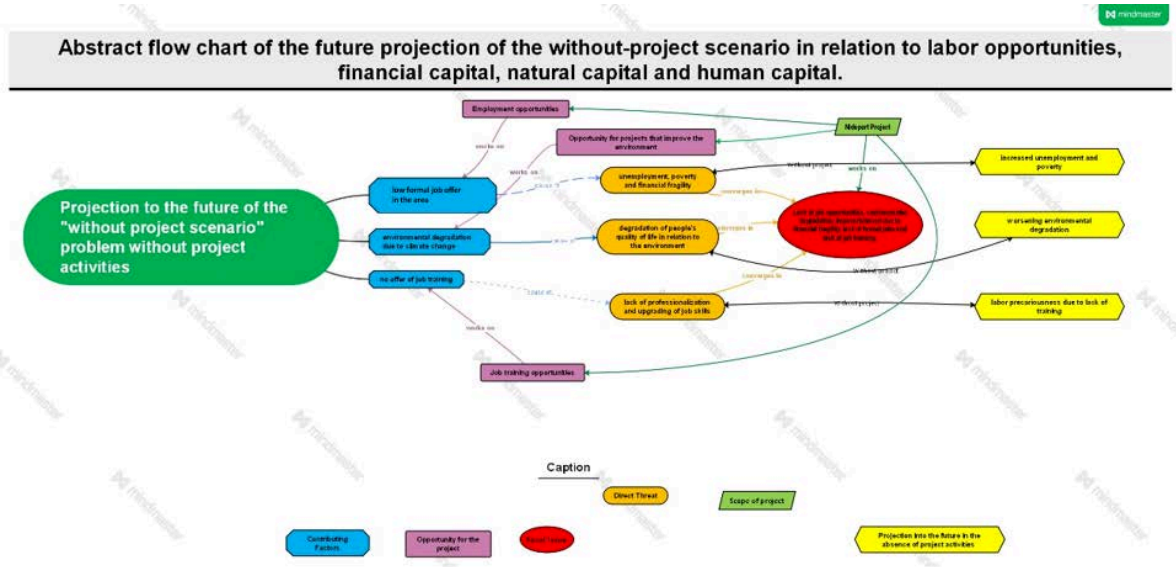


Figure 41: Flow chart of future projection of the without-project scenario in relation to the whole GS1 project.

Further conditions without project scenarios have been identified by the community in terms of each of the development projects planned (see Appendix). In this line, the expected and observed increases in droughts periods due to water deficit in watersheds, because of forest degradation among others, increases the need to increase freshwater access autonomy. The lack of initiatives, resources, and technical capabilities to build water reservoirs and lack of interest to preserve native species further leads to freshwater access risks, at the same time as increases in deforestation and drought periods.

[109] In this document only one flowchart is included, but for each project one has been elaborated and is available for VVB during validation.

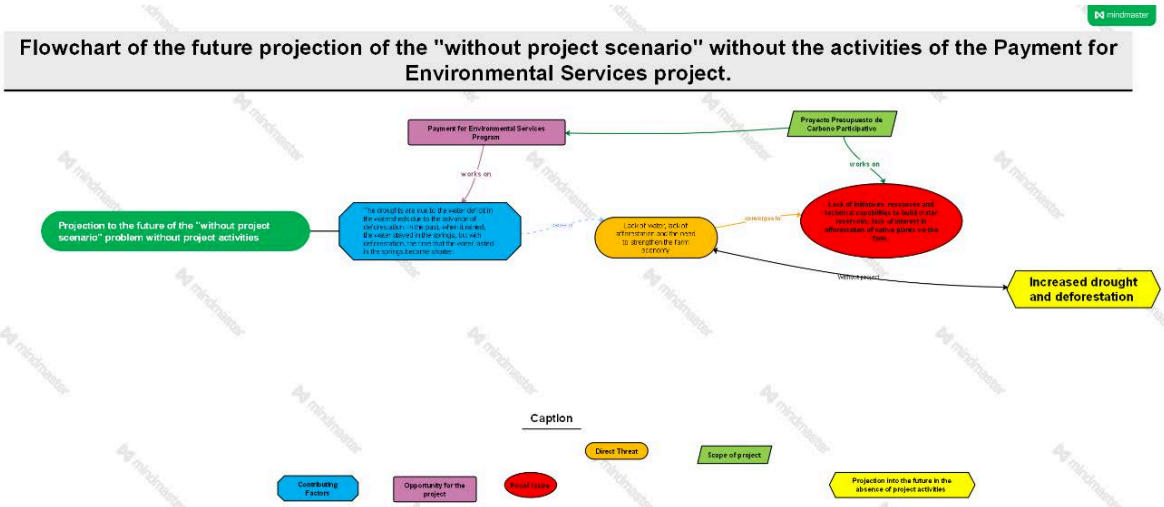


Figure 42: Another example of flow chart for without-project scenario, particularly for environmental service payments.

The monitoring and follow-up strategy of the projects will be carried out through measurements by means of management evaluations. In the corresponding projects, a group of participants "under project" will be taken, to which an incentive (project benefits) will be applied and the impacts on this population will be measured against a control group composed of a group of people who will not receive benefits at this stage but will receive them in the following stage. This strategy is given under the logic of scalability of the project. This will allow comparative measurements to describe and quantify a series of changes over time, between the population segment that does not receive benefits from the project (land use without project) and those who receive them in the first phase (scenario with project).

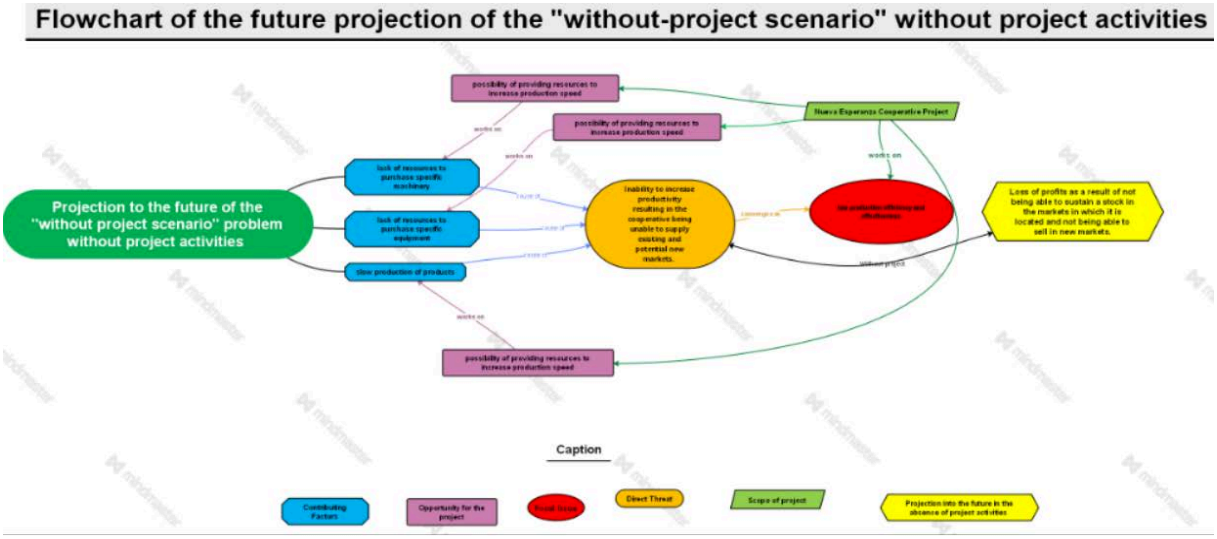


Figure 43: Flow chart for without-project scenario, particularly for the Cooperativa Nueva Esperanza project.

4.2 Net Positive Community Impacts

4.2.1 Expected Community Impacts (CM2.1)

For the determination of net impacts, it is necessary to return to section 1.2, "standardized metric benefits". The project activities seeks to improve components of community "sustainable living" frameworks, namely[110]:

Financial capital	Distribution of carbon benefits in communities; job opportunities generated; expanded production and markets.
	General Indicators: 1.Number of people affected by the distribution of carbon benefits (1,500 people, of which 700 are women) 2. Number of jobs in men and women (50 people, half men and half women); 3 number of beneficiaries in the expansion of markets (11 people).
Human capital	Training, coaching, education and the development of tools and skills for social change management.
	General Indicators: 1. Number of people participating in training (500 people, of which 300 are women), job training (50 people, of which 25 are women), and capacity building (80 people, of which approximately 30 are women).
Social capital	Increased or improved social cohesion and community participation.
	General Indicators: 1. number of participants in public consultations and participatory projects (500 people, including 300 women),

Regarding the identified groups, the impacts are detailed as follows:

Community Group	Women
Impact(s)	1.specific consideration to women needs and voice 2.generation of equal job opportunities 3.training and technical assistance for project development

[110] For further operationalization of the variables for follow-up and monitoring of final impacts see point 4.5.2.

Type of Benefit/Cost/Risk	Predicted and actual direct benefit. The project is expected to generate 25 job positions for women.
Change in Well-being	1. The different consultation meetings, especially all women instances, provide the women within the community with a safe place to raise their voice and present their needs, which can be met by the projects to be implemented. Moreover, community group partnerships can be strengthened and lead to the construction of self-respect and request for it from others. 2. Provide women with the opportunity to provide economically for the family, or its own in a formal job under good working conditions. 3. Improve and gain new skills as well as improve existing project's productivity and outcomes.

Community Group	Indigenous community
Impact(s)	1. Improved housing conditions 2. Project development under free, prior and informed conditions 3. Technical, legal and economic guidance for community development 4. Training and equipment to improve food safety
Type of Benefit/Cost/Risk	Actual direct benefit to all the Tekoa Alecrín community (238 people)
Change in Well-being	The different type of development projects with the community will allow for different changes in the community well-being including: 1. Improve health and family relations by reducing overcrowding in houses, and improving housing material conditions. 2. Projects designed according to local culture and needs, given the group a sense of unity, belonging and security in the projects. 3. Improve health and community economy by securing healthy food access.

Community Group	Vulnerable people (economic and social vulnerability, with their income and livelihoods, schooling and food sovereignty in a critical state)
Impact(s)	1. Formal job opportunities in the project boundary 2. Improvement of water reservoirs 3. Payment for environmental services 4. Training and capacitation
Type of Benefit/Cost/Risk	Predicted and actual direct and indirect benefits to all the rural communities surrounding the project boundary (1500 people from rural surrounding areas, of which 700 are women and 500 kids in school age with improved well-being; 250 for the case of water reservoirs improvement from communities neighboring the project boundary).
Change in Well-being	1. Better working conditions and income than without project opportunities 2. Water access and adaptation to climate change projected impacts. 3. Increase in the number of economic activities, leading to better financial state of families. 4. Capacity building in different subjects (food, technical skills, gender equality, biodiversity, others).

The general indicators, impacts and benefits are broadened and enriched when we go down to their description in terms of projects. The expected community impacts for the entire project zone are described here by project, from universal outreach projects to focus projects targeting vulnerable or marginalized groups. The latter will also be developed in section 4.5.1 Exceptional Community Criteria (GL2.1):

Project Name	Participatory Carbon Budgeting
Target audience	All communities within project boundary
Need / Diagnosis	Lack of participatory designs and participatory budgets in which the population can determine the priorities for investments in health, education, protection of social HCVs and community infrastructure.
Definition of direct and indirect causes	The State at various levels and the private sector have not used participatory designs and participatory budgets in public policies and/or projects.

of the requirement	
Positive impacts to be generated	1. Improve the quality of life of the project boundary population through participatory management projects in health, education, maintenance of HCVs and community infrastructure. 2. Increase social cohesion for project management through the implementation of participatory carbon forums in which agreements are reached on projects to be carried out. 3. Participation of women and men in the Participatory Carbon forums. 4. Degree of satisfaction with participatory carbon.
Long-term benefits. Final impacts	1. Improvement of the quality of life of the population in the project's area of influence. 2. Establishment of a culture of good participatory practices with sustainability and equity as central axes. 3. Generate mechanisms of Distributive Democracy in which the neighbors of the project boundary participate. 4. Degree of satisfaction with the participatory carbon

Project Name	Forest Safety Net
Target audience	Rural communities within Cruce Caballero, Tobuna, Paraje Alegria and Paraje Piñero
Need / Diagnosis	1. Existence of low measurement, reporting and verification capacity of provincial and national states on the issue of forest-dependent communities; 2. Challenges of measurement and data collection; 3, Need for more evidence of primary data for baseline; Need for adoption of the precautionary principle.
Definition of direct and indirect causes of the requirement	1 Some of the main challenges are: A) Forest products are often of illegal or informal origin, and respondents may feel uncomfortable, if not outright reluctant, to answer openly about their use of the forest. In particular, logging and non-commercial illegal hunting.

	B) The capture of forest product use is of low incidence or respondents are unable to establish adequate estimates of the extent of such capture. C) that forests provide many non-commercial, indirect or not so overtly tangible services that are difficult to measure accurately using standard approaches. 2. Considering that these challenges are verified in the production of primary data by Nideport studies through the "forest resource dependence" module in addition to the lack of conclusive baseline due to the low number of n cases claiming to extract it from around the SPVN GS1 area. 3. Adapting to this circumstance - possibility of risk, loss or threat of timber and non-timber products relevant to communities' livelihoods - the 'precautionary principle' defined in the Preamble of the Convention on Biological Diversity (1992): the absence of unequivocal scientific evidence is not a reason for postponing measures to avoid or minimize such threat', we formulated a Forest Safety Net pilot project activities to address the benefit of obtaining forest products by project bound households.
Positive impacts to be generated	1. Establishment of the project boundary, together with highly vulnerable households, on their dependence on firewood and medicinal plants. 2. Enrollment in the annual firewood quota delivery in winter 3 Dimension: benefits of the Don Antonio project activities. A: access to medicinal plants. B: training in the use of medicinal plants 4. Reduction of informality in the procurement of firewood and medicinal plants resources by highly vulnerable households. 5. Reduce monetary losses in the purchase of firewood and medicinal plants of highly vulnerable households.
Long-term benefits. Final impacts	1. Creation of a database of highly vulnerable households with dependence on firewood and medicinal plants 2. Establishment of mechanisms for access to firewood delivered in the winter season to highly vulnerable households. 3. Dimension: benefits of the Don Antonio project activities. 4. Informality in the procurement of firewood and medicinal plants resources by highly vulnerable households. 5. Monetary losses in the purchase of firewood and medicinal plants by highly vulnerable households.

Project Name	Payment for environmental services project
Target audience	All communities within project boundary
Need / Diagnosis	Lack of water, lack of afforestation and the need to strengthen the farm economy
Definition of direct and indirect causes of the requirement	The droughts are due to the water deficit in the watersheds due to the advance of deforestation. In the past, when it rained, the water stayed in the springs, but with deforestation, the time that the water lasted in the springs became shorter.
Positive impacts to be generated	1, Establishment of the project boundary, together with highly vulnerable households, on their dependence on firewood and medicinal plants. 2. Enrollment in the annual firewood quota delivery in winter. 3 Dimension: benefits of the Don Antonio project activities. A: Access to medicinal plants. B: Training in the use of medicinal plants. 4. Reduction of informality in the procurement of firewood and medicinal plants resources by highly vulnerable households. 5. Reduce monetary losses in the purchase of firewood and medicinal plants of highly vulnerable households.
Long-term benefits. Final impacts	1. Payment for Environmental Services agreements. 2. Improvement of the income of local small rural producers. 3. Impact on the family group. 4. Strengthen the performance of sustainable forest management in the neighbors under project, based on indicators established jointly with the producers under project. 5. Degree of satisfaction with the project

Project Name	Óga
Target audience	To all members of the Tekoa Alecrin, with priority given to the most vulnerable within the Tekoa (238 inhabitants).
Need / Diagnosis	Through the FPIC with the Alecrin village, it was determined that Tekoa has habitat problems: insufficient housing for the entire population, which leads to overcrowding, and high precariousness of the existing housing. These problems

	are directly related to the community's lack of materials and tools for self-construction of housing. In addition, a housing census of 24 households in Tekoa Alecrin was carried out using the "cluster" methodology, which corroborates the FPIC's diagnosis. Finally, in an interview conducted on December 11, 2020, Dr. Ariel Suarez Núñez (former head of the "sixth region" health area where Tekoa Alecrin is located) states that "In winter, respiratory diseases and coughs appear. This is due to the firewood cooking in low huts, plus the cold and little clothing".
Definition of direct and indirect causes of the requirement	
Positive impacts to be generated	1 Dimension of housing construction with modular methodology: A. Measurement of quantity 2 Dimension of overcrowding: A Measurement of quantity, crossing of housing inhabitants by square meters of housing. 3 Dimension Quality of housing: A: Ordinal measurement (very good, good, fair, poor, bad, very poor) B: Nominal measurement (yes-no). C: Nominal measure (yes-no). D: Nominal measurement (yes-no). E: Nominal measurement (yes-no). F: Ordinal measurement (very satisfied, satisfied, not very satisfied, not at all satisfied). 4 Dimension Training: A.Quantity measurement. B Ordinal measurement (very satisfied, satisfied, not very satisfied, not at all satisfied).
Long-term benefits. Final impacts	1 Dimension construction of housing with modular methodology:

	A: Number of houses built 2 Dimension existence of overcrowding: A: Number of people living together in the house per square meter of housing. 3 Dimension Quality of housing: A: Quality of housing materials. B: Existence of flooding or leaks in the dwelling. C: Existence of adequate ventilation. D: Existence of adequate heating. E: Existence of fire risk. F. Degree of satisfaction with the constructed dwelling 4 Dimension Training: A. Number of people trained in modular construction. B. Degree of satisfaction of those trained with the training.

Project Name	Ra 'ÿi, strengthening family and community farming in Tekoa Alecrin
Target audience	Indigenous community (Tekoa Alecrin)
Need / Diagnosis	In the FPIC, in interviews with key informants and in the different surveys carried out in Tekoa Alecrín, it was found that practically a large part of the diet of the families in the village depends on the family's own agricultural production or on the community gardens that exist. Each family has a "chacra" from which they obtain foodstuffs such as corn, beans and cassava. In addition, there are two community gardens in Alecrin in which some of the village members work and distribute the food produced to the school and to families in need. What could be seen in different interviews and through the surveys carried out is that despite this, there are food problems in the village. Likewise, a series of problems related to agriculture were identified: shortage of seeds in general and lack of adequate tools to improve crops.

Definition of direct and indirect causes of the requirement	1 Lack of adequate working tools. 2 Lack of knowledge to maximize harvests, and to create a sustainable seed bank. 3 Lack of seeds.
Positive impacts to be generated	1 General improvement and expansion of community vegetable gardens. 2 Increase in the varieties cultivated to generate greater diversification of the family's horticultural diet. 3 Increased participation of the village in the community gardens. 4 Generation of a community seed bank to improve the conservation and availability of seeds in the village. 5 Improved food security in the village by increasing the number of times families eat per day.
Long-term benefits. Final impacts	1. Increase in the number and variety of cultivated species. 2. Increase in the number of people working in community gardens. 3. Increase in the size of the community gardens. 4. Improved food security in the village. 5. Promotion of climate change adaptation in agricultural production.

Project Name	Cooperativa Nueva Esperanza
Target audience	Women (to the women members of the cooperative and to women who join the cooperative in the future -15 families-)
Need / Diagnosis	The Nueva Esperanza Cooperative is an agroecological and sustainable project for the production of different products that a group of women from Paraje Gentil, San Pedro, Misiones, is carrying out. These entrepreneurs work in the production of vinegars, liqueurs and dressings from wild fruits native to the Paraná rainforest that they grow themselves or that they collect from the bush: caraguatá, jacaratiá, jaboticaba, pitanga, guabiroba, among others. The cooperative also provides training, workshops and talks open to the community on environmental care, the importance of conserving native plants and their seeds, agroecological production, and the prevention of gender

	violence in the community. In this sense, we believe that the Nueva Esperanza Cooperative, in addition to providing work for numerous women and a steady income for several families, makes an important contribution to community forestry management with a gender focus. Currently, the cooperative is having difficulties responding to the demand for products from different sectors (fairs, private businesses, regional commercial centers). This is why there is a need to speed up product processing times in order to increase production and, as a result, the income of the cooperative and its workers.
Definition of direct and indirect causes of the requirement	From a series of meetings with workers and representatives of the cooperative, it became clear that one of the main problems they face is the lack of tools, equipment and machinery to increase the speed of the production line and the total amount of production. This is mainly due to the lack of economic resources to invest in specific equipment and machinery. The impossibility of increasing productivity means that the cooperative cannot adequately supply its current markets and potential new markets interested in its products.
Positive impacts to be generated	1 Dimension speed of the production line of the processed products: A: production time of vinegars. B. production time of dressings. 2 Dimension Liters produced of the processed products. A: liters of vinegar produced B. liters produced of dressings. 3 Dimension Sales quantity of the products produced. A: bottles of vinegars sold. B: bottles of dressings produced. 4 Dimension of old and new customers: A: continuing customers. B new customers.

	5 Dimension training on gender perspective in agricultural production: A training on gender perspective. 6.Dimension level of satisfaction with the project
Long-term benefits. Final impacts	1. Dimension speed of the production line of the processed products. 2. dimension Liters produced dimension of the products produced 3. Dimension of sales quantity of produced products 4. Dimension of old and new customers 5. Dimension of training in gender perspective in agricultural production. 6. Degree of satisfaction with the project.

Project Name	Don Antonio: Native medicinal species nursery with an ecotourism and educational approach.
Target audience	All communities within project boundary
Need / Diagnosis	Antonio Barreto is a long-time resident of the project zone. In addition, he worked for approximately 40 years for different companies located on the current Forestal Belga-Nideport property. From different interviews and informal conversations with him and his family, it was possible to identify his great knowledge of medicinal plants in the area. Based on this, a nursery project was conceived to contribute to the conservation and dissemination of this knowledge and ethno-botanical heritage of high value, in the context of the disappearance of traditional and community knowledge.
Definition of direct and indirect causes of the requirement	1 Non-widespread dissemination of Antonio's traditional knowledge of medicinal plants. 2 Non-existence of nurseries focused on plants for medicinal uses. 3 Risk of loss of traditional knowledge on the identification and use of native medicinal plants.
Positive impacts to be generated	

	1.To produce medicinal plants in the nursery. 2.Medicinal plants distributed. 3.Construction of a database on medicinal plants and their uses . 4.Training in cultivation and use of medicinal plants .
Long-term benefits. Final impacts	1 Reforestation of native medicinal plants within the project area. 2 Access to medicinal plants 3 Contribute to the conservation of traditional knowledge and native medicinal species 4 To disseminate the identification, planting, use and conservation of native medicinal plants.

All project activities were made possible through the support of international investors, rather than donations from non-profit organizations.

4.2.2 Negative Community Impact Mitigation (CM2.2)

The project that promotes the protection of the native forest carries the risk of limiting communities' access to natural resources currently obtained from the native forests in the project boundary.

We can take into account that there are no official studies by the national and provincial government on the issue of forest dependence by the communities.

In addition, there are challenges to carry out a correct measurement of the issue.

Some of the main challenges are: A) Forest products are often of illegal or informal origin, and respondents may be uncomfortable, if not outright reluctant, to answer openly about their forest use. In particular, logging and non-commercial illegal hunting. B) The uptake of forest product use is of low incidence or respondents are unable to establish adequate estimates of the extent of such uptake. C) That forests provide many non-commercial, indirect or not so overtly tangible services that are difficult to measure accurately using standard approaches.

Given that these challenges are verified in the production of primary data by the Nideport studies through the "forest resource dependence" module in addition to the lack of a conclusive baseline due to the low number of n cases claiming to draw from around the SPVN GS11 area.

Adapting to this circumstance -possibility of risk, loss or threat of timber and non-timber products relevant to communities' livelihoods- the "precautionary principle "defined in the Preamble of the Convention on Biological Diversity (1992): "the absence of unequivocal scientific evidence is not a reason to postpone taking measures to avoid or minimize such threat", we formulated a Forest Safety Net pilot project activity to address the benefit of obtaining forest products by households linked to the project.

Identifying the community's relation with the project area and main needs described by the community, allows us to design the corresponding development projects needed. In this sense, through the different participatory processes described above and the company's interactions with the community, the aim is to jointly establish initiatives for the development of communities that mitigate possible negative well-being impacts, as well as the protection and enhancement of the identified HCVs. Moreover, the participatory process to identify main threats to HCVs allows the design and monitoring plan to mitigate them.

In this sense, the first steps have taken place, with participatory assemblies and census with communities of the project area, in order to better understand the communities´ economic activities, dependence on natural resources, as well as social organization and main needs, fears and identified threats. Some threats identified are external to the project's activities, with some of them expected to be reduced due to the project. One example is the observed and expected droughts due to deforestation and landslides due to extreme events caused by climate change. The project's main activity (forest enrichment and conservation) is expected to revert these threats.

In addition, the first projects are in the design phase, and are the improvement of water reservoirs, housing improvement, food garden training and material access (seeds for example),

Finally, in terms of access to forest resources, the project aims to limit illegal activities that endanger biodiversity. In the case of firewood, during regeneration and improved management activities, the wood generated will be made available to the communities in an organized and formalized manner.

A firewood distribution mechanism will be established according to a socio-environmental report prepared by social workers with emergency criteria for vulnerable households dependent on firewood resources. Household members will be able to collect firewood at the communicated points. The impact on the economy and livelihoods after the adoption of the measures will be measured jointly with the household members, according to the baseline of the survey module "Dependence on forest resources". The need for firewood will be cross-referenced with the need for medicinal plants, based on the benefits of the Don Antonio project activity: the medicinal plants come from the medicinal plant nursery. Medicinal plant seedlings will be delivered from the same place where the firewood will be delivered. The seedlings will be delivered to whoever registers in the project activity ; receiving the template of available seedling species according to the season of the year.

Other impacts and mitigation actions related to each one of the projected development projects are detailed as follows:

Project Name	Participatory Carbon Budgeting
Issues and/or expected negative impacts	Intra-neighborhood conflicts due to the absence of a participatory tradition.
Measures to be taken to mitigate/solve the problems and/or expected negative	Development of community mediation strategies. 2 Alternative conflict resolution.

impacts.	

Project Name	Forest Safety Net
Issues and/or expected negative impacts	Reluctance of the population to enroll in a registry; and a socio-environmental report under the project activity A continuity of the extractive practice that may threaten the site's natural capital.
Measures to be taken to mitigate/solve the problems and/or expected negative impacts.	Approach with social workers, benefits project activity of woods and medicinal plants

Project Name	Óga
Issues and/or expected negative impacts	1. Resistance of the older members of the community for the improvement of the houses. 2 Difficulty for the community members designated by the Chief to understand and learn the new construction techniques. 3 Need to reach a consensus between the ancestral housing models and construction techniques of the Mbya Guaraní and the modern models and techniques.
Measures to be taken to mitigate/solve the problems and/or expected negative impacts.	1. Meetings with the oldest members of the community and the cacique to reach a consensus on the model and construction of the housing units. 2 Training workshops to facilitate the learning of new construction techniques. 3 Meetings with the Chief and the Council of Authorities so that the new houses and their construction techniques respect and are in accordance with the Mbya Guarani traditions and culture.

Project Name	Ra 'ÿi, strengthening family and community farming in Tekoa Alecrin
Issues and/or expected negative impacts	1 Lack of interest in the community in the project. 2 Complications in stimulating the community's capacity for self-production of seeds. 3 Poor maintenance of the transferred tools.
Measures to be taken to mitigate/solve the problems and/or expected negative impacts.	1 Reorientation of the community approach strategy. 2 Generation of training sessions. 3 Design of a strategy to improve the maintenance of the tools.

Project Name	Cooperativa Nueva Esperanza
Issues and/or expected negative impacts	1. Closure of a market. 2. Impossibility of locating the increase in processed products. 3. Lack of training in the use of the new machinery used. 4. That the support project activities generate an overload of daily work for the women workers. 5. Malfunctioning of the equipment due to lack of maintenance or technical failure.
Measures to be taken to mitigate/solve the problems and/or expected negative impacts.	1. Market evaluation. 2. Strategy for consolidation of markets in which it operates. 3. Strategy for opening new markets. 4. Training in the use and maintenance of the machinery and equipment acquired. 5. Training for an efficient use of the machinery avoiding labor overload.

Project Name	Don Antonio: Native medicinal species nursery with an ecotourism and educational approach.

Issues and/or expected negative impacts	1. Climatic, ecological or infrastructure problems affecting plant production and maintenance.
Measures to be taken to mitigate/solve the problems and/or expected negative impacts.	1. Design an emergency protocol for climatic, ecological or infrastructure problems.

Project Name	Payment for environmental services project
Issues and/or expected negative impacts	Fights between neighbors over the use of water from the reservoirs.
Measures to be taken to mitigate/solve the problems and/or expected negative impacts.	Signing of a commitment document with neighbors for obligations and use of the reservoirs with watershed protection. The document states that this is a scalable project, with pilot tests at the beginning. The pilot farms will have to share the use of water with the farms that have a water deficit. This until the reservoir system is completed.

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

The community and community groups are expected to see their well-being changed positively by the project, compared to the without-project scenario. Given the limited economic activities opportunities in the area, disarticulated public entities support and external threats including climate change impacts expected, the without project scenario includes migration, lower incomes, limited access to water, biodiversity loss and forest resources loss, among others.

The project benefits detailed lead to better well-being conditions of different types:

1. Participatory carbon project activities: a portion of the carbon credit emission will be used to support community projects (including education, health, HCV, community infrastructure); The funds worked with the community, are weighted, voted, and implemented in a decentralized manner (e.g., community associations). There will also be payments for environmental services for neighbors who conserve biomass on their property.

2. Productive projects are expected to generate local formal job opportunities, with better working conditions, equal access to job positions (with 50% of job positions occupied by women). Moreover, training will lead to capacity building within the communities as well as the recovery of cultural activities and knowledge (medicinal plant nursery, handcrafts, among others).

3. Forest safety net: people are going to be allowed to withdraw firewood generated from the restoration activities, from the property´s entrance and other resources within the property, but it will be organized in such a way that it does not go against the maintenance and restoration expected by the project.

4. HCV identified and selected, will be conserved, enhanced, and monitored in a merged action between project proponent and communities with projects designed exclusively for the purpose.

5. Forest enrichment and regeneration will mitigate climate change projections, while other project activities (like housing improvement and water reservoir improvement) will allow communities to adapt to them.

4.2.4 High Conservation Values Protected (CM2.4)

As previously stated, the project is driven by community engagement. Identifying the community's relation with the project area and main needs described by the community, allows the design of the corresponding development projects needed. In this sense, through different participatory processes described and interactions of Nideport with the community, it is sought to jointly establish initiatives for the development of communities that mitigate possible negative well-being impacts, as well as the protection and enhancement of the identified HCVs. Moreover, the participatory process to identify main threats is included in the design and monitoring plan that demonstrate how to mitigate them.

In this sense, no HCVs related to community well-being will be negatively affected by the project. For example, in the case of fuel wood, through this project that promotes the protection of native forest on the project site, this high conservation value is expected to remain stable and is highly likely to improve its availability in the medium term and be accessed coordinately by any community group that needs it.

The different actions needed and monitoring of the HCVs areas to ensure their protection are detailed below:

High conservation value	Firewood and collection areas in the native forest for household fuel wood (cooking and home heating).
Actions needed and taken for maintenance	- Public information campaigns will be held on the importance of caring for the forest. - Generate understanding with the security forces. - Reforestation of native plants. - The project includes the creation of a "Forest Security Network" that consists of ensuring that the community has access to firewood and other forest products in an equitable and orderly manner. - The project includes the installation of forest security systems, prevention and early warning of fires and other threats within the project area, but limiting threats outside the project area.
Monitoring plan	- A local monitoring team will be responsible for conducting biannual photographic and general technical surveys to evaluate environmental

	and technical issues. - Those responsible for monitoring will make biannual reports on the evolution and impact of the measures taken and the status of the HCV.

High conservation value	Native forest as a source of oxygen and high temperature remediation.
Actions needed and taken for maintenance	- Increased control of the entry of people within the boundaries of the project. - Public information sessions will be held on the importance of caring for the forest and the environment in general. - Establishment of agreements with the security forces to coordinate actions in the event of problems. - The project includes reforestation plans of native plants that will improve the situation of this HCV. - Organization of firewood donation days for the community in order to further regulate the influx of people looking for firewood. - The project includes the installation of forest security systems, prevention and early warning of fires and other threats.
Monitoring plan	- A local monitoring team will be responsible for carrying out biannual photographic and general technical surveys to evaluate environmental and technical issues. - Those responsible for monitoring will carry out biannual reports on the evolution and impact of the measures taken and the status of the HCV.

High conservation value	Laguna Encantada (Enchanted Lagoon)
Actions needed and taken for maintenance	- Increased control of the entry of people within the boundaries of the project. - Public information sessions will be held on the importance of caring for the forest and the environment in general. - Establishment of agreements with the security forces to coordinate

	actions in the event of problems. - The project includes reforestation plans of native plants that will improve the situation of this HCV. - Any type of extractive activity at the site (e.g., firewood, fishing, illegal hunting, etc.) is prohibited. - Signs will be posted to provide information and the importance to maintenance of the specific site. - GPS positioning coordinates were identified in order to know the exact location. - Photographic samples of the site were taken in order to begin photographic monitoring. - The project includes the installation of forest security systems, prevention and early warning of fires and other threats.
Monitoring plan	- A team will visit the site once every six months to verify the status of the HCV and the measures taken. - The same team will carry out a photographic and technical survey to evaluate environmental and technical issues. - The people in charge of monitoring will make biannual reports on the evolution and impact of the measures taken and the state of the HCV.

High conservation value	Yabotí miní stream Invernada stream Toro stream Guaraní aquífer Streams with no name Numerous springs and sinkholes
Actions needed and taken for maintenance	- Increased control of the entry of people within the boundaries of the project. - Public information sessions will be held on the importance of caring for the forest and the environment in general. - Establishment of agreements with the security forces to coordinate actions in the event of problems.

	- The project includes reforestation plans of native plants that will improve the situation of this HCV. - Any type of extractive activity at the site (e.g., firewood, fishing, illegal hunting, etc.) is prohibited. - Signs will be posted to provide information on the importance and proper maintenance of the different watercourses. - GPS tracks were obtained for the different watercourses in order to know their location. - Photographic samples of the site were taken in order to begin photographic monitoring. - The project includes the installation of forest security systems, prevention and early warning of fires and other threats.
Monitoring plan	- A team in charge will visit different watercourses once every six months to verify the status of the HCV and the measures adopted. - The same team will carry out a photographic and technical survey to evaluate environmental and technical issues. - Those responsible for monitoring will prepare biannual reports on the evolution and impact of the measures taken and the status of the HCV.

High conservation value	Sites of cultural or community values: Churches, soccer fields, community halls, CAPS, schools.
Actions needed and taken for maintenance	- Participatory meetings were held with different stakeholders in the local community to identify the HCVs. - GPS marking was carried out to determine the exact location of the various HCVs. - The project includes the development of a participatory carbon plan through which local communities can decide where to use a percentage of the income derived from the project's carbon credits to improve these HCVs. - The project includes generating instances of dialogue and collaboration with the different cultural and community institutions present in the project area.
Monitoring plan	- A team in charge will visit the various community HCVs once every six

	months to verify the status of the HCVs and the measures taken. - The same team will carry out a photographic and technical survey to evaluate and record the condition of the various HCVs. - Those responsible for monitoring will prepare biannual reports on the evolution and impact of the measures taken and the state of the HCV.

High conservation value	Forestal Belga Cemetery
Actions needed and taken for maintenance	- Visual inspection of each grave once a year, whether there have been visits or not. -Authorization of visits (the record of visits will be kept for 5 years). -Elimination of existing weeds in the vicinity of the graves. -Placement of signage -Prohibition to visitors to remove or change part of them (plaques, etc.). -No machinery is allowed near the graves. Planting near the graves is prohibited. -Any existing natural regeneration (exotics) will be eliminated.
Monitoring plan	-Visitation Authorization (visitation log will be kept for 5 years). -Once every 12 months the Field Supervisors will verify the proper condition of the gravesites following the following guidelines: -Visual observation of weeds present in the graves. -Observation of the existence of machine tracks in the vicinity of the graves. -Observation of exotic regeneration near the tombs (it is forbidden to make plantations near the tombs) 4. Observation of the state of conservation of the tombs, visual observation of plaques, etc. (it is forbidden to make any change). -Observation of the existence of bonfires, damage to trees, etc.

High conservation value	Timber/wood harvesting areas in the Tekoa Alecrín (Mbya Guaraní Community)
Actions needed and taken for maintenance	- Participatory meetings were held with various local community stakeholders to identify HCVs. - The project includes the development of a participatory carbon plan through which local communities can decide where to use a percentage of the revenues derived from the project's carbon credits to improve these HCVs. - The project includes generating instances of dialogue and collaboration with the different cultural and community institutions present in the project area.
Monitoring plan	- In a governance scheme between the Alecrín community and project representatives, the best ways to carry out the HCV monitoring process will be evaluated. It will seek not to generate invasive practices that alter the intimacy and daily life of the community.

High conservation value	Areas for gathering wild products, medicinal plants, fruits and game in the Tekoa Alecrín (Mbya Guaraní community).
Actions required and taken for maintenance and improvement HCVs	- Participatory meetings were held with community representatives to identify HCVs. - The project includes the development of a participatory carbon plan through which local communities can decide where to use a percentage of the revenues derived from the project's carbon credits to improve these HCVs. - The project includes generating instances of dialogue and collaboration with the different cultural and community institutions present in the project area. - Development of a joint care and preservation scheme under a governance structure based on Mbya Guarani cultural and historical patterns.
Monitoring plan	- In a governance scheme between the Alecrín community and project representatives, the best ways to carry out the HCV monitoring process will be evaluated. The aim will be to avoid invasive practices that alter

	the privacy and daily life of the community.

See also, 4.1.3 for more information on HCVs areas.

A program of awareness and capacity-building is implemented for both company patrols and state security forces. This includes training courses on community relations that reinforce the established protocols.

The company's security patrols (park rangers) are specifically trained to deter poaching and prevent unauthorized entry into the forest. Their guidelines emphasize a strict prohibition against causing harm or using violence against intruders.

In cases where intruders are caught committing crimes in flagrante delicto—such as poaching endangered or protected species, or intentionally setting fires—arrests may be carried out with the support of state security forces, ensuring legal and responsible intervention.

4.3 Other Stakeholder Impacts

4.3.1 Impacts on Other Stakeholders (CM3.1)

The town of San Pedro has a fire station, with firefighters trained and equipped to deal with forest fires. They are located some 30 km from the center of the project area. The investment plans include a provisioning and delivery scheme for critical equipment that can help to mitigate fires, not only in the "GS1" but also in the rest of the lands and the local community.

Misiones has a Ministry of Ecology and Natural Resources, where there is a Department of Park Rangers. Park Rangers have a great operational advantage, because even though they are not Police authorities, since 2015 they are authorized to carry weapons. Likewise, since the end of 2019, they have been provided with equipment and means, such as bulletproof vests and, since the beginning of 2020, they are being trained in Environmental Intelligence. Currently, Park Rangers are one of the human resources most used in the prevention of some of the threats described. They will be incorporated to perform the relevant tasks within the project area (tasks which will be paid extra by the project). In addition, the training of new park rangers will be promoted.

Regarding the project's impact on other stakeholders, the cessation of native forest exploration activities in the farm could lead to changes in the production chain, affecting other companies related to the activity, like transport service companies. This activity was conducted by previous owners and has shown to go against forest productivity.

In the case of the development projects to be implemented together with the communities, only informal labor employers are expected to be affected as it is to be expected that the payment received for environmental services will reduce the need for "*changueo*" of local communities. Moreover, the Mbya Guaraní have an ancestral practice of mobility and inter-community migration. Although this practice is less frequent nowadays, there are still cases of individuals or families migrating from their original Tekoa to another in search of a better quality of life. In this sense, people who migrate to the Alecrin Tekoa after the housing census will not receive a housing module; this has been agreed with the Council of Authorities in the framework of the FPIC. For all other projects, no stakeholders are expected to be affected.

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

The only negative impacts to other stakeholders identified are companies in the production chain of wood products and informal labor employers. In the first case, given the project is of medium scale and the plantation forestry activity is extended in the region, it is not considered a mitigation measure is needed. Anyway, regarding local communities, job opportunities will be available in order to implement the project´s forestry plan, as well as new productive projects.

In the case of informal labor employers, no mitigation is considered needed because although the payment for environmental service is expected to impact the whole community within the project zone, not all "*changueos*" are expected to halt.

4.3.3 Net Impacts on Other Stakeholders (CM3.3)

Other stakeholders are not expected to be negatively affected by the project as, in the case of other plantation forestry companies, the scale is medium and within a forestry region with other projects to work with.

4.4 Community Impact Monitoring

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

The monitoring approach is applied through a methodology based on the "theory of change", applied to "management evaluation". The Development Bank of Latin America (CAF) in the courses "Introduction to evolution and impact for public management", within the module "Management Evaluation: Evaluating how instead of what defines Management Evaluation as "one that measures the impact of a change in some process or activity of an institution (its management) and seeks to increase the effectiveness of the same" (CAF, 2018. page 2). It then adds:

"Management evaluations focus mainly on intermediate activities and processes carried out by institutions, which do not necessarily have a direct beneficiary. They benefit society because they help to improve the management of goods and services, but they do so indirectly. The objective in these cases is to determine the best way to carry out the intermediate processes, comparing various implementation alternatives, or adding small changes in the way the activities are executed." (CAF. 2018. page 4)

In this direction, the monitoring plan developed for the projects follows up on the projects to introduce modifications in the activities - intermediate objectives - of the processes being carried out. Either because an intermediate objective is not being met, is not generating the expected impact, or because a technique/activity has been found that is superior to the one being used.

The project monitoring plan was developed in a participatory manner between NIDEPORT's community relations team and participating and/or interested parties. This allows for a joint and consensual selection of the variables to be measured, their indicators and time periods for the management evaluations. Likewise, when monitoring is developed in a participatory manner with stakeholders, greater transparency is achieved in the process, and it is possible to determine, under a governance logic, the necessary changes in specific points of the projects to achieve the greatest possible efficiency.

To facilitate the reading of the people and stakeholders participating in the projects, and for all those people and stakeholders who want to consult the project data, dashboards were designed where the basic data of the project, design, execution, monitoring - management evaluation - and sustainability can be consulted.

The participatory structure of the monitoring plan is established as follows: Stakeholders participated in the development of the community monitoring plan:

For the development of the community monitoring plan participated: the population attending the public consultation on November 26, 2021 of Cruce Caballero, Paraje Piñeiro, Paraje Alegría, Paraje Gentile and Tobuna. The population of Tekoa Alecrin attended the assemblies and meetings within the framework of the FPIC in Tekoa Alecrin. Later, participants in specific project design meetings: Don Antonio, women growers, Oga, and the local people.

Contribution of the stakeholders to the elaboration of the monitoring plan and how consensus was reached on the variables and indicators to be measured.

The population mentioned in the previous paragraph participated in the elaboration of the monitoring plan in 2 ways: A: by validating the variables, indicators and monitoring frequency proposed by NIDEPORT. B: by proposing, once the causal relationship between needs - projects - benefits had been established, the design of specific measurement items.

In those cases where it was suggested to the company that the variables be changed, this action was carried out and presented again to the participants of the work meetings for their revalidation. This is demonstrated in the relevance and adequacy of the monitoring variables in the production and sale of women growers, and in the indicators of the overcrowding dimension and the housing quality dimension of the Oga project.

The monitoring plan for the different project activities are included in the table below and will be described in more detail in every monitoring report to cover the different impacts identified and expected of the project:

Project Activity	Target stakeholder	Monitoring strategy	Monitoring methodology	Monitoring frequency	Variables to be measured
Participatory Carbon project	All communities within project zone	Participatory management evaluation among the community, EPET N° 31 de Cruce Caballero, EP N° 482 of Cruce Caballero & and its cooperative, and Recreative, Sports and Cultural Committee of Cruce Caballero. Satisfaction survey. Management evaluation with control group.	Management evaluation reports	Annual monitoring	1. Improvement of the quality of life of the population in the area of influence of the project. 2. Establishment of a culture of good participation practices based on sustainability and equity. 3. Substantive participation of women. 4. Number of participants 5. Number of projects with adaptation to climate change benefits. 6. Number of community members with improved adaptation to climate change
Payment for environmental services	All communities within project zone	Management analysis during pilot test. Satisfaction survey. Management evaluation with control group.	Management analysis during pilot test	Annual monitoring	1. Training in HCVs (water and forestation) maintenance on local rural smallholder farms 2. Improvement of incomes of local small rural producers. 3. Payments (U$S) related to adaptation measures;
Forest security net project	All communities	Management indicators analysis. Satisfaction survey. Management	Management evaluation	Annual monitoring	To provide a forest safety net to regulate harvesting practices and maintain a buffer against

	within project zone	evaluation with control group.	reports		shortages of timber and other wild products; providing a local environmental service to the poorest and most resource-dependent households in the absence of community forests in the project's area of influence.
Ra ´ÿi project	Tekoa Alecrin community	1. Monitoring sheets 2.Field tours and visual records of progress. 3. Interviews with the leaders of the community 4. Observation of the tools and supplies transferred. 5. Brief survey 6.Satisfaction survey. Management evaluation with control group.	Management evaluation together with Tekoa Alecrín community	Annual monitoring	1. Increase in the number and variety of cultivated species. 2. Increase in the number of people working in community gardens. 3. Increase in the size of the community gardens. 4. Improved food security in the village. 5. Promotion of climate change adaptation in agricultural production.

Óga project	Tekoa Alecrin community	After the construction of housing modules, the monitoring includes: maintenance of housing; community housing conditions; construction capacity gained, and other indicators worked. Satisfaction survey. Management evaluation with control group.	Management evaluation together with Tekoa Alecrín community	Annual monitoring	1. Quantity and quality of housing built. 2. Overcrowding in dwellings. 3. Floor material of the dwellings built. 4. Location of the kitchen in the dwellings constructed. 5. Existence of bathrooms in the dwellings constructed. Adaptation related: 6. Flooding or leaks in the dwellings constructed 7. Adequate ventilation in the dwellings constructed 8. Risk of fire in the dwellings constructed 9.Capacities transmitted to the community in modular construction. 10. Interior comfort level (qualitative analysis from beneficiaries) 11. Satisfaction of Tekoa Alecrin with the OGA project.
Nueva Esperanza Cooperative	Women of the cooperative	Monitoring will include analyzing the equipment maintenance; moreover, the creation of monitoring instruments to identify problems, and intermediate impacts of the	Crossing management reports from Nideport and the	Annual monitoring	1. Increased production line speed. 2. Increase in the number of products produced 3. Adequate supply of the markets in which it operates.

		project activity including production quantities and time. Satisfaction survey.	cooperative on production, sales, needs, and problems raised during period		4. Opening of new markets 5. Increase in the cooperative's profits 6. Strengthening of the gender perspective in agricultural production.
Don Antonio: Native medicinal species nursery with an ecotourism and educational approach.	All communities within the project zone	Management indicators analysis. Satisfaction survey. Management evaluation with control group.	Management evaluation reports	Annual monitoring	1. Quantity of medicinal plants in production. 2. Number of people who visited the nursery. 3. Number of plants produced in the nursery used for reforestation. 4. Construction of a database on medicinal plants and their uses.
Project area activities	All communities within the project zone	Management indicators analysis. Satisfaction survey. Management evaluation with control group.	Management evaluation reports	Annual monitoring	1. Measurement of income from on-site labor activities. 2. Measurement of training for on-site labor activities. 3. Measurement of gender safeguards. 4. Measurement of non-discrimination safeguards. 5. Number of people with job opportunities. 6. Number of people trained. 7. Participation rate.

					8. Number of shared trainings; 9. Number of signed agreements
	Other stakeholders (authorities)	Net impacts to other stakeholders monitoring through direct measurement	Security area progress reports	Continuous	N° of shared trainings; N° of signed agreements with authorities; Offices benefitted with materials/ equipment delivered

HCVs	Focus Area	Actions needed and taken for maintenance	Monitoring plan
Laguna Encantada (Enchanted lagoon)	Project area	Increased control of the entry of people within the boundaries of the project. - Public information sessions will be held on the importance of caring for the forest and the environment in general. - Establishment of agreements with the security forces to coordinate actions in the event of problems. - The project includes reforestation plans of native plants that will improve the situation of this HCV. - Any type of extractive activity at the site (e.g., firewood, fishing, illegal hunting, etc.) is prohibited. - Signs will be posted to provide information on the importance of the specific site. - GPS positioning coordinates were identified in order to know the exact location. - Photographic samples of the site were taken in order to begin photographic monitoring. - The project includes the installation of forest security systems, prevention and early warning of fires and other threats.	A team will visit the site once every six months to verify the status of the HCV and the measures taken. - The same team will carry out a photographic and technical survey to evaluate environmental and technical issues. - The people in charge of monitoring will make biannual reports on the evolution and impact of the measures taken and the state of the HCV.
Yabotí miní stream; Invernada stream; Toro stream; Guaraní aquifer Streams without	Project area	Increased control of the entry of people within the boundaries of the project. - Public information sessions will be held on the importance of caring for the forest and the environment in general. - Establishment of agreements with the security forces to coordinate	A team in charge will visit different watercourses once every six months to verify the status of the HCV and the measures adopted. - The same team will carry out a photographic

nomenclature; Numerous springs and water sinks		actions in the event of problems. - The project includes reforestation plans of native plants that will improve the situation of this HCV. - Any type of extractive activity at the site (e.g., firewood, fishing, illegal hunting, etc.) is prohibited. - Signs will be posted to provide information on the importance and proper maintenance of the different watercourses. - GPS tracks were obtained for the different watercourses in order to know their location. - Photographic samples of the site were taken in order to begin photographic monitoring. - The project includes the installation of forest security systems, prevention and early warning of fires and other threats.	and technical survey to evaluate environmental and technical issues. - Those responsible for monitoring will prepare biannual reports on the evolution and impact of the measures taken and the status of the HCV.
Forestal Belga's graveyards	Project area	Visual inspection of each grave once a year, whether there have been visits or not. -Authorization of visits (the record of visits will be kept for 5 years). -Elimination of existing weeds in the vicinity of the graves. -Placement of signage -Prohibition to visitors to remove or change part of them (plaques, etc.). -No machinery is allowed near the graves. Planting near the graves is prohibited. -Any existing natural regeneration (exotics) will be eliminated.	Visit Authorization (visits log will be kept for 5 years). -Once every 12 months the Field Supervisors will verify the proper condition of the gravesites following the following guidelines:-Visual observation of weeds present in the graves. -Observation of the existence of machine tracks in the vicinity of the graves. -Observation of exotic regeneration near the tombs (it is forbidden to make plantations near the tombs) 4. Observation of the state

			of conservation of the tombs, visual observation of plaques, etc. (it is forbidden to make any change). -Observation of the existence of bonfires, damage to trees, etc.
Cultural or Community Values Sites: Churches, Soccer Fields, Community Hall, CAPS, Schools	Project boundaries	Participatory meetings were held with different stakeholders in the local community to identify the HCVs. - GPS marking was carried out to determine the exact location of the various HCVs. - The project includes the development of a participatory carbon plan through which local communities can decide where to use a percentage of the income derived from the project's carbon credits to improve these HCVs. - The project includes generating instances of dialogue and collaboration with the different cultural and community institutions present in the project area.	A team in charge will visit the various community HCVs once every six months to verify the status of the HCVs and the measures taken. - The same team will carry out a photographic and technical survey to evaluate and record the condition of the various HCVs. - Those responsible for monitoring will prepare biannual reports on the evolution and impact of the measures taken and the state of the HCV.
Firewood and collection areas in the native forest for household fuel wood (cooking and home heating).	Project boundaries	Public information campaigns held on the importance of caring for the forest. - Generate understanding with the security forces. - Reforestation of native plants. - The project includes the creation of a "Forest Security Network" that consists of ensuring that the community has access to firewood and other forest products in an equitable and orderly manner. - The project includes the installation of forest security systems, prevention and early warning of fires and other	A local monitoring team will be responsible for conducting biannual photographic and general technical surveys to evaluate environmental and technical issues. - Those responsible for monitoring will make biannual reports on the evolution and impact of the measures taken and the status of the HCV.

		threats within the project area, but limiting threats outside the project area limits.	
Native forests for its ecosystem services	Project boundaries	Increased control of the entry of people within the boundaries of the project. - Public information sessions will be held on the importance of caring for the forest and the environment in general. - Establishment of agreements with the security forces to coordinate actions in the event of problems. - The project includes reforestation plans of native plants that will improve the situation of this HCV. - Organization of firewood donation days for the community in order to further regulate the influx of people looking for firewood. - The project includes the installation of forest security systems, prevention and early warning of fires and other threats.	A local monitoring team will be responsible for carrying out biannual photographic and general technical surveys to evaluate environmental and technical issues. - Those responsible for monitoring will carry out biannual reports on the evolution and impact of the measures taken and the status of the HCV.
Wood/firewood collection areas in Tekoa Alecrín (Mbya Guaraní Community)	Project boundaries	Participatory meetings were held with various local community stakeholders to identify HCVs. - The project includes the development of a participatory carbon plan through which local communities can decide where to use a percentage of the revenues derived from the project's carbon credits to improve these HCVs. - The project includes generating instances of dialogue and collaboration with the different cultural and community institutions present in the project area.	In a governance scheme between the Alecrín community and project representatives, the best ways to carry out the HCV monitoring process will be evaluated. It will seek not to generate invasive practices that alter the intimacy and daily life of the community.

Harvesting areas for wild products, medicinal plants, fruits and game in the Tekoa Alecrín (Mbya Guarani Community)	Project boundaries	Participatory meetings were held with community representatives to identify HCVs. - The project includes the development of a participatory carbon plan through which local communities can decide where to use a percentage of the revenues derived from the project's carbon credits to improve these HCVs. - The project includes generating instances of dialogue and collaboration with the different cultural and community institutions present in the project area. - Development of a joint care and preservation scheme under a governance structure based on Mbya Guarani cultural and historical patterns.	In a governance scheme between the Alecrín community and project representatives, the best ways to carry out the HCV monitoring process will be evaluated. The aim will be to avoid invasive practices that alter the privacy and daily life of the community.
Fishing zones in the Tekoa Alecrín (Mbya Guarani Community)	Project boundaries	Participatory meetings were held with community representatives to identify HCVs. - The project includes the development of a participatory carbon plan through which local communities can decide where to use a percentage of the revenues derived from the project's carbon credits to improve these HCVs. - The project includes generating instances of dialogue and collaboration with the different cultural and community institutions present in the project area. - Development of a joint care and preservation scheme under a governance structure based on Mbya Guarani cultural and historical patterns.	In a governance scheme between the Alecrín community and project representatives, the best ways to carry out the HCV monitoring process will be evaluated. The aim will be to avoid invasive practices that alter the privacy and daily life of the community.

Conservation Value Bodies and streams in the Tekoa Alecrín (Mbya guaraní Community): Alegría stream, Piray Guazú stream, Suturno stream, Streams not named, Other sources and streams	Project boundaries	Participatory meetings were held with community representatives to identify HCVs. - The project includes the development of a participatory carbon plan through which local communities can decide where to use a percentage of the revenues derived from the project's carbon credits to improve these HCVs. - The project includes generating instances of dialogue and collaboration with the different cultural and community institutions present in the project area. - Development of a joint care and preservation scheme under a governance structure based on Mbya Guarani cultural and historical patterns.	In a governance scheme between the Alecrín community and project representatives, the best ways to carry out the HCV monitoring process will be evaluated. The aim will be to avoid invasive practices that alter the privacy and daily life of the community.
Boundary of Tekoa Alecrín Community Terrain, "Rumbo" (Mbya guaraní Community)	Project boundaries	Participatory meetings were held with community representatives to identify HCVs. - The project includes the development of a participatory carbon plan through which local communities can decide where to use a percentage of the revenues derived from the project's carbon credits to improve these HCVs. - The project includes generating instances of dialogue and collaboration with the different cultural and community institutions present in the project area. - Development of a joint care and preservation scheme under a governance structure based on Mbya Guarani cultural and historical patterns.	In a governance scheme between the Alecrín community and project representatives, the best ways to carry out the HCV monitoring process will be evaluated. The aim will be to avoid invasive practices that alter the privacy and daily life of the community.

Places of worship of the Tekoa Alecrín, “Opys” (Mbya guaraní Community)	Project boundaries	Participatory meetings were held with community representatives to identify HCVs. - The project includes the development of a participatory carbon plan through which local communities can decide where to use a percentage of the revenues derived from the project's carbon credits to improve these HCVs. - The project includes generating instances of dialogue and collaboration with the different cultural and community institutions present in the project area. - Development of a joint care and preservation scheme under a governance structure based on Mbya Guarani cultural and historical patterns.	In a governance scheme between the Alecrín community and project representatives, the best ways to carry out the HCV monitoring process will be evaluated. The aim will be to avoid invasive practices that alter the privacy and daily life of the community.
Tekoa Alecrín Graveyard (Mbya guaraní Community)	Project boundaries	Participatory meetings were held with community representatives to identify HCVs. - The project includes the development of a participatory carbon plan through which local communities can decide where to use a percentage of the revenues derived from the project's carbon credits to improve these HCVs. - The project includes generating instances of dialogue and collaboration with the different cultural and community institutions present in the project area. - Development of a joint care and preservation scheme under a governance structure based on Mbya Guarani cultural and historical patterns.	In a governance scheme between the Alecrín community and project representatives, the best ways to carry out the HCV monitoring process will be evaluated. The aim will be to avoid invasive practices that alter the privacy and daily life of the community.

Tekoa Alecrín School, CAPS, Craft stalls (Mbya guaraní Community)	Project boundaries	Participatory meetings were held with community representatives to identify HCVs. - The project includes the development of a participatory carbon plan through which local communities can decide where to use a percentage of the revenues derived from the project's carbon credits to improve these HCVs. - The project includes generating instances of dialogue and collaboration with the different cultural and community institutions present in the project area. - Development of a joint care and preservation scheme under a governance structure based on Mbya Guarani cultural and historical patterns.	In a governance scheme between the Alecrín community and project representatives, the best ways to carry out the HCV monitoring process will be evaluated. The aim will be to avoid invasive practices that alter the privacy and daily life of the community.

In summary, general metrics describe long-term benefits that can be assessed in the medium term through global indicators, which in turn are operationalized on a project-by-project basis:

Employment and training

- Degree of positive socio-economic impact as a result of the company's operations within the framework of benefits identification.
- Degree of increase in sources of income for communities based on sustainable management. Amount of local labor used in the project.
- Amount of qualified local labor - trained by the company - used in the project.

Improved services through direct transfers of carbon credits.

- Number of community health infrastructure/service improvements.
- Number of improvements in communities' education infrastructure/services.
- Number of improvements in the supply of forest products and services that benefit native communities as a result of the project.
- Number of improvements in housing and community infrastructure in the communities.
- Number of local development and community participation actions and projects.
- Number of project activities and resources allocated to the preservation and sustainable management of natural, economic, social, and cultural HCVs.

Community Participation

- Percentage of native population participating in forums and consultations.

- Degree of satisfaction of native communities with the process and outcome of consultations. Number of consultation meetings held.
- Percentage of women participating in consultations.
- Number of proposals made by women from the communities in citizen participation forums.
- Percentage of women participating in citizen participation forums.
- Number of projects/initiatives with a gender perspective. Percentage of jobs for women.
- Number of company projects/initiatives aimed at preserving community knowledge/culture.
- Degree of satisfaction of the communities with the company's treatment of their knowledge and culture.
- Degree of satisfaction of the communities with the company's treatment of their customary land rights

4.4.2 Monitoring Plan Dissemination (CM4.3)

Access to information throughout the life of the project will be through a strategy that includes news web portal and project social networks, local radios and newspapers, face-to-face briefings with stakeholders during verification instances. Moreover, the installation of a local Community Relations Office (RRCC) in Cruce Caballero, is projected in the short term. It will work with open hours in order to allow communities to reach out.

Regarding indigenous peoples, all interested parties have access to the proceedings and documents of the FPIC and subsequent meetings in Spanish and Guarani Mbya, both in digital and physical versions, as well as the survey and project documents, statutes, CCB and VCS regulations, etc.

Regarding the community´s monitoring plan, it has been shared to stakeholders is available at Nideport´s webpage[111], and the link has been shared with the community through WhatsApp and printed versions.

4.5 Optional Criterion: Exceptional Community Benefits

4.5.1 Exceptional Community Criteria (GL2.1)

By exceptional benefits of the project for the community we mean any project directed by and destined to the communities and implemented on lands that they own or manage through legal or customary management and is favorable to the poorest in the project area or zone (taking as a reference a country of medium or high human development in which at least 50% of the households of the communities are below the national poverty line).

In this sense, in this section we seek to demonstrate the baseline of poverty in the entire project zone and the specific situation of poverty in the poorest community groups.

The report "*Situation of poverty and indigence multi-causal Agglomerate Posadas – Third quarter of 2018*"[112] of the Provincial Institute of Statistics and Census of Misiones employs the "*The index of Multicausal or Multidimensional Poverty in Households of the Agglomerate Posadas*". This index uses a methodology in which 3 methods are averaged:

Absolute Indirect Method (AIM)

[111] For consultation: https://news.nideport.com/2022/10/27/plan-de-monitoreo-vida-nativa-gs1-comunidad/

[112] For consultation: IPEC-Misiones-%C3%8Dndice-de-Pobreza-e-Indigencia-Multicausal-IPIM-3%C2%B0-Trimestre-2018.pdf

Relative Indirect Method (RIM)

Direct Method of Basic Needs Satisfaction (DSM)

According to this report, the Absolute Indirect Method (AIM) is an indirect and one-dimensional method that is applied by comparing the declared household income with the income declared as thresholds, i.e., a household is considered poor if its income (sum of the income of the people making up the family group) is less than the "poverty line". The criterion adopted in the methodologies that follows this approach is to consider a consumption structure (total basic basket), which does not vary over time, and which arises from a "reference group" made up of households. The objective of this Poverty Line method is to measure the resources that a household possesses and compare them with the resource requirements to satisfy the basic needs of a typical family.

In turn, the Relative Indirect Method (RIM) consists of a method that does not measure the consumption capacity of families by their expenditures, but by their income levels. The calculation is based on taking the "median" of the total family income per capita (Meipcf). The concept of median is the equidistant value between the two extremes of income reported by INDEC's EPH. This method is currently used by the General Directorate of Statistics and Census of the Government of the Province of Córdoba. The concept of indigence is associated with that of "severe deprivation", which arises from dividing the total income of each household by the total number of members surveyed in the EPH.

Finally, there is the Direct Method of Satisfaction of Basic Needs (DSM). In order to identify poor and indigent households, we count the number of households that do not meet a given threshold, i.e., households that lack or are deprived in terms of housing, basic infrastructure and living conditions. We have also used variables that serve to identify poor households, such as the presence of children under 10 years of age helping the household with money by working or begging.

Cruce Caballero, Tobuna, Paraje Alegría and Paraje Piñeiro

The Census by agglomerates carried out in Cruce Caballero, Tobuna, Paraje Alegría and Paraje Piñeiro resulted in an average (highest average) of 5 members per household. Of these 5-member households, the census indicates that an average of 2 members work per household:

The results presented here correspond to a total of 77 surveys conducted (to households) in four localities. The discrepancy of totals in matrices, tables and graphs is due to the type of questions asked; for example, not all households receive a state pension.

Table 16: Ratio of working household members to total household members.

Ratio of working household members to total household members	Quantity	Percentage
None	4	6,3
Up to 1/4	20	31,3
Between 1/4 and half	28	43,8
Between half and 3/4	6	9,4

All	6	9,4
Total	64	100,0

The census allowed us to gather data on per capita monetary income by percentage of working household members out of the total. That is, on average, working people earn between US$50.01 and US$150 with a tendency to earn between US$75 and US$100. In the best-case scenario, a household has US$300 of monetary income from wages.

Table 17: Per capita monetary income base on ratio of working persons per household[113].

Per capita monetary income (ranges)	Ratio of working persons per household (ranks)					
	None	Up to 1/4	Between 1/4 and half	Between half and 3/4	All	Total
No income	4	0	0	0	0	4
Up to US$50	0	10	5	0	0	15
Between US$ 51 and US$ 100	0	9	8	2	0	19
Between US$ 101 and US$150	0	0	8	3	5	16
Between US$ 151 and US$ 200	0	1	0	1	0	2
Between US$ 201 and US$ 250	0	0	4	0	0	4
Between US$ 251 and US$ 300	0	0	2	0	0	2
Between US$ 301 and US$ 430	0	0	1	0	1	2
Total	4	20	28	6	6	64

Moreover, the information collected by the census on monetary income through a state program shows that 72.7% of the households receive state assistance, from which 57.1% receive the universal child

[113] Conversion of Argentinean ($) to US Dollar (US$) calculated based on nov-dec 2021 value at time of census equal to $100 per US Dollar.

allowance (AUH, for its Spanish acronyms). As of December 2021, the amount to be received by the AUH for a child up to 14 years old or with disabilities was US$ 60 per child.

Table 18: Perception of income by state project activities.

Perception of income by state project activities	Quantity	Percentage
Yes	56	72.7
No	20	26.0
No data	1	1.3
Total	77	100.0

Considering the number of people working per household, the average paid salaries and state aid received, we can assume that in the best-case scenario households in the area of influence of the project have a monetary income of US$ 360.

The Provincial Institute of Statistics and Census of Misiones (IPEC, 2021)[114] establishes that the Basic Food Basket for a household of 5 members (father and mother of legal age, one adolescent child, one pre-adolescent child and one child) -which is the household composition derived from the census- is: US$ 445.40. While the Total Basic Food Basket is US$ 1,142.07.

For its part, INDEC establishes in Technical Reports / Vol. 5, n° 210, "Living Conditions Vol. 5, n° 16", Monthly valuation of the basic food basket (BFB) and the total basic basket (TBB). Gran Buenos Aires of October 2021[115] establishes that at the National level the BFB for a household composed of 5 members -Composed by a male and a female, both 30 years old, and three children of 5, 3 and 1 year old- is US$ 325.27, while the TBB is US$ 761.12.

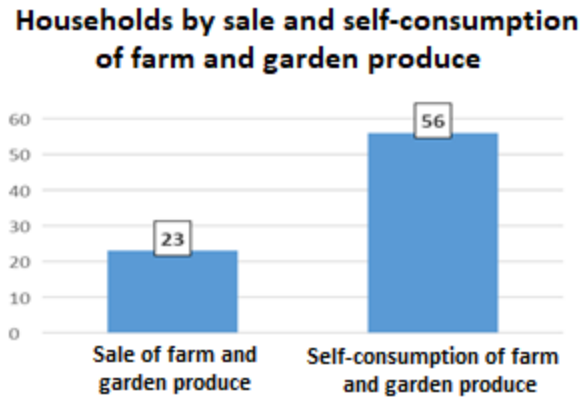
Using the Absolute Indirect Method (AIM) -which consists of adding the income of the working members of the household (in our cases also taking into account the AUH received) and observing if this exceeds the TBB- we observe that the average monetary income of a household in the area of influence of the project of US$ 360 does not exceed the provincial TBB of US$ 1,142.07 established by the IPEC, nor does it exceed the national TBB of US$ 761.12 established by the INDEC. In other words, the population of the project's area of influence is below the provincial and national poverty lines.

Using the Relative Indirect Method (RIM) -which consists of taking the "median" of the total family income per capita between the two extremes of the census income. The concept of indigence is associated with that of "severe deprivation", which arises from dividing the total income of each household by the total number of members surveyed - we observe that the US$ 360 divided by the 5 members of the household gives us a ratio of US$ 51.42 per month to be spent per member of the household. According to the IPEC, the basic food basket for an adult is US$ 117.93, for an adolescent it is US$ 138.54 and for a child between 4-5 years old it is US$ 59.54, therefore, the US$ 51.42 is not enough to satisfy any BFB. On the

[114] https://ipecmisiones.org/canastademo/index.html
[115] https://www.indec.gob.ar/uploads/informesdeprensa/canasta_11_2141284B3543.pdf

other hand, according to INDEC, the basic food basket for an adult is US$ 100.08. Based on these issues, we can conclude, as with the MIR, that the population of the project's area of influence is below the provincial and national poverty lines.

To alleviate this situation of poverty that is observed with the non-satisfaction of the TBB, the population of the area of influence of the project resorts to the production for self-consumption of farms and orchards. let's see the results of the home survey:



However, the self-consumption of what is produced in gardens and farms does not help households to make savings, based on the question asked on the perceived savings from the described activity, which resulted in a 69% of low and very low savings perceived. This is one more fact that shows that we are dealing with a population that is below the poverty level.

Tekoa Alecrin

With respect to Tekoa Alecrin, the analysis is done based on the Direct Method of Satisfaction of Basic Needs (MDS) - which counts the number of households that do not meet a certain threshold, that is, households that lack or are deprived in terms of housing, basic infrastructure and living conditions. By means of the data obtained through the census with a targeted sample selection and by clusters carried out in Tekoa, it can be observed:

1-High degree of overcrowding, and vulnerability of living conditions in terms of the number of sleeping beds per person.

The census surveyed the relationship between the number of household members, living environments and the beds in which they sleep, visualizing the overcrowding in the home and the vulnerability of living conditions in terms of the lack of a bed to sleep in per person, as well as overcrowded living conditions[116]. This is a result of minimum 3 persons per household living in a one room house with an average of 2 to 3 beds.

2- Lack or deprivation related to housing and basic infrastructure.

It can be seen the precariousness of housing materials and construction, as well as the main housing and infrastructure problems where the main 4 problems raised from the community regarding housing are:

Lack of adequate ventilation

[116] Census results in the reports available to VVB.

Overcrowding

Water leakage

Lack of adequate heating.

Regarding housing construction, houses are mainly constructed with no floor, with wooden walls and zinc roofs. There are no houses with toilets inside. And regarding flooding more than 80% stated they suffer flooding and roof leakages during storm season.

3- Lack and deprivation in living conditions in terms of food.

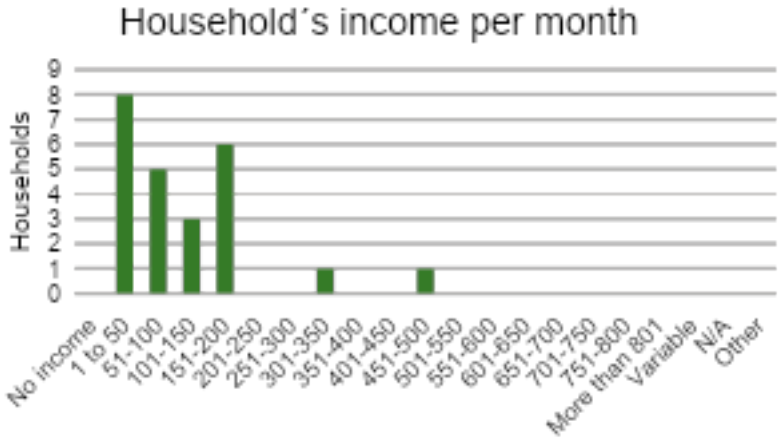
The census results show 46% of sampled houses eat two or one time a day, while 50% eat three times a day. Daily caloric intake comes from "*reviro*", a food based on corn or wheat flour, egg, water and salt, which is fried and eaten shredded or cut into pieces.

A plate of *reviro* has 250 calories. The number of calories that should be consumed daily, according to the World Health Organization (WHO), is an average of 2,000/2,500 calories per day for men and between 1,500 and 2,000 for women. Considering that on average in the Tekoa Alecrin they eat 3 times a day, that the food they eat the most is *reviro* and this has 250 calories per plate, the calorie intake of the village is below the WHO recommendations.

4- Lack and deprivation in living conditions in terms of monetary income.

The production of handicrafts (baskets, carved figures, ornaments) also constitutes another subsistence activity, although in a very precarious way since they do not sell more than 20 pieces per year per family, representing an income of less than US$ 200 per year.

The income they receive in cash, as in the case of the rest of the communities in the project zone, mainly comes from part of allowances, subsidies or state social plans (more than 60% of the surveyed households mainly from the Universal Child Allowance), and, to a lesser extent, from salaried work in plantations or *tarefas*, with an average net cash income of between US$40 and US$100 per month per family group.



While the majority of people have a cash income between 0 and US$50 and the second largest group has a cash income between US$ 150.01 and US$ 200, the mean and median cash income of the population

stands at US$ 1000, which leaves the population of Tekoa Alecrin below the national indigence line, since for INDEC the BFB for one adult is US$ 100.08.

Land tenure and ownership in the project zone

Regarding the recognition of land ownership rights by Tekoa Alecrin, the land tenure of Tekoa Alecrin is precarious. Although it is protected by National Law 26160 in accordance with Article 75, paragraph 17 of the National Constitution and in partial compliance with Article 14, paragraph 2 of ILO Convention 169, currently, and since 1995 there are conflicts with a private company: Harriet S.A[117].

Regarding land tenure in Cruce Caballero, Tobuna, Paraje Alegría, Paraje Gentile and Paraje Piñalito, the census shows that half of the households own the land on which their house is located, while a third corresponds to family property. The other situation of some weight is that of renting (5%).

Do you own the land on which your home is located?					
Categories		Frequency	Percentage	Valid percentage	Accumulated percentage
Valid	Own	32	68.1	68.1	68.1
	Family	10	21.3	21.3	89.4
	Rented	4	8.5	8.5	97.9
	Fiscal with tenancy process	1	2.1	2.1	100
	Total	47	100	100	
Paula Matheu (2021) MAP public-private solutions. Report on the results of the census carried out					

The data presented make it clear the social condition of poverty of the majority of the inhabitants of the project area, not only the social condition of the participants´ counts for this optional criterion.

In our project, the exceptional criterion is also met by two determining factors:

1. The existence of a participatory, equitable and redistributive approach in the set of all projects in the area of influence.

2. The formulation -beyond the universal benefits- of a set of focal projects aimed at reducing poverty and inequality in the access to resources of the most unprotected and impoverished community groups: women, indigenous peoples, and rural households with high economic and social vulnerability.

[117] See more detail in Appendix 4.5

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

As previously stated, the project will generate net positive well-being benefits in the shape of formal job opportunities, better working conditions, environmental service payments to communities, HCV as well as native forest conservation, and enhancement and the implementation of project activities within the community.

In the short term, job opportunities, housing improvement, and active community participation are some of the benefits of the project leading to increased well-being of the communities in the project zone. Moreover, the conservation and enhancement of the communities´ HCV areas potentially will improve the opportunities for social cohesion. In the case of food gardens technical assistance and training, it will directly benefit food security for the communities involved in the project. These are some of the short-term benefits that can be identified for the project and associated project activities.

In the long term, the community benefits include an increase in well-being due to the conservation of forest and biodiversity ecosystem services which include avoidance of soil erosion and reduction in drought frequency, among others like local temperature control. Moreover, the different project activities will have strengthened the gender perspective in agricultural production and training and job experiences will increase technical skills within the communities and installed capacities.

Regarding specifically benefits on smallholders/community members according to each project:

Project Name	Participatory Carbon Budgeting
Need / Diagnosis	Lack of participatory designs and participatory budgets in which the population can determine the priorities for investments in health, education, protection of social HCVs and community infrastructure.
Definition of direct and indirect causes of the requirement	The State at various levels and the private sector have not used participatory designs and participatory budgets in public policies and/or projects.
Positive impacts to be generated	1. Increase social cohesion for project management. 2. Generate mechanisms of Distributive Democracy. 3. Promote a culture of good participation practices with sustainability and equity axes. 4. Substantive participation of women. 5. Improve the living conditions of the population.
Intermediate activities	1 Call for proposals and development, together with the population of the area of influence of the project, of the "manual of operation of the participatory carbon budget. 2 Determination of the budget for the projects. 3 Convening and development of participatory forums to diagnose the problems of the population and proposals for possible projects to solve them, ordered by priority of execution for the population. 4 Nideport's internal stage of feasibility of the proposed projects. 5 Call and development of participatory forums where Nideport will inform the population about which projects are feasible,

	which are not, and why. 6 Selection of the people responsible for each of the projects (for execution, monitoring, direct communication with Nideport, etc.). 7 Teamwork between project managers and Nideport to find budgets for labor, materials, supplies, etc. for project execution. 8 Execution of projects. 9 Evaluation of project management. 10 Impact evaluation of projects. 11 Constant publication of the evolution in the development of the projects, management evaluation and final impacts obtained.
Long-term benefits. Final impacts	1 Improvement in the quality of life of the population in the area of influence of the project. 2 Establishment of a culture of good participation practices based on sustainability and equity. 3 Substantive participation of women.

Project Name	Forest Safety Net
Need / Diagnosis	Through censuses in Cruce Caballero, Tobuna, Paraje Alegria and Paraje Piñero, it was determined that the population in the area of influence of the project is dependent on the "forest safety net": 1- Firewood. 2- Medicinal plants (the lower the purchasing power, the greater the use of medicinal plants obtained through collection).
Definition of direct and indirect causes of the requirement	1- Lack of state infrastructure for the provision of natural gas. 2- Low monetary income, which makes it difficult to satisfy the Basic Food Basket and the Total Basic Food Basket. 3- Patterns of cultural reproduction in terms of the use of forest resources.
Positive impacts to be generated	Guarantee the regulation of firewood and medicinal plant extraction for highly vulnerable households.
Intermediate activities	1. Preparation of regulations for the gathering of fruit and medicinal plants within the site (GS1). 2 Publication of available wood for withdrawal from the property´s entrance. 3 Registration and socio-environmental visit to potential beneficiaries. 4 Publication of lists of beneficiaries.
Long-term benefits. Final impacts	To provide a forest safety net to regulate harvesting practices and maintain a buffer against shortages of timber and other wild products in the project area; providing a local environmental service to the poorest and most resource-dependent households in the absence of

	community forests in the project's area of influence.

Project Name	Payment for environmental services project
Need / Diagnosis	Lack of water, lack of afforestation and the need to strengthen the farm economy
Definition of direct and indirect causes of the requirement	The droughts are due to the water deficit in the watersheds due to the advance of deforestation. In the past, when it rained, the water stayed in the springs, but with deforestation, the time that the water lasted in the springs became shorter.
Positive impacts to be generated	1. Decrease the number of recurrent droughts. 2. improved access to water for consumption. 3. improve the economy of the farms. 4. reforestation of native plants
Intermediate activities	1. Survey of farms for the realization of the project. 2. Evaluation of the best reservoir model with watershed protection (1, water eye model. 2, water catchment model through a pipe). 3. Agreement and signing of documents on the use and obligations of the reservoirs. 4. Purchase of materials 5. Construction of the reservoirs 6. Monitoring the use of the reservoirs 7. Purchase of seeds/seedlings of native species. 8. Planting of native species
Long-term benefits. Final impacts	1.Training in HCVs (water and forestation) maintenance on local rural smallholder farms 2. Improving incomes of local small rural producers.

Project Name	Óga
Need / Diagnosis	Through the FPIC with the Alecrin village, it was determined that Tekoa has habitat problems: insufficient housing for the entire population, which leads to overcrowding, and high precariousness of the existing housing. These problems are directly related to the community's lack of materials and tools for self-construction of housing. In addition, a housing census of 24 households in Tekoa Alecrin was carried out using the "cluster" methodology, which corroborates the FPIC's diagnosis. Finally, in an interview conducted on December 11, 2020, Dr. Ariel Suarez Núñez (former head of the "sixth region" health area where

	Tekoa Alecrin is located) states that "In winter, respiratory diseases and coughs appear. This is due to the firewood cooking in low huts, plus the cold and little clothing".
Definition of direct and indirect causes of the requirement	Lack of materials and tools for housing construction.
Positive impacts to be generated	Solve the housing problems of housing quantity and precariousness of these of Tekoa Alecrin. At the same time, strengthen the Tekoa Alecrin's housing self-construction capacities.
Intermediate activities	1. Establishment of a project manager by the Tekoa and delivery of a subsidy by the NIDEPORT to the community to cover the project's operating expenses. 2. Training of the members designated by the village to be trained by the project manager. 3. Housing design and approval by the Tekoa. 4. Purchase of materials and tools for the construction of houses. 5. Construction of x number of houses in x amount of time. 6. Assembling of mixed crews between men and women of Tekoa Alecrin (for gender participation in the project) for the disassembly and assembly of houses. 7. Tekoa's satisfaction with the houses and with the training.
Long-term benefits. Final impacts	1. Quantity and quality of housing built. 2. Overcrowding in dwellings 3. Floor material of the dwellings built. 4. Location of the kitchen in the dwellings constructed. 5. Existence of bathrooms in the dwellings constructed. 6. Flooding or leaks in the dwellings constructed. 7. Adequate ventilation in the dwellings constructed. 8. Risk of fire in the dwellings constructed. 9. Capacities transmitted to the community in modular construction. 10. Satisfaction of Tekoa Alecrin with the OGA project.

Project Name	Ra 'ÿi, strengthening family and community farming in Tekoa Alecrin
Need / Diagnosis	In the FPIC, in interviews with key informants and in the different surveys carried out in Tekoa Alecrín, it was found that practically a large part of the diet of the families in the village depends on the family's own agricultural production or on the community gardens that exist. Each family has a "chacra" from which they obtain foodstuffs such as corn, beans and cassava. In addition, there are two community gardens in Alecrin in which some of the village members

	work and distribute the food produced to the school and to families in need. What could be seen in different interviews and through the surveys carried out is that despite this, there are food problems in the village. Likewise, a series of problems related to agriculture were identified: shortage of seeds in general and lack of adequate tools to improve crops.
Definition of direct and indirect causes of the requirement	1 Lack of adequate working tools. 2 Lack of knowledge to maximize harvests, and to create a sustainable seed bank. 3 Lack of seeds.
Positive impacts to be generated	1 General improvement and expansion of community vegetable gardens. 2 Increase in the varieties cultivated to generate greater diversification of the family's horticultural diet. 3 Increased participation of the village in the community gardens. 4 Generation of a community seed bank to improve the conservation and availability of seeds in the village. 5 Improved food security in the village by increasing the number of times families eat per day.
Intermediate activities	1. Formalization of the community garden managers. 2. Purchase of seeds and tools 3. Donation of seeds and tools. 4. Construction of a community seed bank. 5. Implementation of the community seed bank. 6. Design of training and educational activities: basic aspects of planting, seasonal calendar, safe use and maintenance of tools, soil preparation, water use, design of the garden space (protection and use of space), pests and diseases, seed conservation and procurement, installation and maintenance of infrastructure, monitoring and improvement of production, adaptation to climate change. 7. Technical and material support to family agriculture. 8. Intermediate monitoring.
Long-term benefits. Final impacts	1 Increase in the number and variety of cultivated species. 2. Increase in the number of people working in community gardens. 3. Increase in the size of the community gardens. 4. Improved food security in the village. 5. Promotion of climate change adaptation in agricultural production.

Project Name	Cooperativa Nueva Esperanza

Need / Diagnosis	The Nueva Esperanza Cooperative is an agroecological and sustainable project for the production of different products that a group of women from Paraje Gentil, San Pedro, Misiones, is carrying out. These entrepreneurs work in the production of vinegars, liqueurs and dressings from wild fruits native to the Paraná rainforest that they grow themselves or that they collect from the bush: caraguatá, jacaratiá, jaboticaba, pitanga, guabiroba, among others. The cooperative also provides training, workshops and talks open to the community on environmental care, the importance of conserving native plants and their seeds, agroecological production, and the prevention of gender violence in the community. In this sense, we believe that the Nueva Esperanza Cooperative, in addition to providing work for numerous women and a steady income for several families, makes an important contribution to community forestry management with a gender focus. Currently, the cooperative is having difficulties responding to the demand for products from different sectors (fairs, private businesses, regional commercial centers). This is why there is a need to speed up product processing times in order to increase production and, as a result, the income of the cooperative and its workers.
Definition of direct and indirect causes of the requirement	From a series of meetings with workers and representatives of the cooperative, it became clear that one of the main problems they face is the lack of tools, equipment and machinery to increase the speed of the production line and the total amount of production. This is mainly due to the lack of economic resources to invest in specific equipment and machinery. The impossibility of increasing productivity means that the cooperative cannot adequately supply its current markets and potential new markets interested in its products.
Positive impacts to be generated	The scenario without project of the Nueva Esperanza cooperative can be summarized in a bimonthly production of: Vinegar: 300 liters, bottled in 7200 bottles, with a production time of 24hs (plus 45 days of parking time involved in its production). Dressing: 32 liters, bottled in 8 bottles, with a production time of 10 hours (plus the vinegar production time, since the remaining vinegar pulp is used for its production). Liqueur: 41.5 liters, bottled in 83 bottles, with a processing time of 10 hours.

	With the machinery and equipment to be provided by us, it is expected that bimonthly production will at least double.
Intermediate activities	1. Signing of the Agreement. 2. Purchase of equipment and/or machinery 3. Installation of machinery and equipment. 4. Training in the use of the new machinery. 5. Increase in production speed. 6. Increase in the quantity of products produced. 7. Supply of the markets in which it operates. 8. Opening of new markets
Long-term benefits. Final impacts	1. Increased production line speed. 2. Increase in the number of products produced 3. Adequate supply of the markets in which it operates. 4. Opening of new markets 5. Increase in the cooperative's profits 6. Strengthening of the gender perspective in agricultural production.

Project Name	Don Antonio: Native medicinal species nursery with an ecotourism and educational approach.
Need / Diagnosis	Antonio Barreto is a long-time resident of the project area. In addition, he worked for approximately 40 years for different companies located on the current Forestal Belga-Nideport property. From different interviews and informal conversations with him and his family, it was possible to identify his great knowledge of medicinal plants in the area. Based on this, a nursery project was conceived to contribute to the conservation and dissemination of this knowledge and ethno-botanical heritage of high value, in the context of the disappearance of traditional and community knowledge.
Definition of direct and indirect causes of the requirement	1 Non-widespread dissemination of Antonio's traditional knowledge of medicinal plants. 2 Non-existence of nurseries focused on plants for medicinal uses. 3 Risk of loss of traditional knowledge on the identification and use of native medicinal plants. 4 Risk of Antonio's death due to his advanced age.
Positive impacts to be generated	1. Contribute to the conservation of traditional knowledge and native medicinal species. 2. To value the traditional knowledge of Antonio Barreto. 3. Disseminate the identification, use and conservation of native medicinal plants. 4. Contribute to the reforestation of native plants within the property.
Intermediate activities	1. Field diagnosis. 2. Pre-feasibility analysis of the project. 3. Elaboration of a basic text on medicinal plants: identification, use and properties. 4. Elaboration of an indicative budget. 5. Botanical advice

	and design of conservation areas. 6. Geographical and ecosystemic analysis of the land to be considered (pre-feasibility). 7. Planning, design and sectorization of the nursery and adjacent areas. 8. Selection of species to be used. 9. Final budget. 10. Purchase of tools and supplies to be used. 11. Implementation of the necessary infrastructure. 12. Positioning and conditioning of the different nursery spaces. 13. Collection or procurement of the species to be used: seeds, cuttings, layering. 14. Sowing, transplanting and location of the species. 15. Posterization. 16. Care and maintenance of the nursery spaces. 17. Irrigation, fertilization and pest control of the species.
Long-term benefits. Final impacts	The final impacts will be measured with the following indicators: 1. quantity of medicinal plants in production. 2. Number of people who visited the nursery. 3. Number of plants produced in the nursery used for reforestation. 4. Construction of a database on medicinal plants and their uses.

4.5.3 Community Participation Risks (GL2.3)

Regarding community benefits and risks, the project included communities from the beginning of the project design for them to identify risks and needs and get to know and understand the project. The community social and economic development projects are designed to be continued by the community throughout the project lifetime.

In this sense, following the public consultation, a participatory mapping of HCV identification and risk and threat estimates was carried out, as well as a focus group of women to assess the differentiated impact on their role in society, considering gender safeguards in the areas of division of labor, access to resources and substantive participation.

In the case of Tekoa Alecrín, a FPIC took place, where a SWOT analysis, HCV identification and project formulation workshops took place. This included a workshop on gender perspectives in the benefits of the project.

No specific risks from the participation of the communities in the project arose. The main issues would be related to communities hopes and trust to the project than specific risks from participating. For example, communities would mention previous experiences with other projects and organizations where high hopes were generated in the communities and the outcomes were not those projected, fearing the same outcome with this project.

Through a job risk assessment, main risks have been identified for the different job positions and mitigation actions defined as detailed in section 2.3.17.

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

As mentioned in section 4.2.1 the positive impacts are detailed below for the marginalized and vulnerable community groups:

Community Group 1	Women
Net positive impacts	Different instances in place (focus group discussions) seek to generate safe spaces for women to raise their voice and present those needs which can be met by the projects to be designed and implemented, leading to further opportunities for well-being. The project will generate equal job opportunities for men and women, providing women with the opportunity to provide economically for the family, or its own, in a formal job under good working conditions. Training will take place improving and gaining new skills, which include technical assistance to improve existing project's productivity and outcomes. In the case of Cooperativa Nueva Esperanza, the original project was designed by women, and Nideport attempted to strengthen it.
Benefit access	Special consideration is paid to listen to women's needs, risks and desires, generating all-women moderated consultations and meetings[118].
Negative impacts	Constant follow up on project development is monitored using the indicators defined for the specific projects including women impacted. Moreover, there is public access to the project proponent through different channels to raise any concerns, comments. As well as a code of conduct which specifically mentions avoiding any kind of discrimination towards women. Any negative impact or risk to women will be studied and the project will be redefined to mitigate them in gender safeguards.

Community Group 2	Tekoa Alecrin community
Net positive impacts	The different type of development project activities with the community will allow for different positive changes in the community well-being including: 1. Improve health and family relations by reducing overcrowding

[118] Meeting minutes and outcomes available for VVB during validation

	in houses, and improving housing material conditions 2. Projects are designed by Tekoa Alecrin, with Nideport´s support and expertise in project management. 3. Improve health and community economy by securing healthy food access.
Benefit access	The culture of the Alecrin community was studied before the first encounter, in order to better understand hierarchy and respect its way of interacting with the outside. In this line, all meetings are coordinated through the community's leaders and summaries are extended to the community group. The projects are defined and designed through a FPIC during which the community's needs are identified.
Negative impacts	Constant follow up on project development is monitored and project development informed and discussed with the community group. Any negative impact or risk will be studied and the project will be redefined to mitigate them. Moreover, there is public access to the project proponent through different channels to raise any concerns, comments.

Community Group 3	Vulnerable people (economic and social vulnerability with their income and livelihoods, schooling and food sovereignty in a critical state)
Net positive impacts	The project's aim is to generate job opportunities with better working conditions and income and increase economic activities than without the project leading. Moreover, different development projects defined with the community include participation, capacitation and incomes from HCV's improvement.
Benefit access	Projects are defined and designed based on main needs identified during public consultations with and by the communities. Monitoring plans will allow us to follow the project objectives, making sure the benefits are accessed by those in need.

Negative impacts	Constant follow up on project development is monitored and project development informed and discussed with the community group. Any negative impact or risk will be studied, and the project redefined, if needed, to mitigate it. Moreover, there is public access to the project proponent through different channels to raise any concerns, comments.

4.5.5 Net Impacts on Women (GL2.5)

The without project scenario shows a continued historical trend that has reinforced the differentiated allocation of productive and reproductive work, where a marked division of labor according to gender is identified. In general, the tasks of production and provision are associated with the figure of the man, while the tasks of care and maintenance of domestic life are associated with the figure of the woman strongly influenced by the evangelical religion in the area. This translates into a scenario in which men tend to have salaried jobs mostly linked to forestry (extraction and processing of wood), production based on perennial crops (such as yerba mate, tea, etc.) whereas women tend to engage in unpaid domestic work ranging from sowing and harvesting food for both household consumption and sale, to preparing daily food, cleaning and tidying up the home, to the care of children/children, the elderly/children and persons with disabilities.

In turn, most women also perform productive work both inside and outside the home for which they receive considerably low pay. An example of this is the artisanal processing of processed food for sale.

In this regard, during our field visits, our interlocutors have told us that "there is no work for women" and that this situation does not seem to depend so much on the level of education achieved, but a lack of job opportunities for women and a lack of institutions or training spaces.

As previously mentioned, different instances in place (focus groups) seek to generate safe spaces for women in the communities to raise their voice and present those needs which can be met by the projects to be designed and implemented, leading to further opportunities for well-being. The project will generate equal job opportunities for men and women, providing women with the opportunity to provide economically for the family, or its own, in a formal job under good working conditions. Training will take place improving and gaining new skills, which include technical assistance to improve existing project's productivity and outcomes.

It is relevant to distinguish a case in the project area where particular dynamics occur in terms of gender relations in forest governance. This is the case of the Nueva Esperanza Cooperative, a project born in 2006 and promoted by a group of 12 women between 30 and 50 years of Paraje Gentile, for the agroecological and sustainable production of preserves based on native wild fruits. The weekly work of these entrepreneurs consists in the gathering of fruits from the forest, for the subsequent elaboration and commercialization of vinegars, liqueurs and condiments. In addition to this, they are currently working on the creation of a nursery in order to conserve native species and generate greater environmental awareness, since they have noticed a growing shortage of certain species due to the felling of trees.

Another of the actions offered by this project is the realization of workshops and training focused on the preservation of the environment, the care and conservation of native plant seeds and the prevention of gender violence in the community, thus generating a socio-community contribution.

This enterprise therefore constitutes a source of income for these women, through self-management and independent work and a particular way of linking and using forest resources. However, the income it provides is limited, given that its production still develops on a small scale due to lack of resources to expand it. According to the survey carried out in the area, the monthly income provided by this project does not exceed US$ 50, which is a very small contribution considering that each of these women make up families of at least 2 children/as.

The project includes specific project activities seeking to provide equipment and related training (machinery as well as economic and marketing courses and gender equality) for the cooperative to increase production.

Tekoa Alecrin women community

In the case of the Tekoa Alecrin women community during the visits, despite the requests to have a broad and equal participation of the different community subgroups, a more peripheral participation on the part of women, in terms of their presence and their verbal intervention was found. Although the presence of women has represented between 30% and 50% of all those attending the meetings, they have almost always remained in a separate physical area, with a rather timid attitude. Although there is a language barrier that prevents direct communication with external interlocutors in the case of old women, no interventions on the part of the cacique or any other intermediary indigenous authority was observed, during the meetings, which could demonstrate effective participation. However, this form of participation does not directly indicate a situation of inequality, nor does it deny its decision-making power at the most intimate level of the community, which perhaps can only be perceived by the members of the community, in the absence of strange people.

As found in the thematic literature, the symbolic geography of the Mbya Guarani has a strong role in their socialization and in the sexual division of labor. While the Tekoa Alecrin community is considered a feminine space per excellence, destined to the rearing of the youngest children and the domestic activities, the mountain and the white world are external areas with which only men deal, when they leave the Tekoa Alecrin boundaries. This aspect that characterizes the Mbya largely explains why most women do not speak Spanish and avoid contact with entities outside their community. It could be said, then, that this cultural trait somehow limits them to the tasks of the domestic sphere and, in turn, restricts their connection with the "white world" outside. In this regard we have found that it is only women who are engaged in certain domestic activities such as cleaning, washing clothes and cooking food; and in turn, young men are the only ones who do salaried work outside the community, such as informal work on yerba mate crops.

Regarding access to education and the Spanish language, although there appears to be a cultural impediment for women in Tekoa Alecrin, the formal establishment of the "Vera Poty" school together with the bilingual intercultural education project activities, since 2008, it has led to greater schooling for young women and girls, and thus to greater knowledge of Spanish in recent years. However, we have not yet noticed the impact of this policy on our field visits. Their influence is likely to be identifiable soon.

On the other hand, with respect to substantive participation, both our key informants and the women in the community with whom we have been able to interact briefly, have informed us that they have broad decision-making power within the community, even though our limited stay in the field has made it difficult for us to notice. On the other hand, it could be thought that a substantive and public participation by women can be an aspect in transformation considering the new indigenous female leaderships that have emerged in recent years in other Mbya Guarani Tekoa Alecrin, and increased access to intercultural education, which would allow them greater verbal intervention in the long term.

The first projects designed with the community will lead to positive impacts for women as it includes improving housing conditions as well as new houses to reduce family overcrowding. Moreover, the vegetable garden training and improvements will allow us to secure food and adapt to climate change impacts projections. All projects designed and implemented will only be considered if no apparent negative impacts to women in the community arise from them.

4.5.6 Benefit Sharing Mechanisms (GL2.6)

The objective is to distribute resources from the main activity of SPVN GS1 in the territory through the implementation of projects that enhance socio-environmental benefits. The design of this system seeks to generate an effective, efficient, equitable and transparent instrument, with a gender and intercultural approach, considering the vision of local, indigenous and/or rural communities, within a framework of general principles established in this document such as universality, equality and equity.

In this sense, the Participatory Carbon Budget Project Activity is a system of formulation, execution, monitoring and evaluation of projects under the methodologies of management evaluation and impact evaluation; financed with the profits obtained from the sale of carbon credits; through which the neighbors of the area of influence of the project determine, within the framework of a collaborative process -through debates and decision making under a governance logic-, where the investments will be made and what are the priorities, works and actions that will be developed.

This project activity structure was presented, discussed and approved during the process of informative meetings and in the public consultation (Cruce Caballero, Paraje Piñeyro, Colonia Alegría, Paraje Gentile and Tobuna, as well as in the FPIC process and workshops in Tekoa Alecrín). The agreement of a pilot experience for the continuous improvement of the process was included in a first stage and a basic regulation was consolidated, to be developed in a second instance as a participative self-regulation, and whose development is expressed as follows:

Benefit distribution criteria

The benefits delivered to the community will be of a monetary and non-monetary nature, and will include technical assistance and strengthening in project management, as well as the necessary financial resources for all stages of the project according to the management and impact indicators. In addition, a participatory mechanism will be incorporated to design, implement, monitor and evaluate the projects in the territory in order to measure the generation of benefits and impacts and other costs and risks for each specific project.

Universality criterion: all people and groups in project boundaries have the right to participate and receive benefits, regardless of their social, economic, ethnic, gender and territorial status.

Equality criterion: all individuals and groups are in identical conditions to participate in decision making and receive benefits according to their responsibility and effectiveness.

Equity criterion: vulnerable and marginalized groups will have a higher percentage of the budget or, failing that, a prioritization, to focus on specific projects that address their social, cultural, economic and territorial vulnerability. The benefits will also be distributed considering the effects in regions affected by catastrophic events that have impacted their performance such as forest fires, plagues, droughts or floods; and other events that mitigate the impact of climate change or contribute to their resilience and adaptation.

After receiving the funds associated with the emission reduction payment agreements, the allocation of resources will begin (financing stage), defining the specific aspects for distribution to the projects, groups and regions where the agreement will be implemented, and the application of the other criteria defined and validated in the participation stage.

Effective benefit-sharing mechanisms

The elements of financial flow and fiduciary administration of the resources received from the sale of carbon credits, according to the percentage determined in each scenario, are operationalized through two modalities:

Investment by prioritized projects

The implementation of the system and the execution of projects in itself involves a series of associated costs, such as management, technical support, monitoring and administration. Therefore, according to the feasibility analysis of each project, the percentage of funds that will be allocated to implementation activities and the percentage that will be used to implement the enabling conditions and project management will be defined. The administration and procurement functions may be carried out by Nideport or by public or intermediate institutions of the communities, as jointly evaluated between the parties according to the project, including mixed management.

Payments for environmental services through cash transfers to individuals or organizations.

Direct transfers will be made, according to the required stages and the achievement of results, to those small/medium forest owners who, for example, execute projects that contribute to restoring ecosystems at landscape scales in favor of local communities.

The following table shows the amounts allocated to the CP based on the benefits obtained from the emission of carbon credits:

In function of the profits obtained from the issuance of carbon credit, will in function of a percentage of direct transfer for projects

Up to USD 500,000.	5%
From USD 500,001 to USD 1,000,000.	5%
From USD 1,000,001 to USD 1,500,000.	3%
More than USD 1,500,001	2%

As an example, the amount earmarked for the CP will be divided as follows:

For operating expenses an estimated fixed amount of USD 1500

For materials expenses an estimated fixed amount of USD 800

For pre-feasibility/consulting costs an estimated fixed amount of USD 3,300

Direct transfer to civilian institutions for project execution will depend on the benefits obtained from the emission of carbon credits (see table above, from the amount allocated we have to subtract the fixed costs, which gives us the amount for the implementation of the project).

For accountability an estimated fixed amount of USD 350

For execution monitoring expenses an estimated fixed amount of USD 1700

Table 20: Benefit sharing mechanism summary description.

Community	Vulnerability Situation	Definition of specific problems	Distributive Criteria	Name of project activities/distributive mechanism for problems	What does the project/distributive mechanism consist of	Participation mechanism	Type of Benefit
Cruce Caballero	In the best case scenario, a household has $30000 pesos of monetary income per salary. Taking into account the number of people working per household, the average paid wages and state aid received, we can assume that in the best-case scenario households in the area of influence of the project have a	Lack of water, lack of forestation and the need to strengthen the farm economy.	Universality / equality	Payment for Environmental Services	Payment for environmental services for reforestation and construction of reservoirs with watershed protection in farms.	1. Payment for environmental services 2. Construction of reservoirs with protection of watersheds. 3. Afforestation of native species.	NET
Tobuna		Lack of participatory designs and participatory budgets in which the population can determine the priorities for investments in health, education,	Universality / equality	Participatory Carbon Budgeting	Participatory carbon budget in which the population in the project's area of influence can determine how the budget will be used.	Participation in the participatory forums of the Participatory Carbon Budget.	

	monetary income of $36000. Using the Absolute Indirect Method (AIM) we observe that the average monetary income of a household in the project's area of influence of $36,000 does not exceed the provincial Total Basic Basket of $114,207.51 established by the IPEC, nor does it exceed the national Total Basic Basket of $76,112 established by the INDEC. Using the Relative Indirect	protection of social HCVs and community infrastructure.					
Paraje Piñeiro		"The population in the area of influence of the project has a dependence on the "forest safety net" in: A. Firewood. B. Medicinal Plants (the lower the purchasing power the greater the use of medicinal plants obtained through collection).	Universality / equality	Forest safety net	Although very few respondents to the rural census admitted to extracting firewood from the site (GS1), qualitative information obtained through interviews with key informants indicates that firewood collection does occur, particularly during the winter season. The project aims to regularize this situation, respecting the subsistence activity.	Through Citizen Consultation, socio-environmental visits to homes, informative meetings/debate.	

Paraje Alegria	Method (RIM) we observe that the $36,000 divided by the 5 members of the household gives us a ratio of $5142 per month to be spent per household member. According to the IPEC, the basic food basket for an adult is $11,793.61, for an adolescent it is $13,854.63 and for a child between 4-5 years old it is $5,954.06, therefore, the $5142 is not enough to satisfy any CBA. On the other hand, according	Antonio is living with part of his family in the vicinity of the NIDEPORT property in a situation of socio-economic fragility. From this, he thought of a nursery project that contributes to the conservation and dissemination of this ethno-botanical knowledge of high value, in the context of the disappearance of traditional knowledge, and that, at the same time, guarantees him an economic income for his subsistence and material well	Equity	Don Antonio: Native medicinal species nursery with an ecotourism and educational approach.	Construction of a nursery for native medicinal plants with an ecotourism and educational focus.	In design stage	

	to INDEC, the basic food basket for an adult is $ 10,008. For these reasons we can conclude, as with the MIR, that the population of the project's area of influence is below the provincial and national poverty lines.	being.					
Paraje Gentile		"In a framework of systemic socio-economic fragility of women, there is a need to speed up the processing times of products in order to increase production and, from this, the income of a women's cooperative and its workers.	Gender / equity	Cooperativa Nueva Esperanza	Technology transfers to increase the speed of production and the quantity produced.	The cooperative has its own autonomous benefit sharing system. It is also planned to hold bi-monthly meetings and documented mechanisms for follow-up to demonstrate equitable participation of the members in the benefits generated by the project.	
Tekoa Alecrin	Based on the Direct Method of Satisfaction of Basic Needs (MDS) and by means of the data obtained from the census	Through the FPIC with the Alecrin village, it was determined that Tekoa has habitat problems: insufficient housing for the	equality / equity	Oga	Improvement of the community's housing self-construction capacities and construction of housing for the community,	Building of housing modules, starting with the households with the worst conditions. It will include training for the	EXTRAORDINARY (GOLD)

	with a directed sample selection and by clusters carried out in Tekoa, it can be observed: 1-High degree of overcrowding and vulnerability of living conditions in terms of the number of sleeping beds per person. 2- Lack or deprivation related to housing and basic infrastructure precariousness of the materials and construction of the houses; as well as the main problems of these and of	entire population, which leads to overcrowding, and high precariousness of the existing housing. These problems are directly linked to the community's lack of materials and tools for self-construction of housing.			respecting and maintaining the cultural heritage of the Mbya Guaraní.	self-construction of houses, which will be in charge of the Arco Iris Cooperative. By decision of the Council of Authorities, in both cases, housing and people who receive training will be defined by Tekoa Alecrin itself).	
		In the FPIC, in interviews with key informants and in the different surveys carried out in Tekoa Alecrín, it was found that most of the diet of the families in the village depends on the family's own agricultural	Equality / equity	Ra ´ÿi (community vegetable garden)	Support for community and family agriculture in Tekoa Alecrin.	The benefits will be received by the whole Tekoa Alecrin, since the project is oriented towards the vegetable garden, to which the entire community has access.	

	the infrastructure 3- Lack and deprivation in living conditions in terms of food. 4- Lack and deprivation in living conditions in terms of monetary income. 5- Although most of the people have a monetary income between 0 and $5000 and a second group has a monetary income between $15001 and $20000, the mean and median of the population's monetary income is	production or on the existing community gardens. It was found in different interviews and through the surveys conducted that there are food problems in the village. Likewise, a series of problems related to agriculture were identified: shortage of seeds in general and lack of adequate tools to improve crops.					

	$10,000, which leaves the population of Tekoa Alecrín below the national indigence line, since according to INDEC the basic food basket for an adult is $10,008.						

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

As previously mentioned in 2.3.3, in order to guarantee the full and effective participation of the parties the project has developed its own Consultation Plan.

Different stakeholder consultations were conducted taking into consideration special procedures needed in order to include the indigenous community Tekoa Alecrín. In this line, different meetings and assemblies took place with the community chiefs. Between December 2020 and February 2021, prior investigation was carried out in meetings with the Council of Authorities of the Tekoa Alecrín community, as well as with other members of the community that wanted and could be part of them. Then, two meetings were held. In the first one, the corresponding presentations were made between the members of the company and the Council of Authorities. The second meeting allowed the company team to tour the village and meet with community members. With the Council of Authorities and various members of the Alecrín community (2 adult women, 3 adult men, 5 young men, 1 girl and 3 or 4 children), it was agreed to carry out a process of FPIC to be able to define a project/s that focus on problems that the Tekoa Alecrín considers to be of first order.

More meetings took place in order to define together the housing project, design, materials, training, including also family census in order to define those most needed. The conclusions are clearly stated, including objectives, next steps, in order to match expectations with reality or possibilities.

In the case of rural communities prior to the stakeholder consultation different communication meetings took place. In order to maintain continuous communications, a portal is expected to be installed in the short term, with opening hours to bring together project proponents and communities looking to achieve informal and periodic communication.

4.5.8 Governance and Implementation Structures (GL2.8)

We understand governance at the local level as

"…a decentralized and cooperative process with a network logic - formal or informal - in which the local State, key actors - with presence, impact and proximity in the territory - from the private sector, interest groups and other levels of government participate. In this process, the local government does not govern by subordination by making unilateral decisions, but tends to do so by coordinating the interactions and joint actions of the various actors, with the intention of sustaining them over time; to lead society, defining objectives and collective goals in a participatory and deliberative manner; jointly planning, executing and evaluating public works, social development project activities, investment and economic development projects, and the provision of public services. This relational form of government based on networks formed by local governments and different private actors, interest groups and other state levels varies from municipality to municipality and has different impacts in each territory." (Colella, 2022. pp. 59-60)[119].

However, in the project's area of influence, the local government does not promote coordination and cooperation between the civil sector, the private sector, and the state sector to design, implement and monitor public policies. For this reason, civil and private institutions are atomized, often working

[119] Colella, Guillermo G. 2022. Gobernanza en Gobiernos Locales. Editorial Autores de Argentina. Argentina.

on the same issues, but in an overlapping and uncoordinated manner, which leads to inefficiency and ineffectiveness of resources and projects undertaken.

Faced with this situation of disarticulation of civil institutions, private sector, and other stakeholders, it was decided to implement "key actor", "snowball" and "focus group" techniques to identify the different stakeholders in the area of influence of the project, as well as their interests in order to articulate with them in the different projects carried out by the community relations area. Also, due to the lack of initiative from the local government, it was decided that Nideport would take the initiative to generate coordination and cooperation among the different stakeholders.

All the development project activities presented below have been designed, implemented, and are/will be monitored in a participatory and cooperative manner, under a governance logic, by Nideport's Community Relations area (Pablo Gallardo, Guillermo Colella, Martin Couchot and Sofía Rodríguez) together with the communities located in the project's area of influence. Regarding the actions taken within the project area, these are defined based on experts and third parties' technical analysis, which also includes, to a lesser extent, the knowledge of community members who have worked in the property for many decades now.

It should be noted that in the case of the Oga and Ra 'ÿi (strengthening family and community farming), these are original ideas of the members of Tekoa Alecrin, but due to lack of resources and technical capabilities they could not be developed. It is thanks to the coordination and cooperation between Tekoa Alecrin and Nideport that these projects could be developed. Likewise, the design, implementation and follow-up were carried out respecting the culture and tradition of the Mbya Guarani.

In the following flow chart, we show the articulation with the actors, according to project, under the governance logic:


Governance Scheme
mindmaster
NIDEPORT. Community Relations Team
Community Relations Team
residents of the project's area of influence
Project Red de Seguridad de los Bosques
Project Consulta Ciudadana
Project Presupuesto de Carbono Participativo
Project Pago de Servicios Ambientales
Project Censo
Biblioteca Popular Thay Morgenstein
Pablo Gallardo
Guillermo Colella
Merlin Couchot
Sofia Rodriguez
Mariana Palma
Consultora MAP
Fernanda cafferata
Project Dga
Project Ra ˆji jhuerta comunitaria en Tekoa Alecrin)
Project CPLI en Tekoa Alecrin
Project Cooperativa Nueva Esperanza
Project Vivero de especies nativas medicinales con enfoque ecoturistico y educativo
Tekoa Alecrin
Pastoral Aborigen Argentina
Population of the Tekoa
Consejo de Autoridades
Daisy Aranda
Hector Mielnichuk y Lorena Mielnichuk
Familia Barreto
Antonio Barreto, Isabel Barreto, Gustavo Pedrozo
Angelica olivera
Comisión recreativa, deportiva y cultural de cruce caballero
Silvio Cardiuk
EPET N° 33 de Cruce caballero
EPE N° 482 de Cruce Caballero y su cooperativa
Clara Quiroz
forms selected for pilot tests
area of influence of the project
EPET N° 31 de Cruce caballero
Malcon Villalba
Cooperativa de trabajo Arco Iris Limitada
Marcelo Gutierrez

Stakeholder data ordered by project:

Free, Prior and Informed Consultation (FPIC).		
Category	1	2
Name of organization	Argentine Aboriginal Pastoral	Tekoa Alecrin
Role in the project	Guarani translator of minutes of agreements and documents	Indigenous Village in which the FPIC took place
Contact person	Daisy Aranda	Sebastián Benitez
Position of person	Member of the Argentine Aboriginal Pastoral. Director of the Tekoa Alecrin School (EIB-FJC N°938).	1st Chief of Tekoa Alecrín
Address	Tekoa Arandú	Tekoa Alecrín
Phone	--------	---------
E-mail	------	---------

Citizen Consultation
Citizen consultation and participatory designs are driven and implemented by Nideport's community relations team, involving the inhabitants of the project's area of influence.

Census

Category	1
Name of organization	MAP. Public-Private Solutions.
Role in the project	Consultancy for the elaboration of data matrices and graphs
Contact person	Fernando Cafferata
Position of person	Associate
Address	República Árabe de Siria 2985 6to 27, Capital Federal.
Phone	+54 9 11 4088 2180
E-mail	info@mapconsultora.com.ar / Fernando.cafferata@gmail.com

Participatory Carbon Budgeting			
Category	1	2	3
Name of organization	EPET N° 31	EP N° 482	Cruce Caballero Sports, Recreational and Cultural Commission
Role in the project	Participation in the execution and monitoring of the project	Participation in the execution and monitoring of the project	Participation in the execution and monitoring of the project
Contact person	Silvio Cerdiuk	Clara Quiroz	Angélica Olivera

Position of person	Director of EPET N° 31	Principal of EP N° 482	Commissioner of the commission.
Address	Cruce Caballero	Cruce Caballero	Cruce Caballero
Phone	----------	---------	----------
E-mail	----------	----------	----------

Forest Safety Net
Citizen consultation and participatory designs are driven and implemented by Nideport's community relations team; involving the inhabitants of the project's area of influence.

Payment for environmental services project		
Category	1	2
Name of organization	MEP at EPET N° 31	Cooperativa de trabajo Arco Iris Limitada
Role in the project	Consultant, participate in the design and execution of the	Construction / construction consulting
Contact person	Maicon Villalba	Marcelino Gutiérrez
Position of person	MEP	President of the cooperative
Address	Cruce Caballero	Industrial Neighborhood, San Pedro,

		Misiones
Phone	----------	----------
E-mail	----------	----------

Oga			
Category	1	2	3
Name of organization	Argentine Aboriginal Pastoral	Tekoa Alecrin	Cooperativa de trabajo Arco Iris Limitada
Role in the project	Guarani translator of minutes of agreements and documents	Indigenous Village in which the FPIC took place	Responsible for the training for the self-construction of the houses, and also being a support for the construction of the houses.
Contact person	Daisy Aranda	Sebastián Benitez	Marcelino Gutiérrez
Position of person	Member of the Argentine Aboriginal Pastoral. Director of the Tekoa Alecrin School (EIB-FJC N°938).	1st Chieftain of Tekoa Alecrín	President of the cooperative
Address	Tekoa Arandú	Tekoa Alecrín	Industrial Neighborhood, San Pedro, Misiones
Phone	----------	----------	----------
E-mail	------	---------	------

Ra 'ÿi, strengthening family and community farming in Tekoa Alecrin		
Category	1	2
Name of organization	Argentine Aboriginal Pastoral	Tekoa Alecrin
Role in the project	Guarani translator of minutes of agreements and documents	Indigenous Village in which the FPIC took place
Contact person	Daisy Aranda	Sebastián Benitez
Position of person	Member of the Argentine Aboriginal Pastoral. Director of the Tekoa Alecrin School (EIB-FJC N°938).	1st Chief of Tekoa Alecrín
Address	Tekoa Arandú	Tekoa Alecrín
Phone	----------	----------
E-mail	------	---------

Cooperativa Nueva Esperanza		
Category	1	2
Name of organization	Cooperativa Nueva Esperanza	Cooperativa Nueva Esperanza
Role in the project	Provides project assistance	In charge of the project for the cooperative

Contact person	Héctor Mielnichuck	Lorena Mielnichuck
Position of person	Member of the cooperative	Member of the cooperative
Address	Paraje Gentile	Paraje Gentile
Phone	----------	----------
E-mail	------	---------

Don Antonio: Native medicinal species nursery with an ecotourism and educational approach.		
Category	1	2
Name of organization	Barreto Family	Barreto Family
Role in the project	Responsible for the nursery	Assistant for the nursery
Contact person	Gustavo Pedrozo	Isabel Barreto
Position of person	Responsible for the nursery	Assistant for the nursery
Address	Paraje Alegría	Paraje Alegría
Phone	----------	----------
E-mail	------	---------

On the other hand, the following tables show the methodological strategies for designing the projects with the stakeholders.

Project Name	Census
Methodology for project design and implementation	Research with a mixed - or triangulated - multistage design. With interviews of maximum variation; under the logics of "key actor", "snowball" and "Focus Group". And with censuses in villages, towns and native communities located in the area of influence of the project; with a random sample selection by conglomerates for villages and villages, and with a directed sample selection and by conglomerates for the native community.

Project Name	Participatory Carbon Budgeting
Methodology for project design and implementation	Citizen consultation, participatory design through assemblies and forums.

Project Name	Forest Safety Net
Methodology for project design and implementation	Citizen consultation. Participatory design and census in villages and sites in the project's area of influence, with a random cluster sample selection.

Project Name	Payment for environmental services project
Methodology for project design and implementation	Citizen consultation. participatory design in assemblies and forums

Project Name	Óga
Methodology for project design and implementation	Free, Prior and Informed Consultation (FPIC), SWOT Matrix, Participatory Design, Maximum variation interviews, Participatory Rural Appraisal (PRA).

Project Name	Ra 'ÿi, strengthening family and community farming in Tekoa Alecrin
Methodology for project design and implementation	Free, Prior and Informed Consultation (FPIC), SWOT Matrix, Participatory Design, Maximum variation interviews. Participatory Rural Appraisal (PRA).

Project Name	Cooperativa Nueva Esperanza
Methodology for project design and implementation	Census, interviews, "Focus Group", participatory design.

Project Name	Don Antonio: Native medicinal species nursery with an ecotourism and educational approach.
Methodology for project design and implementation	Census, interviews, "Focus Group", participatory design.

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

As previously stated, all development project activities are defined based on main needs and threats identified by communities in the public consultation. These project activities are further discussed and designed by the community together with Nideport in meetings with the community including focal groups. The implementation of the project activities is done by the community, generating job opportunities or based on environmental services payment, according to the project. The monitoring of the project activities is publicly available to the community and management, although led by Nideport is worked together with the community group defined for the task.

In the case of the project area, the main plan and design is defined by Nideport internal professional experts and a group of external experts. Specifically, a nursery project was conceived to contribute to the conservation and dissemination of a person from the community, highly valuable ethno-botanical knowledge -in the context of the disappearance of traditional knowledge- and which, at the same time, guarantees him an economic income for his subsistence and material well-being by including eco-tourism and education activities.

Moreover, human force needed for the different projects' implementation, both economic activities as well as native forest regeneration and enrichment, will be based on local communities, prior training and capacitation.

In the case of the Alecrin community, the project activities' definition is accompanied (technically and providing access to materials and capacitation) by NIDEPORT but the design, implementation and management is defined by the community based on their culture.

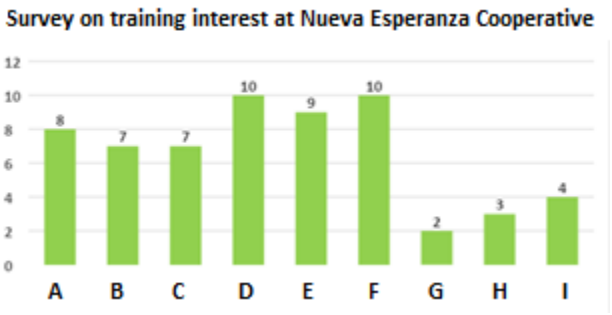
More precisely, the training topics per project for community groups are as follows:

Project Name	Óga
Capacity development and training	Staggered inclusive job training. In this, members selected by Tekoa Alecrin are trained so that they can then train the rest of the community. The purpose of the training is to "develop training actions, more precisely, a Temporary Inclusive Job Training activity to generate opportunities for social inclusion and enhance people's capabilities". The Instrumentation would be as follows: granting of economic and/or financial support through the allocation of subsidies, scholarships, grants, fixed capital transfers, as well as technical assistance, counseling, guidance, and job training, either for the purpose of support in the technical, operational, administrative management of WBG projects or for other job opportunities. In no case will a grant or support finance activities that may be included in an employment contract, in a contract for the provision of technical services, in the performance of consulting tasks, internships, etc. Amounts and insurance: The maximum amounts of the project benefits for each beneficiary will be assigned according to the nature and duration of the training project and the social situation of the beneficiary and in accordance with the amount set by the competent authority at the national level to determine a Minimum, Vital and Mobile Wage, pursuant to the provisions of Article 140 and concordant provisions of Law No. 24,013, as amended, or the one that replaces it, as well as its regulations. Prior to the payment of the stipend, NIDEPORT will contract an insurance for each recipient with the same characteristics of the risk insurance for field activities carried out by its team in San Pedro Misiones. The economic and/or financial support, and the technical assistance or training, granted or provided by this company by any of the modalities foreseen in the preceding article, either on its own account, or through third parties or by other means, is not intended to establish a contract or functional or legal dependence of any nature that links it with those or with the direct beneficiaries of the project activities. Consequently, the condition of beneficiary of the training project activities in any of its benefits, does not generate any employment relationship with Nideport or with the institutions responsible for their training. The following modules will be worked on during the training: Module 1: Wood selection.

	Module 2: Timber estimation. Module 3: Wood analysis. Module 4: Cutting practices. Module 5: Module construction. Module 6: Wood maintenance plan.
Targeted community members	Members selected by Tekoa Alecrin, so that they can then train all members of the community.

Project Name	Ra 'ÿi, strengthening family and community farming in Tekoa Alecrin
Capacity development and training	Training of selected members of the Tekoa Alecrin in agroecological cultivation techniques and seed preservation, so that they can then train all members of the community. Includes water management.
Targeted community members	Members selected by Tekoa Alecrin, so that they can then train all members of the community.

Project Name	Cooperativa Nueva Esperanza
Capacity development and training	On Tuesday, May 17, 2022, a survey was conducted so that the members of the cooperative could determine the topics of interest for training. The survey was designed to address two dimensions: one specifically related to the work carried out by the cooperative, and the other related to other skills and knowledge that would improve their social capital. In relation to this, a list was made of possible topics on which the respondents had to answer "yes" or "no". Once the responses had been collected, a statistical analysis was carried out to determine which topics had been the most important. As a result, it was found that, in the first place, the training on "Strengthening the gender approach", "Training in environment and sustainable development" and "Institutional relations" were weighted; these were followed by "Improvements in the production and reproduction of plants and seeds", "Improvements in technology transfer" and "Improvements in marketing and publicity...". In last place we find "Increasing social participation", "Improvements in labor organization..." and "Improvements in techniques for identification, recognition and harvesting of native fruits...".

	Result of the survey conducted on May 17, 2022, to the members of the cooperative in which they determined the topics of interest for the trainings:  Bar names from left to right: improvement in plant production and reproduction, improvement in technology transfer, improvement in marketing, strengthening the gender approach, institutional relations, training in environmental issues..., improvement in identification and recognition techniques, improvement in labor organization and social participation.
Targeted community members	To the women members of the cooperative and to women who join the cooperative in the future.

Project Name	Participatory Carbon Budgeting
Capacity development and training	Training in institutional strengthening oriented to good democratic practices in the management of civil institutions. Training in participation in participatory forums for dialogue, design, implementation and monitoring of community projects.
Targeted community members	To the entire population of the project's area of influence.

Project Name	Forest Safety Net
Capacity development and training	Not applicable

Project Name	Don Antonio: Native medicinal species nursery with an ecotourism and educational approach.
Capacity development and training	The training is oriented to the development of writing skills for the project manager, in order to be able to record knowledge according to scientific writing standards. This is linked to the development of Gustavo Pedroza's thesis. A thesis workshop has been developed and will later be used to record ethnobotanical knowledge. The training modules are as follows: 1) Training in pre-project thesis writing. Topics: Design and writing. Basic notions on the use of Word. Selection of appropriate bibliography. Writing and spelling. Cutting and writing of research objects and topics. Description of general and specific objectives. Selection of methodologies to be implemented. 2) Training in elaboration and writing of university thesis. Topics: Design and writing. Generation of organization chart. Selection of appropriate bibliography. Writing and spelling. Cutting and writing of research objects and topics. Description of general and specific objectives. Selection of methodologies to be implemented. 3) Training in maintenance and conditioning of nursery spaces.
Targeted community members	Antonio Barreto is a long-time resident of the project area. In addition, he worked for approximately 40 years for different companies located on the current Forestal Belga-NIDEPORT property. From various interviews and informal conversations with him and his family, it was possible to identify his great knowledge of medicinal plants in the area. Based on this, a nursery project was conceived to contribute to the conservation and dissemination of this knowledge and ethno-botanical heritage of high value, in the context of the disappearance of traditional and community knowledge.

Project Name	Payment for environmental services project
Capacity development and training	Training in forest law, watercourse maintenance, water reservoir construction, planting and enrichment of native trees species.
Targeted community members	To the entire population of the project's area of influence.

Project Name	Job opportunities at GS1 property
Capacity development and training	Training in identification, enrichment and planting of native trees, measurement of forest biomass, climate change adaptation, gender and labor rights.
Targeted community members	To the entire population of the project's area of influence.

5 BIODIVERSITY

5.1 Without-Project Biodiversity Scenario

5.1.1 Existing Conditions (B1.1)

The Paranaense rainforest, better known as the Misiones rainforest, is located in the north of Argentina, in the province of Misiones on the border with Brazil and Paraguay, located within the Atlantic Forest, one of the ecoregions included in the Global 200 (a global ranking based on the comparative analysis of biodiversity data, defined by WWF in 2000). At the beginning of the last century, Misiones' jungle had an extension of 1 million square kilometers, today it has only 5% of its original total area and continues to shrink (Laclau, 1994; Giraudo et al., 2003, Di Bitetti et al., 2003).

The Selva Misionera represents one of the most important remnants of the Atlantic Forest. Its forests are considered "hotspots" because they represent a unique environmental value for the planet. It is one of the most biologically diverse habitats in the country (Giraudo et al., 2003), and at the same time one of the ecosystems most affected by deforestation. Thousands of species live in it, to such an extent that 7% of the world's plant species and 5% of the world's vertebrates are found in the Atlantic Forest as a whole (Forman y Alexander 1998; Myers et al. 2000; Di Bitetti et al. 2003). The native forest there consists of Parana pine, rosewood, black lapacho, guatambú and anchico. All endangered species.

The reduction of the natural forest has several causes such as the advance of agriculture and livestock, logging, among others that cause environmental problems such as soil degradation by overexploitation of the same, loss of natural habitat for hundreds of species, reforestation with non-native species that are very harmful, the danger of extinction of flora and affecting ecosystem services (Laclau, 1994; Dalmau, 1995).

The loss of native forest endangered species such as the jaguar, the puma and the ocelot and other mammals such as the tapir, monkeys, corzuelas, two species of peccaries and the coat, seriously affecting biodiversity. As one of the largest remnants of Atlantic Forest globally, it serves as a refuge for species that need large areas. Among them is the jaguar, an emblematic animal for Argentina, which despite having been granted the highest category of protection, is today in danger of extinction and continues to suffer the effects of deforestation. More than 85% of its original habitat in this area of Argentina has been destroyed, leaving only 200 specimens in the country today, and studies confirm that

if nothing is done about it, it could disappear completely within the next 50 years. Habitat connectivity for large carnivores is included among the criteria for sustainability of Forest Law in Argentina (Law No. 26,331), but there are no tools to facilitate the implementation thereof (Martinez Pardo, 2013).

Timber extraction in the Selva Misionera relies on a very small number of tree species. This highly targeted and concentrated extraction over decades reduces or destroys the natural regeneration chain, as fewer and fewer seed trees of the extracted species remain in the forest composition, causing an effect comparable to mining activities, exploiting an ore to the point of leaving only what is called the "tailings". This continuous erosion of genetic richness leads to the total loss of species such as, for example, Palo Rosa or Lapacho.

In the project area, within the Selva Misionera, the conservation of the species is in a critical situation. Habitat loss, illegal hunting of wild animals and conflicts with domestic animals are the main threats to the jaguar population, and with unfavorable climates, these forests will retreat to "refugees" where they will survive even more isolated, which would be reflected in sites with greater endemism.

Aves Argentinas, a national non-profit organization, carried out a campaign during 2019 in order to survey the existing species in the Bosque Atlántico, province of Misiones. During the campaign, information was obtained on the following biological groups: fish; amphibians; reptiles; birds; bats; micro rodents; weasels; medium and large mammals; ectoparasites and ortho hantavirus of micromammals; mosquitoes and phlebotomine sandflies; mosquitoes and sandflies of sanitary importance; diurnal and nocturnal butterflies; taturana (a species of poisonous caterpillar moth of sanitary importance) and ants. These studies[120] have identified critically and endangered species with potential to regenerate if the habitat is conserved, and biological conditions enhanced.

Forestal Belga SA, previous owner for the project land, is a forestry company in the Province of Misiones, concentrating its activity on pine crops in some 2,000 hectares and exploitation of native forest in the rest of the property, with native forest areas that have hardly been explored in terms of biodiversity.

Selective logging, has been implemented in the whole of the GS1, normally implementing a rotation of approximately 15 years, intervening intensively on approximately 120 hectares per year, impacting only on that area that is actually represented by the desired wood species[121]. Therefore, the elimination of these individuals leads to the destruction of the community that surrounds them, causing an irreversible impoverishment of the Selva Misionera ecosystem, being specifically visible with the presence of large areas dominated by bamboo species.

Moreover, the labor camps generate special conditions for biodiversity threats. These include waste generation, alteration of animal life and facilitate the work of poachers by covering them up on several occasions for the basic reason of avoiding any kind of confrontation (based on Nideport´s campaign to survey local risks). Regarding the likelihood of forest fires, by relying on wood fires for basic needs, or simply lighting a cigarette, they become a potential fire hazard. Their activity, given the way they carry it out in the Forestal Belga property, makes them, unfortunately, a key character of a serious degradation.

[120] Studies available for VVB during validation.
[121] Information available from forest management plans and authorization request reports.



Figure 44: Camps identified and dismantled within the project area.

Attached are images of one of the camps that were disarmed from January 2022 to date. In particular, these images correspond to an abandoned construction camp. But during this period, at least 11 camps of workers and/or hunters were disarmed. In general, it corresponded to settlements of “obrajeros” (logging workers), but many times, poachers used them during the weekends in complicity with obrajeros. In addition to serving as a resting place for those who threatened biodiversity, it functioned as a point of contamination. Generally posted on the banks of streams these camps were also points of repair and maintenance of machinery. Activities for which they threw toxic waste causing contamination in soil, streams, and groundwater.

In conclusion, the area is a great reservoir of possible medicines, vaccines, foodstuffs, textiles and many other products that could be of great use in improving people's lives, some which have not yet been discovered, and which may be lost if this place continues to be destroyed.

5.1.2 High Conservation Values (B1.2)

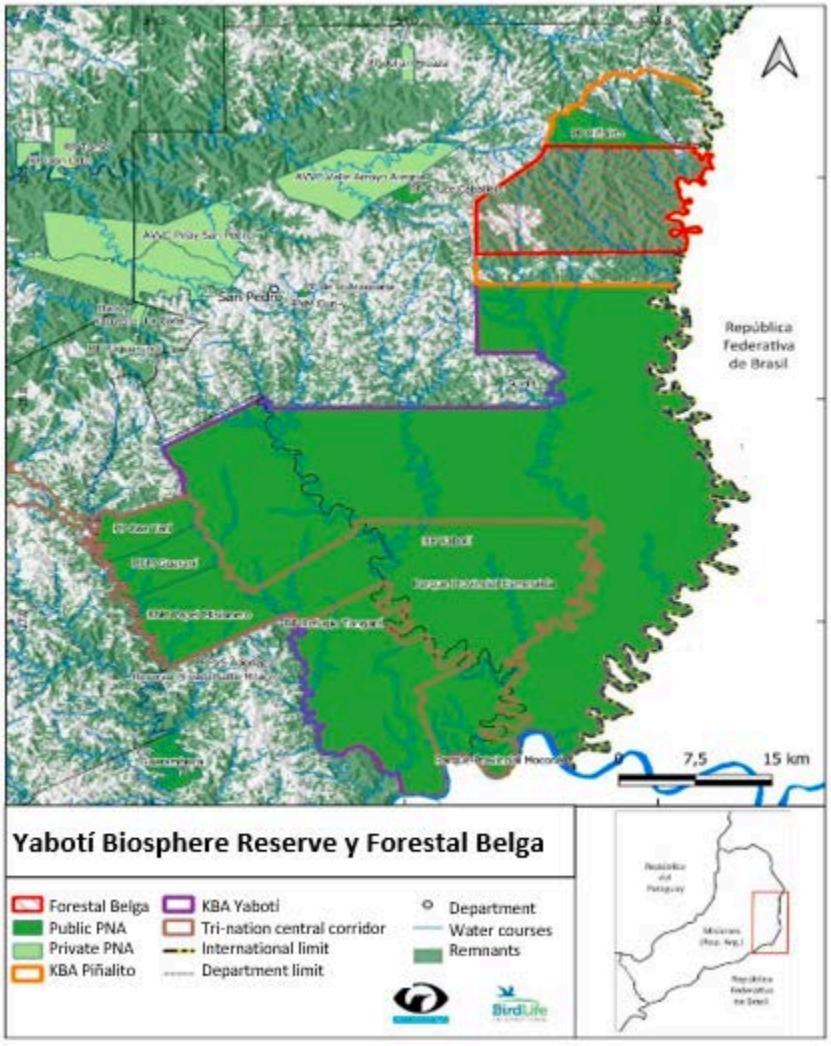


Figure 45: public, private conservation areas as well as identified KBA in the project zone. Reference translated from the original document.

High Conservation Value	Proposed KBA Piñalito
Qualifying Attribute	The site, along with the adjacent Provincial Park, hosts populations of threatened species and restricted distribution, which made it valuable as a KBA: • Black-fronted Piping-Guan (Pipile jacutinga) - Endangered. • White-bearded Antshrike (Biatas nigropectus) - Vulnerable. • Helmeted Woodpecker (Celeus galeatus) - Vulnerable. • Southern Tiger Cat (Leopardus guttulus) - Vulnerable.

	• Chanchita (Australoheros ykeregua). • Rock bats (Myotis izecksohni). Furthermore, the endangered Vinaceous-breasted Parrot (Amazona vinacea) was reported as present by Chebez (2007a) and was detected in flight on the edges of Forestal Belga, on PR 22 (this KBA) and NR 14 (KBA San Pedro) and in plantations of native Araucaria and exotic pines. At the same time, the Eucalyptus plantations were used during different seasons by groups of Amazona vinacea to roost in the village of Cruce Caballero (KBA San Pedro) at a very short distance from this KBA. As for the Southern Tiger Cat (Leopardus guttulus), Vulnerable, it was detected in 2019 and it was estimated that the area could host about 54 individuals (based on Cruz et al., 2019b; Chebez, 2007a, Gil, 2020, Dr. Paula Cruz, pers. comm.).
Focal Area	As seen in figure 34 above, the conservation of the project area (in red) would mean an enhancement of HCV given the lack of protection in the whole area, as well as the conservation of the whole KBA area (orange).

High Conservation Value	Proposed KBA Yabotí
Qualifying Attribute	It shows a great diversity of environments as part of the highland forest with araucarias. The most striking bird species detected because of their rarity or threat were the macuco, the widowed eagle, the greenish golden woodpecker, the eared alicucu, the ocellated and the dusky atajacaminos, the pine warbler, the tacuarero, the leaf-scratcher, the widow-tailed widow and the beaked cuckoo. Some highly persecuted and key mammals find refuge in this area, such as the tapir, the white-lipped peccary and the jaguar[122].
Focal Area	As seen in figure 34 above, the conservation of the project area (in red) would mean an enhancement of the HCV reducing the connection distance with piñalito public natural area (within KBA Piñalito) given the lack of protection state. The conservation of the whole Piñalito KBA area (orange) would mean the connection of both

[122] List and study available at:
https://www.avesargentinas.org.ar/noticia/relevamiento-de-aves-en-la-reserva-de-biosfera-yabot%C3%AD

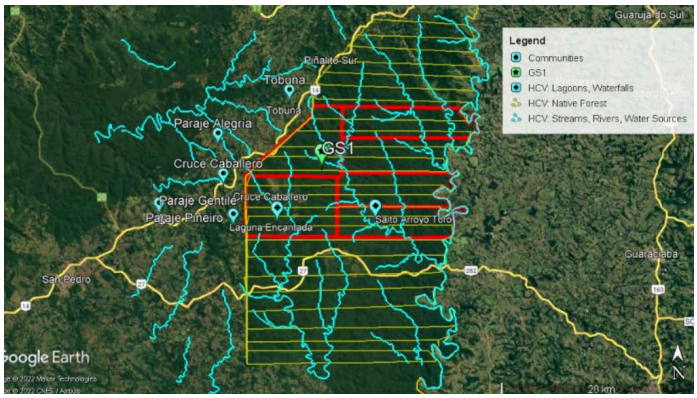
	KBAs.

High Conservation Value	Cruce Caballero Provincial Reserve
Qualifying Attribute	The Cruce Caballero Provincial Park is a protected natural area, near the town of Cruce Caballero. It initially occupied a surface area of 434 ha currently reaching 522ha after new land was annexed. The objective of its creation is to protect a group of specimens of Parana pine (Araucaria angustifolia), the only native conifer in the ecoregion, and to use the area for educational and scientific activities. Cruce Caballero Park is also part of Argentina's network of Important Bird Areas (IBAs) because of its ornithological richness. Vulnerable, threatened or simply rare or scarce birds were observed. Specimens like: macuco (Tinamus solitarius), yacutinga (Pipile jacutinga), black-crested eagle (Spizaetus tyrannus), red-backed maracana (Primolius maracana), vinaceous parrot (Amazona vinacea), barred owl (Strix hylophila) were recorded, ocellated woodpecker (Nyctiphrynus ocellatus), eared alilicucu (Megascops sanctaecatarinae), banana sandpiper (Pteroglossus bailloni), cinnamon-faced woodpecker (Dryocopus galeatus), pine warbler (Leptasthenura setaria) and yellow-eared woodpecker (Clibanornis dendrocolaptoides), among others[123].
Focal Area	As seen in figure 34 above, the conservation of the project area (in red) would mean an enhancement of the HCV reducing the connection distance with piñalito public natural area (within KBA Piñalito) given the lack of protection state. The conservation of the whole Piñalito KBA area (orange) would mean the connection of both KBAs.

High Conservation Value	Alegría stream valley private HCV
Qualifying Attribute	Representatives of the multinational company Arauco Argentina SA and the provincial environmental agency agreed to incorporate the property "Valle de la Alegría" into the Provincial System of Natural Protected Areas as a private natural area, according to Law XVI-No. 29. The nature reserve covers an area of 8,550 hectares of high

[123] Bodrati, Alejandro; Cockle, Kristina; Segovia, José Manuel; Roesler, Ignacio; Areta, Juan Ignacio; Jordan, Emilio (2009). La avifauna del Parque Provincial Cruce Caballero, Provincia de Misiones, Argentina

	conservation value of the Selva Paranaense.
Focal Area	The protected area forms part of a continuous block of Atlantic Forest or Selva Misionera, bordering the "Cruce Caballero" Provincial Park, and is located within the Provincial Green Corridor area

High Conservation Value	Water bodies
Qualifying Attribute	Identified by Aves Argentina, an NGO, as habitat for different endangered species as well as by the communities
Focal Area	

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

The existing conditions detailed in section 5.1.1 indicate continuous biodiversity loss would occur in the absence of the GS1 project. Within the province, four main threats have been identified:

- Extraction of native wood, loss of forest functionality and connectivity: The property has been used for forestry extraction since the beginning of its productive use. This action has degraded the forest in many areas within the property, finding only young specimens and, at times, with little species diversity. In this context, the steepest hillsides are the areas with the best-preserved native forest.
- Illegal hunting: During the campaigns, traces of illegal hunting have been recorded in different areas. firearms cartridges, recent traces of horses, barking and encounters with dogs and even people have been heard in the bush. At the same time, in the context of the tours conducted by the Yacutinga Project, cartridges and bonfires were also found on the banks of the streams. In the case of the Toro stream, it has a very marked trail that accompanies it for kilometers, with both horse and dog feces and dog tracks along almost all its course.
- Fish poaching: The Yacutinga monitoring confirms the presence of spinels and fishing gear in old campsites.
- Presence of invasive exotic species: Directly related to the high illegal hunting pressure is the presence of dogs on the property. All the dogs seen were crossbreeds of illegal hunting breeds,

which suggests that they were either on the hunt with their owners or were lost in the forest after an outing.

As previously mentioned, Forestal Belga SA is a forestry company in the Province of Misiones, concentrating its activity on pine crops in some 2,000 hectares and exploitation of native forest in the rest of the property, with native forests areas that have hardly been explored in terms of biodiversity. Moreover, the labor camps generate special conditions for biodiversity threats. These include waste generation, alteration of animal life and facilitate the work of poachers by covering them up on several occasions for the basic reason of avoiding any kind of confrontation. Regarding the likelihood of forest fires, by relying on wood fires for basic needs, or simply lighting a cigarette, they become a potential fire hazard. Their activity, given the way they carry it out in the Forestal Belga property, makes them, unfortunately, the protagonists of a serious degradation. With permission to continue forest extraction and forest monoculture plantations, the without-project scenario identified included continuous forest degradation, as well as illegal poaching.

More frequent droughts are a consequence of both, climate change and deforestation. The lack and reduction of forest canopy reduces the water available in strands, as it moves faster along the land. A flowchart for this impact of current and expected conditions is detailed below:

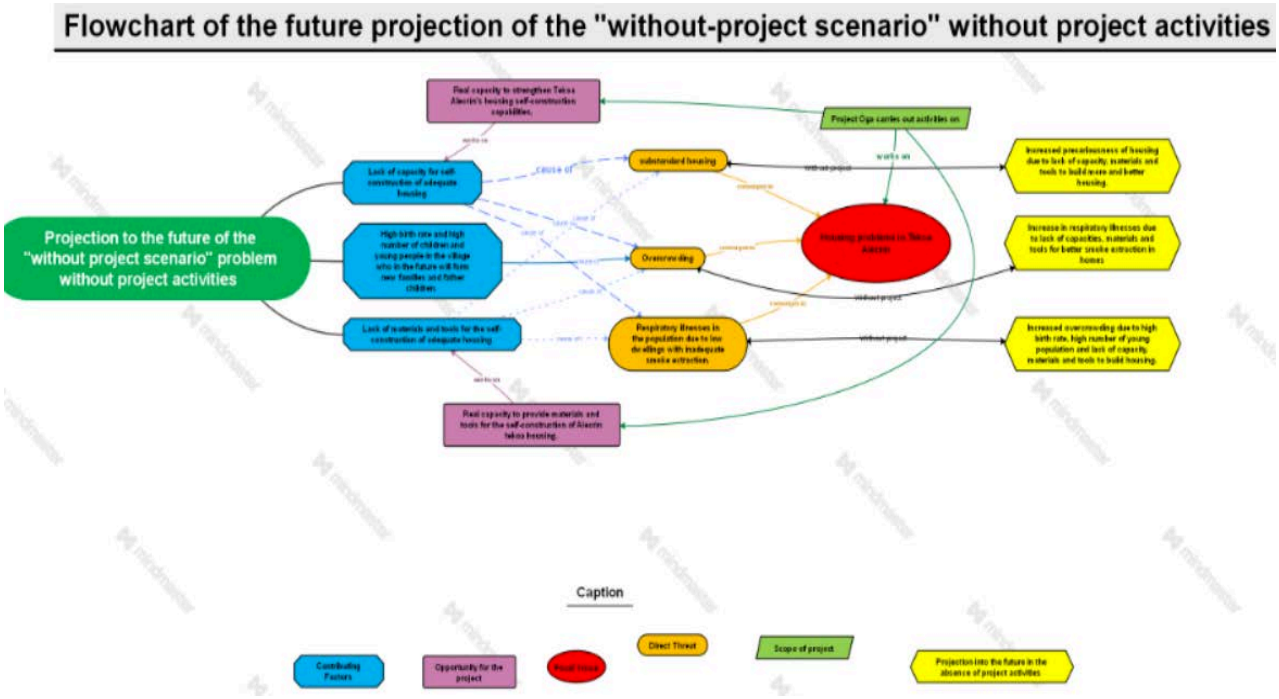


Figure 46: Flowchart for drought enhancement in the without-project scenario.

5.2 Net Positive Biodiversity Impacts

5.2.1 Expected Biodiversity Changes (B2.1)

Biodiversity Element	Fauna biodiversity
Estimated Change	Enhancement of biodiversity in the areas to be regenerated and conserved as well as surrounding protected areas working as green corridors
Justification of Change	Degraded areas will be enriched and restored with native species from seedlings. Other areas´ natural regeneration will take place after bamboo species are controlled. These actions will allow for fauna to return to the property, by recovering feeding, reproduction and rest areas for animals and extending the green corridor connecting different natural reserves.

Biodiversity Element	Invasive species
Estimated Change	Reduction
Justification of Change	Monitoring of reforestation and enrichment activities will allow the project to identify invasive species growth (especially pines from plantations near the project area) and eventual implementation of an invasive species plan will reduce invasive species numbers.

Biodiversity Element	Native forest
Estimated Change	Degradation reduction in the areas to be regenerated and conserved
Justification of Change	Monitoring and mitigation of illegal activities such as harvesting and forest fires are expected to reduce degradation, added to enrichment of native species activities. Indicators on threats reduced and areas enriched, as well as individuals installed will allow the monitoring of the estimated change.

Biodiversity Element	Flora species

Estimated Change	Improvement from a low to high productive forest due to species distribution and number changes in a total area of 22,878.5 ha
Justification of Change	With the logging stopped in the project area and the implementation of the Forest Regeneration Plan which includes not only re-vegetation but also enrichment activities, changes in the species frequency are expected and growth of those species more affected by log selection will be able to recover in the long- term.

Biodiversity Element	IUCN species
Estimated Change	Numbers increased in the project area (over the 4 EN species identified - Amazona vinacea, Pipile jacutinga; Sylvilagus brasiliensis; Melanophryniscus aff. devincenzii)
Justification of Change	Based on Aves Argentinas studies,[124]species in the project zone have a potential to regenerate. The restoration of habitats, as well as the monitoring and control of illegal poaching and illegal hunting will reduce threats to endangered species, as well as their habitat, leading to an increase in their population.

5.2.2 Mitigation Measures (B2.3)

In order to enhance existing HCV areas, the project works as an extension of the Green Corridors between Peñalito Reserve and Yabotí, its conservation (and regeneration) means the opportunity for habitat restoration and a bigger area for endangered species population to enhance. The project includes training and equipment facilitation to stakeholders related to threat control (fire, illegal activities), which will mitigate biodiversity threats both, in the project area and project zone. These added to the state-of-the-art monitoring technology to be implemented within the project area premises, will reduce threats in the area. At the same time, this technology will allow a continuous biodiversity monitoring which, together with a professional team, will generate periodic information of the species response to the activities in the area.

Regarding the enrichment activities, the project has a Forest Restoration Plan in place for GS1. In this line, a failure of 30% in the establishment of seedlings is estimated. This failure can be caused by various biotic and abiotic factors. However, to reduce their impact, two instances are annually planned in which the plantations of the last two campaigns will be monitored to assess the status of each seedling.

The activities will include:

[124] General bird inventory, management and recommendations, and future actions. Argentine Birds for the company. 2021 General bird inventory, management and recommendations, and future actions. Argentine Birds for the company. 2021

- Adversities Management,

- Lift in case of falls due to wind, branches, animal trampling, etc.

- Replacement or replant if necessary.

The status of the stratum will also be monitored. For example, the state of the forest structure and soil conditions, like soil moisture, soil cover, water erosion risks, etc.

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

As detailed throughout the biodiversity section, all the project activities are focused on preserving and recovering the exploited and degraded area, restoring its natural capital, recovering its biodiversity, protecting native species of flora and fauna in danger of extinction, favoring the strengthening of ecosystem services, preserving cultural values, contributing proactively with the local communities and generating positive effects to combat climate change.

By avoiding deforestation and recovering native forests the project will provide not only larger areas (connecting existing KBA areas) for species to be able to find food, shelter as well as reproductive sites, but to allow the forest to provide ecosystem services related to climate change adaptation, including flooding control, reduce temperatures, limit soil erosion, among others.

The state-of-the-art monitoring system to be implemented will allow biodiversity communities to respond to the expected changes, generating valuable information to define further actions needed to fully adapt to them.

5.2.4 High Conservation Values Protected (B2.4)

As seen in figure 34 and detailed in section 5.1.2, the project will enhance the biodiversity from other protected natural areas within the project zone, working as a corridor (or at least reducing distances) between two state natural areas: Piñalito and Yabotí. Moreover, other HCV identified, as water bodies and water banks, will be conserved, given the reduction of anthropogenic activities in the area with negative impact in the HCV (including plantation forestry and associated activities), as well as native forest conservation together with the environmental service they provide.

One of the main aspects of the project is the technology in place in order to monitor both biodiversity evolution and threats. This will include the construction of a Monitoring and Control Centers where the administration and management of all the systems and operations will be centralized, focusing on two main functions: fire, and deforestation and poaching control, as relevant activities in terms of security as well as forestry and environmental issues. Moreover, the enrichment and regeneration of native forest, based on thorough study on best species to use according to stratum needs, is expected to enhance HCV protection including water courses, endangered species, as well as other ecosystem services.

5.2.5 Species Used (B2.5)

A list of species for planting seedlings in the Restoration and Enrichment Plan for the first 10 years was established. This list of 16 different native species was made through a rigorous analysis of several reports (for example: harvest shipments and the folders of the Sustainable Management Plan of the last 20 years provided by Forestal Belga SA, the list of species present informed in the Biomass inventory for the baseline, different bibliography such as the National Forest Inventory, etc.) (e.g.: harvest shipments

and Sustainable Management Plan folders for the last 20 years provided by Forestal Belga SA; the list of species present as reported in the Biomass inventory for the baseline; different bibliography including the National Forest Inventory; etc.).

These species are listed below:

Common Name	Scientific Name
Parana Pine	Araucaria angustifolia
Yellow Poinciana	Peltophorum dubium
Caroba	Bignonia caroba
Argentine cedar	Cedrela fissilis
Cherry of the Rio Grande	Eugenia involucrata
Gabiroba	Campomanesia xanthocarpa
Guaica	Ocotea puberula
Guatambu amarillo	Aspidosperma olivaceum
Guatambu blanco	Balfourodendron riedelianum
Incienso	Myrocarpus frondosus
Jabuticaba or Brazilian grape tree	Plinia cauliflora
Golden trumpet tree	Handroanthus albus
Louro pardo	Cordia trichotoma
Pitanga or Suriname cherry	Eugenia uniflora
Siete Capotes	Campomanesia guazumifolia
Pacara earpod tree	Enterolobium contortisiliquum

The distribution and number of species to be planted in each of the strata will depend on the particular situation of the stratum and the area of the field to be treated. Determining which species and how many seedlings to install in each stratum has required an in-depth study of different variables using various

tools such as the baseline report, satellite images, etc. and, in collaboration with a professional team, to guarantee the preparation of a plan with the scientific rigor required for a project of these characteristics.

5.2.6 Invasive Species (B2.5)

The project plans only to reintroduce baseline native species, so no known invasive species will be introduced.

Moreover, the project includes frequent biodiversity monitoring, and the presence of invasive species will be controlled as needed, based on the monitoring plan results.

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

Species	Pinus elliottii plantations
Justification of Use	Pinus elliottii may be present in the project area given the species was already planted at the start of the project in the project zone and may have invaded parts of the project area, but the project does not include the use of any non-native species.
Potential Adverse Effect	The introduction may have led to seedling invasion in the area, which will have to be controlled as part of the project's enrichment and regeneration activities.

5.2.8 GMO Exclusion (B2.7)

No GMOs are used to generate GHG emissions reductions or removals as the project aims to enrich and regenerate the area with native species.

5.2.9 Inputs Justification (B2.8)

The enrichment and regeneration of native forest activities will include the use of native species seedlings. Regarding fertilizers, due to soil condition and nutritional characteristics, the establishment of individuals is not conditioned to the use of mineral additives in the field.

Finally, weed control will be carried out manually, through the implementation of project activities with the communities. Campaigns will be carried out with workers who will go around plantations that are up to two years old. Weeds will be cleared within a radius of 1mt around the plant and the evolution and health of the seedling will be monitored.

Name	Native species seedlings
Justification of Use	For forest enrichment and regeneration
Potential Adverse Effect	There is a low chance seedling may have invasive seeds in the soil used, this will be controlled by carefully studying seedling

	pots, to avoid any other specimen establishment in the area.

5.2.10 Waste Products (B2.9)

The project itself will generate mainly domestic waste-like, from offices, monitoring centers, among others. This waste will include source-classification and treatment in the nearest town.

The infrastructure construction will mean the generation of debris and construction waste during this stage. The waste management plan in place for this waste includes different steps which will be extended to the waste management throughout the project lifetime:

Waste planning

It consists of the implementation of a “sorting center", with the installation of bins or containers in an area with enough space for maneuvering trucks. The containers should have their volume determined according to the demand projected and have a control register. In addition, each container must be identified in terms of waste type.

Waste prevention

Waste generation will be minimized, taking into consideration different practices during construction period:

-Sustainable preliminary works.

-Short-term work.

-Low waste construction design (Modulated).

-Recyclable materials.

During the lifetime of the project, different practices will be implemented to reduce the amount of waste generated in the area.

Source waste separation

Generated waste will be sorted and differentiated in recyclable, composting and waste materials. Later, disposed of in separated containers.

Collection

There is a collection planning in place to reach the different containers in the project area. This collection will prevent the sorted material from being mixed.

Treatment

Material will be treated according to typology, with recyclables being taken to waste sorting cooperatives which recovers materials with market interest and distributes them.

Waste will be taken to disposed of, while organics will be composted on site.

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)
The increase in security in the premises of the project area could lead to higher poaching and illegal hunting pressure on other lands.	The project includes training, and job positions for the communities living in the project zone and the project expects to expand during the project lifetime, the area of influence of its projects.
The public sector could rest in private conservation projects, reducing investment to other HCV areas.	The project includes training and equipment to rangers, firefighters, helping local governments to mitigate risks in the area.

5.3.2 Net Offsite Biodiversity Benefits (B3.3)

The negative impact identified outside the project zone includes the potential increase in poaching and illegal hunting pressure on other areas which, compared to the positive effects of the project on biodiversity this seem compensated, being:

- Connection to the other two areas that make up a major green corridor in the province.

- Enrichment and regeneration, avoiding plantations and indiscriminate logging in an area with critically endangered species.

Moreover, the project identifies mitigation actions including:

- The creation of jobs and training opportunities to reduce illegal activities in project zones.

- Increase capacity building with training and equipment for first responders and rangers.

- Increase the project's influence zone, including more communities throughout the project's lifetime.

5.4 Biodiversity Impact Monitoring

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

The biodiversity monitoring plan in place[125] is designed in order to evaluate the expected result of the project, which is to ensure that species at risk of extinction can recover and reproduce in a protected environment and monitor forest regeneration. Through the implementation of the Biodiversity Restoration Plan by means of periodic monitoring of flora and fauna, biodiversity will be considered restored and adapting to climate change based on the species identified as indicators, meaning as targets for monitoring. The main variables considered are those describing the demographic behavior of a population

[125] Complete documentation available to VVB during validation

and based on monitoring and tracking plans, endangered species will be determined (Pearse-Higgins et al, 2022).

The first approximation to the knowledge of species diversity in GS1 consisted of a compilation of historical records of spectacle species in areas close to the site under study. The areas considered were the Piñalito Provincial Park and the Yabotí Biosphere Reserve, as these are the closest protected areas. For this purpose, a literature review was carried out and all specimens deposited in the herpetological and mastozoological reference collections of the Evolutionary Genetics Laboratory of the Institute of Subtropical Biology (CONICET-UNaM) were examined.

In August 2021, a general bird survey was carried out, in addition to two other ornithological initiatives, as a complement to it:

- "Density and occupancy of three rare woodpecker species (Picidae, Aves) in the forests of northeastern Argentina: identifying priority areas for conservation".

- “Yacutinga Project (Pipile jacutinga): update on the status of populations in the province of Misiones”.

Methodology:

The monitoring strategy was established as a comprehensive and exhaustive inventory every three years, with two limited surveys of indicator species for the years in between. The plan is then divided in two different strategies:

Intermediate monitoring (annually)

With the objective of detecting the presence and location of nationally and internationally threatened species within the GS1, strengthen the survey of birds and to issue management recommendations to favor adaptation to climate change, the conservation of the site and especially of threatened birds within the Reserve annual surveys will be conducted.

The monitoring plan for the intermediate years will be less intensive. It is understood that, given the dynamics of the fauna communities, it is not necessary to repeat exhaustive monitoring annually. Therefore, these surveys are only intended to identify changes in the communities of species that we have identified as indicator species for the health and biodiversity enhancement of the site.

Exhaustive monitoring (every three years)

Monitoring campaigns will be carried out every three years (the first one having been carried out in 2021), foresees the installation of three campaigns covering different sectors of the property. These will be carried out during the months of June, September, and November. The choice of these periods in particular, is due to the need to get to know the avifauna of the property and the migratory species.

Free ranging transect walks will be carried out between the different plots on the site. This method increases the probability of detecting nests, territories, species of very low density, and transiting through environments not considered or of very low presence. In addition, searches will be carried out by means of song reproduction (playback).

In terms of biodiversity monitoring plan, variables to be monitored include direct count of individuals of a species, presence or absence of species, breeding success or habitat area. In the case of rare and endemic species, indicators of abundance can be used (e.g. through a survey of tracks, signs or nests).

In the case of very rare species, radio monitoring can help to track the movements of individuals. To describe changes in habitat quality, the relative abundance of indicative groups such as butterflies, birds, beetles and plant communities can be used.

Monitoring involves multiple sampling approaches depending on the taxonomic group being targeted. Sampling that requires visual or auditory recording methods will be prioritized over those that require trapping methods. Likewise, priority will be given to live capture methods over dead capture methods. The latter would be limited to scientifically rigorous work coordinated by a career researcher, duly authorized, and where no other non-lethal option is available (in addition, when it does not imply putting the population at risk). On the other hand, the eventual collection of specimens, dead or alive, parts of these (antlers, bones, hairs, feces, etc.), tissue or blood samples, etc., will be contemplated, for taxonomic determination purposes.

Indicators include:

	Forest Landscape	Ecosystem	Population
Composition	The stratification carried out for the forest inventory exposed a very important heterogeneity and of great impact for the development of biodiversity. 9 strata were differentiated	Through surveys and monitoring relative abundance, frequency, richness, evenness, and diversity of species will be determined. Proportions of endemic, exotic, threatened and endangered species calculated.	Absolute or relative abundance and frequency will be determined.
Structure	Heterogeneity; connectivity spatial linkage; patch porosity; contrast; grain size; fragmentation; configuration; juxtaposition; patch size frequency distribution; perimeter-area ratio; habitat layer distribution pattern.	Substrate and soil variables; foliage density and layering; horizontal patch; canopy openness and space proportions; abundance, density and distribution of physical features and structural elements (snags, trunks); water availability and resources.	Dispersal (microdistribution)
Function	Disturbance processes, erosion rates, geomorphic and hydrologic processes; human trends in land use.	Biomass and resource productivity, patch dynamics, rates and intensities of human intrusion, green	Population fluctuations, acclimatization, adaptation

		corridor sizes; connectivity, disturbance anticipation, disturbance extent.	
Inventories	Aerial photographs (satellites and UAVs), Geographic Information System (GIS) technology, multi-temporal image analysis.	Physical habitat measurements and resource inventories; habitat suitability indices (HSI, multi-species); observations, surveys and inventories, captures and other sampling methodologies.	Camera trap surveys, sightings, audio recordings for bird community assessment.

Monitoring will consider the behavior and dynamics of the different species in order to define areas where it will take place. Camera traps will be set up in wetlands, streams, "*barreros*" (sites where salts are found in the soil), wildlife trails, etc. In addition, transects will be traced from the camps to be established in each campaign. Trails will be walked for at least 5 kilometers around the camp.

Moreover, sampling methodology varies according to animal groups:

- In order to survey the fish, amphibian, reptile and mammal fauna of the property, campaigns of at least 14 days of sampling will be carried out.

- Sherman traps and live trapping cages will be used to capture rodents and marsupials. All traps will be placed in transects along streams and main roads and will be activated for three consecutive nights, checked in the morning and afternoon.

- For the survey of small and large mammals, transects will be made along main roads, stream banks and camera traps.

- For the bird survey, 4 campaigns will be carried out, covering different sectors of the site. These will be carried out during the months of May, June, September and November in order to detect existing and migratory species. Since the composition and abundance of species may vary according to the different environments, work will be carried out in different plant communities that are broadly distinguishable, and representative of the whole property as well as accessible by roads or paths. In order to carry out such monitoring, free roaming will be carried out through well-distributed transects. This method increases the surface area worked in relation to the point methodology, which in turn increases the probability of detecting nests, territories, very low-density species, and transecting through environments not considered or of very low presence. In addition, searches will be carried out by means of song reproduction (playback).

Trigger species

The site, together with the neighboring Provincial Park Piñalito, has populations of threatened and restricted distribution species, which gave it its KBA category. The trigger species to be monitored include:

- Black-fronted Piping-Guan (Pipile jacutinga) - Endangered
- Southern Tiger Cat (Leopardus guttulus) - Vulnerable.
- Vinaceous-breasted Parrot (Amazona vinacea) - Endangered.
- Chanchita (Australoheros ykeregua) - Vulnerable
- Rock Bats (Myotis izecksohni) - DD
- White-bearded Antshrike (Biatas nigropectus) - Vulnerable
- Helmeted woodpecker (Celeus galeatus) - Vulnerable.

From this list, the trigger species to be monitored include:

- Black-fronted Piping-Guan (Pipile jacutinga) – Endangered
- Southern Tiger Cat (Leopardus guttulus) - Vulnerable.
- Vinaceous-breasted Parrot (Amazona vinacea) - Endangered.
- White-bearded Antshrike (Biatas nigropectus) - Vulnerable
- Helmeted woodpecker (Celeus galeatus) - Vulnerable.

For these species, in addition to the variables analyzed during monitoring of biodiversity, others include:

- changes in stock abundance, and trends in stock size and structure for assessing size and structure of stocks to assess the health and viability of stocks, both before and viability of populations, both before and after any management intervention.

- changes in genetic diversity

- predator numbers to assess the effectiveness of control project activities

Adaptation effectiveness assessment

As the project is in its initial stages, the effectiveness of the measures to be implemented will be evaluated and, depending on the results obtained, the necessary improvements will be implemented. In this sense, the actions include increased communication of knowledge to stakeholders; establishment of local collaborations for unified actions with security authorities; anticipate and better preparation for disaster and disturbances; and the increased green area connectivity.

Synergies with security authorities of neighboring reserve PP Piñalito are agreed and monitoring of variations in illegal activities in the reserve will be reported in order to monitor the impact of the project over other stakeholders.

5.4.2 Biodiversity Monitoring Plan Dissemination (B4.3)

As mentioned in points 2.3.1 and 2.3.2, project information will be available for the public through different means. During the monitoring process basic documents will be made, reporting results in a simple and inclusive language and with measures of evaluation of processes and results, they will be available on the website, social networks, publications in local newspapers, information meetings with stakeholders during monitoring instances. Moreover, the project's documentation (as well as local language summary) will be available on VCS and CCB webpage, and a public consultation period will take place for stakeholders to comment on the project's design.

5.5 Optional Criterion: Exceptional Biodiversity Benefits

5.5.1 High Biodiversity Conservation Priority Status (GL3.1)

The project area is found within the proposed KBA Piñalito[126] (see figure 33 in section 5.1.2). This property has a strategic location for the connectivity of the Piñalito Provincial Park and the Yabotí Biosphere Reserve, parts of the Misiones Green Corridor.



Figure 47: Technical sheet for proposed KBA Piñalito and Forestal Belga translated from source.

Source: Gil, G. (2022) Propuesta de áreas claves para la biodiversidad en la provincia de Misiones. 1a ed - Ciudad Autónoma de Buenos Aires: Aves Argentinas Aop.

[126] Gil, G. (2022). Propuesta de Áreas Claves para la Biodiversidad (Key Biodiversity Areas – KBA) en la Provincia de Misiones – República Argentina. Aves Argentinas. Buenos Aires, Argentina. 174 pp.

KBA stands for Key Biodiversity Areas. They are defined as those sites that significantly contribute to the global persistence of biodiversity and their delimitation contributes to providing new maps for conservation management.

In addition, KBAs provide information that contributes to decision-making at national and global scales. The Global Standard for the Identification of Key Biodiversity Areas, developed by the International Union for Conservation of Nature (IUCN), establishes the criteria to be used for their selection and is based on threatened biodiversity, geographically restricted biodiversity, and biological processes concentrating large numbers of individuals.

Based on these criteria and the limits established for each one, 110 species were selected: 43 plants, 49 fish, 3 amphibians, 2 reptiles, 10 birds, and 3 mammals to serve as indicator species for sites that met the requirements of a KBA. The Important Bird Areas (IBAs) already defined for the Province of Misiones, Argentina, served as a starting point for the evaluation of the different sites. In addition to the information contained in scientific and technical publications, we relied on the collaboration of academics, scientists, experts, and interested parties. Finally, 19 KBAs were proposed in the Province of Misiones covering a total area of 1,191,073 ha, of which 506,300 ha are under some category of Natural Protected Area.

The site, along with the adjacent Provincial Park, hosts populations of threatened species and restricted geographic distribution, which made it valuable as a KBA:

Threatened:

- Black-fronted Piping-Guan (Pipile jacutinga) - Endangered.
- White-bearded Antshrike (Biatas nigropectus) - Vulnerable.
- Helmeted Woodpecker (Celeus galeatus) - Vulnerable.
- Southern Tiger Cat (Leopardus guttulus) - Vulnerable.

Restricted geographic distribution:

- Ranita llorona (Physalaemus carrizorum)
- Chanchita (Australoheros ykeregua).
- Rock bats (Myotis izecksohni).

Furthermore, the endangered Vinaceous-breasted Parrot (Amazona vinacea) was reported as present by Chebez (2007a) and was detected in flight on the edges of Forestal Belga, on PR 22 (this KBA) and NR 14 (KBA San Pedro) and in plantations of native Araucaria and exotic pines. As mentioned in the list of species above, the Vinaceous-breasted Parrot uses the Araucaria trees present in the main house area and the access and truck weighing area. At the same time, the Eucalyptus plantations were used during different seasons by groups of Amazona vinacea to roost in the village of Cruce Caballero (KBA San Pedro) at a very short distance from this KBA.

As for the Southern Tiger Cat (Leopardus guttulus), Vulnerable, it was detected in 2019 and it was estimated that the area could host about 54 individuals (based on Cruz et al., 2019b; Chebez, 2007a, Gil, 2020, Dr. Paula Cruz, pers. comm.).

This information is presented in the KBA proposed areas for Misiones report (Gil, G. 2022[127]) along with other related information.

[127] Propuesta de áreas claves para la biodiversidad en la provincia de Misiones / Guillermo Eduardo Gil. - 1a ed - Ciudad Autónoma de Buenos Aires: Aves Argentinas Aop, 2022.

5.5.2 Trigger Species Population Trends (GL3.2, GL3.3)

Trigger Species	Black-fronted Piping-Guan (Pipile jacutinga) – Endangered at global level
Population Trend at Start of Project	Decreasing - There is a general consensus that the main threat is illegal hunting, followed by logging, and in Argentina and eastern Paraguay, its meat is one of the most sought-after of the birds under illegal hunting pressure. As with other cracids, its incautious behavior makes it an easy target for hunters. This pressure has led to the rapid extinction of the species from areas without effective protection against poaching[128]. The stream walks in the project area allowed us to analyze the two threats to the species. In this line, during 2020 visits, it was confirmed that illegal hunting pressure is high on the wildlife, and human presence was registered along the streams. Shotgun cartridges, traces of dogs and horses, and vestiges of campsites were found on both streams. On one occasion, a group of dogs could be heard illegally hunting near the site. Regarding the conservation of the protective forests along the streams, unfortunately, this requirement has not always been met. At numerous points along the streams, wood extraction reached the very edge of the watercourse[129]. Rare throughout the property, heard in the vicinity of the camp and two specimens seen on Toro stream. Although, at present, the GS1 Reserve has an avifauna in line with the inland Atlantic rainforest, populations of different bird species found in the Atlantic rainforest are diminished and in low numbers due to the long history of logging and illegal hunting on the property.
Without-project Scenario	The high illegal hunting pressure, together with the extraction of timber in some areas of gallery forest, especially near water courses, would be the causes of this trend of low abundance and reduction in population numbers.
With-project Scenario	Increasing security and illegal hunting discouragement aims for the conservation and recovery of the population on the property.

[128] Fariña R. (editor), 2021. Plan para la Conservación de la Yacutinga en la Argentina. Resultados del taller de diagnóstico y consensos de trabajo. Aves Argentinas/Asociación Ornitológica del Plata y Ministerio de Ambiente y Recursos Naturales de la Provincia de Misiones. Pto. Iguazú, Misiones. Argentina.

[129] Aves Argentinas (2020) geolocated soil 1 - general bird inventory, management recommendations, and future actions

	The conservation of this and other endangered species that suffer from illegal hunting depend on this action. At the same time, efforts to recover the banks of the streams, especially those of the streams, specifically those that were deforested in their entirety, will increase roosting, breeding and feeding area leading to population increases.

Trigger Species	Helmeted woodpecker (Celeus galeatus) – Vulnerable at global scale
Population Trend at Start of Project	Decreasing – It is a rare species on the property. The species depends on laurel trees for breeding and feeding, and on natural hollows, usually in Guatambú for roosting. The abundance of the species is much lower than in the large blocks of well-preserved forest in the area of the central highlands of the province of Misiones. Registries by Chebez (2007a), Franzoy & Krauczuk (2018), López-Lanús et al. (2020) (= https://ebird.org/checklist/S62663298).
Without-project Scenario	Legal and illegal selective extraction of native trees make the large trees disappear. This affects the resource of hollows in large live trees, which this species needs for nesting and shelter (Chebez, 2007a, Lammertink et al., 2019, Gil & Bosso, 2020). Further degradation of native forest, specially selected extraction of the mentioned species, is expected to reduce the population´s number.
With-project Scenario	The regeneration and reforestation with laurels and guatambú in the project area, an increase in the populations of the species on the property is expected.

Trigger Species	Vinaceous-breasted Parrot (Amazona vinacea) Endangered at global level
Population Trend at Start of Project	Decreasing - Rare, with only two specimens recorded in flight. The Araucaria trees present within the property provide an optimal environment for the presence and possible reproduction of the species. Still surrounding areas have been cleared of

	Araucaria angustifolia individuals, leading to a decrease in the population numbers.
Without-project Scenario	The Araucaria angustifolia clear cut harvest expected from forest plantation activities within the property would lead to habitat loss and further reduction in population numbers.
With-project Scenario	It is of vital importance that Araucaria angustifolia specimens are not removed, both for the conservation of this species and the Blue magpie. In this line, the Forest Regeneration Plan takes into consideration this recommendation and specimens will only be thinned and regeneration activities will take place. Due to the proximity to established populations of the species in the vicinity of Cruce Caballero, the property owned by Forestal Belga would appear to be a potential colonization area for the species, which would lead to an increase in the number of individuals at a global level.

Trigger Species	White-bearded Antshrike (Biatas nigropectus) Vulnerable at global level
Population Trend at Start of Project	Decreasing - An insectivorous habitat specialist. Although it is a rare species, it was found widely distributed on the property (4 couples López-Lanús et al. (2020) (= https://ebird.org/checklist/S60812336). This particular situation is due to its close relationship with the Caña Yatevó (Guadua trinii). At the same time, the high degree of degradation of the native forest in many of the plots has allowed the advance of this cane, which has the distribution of this endangered species. However, the Caña Yatevo has a reproductive cycle in which it dies and takes a few years to regenerate, creating a favorable environment for the other species.
Without-project Scenario	Although reeds are expected to increase if no management is applied, logging activities represent a threat for the species in terms of habitat loss, reducing White-bearded Antshrike´s population numbers.

With-project Scenario	The reproductive cycle of the reed was manifested during 2020 and 2021 and the status of the species is unknown. The necessary measures include applying no management of any kind in the areas covered by Yatevo reed in the coming years, in the hope that, with a favorable environment for the species, they will return.

Trigger Species	Southern Tiger Cat (Leopardus guttulus) – Vulnerable at global level
Population Trend at Start of Project	Decreasing - Based on the estimated area of habitat available for the species in Misiones, it is estimated that less than 3,000 mature individuals would inhabit an area of 16,557 km2, giving a maximum density of 0.18 ind./km2 (Cruz et al., 2019b). Other records: Faculty of Forestry (2013), Olivera (2015).
Without-project Scenario	Habitat loss and forest fragmentation are the main threats for the species added sporadic road killings on the asphalted roads of Misiones[130] and sometimes specimens are captured as pets[131] (Cirignoli et al., 2010).
With-project Scenario	Logging halt in the project area and the increase in connectivity with other protected areas are expected to generate a prosperous environment for their reproduction and population growth. Moreover, limiting illegal hunting and poaching within the project area will reduce the threat of domestication.

[130] https://www.argentinaforestal.com/2020/08/20/se-reactivaron-las-visitas-de-locales-en-las-area-naturales-protegidas-y-vuelven-a-registrarse-atropellamiento-de-fauna-silvestre-en-las-rutas-de-misiones

[131] https://misionesonline.net/2019/02/09/ecologia-rescato-un-cachorro-de-gato-tirica-melanico-en-san-vicente/

APPENDICES

Appendix 1: Stakeholder Identification Table

Presented in section 4.2 and following points

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)	
Population and social parameters census	Generate local social information	Improve knowledge on local communities (stakeholders)	Allow for more inclusive participatory events; project's design accordingly (infrastructure, development, schooling, etc.)	Information needed to identify stakeholders
Monitoring technology installation	Design and first period implementation of monitoring infrastructure	Monitoring towers with state-of-the-art cameras and the use of drones with photogrammetric cameras, the entire area will be monitored, controlling fires and illegal logging	Reduction in the number of illegal activities and threats to the premises.	Reduced threats to natural ecosystem

New social development projects: participatory carbon, payments for environmental services, *Mujeres Cultivadoras* (women growers), oga, forest safety net, Ra 'ÿi	Identification of needs and opportunities for projects by the community	Installation of hard and soft skills, and provision of equipment to local communities for project execution	Projects in place aiming to increase local well-being	Effective compliance with benefits and safeguards according to the management and social impact indicators formulated in conjunction with stakeholders.
Nueva Esperanza cooperative, self-built housing in Alecrin, community and family gardens in Alecrin.	Training and equipment provision to local communities' developments	Improved conditions and production of economic projects; increase benefits of existing social projects	Projects in place aiming to increase local well-being	Effective compliance with benefits and safeguards according to the management and social impact indicators formulated in conjunction with stakeholders.

BIODIVERSITY and CLIMATE

Activity Description Inventory	Results (short term)	Results (medium term)	Impacts (long term)	Relevance to project objectives
Baseline fauna biodiversity inventory	Generate information on wildlife at the site.	To provide information of scientific relevance to the region.	Knowledge that will allow the development of habitat connectivity project activities, recovery of ecosystem services, etc.	Prioritization of ecosystem services restoration, functional and genetic diversity, adaptive management by results, and invasive and exotic species management.

Enrichment and restoration of native forests	Increased diversity of tree and plant species in the restored area.	Increase in the abundance and diversity of animal species	Connection of isolated forest fragments to improve species flow.	Restoration of key ecosystems; Biodiversity enhancement; Adaptive management; Invasive species control; Benefits to local communities; Biodiversity enhancement; Adaptive management; Control of invasive species; Benefits to local communities
Strengthening and reinsertion of wild fauna	Reintroduction of wildlife species in the restoration area.	Increased populations of wildlife species in the restored area; Improved genetic diversity; Reduced threats to wildlife species; Increased wildlife populations in the restored area; Reduced threats to wildlife species.	Biodiversity recovery; Increased ecosystem resiliency	Conservation of endangered species; Restoration of ecological interactions; Control of invasive species; Environmental education.
Forest Inventory	Obtaining detailed information on forest composition, structure and condition (species identification, forest health assessment).	Provision of data for planning forest restoration and management activities; establishment of a baseline for monitoring forest change over time; contribution to research on forest ecology and dynamics.	Protecting forest species diversity; Increasing forest health, productivity and resilience; providing information for sustainable management of forest resources.	Baseline Data Collection, Monitoring and Evaluation, Resource Allocation (by understanding the forest's current structure and composition) Biodiversity Assessment (identify key species and habitats that need protection or restoration)
Definition of forest degradation and vulnerable areas	Identification of degraded areas; Characterization of degradation; prioritization of areas for restoration.	Development of restoration plans; allocation of resources; improvement of forest management: Implementation of more sustainable forest management practices.	Recovery of ecosystem services; increased ecosystem resilience.	Targeted Interventions, Risk Assessment, Prioritization of Actions, Stakeholder Engagement (Defining these terms and identifying vulnerable areas provides a basis for engaging stakeholders, including local communities and policymakers)
Enrichment with native species	Increased species diversity; improved forest structure; strengthened ecological connectivity	Improved soil quality; reduced soil erosion in the restored area; increased capacity of the forest to capture and store carbon.	Biodiversity conservation; improved forest health; benefits to local communities (Provision of timber and	Restoration of Ecosystem Function, Biodiversity Enhancement, Resilience to Environmental Changes, Cultural and Ecological Value (Native species often have cultural significance and

			non-timber forest products for local use).	provide ecological benefits that non-native species cannot)

Appendix 3: Allometric equations used in the forest inventory

CÓDE	Scientific name	Common name	Wood density	Equation	Source
A	Araucaria angustifolia	Araucaria	0,500	V[m3]=a+b*DAP[cm]^2*H[m]	1
				AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
AB	Albizia edwallii	Anchico Blanco	0,620	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
AC	Parapiptadenia rígida	Anchico Colorado	0,950	V[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m]+d*DAP[cm]*H[m]^2	3
AG	Schefflera morototoni	Cacheta		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
AL	Holocalyx balansae	Alecrín	1,050	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
AR	Rollinia rugulosa	Araticú	0,590	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
AY	Chrysophyllium gonocarpum	Aguay	0,800	V[dm3]=EXP(a+b*ln(H[m]^2)+c*ln(DAP[cm]^2*H[m]))	5
				AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
AZ	Luehea divaricata	Azota Caballo	0,620	VT[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m]+d*DAP[cm]*H[m]^2	3
BQ	Sebastiana commersoniana	Blanquillo	0,545	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
C	Cedrela fissilis	Cedro	0,530	AGBest = 0,00673 * (d * DAP^2 * HT	2

				)^0,976	
CA	Cabralea canjerana	Cancharana	0,670	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CAA	Roupala brasiliensis	Caa Guazu		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CANG	Maytenus ilicifolia	Cangorosa		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
CB	Matayba eleagnoides	Camboata Blanco	0,735	V[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m] +d*DAP[cm]*H[m]^2	3
CC	Cupania vernalis	Camboata Colorado	0,850	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CE	Eugenia involucrata	Cerella	0,935	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CG	Trichilia catiguá	Catigua	0,880	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CH	Shinus terebentifolius	Chichita		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CHBR	Alsophila setosa	Chachí Bravo		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CHI	Baccharis dracunculifolia	Chirca		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CI	Celtis iguanaea	Tala	0,670	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CL	Cordia ecalyculata	Colita		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CLA	Ocotea	Canela	0,630	AGBest = 0,00673 * (d * DAP^2 * HT	2

	pulchella	layana		)^0,976	
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
CN	Ilex brevicuspis	Caona		VT[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m]+d*DAP[cm]*H[m]^2	3
CO		Cocon		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
CP	Citronela paniculata	Citronela		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CR	Jacarandá micrantha	Caroba	0,550	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CU	Pilocarpus pennatifolius	Cutieira	1,030	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
CV	Styrax leprosus	Carne de Vaca	0,400	VT[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m]+d*DAP[cm]*H[m]^2	3
E	Esenbeckia febrifuga	Esenbeckia		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
EC	Gleditsia amorphoides	Espina Corona	0,870	V[dm3]=EXP(a+b*ln(H[m]^2)+c*ln(DAP[cm]^2*H[m]))	5
				AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
FB	Solanum granuloso leprosum	Fumo bravo	0,385	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2

				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
G	Balfourodendron riedelianum	Guatambú	0,840	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
GA	Aspidosperma australe	Guatambú Amarillo	0,730	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
GB	Patagonula americana	Guayubira	0,780	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
GP	Guarea pohlii	Cedrillo	0,565	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
GR	Apuleia leiocarpa	Grapia		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
GU	Myrciantes pungens	Guabiyu		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
GY	Campomanesia xanthocarpa	Guabirá	0,865	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
HG	Ficus luschnathiana	Higuera		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
HO	Tabernamontana australis	Horquetero	0,445	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
I	Myrocarpus frondosus	Incienso	0,845	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2

				AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
IN	Ingá marginata	Inga	0,730	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
IO	Helietta apiculata	Ivirá oví	0,865	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
IS	Machaerium stipitatum	Isapuy	0,840	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
ISP	Machaerium paraguariensis	Isapuy Pará	0,690	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
IV	Plinia rivularis	Ivaporoití		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
K	Allophyllus edulis	Koku	0,600	V[dm3]=EXP(a+b*ln(H[m]^2)+c*ln(DAP[cm]^2*H[m]))	5
L	Tabebuia heptaphylla	Lapacho negro		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
LA	Nectranda lanceolata	Laurel Amarillo	0,530	V[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m]+d*DAP[cm]*H[m]^2	3
LB	Bastardiopsis densiflora	Loro Blanco	0,700	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
LE	Sebastiania brasiliensis	Lechero	0,545	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
LG	Ocotea puberula	Guaicá	0,470	V[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m]+d*DAP[cm]*H[m]^2	3

LII	Liana spp	Liana		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
LIM	Segueira aculeata	Limonero de Monte		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
LN	Nectranda megapotamica	Laurel negro	0,560	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
LR	Actinostemon concolor	Larangeira		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
LY	Ocotea diospyrifolia	Laurel Ayuí	0,630	V[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m] +d*DAP[cm]*H[m]^2	3
M	Ruprechtia laxiflora	Marmelero	0,750	V[dm3]=EXP(a+b*ln(H[m]^2)+c*ln(DAP[cm]^ 2*H[m]))	5
MA	Clorophora tinctoria	Mora Amarilla	0,870	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
MV	Manihot grahamii	Mandioca Brava		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
MB	Alchornea iricurana	Mora Blanca	0,400	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
MI	Miconia pusilliflora	Miconia		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
MP	Diatenopteryx sorbifolia	María Preta	0,960	V[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m] +d*DAP[cm]*H[m]^2	3
ÑZ	Calliandra foliolosa	Niño azoté		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
O	Phytolacca dioica	Ombú		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
OB	Urera baccifera	Ortiga brava		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2

OV	Hovenia dulcis	Hovenia		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
PA	Picrasma crenata	Palo Amargo		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
PB	Trema micrhanta	Palo Pólvora	0,410	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
PC	Cestrum laevigatum	Palo de capuera		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
PD	Arecastrum romanzoffianum	Pindó		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
PDA	Dracaena fragrans	Palo de Agua		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
PE	Vassobia breviflora	Pelotero		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
PG	Prunus subcoriacea	Persiguero	0,760	V[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m]+d*DAP[cm]*H[m]^2	3
				AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
PO	Rapanea gardneriana	Pororoca		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
PT	Pinus taeda	Pino Taeda	0,460	B[Kg]=EXP(a+b*ln(DAP[cm]))	6

PV	Cordia trichotoma	Loro Negro	0,600	V[dm3]=EXP(a+b*ln(DAP[cm]^2*H[m])+c*(H[m]/DAP[cm]))	5
PY	Bauhinia forticata	Pata de buey	0,640	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
Q	Rawolfia sellowi	Quina		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
QM	Achatocarpus praecox	Quiebra Machado		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
RB	Lonchocarpus nitidus	Rabo de macaco	0,880	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
RC	Roupala cataractarum	Burro caá guazú		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
RI	Lonchocarpus leucanthus	Rabo Itá	0,890	VT[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m]+d*DAP[cm]*H[m]^2	3
RM	Lonchocarpus muehlbergianus	Rabo Molle	0,720	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
RV	Piper brasiliensis	Rodilla de Viejo		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
S	Erythrina falcata	Seibo	0,240	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
SA	Phyllanthus sellowianus	Sarandí		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
SB	Pentapanax warmingiana	Sabuguero	0,470	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
SH	Chorisia	Samohú	0,260	AGBest = 0,00673 * (d * DAP^2 * HT	2

	speciosa			)^0,976	
ST	Campomanesia guazumifolia	Siete Capote	0,875	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
T	Enterolobium contortisiliquum	Timbó	0,420	V[dm3]=EXP(a+b*ln(H[m]^2)+c*ln(DAP[cm]^2*H[m]))	5
				AGB=e(-2.281+1.525 Ln (BD)+0.831 Ln (CD)+0.523 Ln(H)	4
TB	Ateleia glazioveana	Timbo Blanco	0,420	V[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m]+d*DAP[cm]*H[m]^2	3
TR	Vitex megapotamica	Tarumá		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
TY	Fagara naranjillo	Tembetary	0,780	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
UB	Eugenia pyriformis	Ubajai	0,750	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
V	Seguieria aculeata	Verduza		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
VS	Chrysophyllum marginatum	Vasuriña	0,790	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
YB	Plinia cauliflora	Yaboticaba		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
YC	Jacaratia spinosa	Yacaratia		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
YG	Acacia tucumanensis	Yuquerí guazú	0,800	AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2
YM	Ilex paraguariensis	Yerba Mate		VT[dm3]=a+b*DAP[cm]^2+c*DAP[cm]^2*H[m]+d*DAP[cm]*H[m]^2	3

YQ		Yuquerí		AGBest = 0,00673 * (d * DAP^2 * HT)^0,976	2

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Appendix 4: Wood density of timber species extracted in the baseline scenario.

Weighted Average: 0,70

Common Name	Scientific Name	Account	Density
Aguay	Chrysophyllium gonocarpum	95	0,80
Anchico Colorado	Parapiptadenia rígida	70	0,95
Azota Caballo	Luehea divaricata	123	0,62
Cacheta	Schefflera morototoni	23	0,68
Camboata Colorado	Cupania vernalis	182	0,85
Cancharana	Cabralea canjerana	62	0,67
Cañafistola	Peltophorum dubium	1	0,90
Carne de Vaca	Styrax leprosus	40	0,39
Caroba	Jacarandá micrantha	11	0,55
Cedro	Cedrela fissilis	150	0,53
Cocon	Cocon	27	0,68
Espina Corona	Gleditsia amorphoides	17	0,87
Grapia	Apuleia leiocarpa	42	0,83
Guatambú	Balfourodendron riedelianum	179	0,84
Guaycá	Ocotea puberula	38	0,47
Guayubira	Patagonula americana	80	0,78
Incienso	Myrocarpus frondosus	82	0,84
Ivirá oví / Canela de Venado*	Helietta apiculata	75	0,87
Lapacho amarillo	Tabebuia alba	1	0,98
Laurel Amarillo	Nectranda lanceolata	111	0,53
Laurel Ayuí	Ocotea diospyrifolia	84	0,63
Laurel negro	Nectranda megapotamica	573	0,56
Loro Blanco	Bastardiopsis densiflora	119	0,70

Loro Negro	Cordia trichotoma	29	0,60
Marmelero	Ruprechtia laxiflora	35	0,75
Mora Blanca	Alchornea iricurana	20	0,40
Persiguero	Prunus subcoriacea	234	0,76
Quina / Kina**	Rawolfia sellowi	28	0,68
Rabo Itá	Lonchocarpus leucanthus	287	0,89
Rabo Molle	Lonchocarpus muehlbergianus	45	0,72
Sabuguero	Pentapanax warmingiana	8	0,47
Tembetary / Mamica *	Fagara naranjillo	54	0,78
Timbó	Enterolobium contortisiliquum	13	0,42
TOTAL		2.938	
Weighted Average Density			0,70

Appendix 5: Additional Information.

Pictures of the sawmill before the starting date of the project activity










Pictures of the sawmill after the starting date of the project activity in 2022













Species used in the enrichment planting (but not limited to)

Common Name	**Scientific Name**
Araucaria	*Araucaria angustifolia*
Cañafistola	*Peltophorum dubium*
Caroba	*Bignonia caroba*
Cedro	*Cedrela fissilis*
Cerella	*Eugenia involucrata*
Guabiroba	*Campomanesia xanthocarpa*
Guaica	*Ocotea puberula*
Guatambu amarillo	*Aspidosperma olivaceum*
Guatambu blanco	*Balfourodendron riedelianum*
Incienzo	*Myrocarpus frondosus*
Jabuticaba	*Plinia cauliflora*
Lapacho Amarillo	*Handroanthus albus*

Petiribi	*Cordia trichotoma*
Pitanga	*Eugenia uniflora*
Siete capotes	*Campomanesia guazumifolia*
Timbo colorado	*Enterolobium contortisiliquum*

Census methodology

Regarding the methodological strategy for conducting censuses, Silvia Borrego del Pino in "Población y Muestra" of 2008[132] argues that the cluster sample is of real existence, such as people living in houses, blocks, neighborhoods, quadrants, etc. This type of sampling is used when elements of the population or strata of the population are not available. This method is best when the clusters are homogeneous among themselves, but heterogeneous within. The homogeneity can be by sex, age, economic situation, cultural traits, etc.

On the other hand, random sampling by clusters, explained by Jordi Casal and Enric Matéu in "types of sampling"[133], is in line with the previous explanation. The authors explain that to assemble the sample, the population must be divided into groups with similar characteristics, and then some groups are analyzed as a whole, discarding others. This methodology is usually applied to geographical areas.

Bearing in mind the work of the authors mentioned above and the proposal made by the Development Bank of Latin America in the framework of the "Introduction to Impact Evaluation for Public Management" regarding the "Technical requirements of an experimental impact evaluation - Randomization as a solution to the selection problem"[134]. The following methodology[135] was used for the selection and delimitation of the units of analysis for the census sample:

All dwellings in Cruce Caballero, Tobuna, Paraje Alegría, Paraje Piñalito, Paraje Piñeiro, Paraje Gentile were enumerated. In turn, each village/paraje was divided into 4 quadrants. In this way, all the dwellings in all the quadrants of the *parajes*/villages were numbered, thus covering the entire territorial extension of the project's area of influence. In this way, the units of analysis, as can be seen, are the houses in the *parajes*, villages and communities.

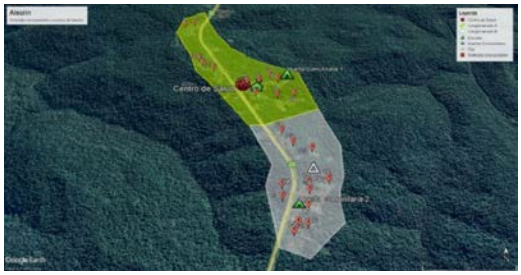
Having numbered all the houses and knowing which numbered houses are in each quadrant of each paraje/village, we proceeded to place in a ballot box ball with the numbers of the houses, to later draw them randomly (with the number that was considered representative of the quadrant). In this way, houses were randomly selected from each quadrant of each community.

Instead, for Tekoa Alecrin, a directed sampling was used, carried out in a participatory manner with the Council of Authorities, respecting cultural and social patterns.

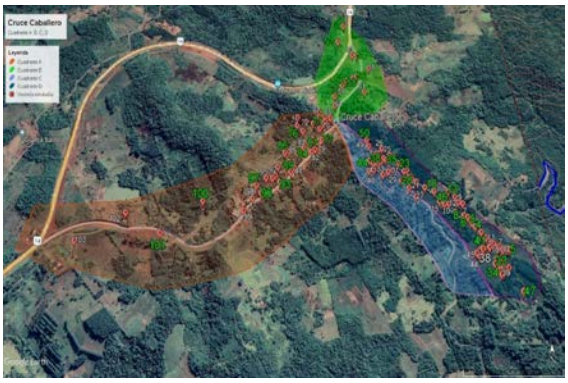
[132] DEL PINO, S. Population and sample. Revista Digital, Innovación y Experiencias Educativas, 2008, no 12.
[133] Casal, J., & Matéu, E. (2003). Types of sampling. Rev. Epidem. Epidem. Prev, 1(1), 3-7.
[134] It can be consulted on the CAF website: www.caf.com in the section on "Impact Assessments for #BetterManagement" Module 2 "Basic Concepts of Impact Assessment and the Experimental Method."
[135] Under the logic of ensuring that the sample is as representative as possible of the entire population, but without selection bias.

The plan for each quadrant and for each census house in each village/paraje was as follows:

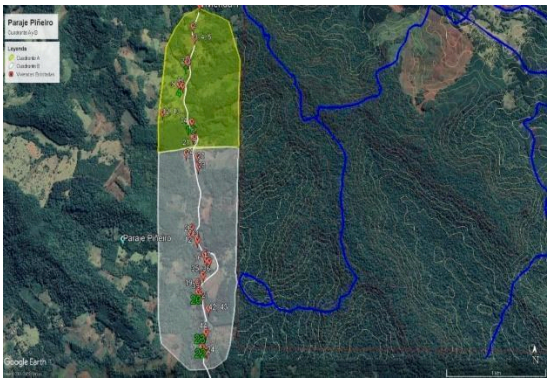
(a)



(b)



(c)



(d)



(e)



Maps of census quadrants for:

- Tekoa Alecrin
- Cruce Caballero
- Paraje Piñeiro
- Paraje Alegria
- Tobuna

Tekoa Alecrin land tenure conflict (outside project area)

The community of Alecrín was consolidated with this name in the 80's of the last century. Previously, in that area, there was no distinction between Tekoa Arandú, Tekoa Alecrín or Pozo Azul; everything was part of the same territory that until the 1950s had remained outside the advance of colonization. According to historiographic and anthropological research, the current area of Alecrín formerly housed another Tekoa called Tacoaruzú, since it was possible to locate an ancient *opy* and a cemetery. The testimonies gathered in the community indicate that this village existed in the 40's or earlier. Likewise, an abandoned temple and another cemetery have been found that seem to have been built before the current layout of the provincial route, which allows us to account for the antiquity of the community in the territory (Salamanca, 2012:66, 126, 219).

The division of this extensive territory, which later formed different villages, seems to be related to the expansion of the agricultural frontier, mainly due to the entry of settlers and forestry companies (Salamanca, 2012:66, 126)[136].

In relation to this, it is since 1995 that a series of invasions, attacks and harassment by settlers, but mainly by the Harriet S.A. company, have continued to the present (Salamanca, 2012:204).

Between the 1980s and the early 2000s, the members of Alecrín responded with extrajudicial claims to the San Pedro police station, the Governor of the Province, INAI, INADI and letters and notes addressed to different media (Salamanca, 2012).

In 2004 the judge of Court No. 3 signed an occupation permit in favor of the Alecrín families. This act constituted the first official document recognizing their existence as Tekoa (Salamanca, 2012:212).

At the same time, in 2005, the then director of INAI stated that Alecrín's claim was fair and gave advice on what strategies to implement to obtain official land titling (Salamanca, 2012:201).

In 2006, threats were added by the company "López S.A.", which had settled in the community's territory. On this occasion, the corresponding complaint was also filed (Salamanca, 2012:204).

In July 2008 there was another attack by workers from the Harriet company in which they advanced on the community's cemetery and cut down trees again. A few months later, the Minister promised to carry out several resolutions not only regarding compliance with the Territorial Emergency Law (Law 26,160), but also with the Forest Law (Law 26,331). However, that same month the peons of the same company invaded again, after which the complaint was made (Salamanca, 2012:204).

In 2009 the Director of Lands of INAI reiterated his commitment after the complaint made against Harriet that same year, and promised to issue an opinion declaring an emergency situation in Alecrín. So it was that shortly thereafter, he together with the Director of INAI, some anthropologists and other technicians traveled to the Tekoa to reaffirm the commitment to the territorial survey corresponding to the implementation of Law 26,160 (Salamanca, 2012:208).

Based on this, INAI began training oriented to young people in the use of geo-referencing devices. There the young people were instructed in the use of GPS and were organized into different groups with different roles: one group used the GPS, another group made photographic records and the last one

[136] Salamanca, C. (2012). Alecrín, cartografías para territorios en emergencia (1a ed.). Rosario: UNR Editora

stood guard. Fifteen days after this training, the personnel in charge returned to carry out the survey, after which the map was made (Salamanca, 2012: 209,218).

This process, which took 22 days and began in April of the same year, was carried out respecting the rights of the community, that is, with their full and direct participation. In turn, on April 13 and 14, the Aboriginal Pastoral Missions Team (EMiPA) conducted complementary workshops on maps and the use of GPS (Salamanca, 2012: 209,218).

However, in June of the same year, intrusions were again carried out by laborers from the Harriet company. This time, the intruders installed wires and made new routes near the houses, extracted more wood, planted pine trees and spread pesticides. After this event, the people of Alecrín, as was their custom, removed the wire fences to take them to the San Pedro police station in order to expand their complaint (Salamanca, 2012:212).

These events continued to occur until, in February 2012, after a week of invasions and a roadblock as a protest, the Undersecretary of the Ministry of Ecology intervened to remove the invaders and that same month the Ministry of Human Rights of the Province intervened on behalf of the community of Alecrín. According to the Minister, the Ministry was ready to "accredit that the occupation of the lands corresponds to the Guaraní families of the Alecrín village, who are currently disputing the possession with the Harriet company" and added "let it be clear that the State of Misiones will guarantee that the lands occupied by the Guaraní will be respected". Finally, this ministry accredits the occupation of Alecrín (Salamanca, 2012:221).

In the same month, another map was proposed together with the historian Carlos Salamanca, which took the form of a workshop and in which a participatory map was made.

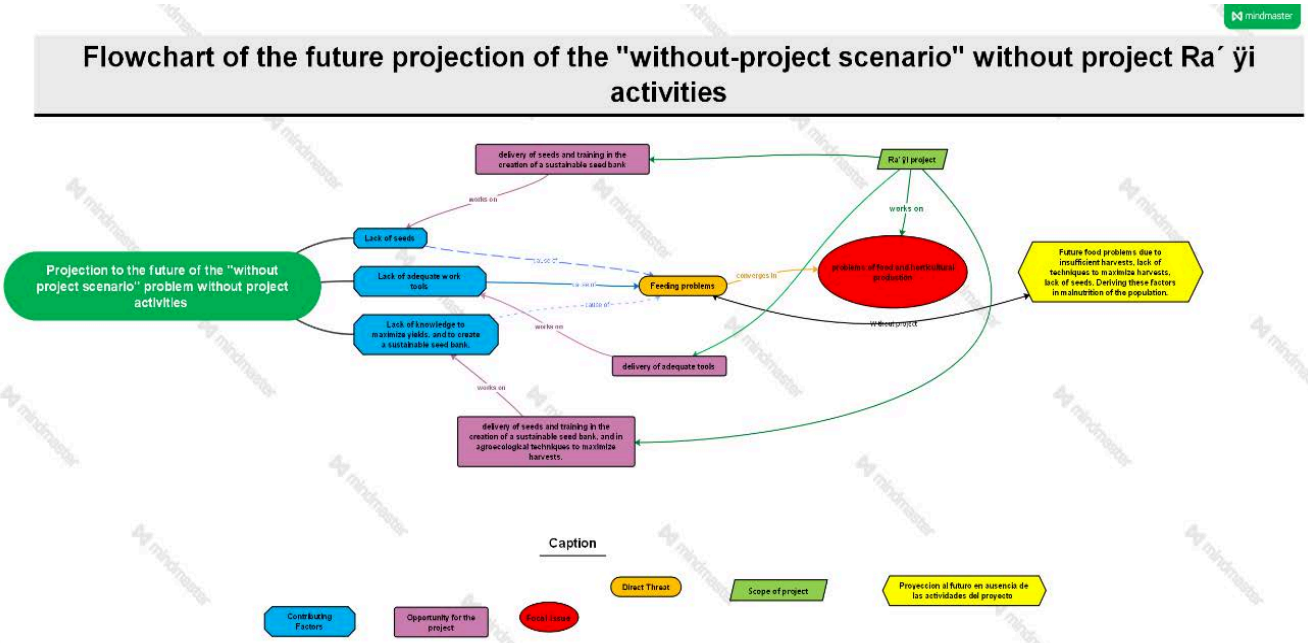
Although there was ample predisposition in the participation, marking and delimitation of the map, some difficulties arose, such as, for example, identifying sacred areas, since many of these exceeded the limits of the map itself, realizing that the territory of Alecrín, as well as the Guaraní territory itself, extended much more widely, making even the map function as a limiting factor (Salamanca, 2012:229-235).

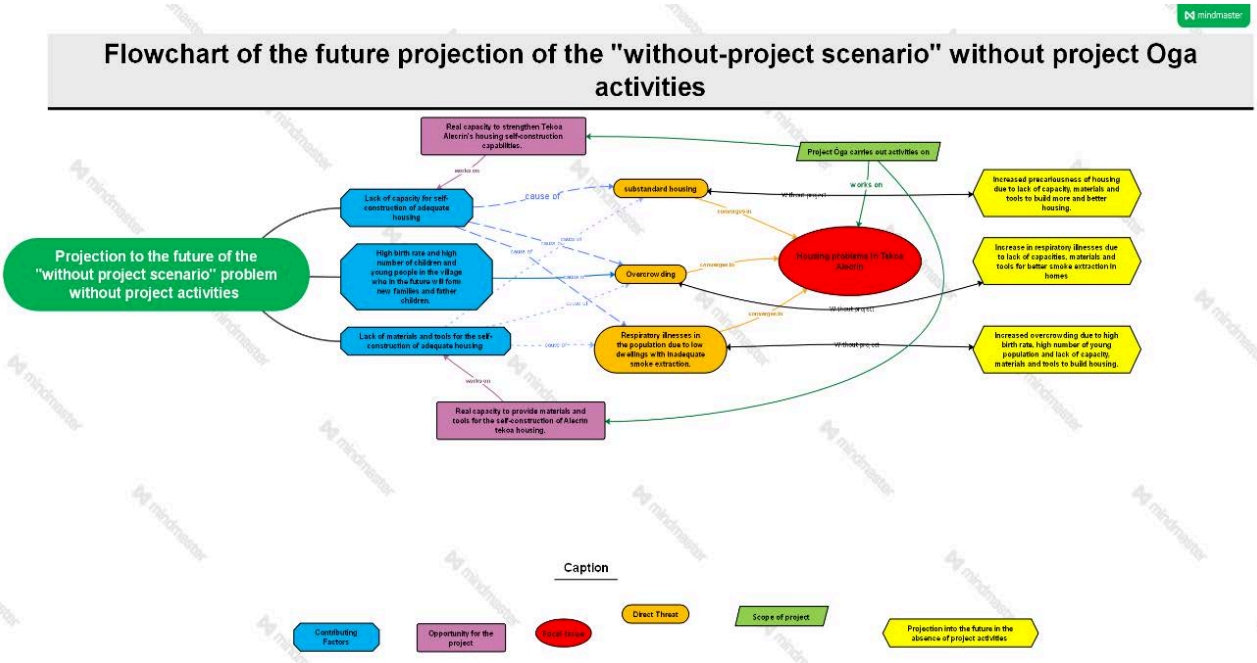
Today, in the year 2021,[137]Harriet continues to intrude into the area. On December 13, a new complaint was filed by members of the community for illegal timber extraction. In order to demand that action be taken on the matter, the families prevented entry to one of the company's entrances and ratified their complaint before the Ministry of Ecology and the San Pedro police station.

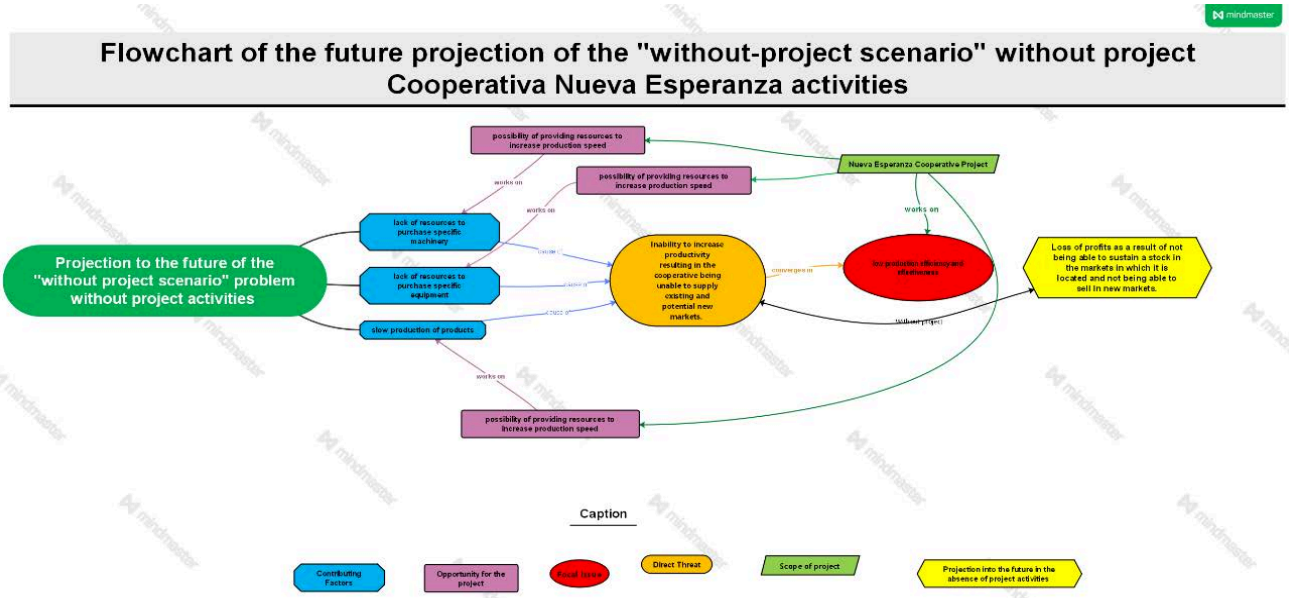
The following is a cartography of the "Locality of Santa Teresa, Department of San Pedro, Province of Misiones, Argentine Republic. Mbya Guarani Alecrin Community". Legal status C.I. 64 - Provincial Direction of Guarani Affairs of the Province of Misiones. This cartography has been made by the National Program of Territorial Survey of Indigenous Communities (Re.Te.Ci) of INAI in June 2009, execution of the Law N° 26.160; according to what is established in the Manual of Procedures of the Jaguar System. Here is determined the surface of the Community Land of the Mbya Guarani Alecrin Community in 14.196 Has. (See point 2.1.7).

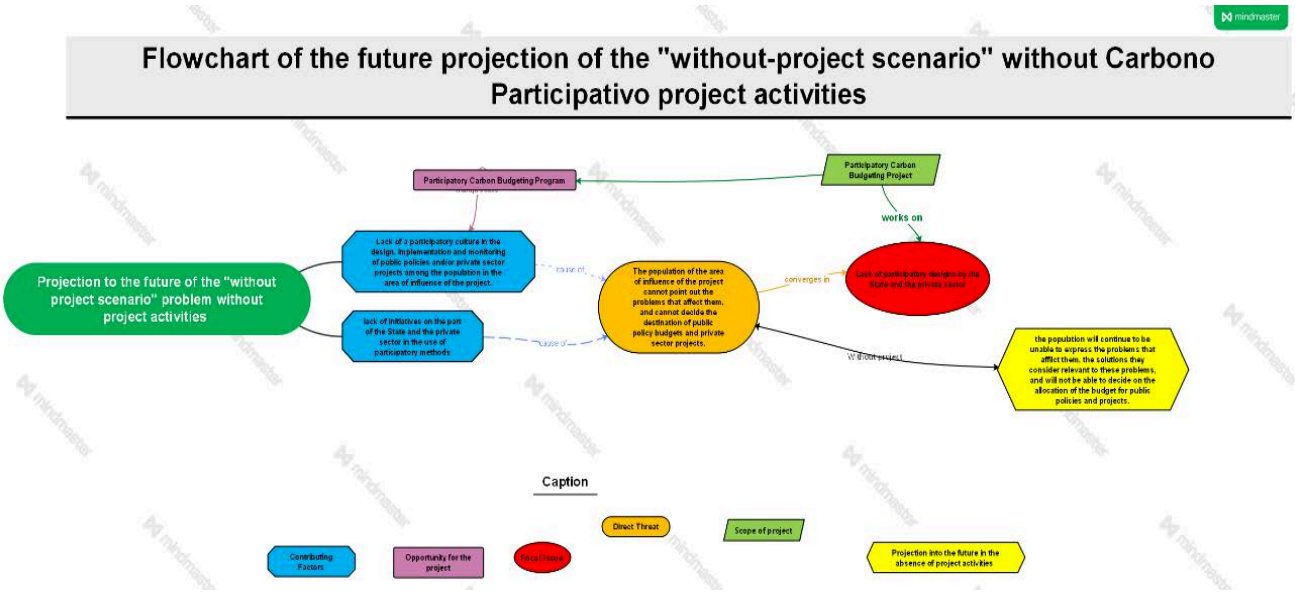
[137] El Territorio Newsroom (2021). Demonstration for timber extraction in the territory of the village Alecrín. El territorio. Retrieved from: https://www.elterritorio.com.ar/noticias/2021/12/13/731068-manifestacion-por-extraccion-de-madera-en-territorio-de-la-aldea-alecrin

Flow charts for every project






Flowchart of the future projection of the "without-project scenario" without project Cooperativa Nueva Esperanza activities
possibility of providing resources to increase production speed
Nueva Esperanza Cooperative Project
possibility of providing resources to increase production speed
works on
lack of resources to purchase specific machinery
Projection to the future of the "without project scenario" problem without project activities
lack of resources to purchase specific equipment
slow production of products
Inability to increase productivity resulting in the cooperative being unable to supply existing and potential new markets.
converges in
low production efficiency and effectiveness
Loss of profits as a result of not being able to sustain a stock in the markets in which it is located and not being able to sell in new markets.
possibility of providing resources to increase production speed
Caption
Contributing Factors
Opportunity for the project
Focal Issue
Direct Threat
Scope of project
Projection into the future in the absence of project activities


Flowchart of the future projection of the "without-project scenario" without Carbono Participativo project activities
Participatory Carbon Budgeting Program
Participatory Carbon Budgeting Project
works on
Lack of a participatory culture in the design, implementation and monitoring of public policies and/or private sector projects among the population in the area of influence of the project.
Projection to the future of the "without project scenario" problem without project activities
lack of initiatives on the part of the State and the private sector in the use of participatory methods
The population of the area of influence of the project cannot point out the problems that affect them, and cannot decide the destination of public policy budgets and private sector projects.
converges in
Lack of participatory designs by the State and the private sector
the population will continue to be unable to express the problems that affect them, the solutions they consider relevant to these problems, and will not be able to decide on the allocation of the budget for public policies and projects.
Caption
Direct Threat
Scope of project
Contributing Factors
Opportunity for the project
Focal Issue
Projection into the future in the absence of project activities