ARR SLB PARANÁ

Document Prepared by

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Contact Information

Project Title	ARR SLB Paraná
Version	0.0
Date of Issue	09-Jun-2022
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1 PROJECT DETAILS

1.1 Summary Description of the Project

ARR SLB Paraná is an Afforestation and reforestation (AR)grouped project located in the Brazilian state of Paraná in the municipalities of Tomazina, Sapopema y Arapoti. Its main objective is to mitigate climate change through the carbon sequestration with eucalypt forest plantations. The project aims to promote the sustainable development of the forestry sector by providing fair job opportunities, recovering degraded soils from livestock and traditional and industrialized agriculture for soybean cultivation, and conserving natural forest areas within the project areas to enhance and protect the local biodiversity.

The crediting period of the project is 20 years; it started on 18 December, 2018 and will end on 17 December, 2037. On average, it has a net emission removal potential of 17,791 tCO_2e/year with a total for the entire period of 355,816 tCO_2e. The project eligible area has an extension of 977.3 ha.

1.2 Sectoral Scope and Project Type

The project corresponds to VCS scope 14 “Agriculture, Forestry and Other Land Use” as an Afforestation, Reforestation and Revegetation (ARR). The project is a grouped project.

1.3 Project Eligibility

The eligibility of SLB Parana Project for International Sourcing was assessed. An AR project is eligible where land meet the definition of a non-forest[1] for at least 10 years prior to the start of the project. The eligibility analysis was performed based on cartographic information from the MapBiomas Collection 5[2] 1985-2020 (Azevedo et al., 2018).

MapBiomas[3] is Brazil’s land cover and use maps from 1985 to 2020. Data from MapBiomas Collection 6 review the 35 years (1985 to 2020) of Brazil's annual land cover and use maps with a pixel size of 30m, with improvements in accuracy – especially in the Amazon and Cerrado Biomes. All MapBiomas annual coverage and land use maps are produced from the pixel-by-pixel classification of images from Landsat satellites. From the Landsat mosaics, the classifications that result in land cover and land use maps are carried out for each year. Within the logic proposed by MapBiomas the maps will be updated every time there is an improvement in the classification algorithms. The classification methodology is dynamic and procedural, with the purpose of improving the classification of each typology. The Collection 5 maps can be exported by biome boundary, state, county, river basin, protected areas, or any other geographic boundary that the user is interested in clipping.

[1] According to Brazil forest definition, for AR project activities, forest means a land with tree crown cover of more than 10 percent and area of more than 0.5 ha. The trees should be able to reach a minimum height of 5 m, (http://cdm.unfccc.int/DNA/index.html)
[2] https://mapbiomas.org/download
[3] http://www.mapbiomas.org

The statistics of accuracy[4] over the period of the MapBiomas collection in the version 6 for Mata Atlântica Bioma for level 2 was 85.5% as shown in (Figure 1).

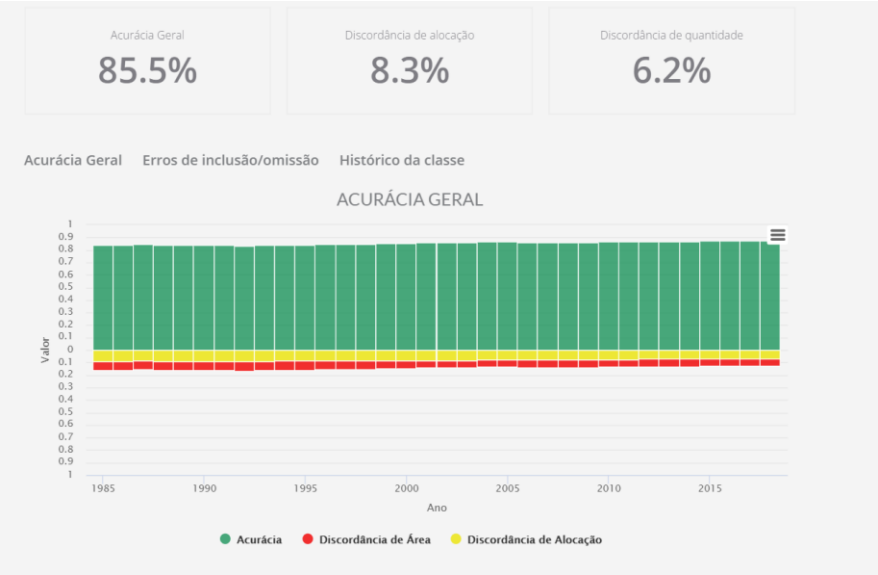


Figure 1. Accuracy statistics for Mata Atlântica Bioma for level 2

To perform the eligibility analysis, MapBiomas information was downloaded for all Mata Atlântica Bioma. The project area is in the State of Paraná; the raster for period 2007–2017, 2008–2018 and 2010–2020 were downloaded and cut by the project area.

To obtain the forest-non-forest layers of period 2007–2017, 2008–2018, 2010, and 2020 (Table 1), the following steps were followed:

- Reclassification of annual land use cover layer period 2007–2017, 2008–2018 and 2010–2020 to obtain layers of forest and no forest.
- The layers have values as shown in (Table 1), with a number from 1 to 31. Each number corresponds to a different land cover; the covers with numbers from 1 to 9 were assumed as forest and the rest as non-forest, as can be seen in the table.
- Thus, the non-forest forest layers were obtained for the years period 2007–2017, 2008–2018 and 2010–2020.

Using the forest-non-forest layers (period 2007–2017, 2008–2018 and 2010–2020), a cartographic cross-over of the periods was made for the delimitation of the eligible areas and the information was reclassified considering eligible areas as those areas that were maintained as stable forest in the period 2007–2017, 2008–2018 and 2010–2020 on a scale of 1:100,000. On the other hand, non-eligible areas were those with a non-stable forest or with losses of forest cover over the same period.

Finally, with the resulting raster information, a post-processing was carried out. This consisted of changing the projection system of the WGS84 geographic coordinate system to the flat WGS84-UTM 20S

[4] https://mapbiomas.org/en/accuracy-analysis

system, transforming the resulting layer (raster) to vector format, eliminating isolated polygons smaller than 1 ha, constructing the table of attributes with the following categories: eligible (1) and non-eligible (0), and cutting the layer to the boundaries of the project area.

Table 1. Land cover legend MapBiomas v 6.0

ID	Name	Forest and non-forest
1	1. Forest	Forest
3	1.1. Forest formation	Forest
4	1.2. Savanna formation	Forest
5	1.3. Mangrove	Forest
49	1.4. Wooded Restinga	Forest
10	2. Non-forest natural formation	Non-forest
11	2.1. Wetland	Non-forest
12	2.2. Grassland	Non-forest
32	2.3. Salt flat	Non-forest
29	2.4. Rocky outcrop	Non-forest
13	2.5. Other non-forest natural formation	Non-forest
14	3. Farming	Non-forest
15	3.1. Pasture	Non-forest
18	3.2. Agriculture	Non-forest
19	3.2.1. Temporary crop	Non-forest
39	3.2.2.1. Soybean	Non-forest
20	3.2.2.2. Sugar cane	Non-forest
40	3.2.2.3. Rice	Non-forest
41	3.2.2.4. Other temporary crops	Non-forest
36	3.2.2. Perennial crop	Non-forest
46	3.2.2.1. Coffee	Non-forest
47	3.2.2.2. Citrus	Non-forest
48	3.2.2.3. Other perennial crop	Non-forest
9	3.3. Forest plantation	Forest
21	3.4. Mosaic of agriculture and pasture	Non-forest
22	4. Non-vegetated area	Non-forest
23	4.1. Beach, dune and sand spot	Non-forest
24	4.2. Urban area	Non-forest
30	4.3. Mining	Non-forest
25	4.4. Other non-vegetated area	Non-forest
26	5. Water	Non-forest
33	5.1. River, lake and ocean	Non-forest
31	5.2. Aquaculture	Non-forest
27	6. Non-observed	Non-forest

Eligibility analysis was carried out on SLB Parana. In summary, and according to the results of the eligibility analysis, 1,166.96 ha of the project area had non-forest cover for more than 10 years before the project start date, meeting the eligibility criteria. Figure 2 shows the eligible areas, marked in orange. Attached to this document is the Excel sheet showing the eligibility areas for the name of the project.

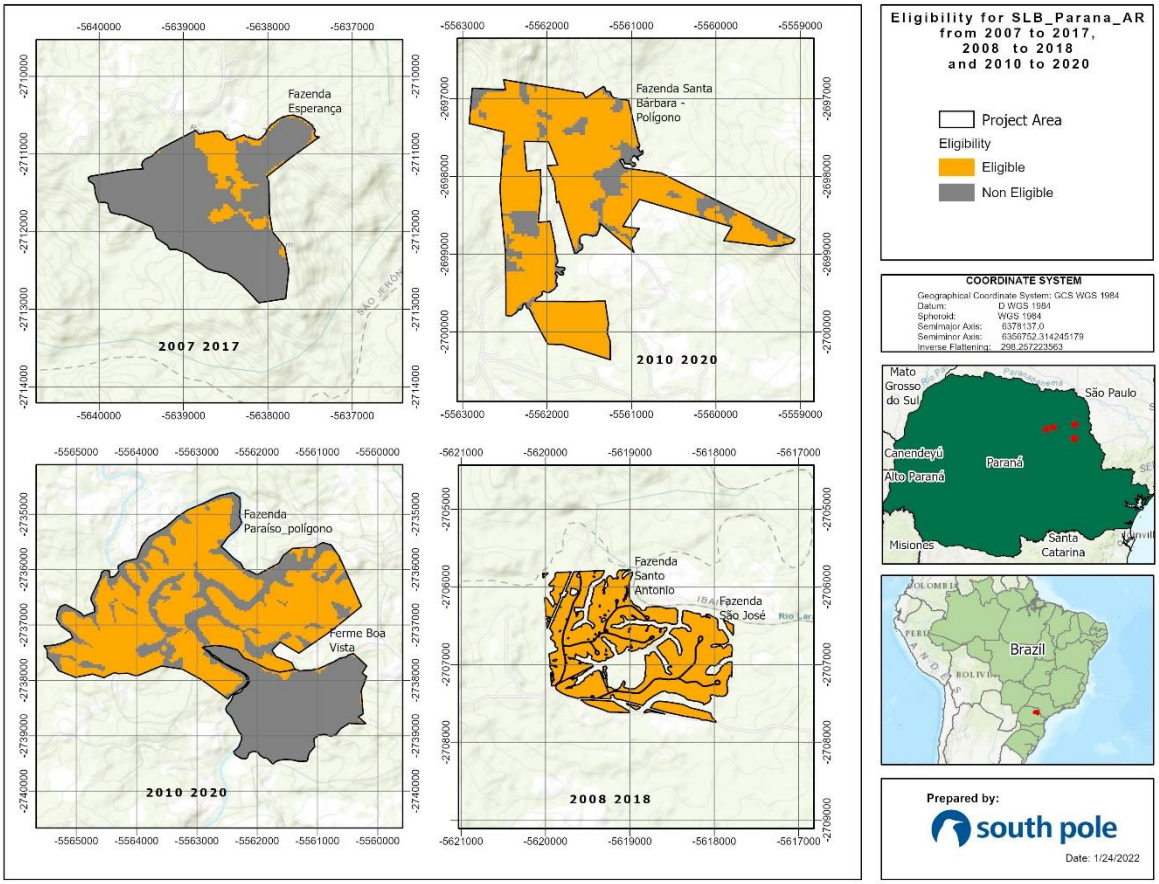


Figure 2. Map of eligibility

1.4 Project Design

The project is a grouped project

Eligibility Criteria

All the project activity instances meet the following set of eligibility criteria:

1. The applicability conditions set out in the methodology applied to the project (see section 3.2).
2. The technologies and measures specified in the project description.
3. Apply the technologies and measures in the same manner as specified in the project description.
4. Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.

5. Have characteristics with respect to additionality that are consistent for the specified project activity and geographic area.

1.5 Project Proponent

Organization name	SLB International S.A.S
Contact person	Cyprien Gosset
Title	Environmental and carbon engineer
Address	SLB International – 121 Avenue des Chapms Elysées 75008 Paris, France
Telephone	+33 7 87 03 36 12
Email	c.gosset@slbsa.com

1.6 Other Entities Involved in the Project

Organization name	Groupe SLB
Role in the project	Subsidiary company of SLB International in Brazil, responsible for all expenses related to carbon project development and crediting process
Contact person	Jullia Prado Gaudencio
Title	Environmental Engineer
Address	19 Quai de Juillet – 14000 Caen, France
Telephone	+55 43 3534-6225
Email	jullia@slbdobrasil.com.br

Organization name	SLB gestão
Role in the project	Management (guarding and silvicultural services) of the plantations and the administration services of the project
Contact person	Jullia Prado Gaudencio
Title	Environmental Engineer
Address	121 Avenue des Champs Elysées 75008 PARIS
Telephone	+55 43 3534-6225
Email	jullia@slbdobrasil.com.br

Organization name	Swiss Carbon Value Ltd
Role in the project	Creates and oversees the development of appropriate project design and monitoring techniques in line with the guidelines of the VCS
Contact person	Maria Fernanda Buitrago
Title	Forest and Land Use Adviser
Address	Technoparkstrasse 1. 8005 Zürich
Telephone	+57 4 520 5000
Email	m.buitrago@southpole.com

1.7 Ownership

The farm owners (Caesia Agroflorestal, Aloe Agroflorestal, Victoriana Agroflorestal and Cadens Agroflorestal) assign the use of the forest to SLB International in Brazil, for specific purposes and only to obtain carbon sequestration and carbon crediting activities.

SLB InternationaL is responsible for all expenses related to carbon project development and crediting (salaries, insurance, labor charges, hiring of third parties and all expenses resulting from the certification/carbon crediting processes).

SLB Gestão, as part of SLB International, is the entity that will assure the management (guarding and silvicultural services) of the plantations and the administration services of the project.

Organization name	CAESIA AGROFLORESTAL
Role in the project	Owner of the farm Santo Antonio
Contact person	Henrique GLOVACKI
Title	Administrator
Address	RUA BENEDITO BARBOSA, 26 SALA L – JARDIM SAO FRANCISCO SANTO ANTONIO DA PLATINA
Telephone	+55 43 99621-2511
Email	henrique@slbdobrasil.com.br

Organization name	CADENS AGROFLORESTAL
Role in the project	Owner of the farm São José
Contact person	Henrique Glovacki
Title	Administrator
Address	RUA BENEDITO BARBOSA, 26 SALA I – JARDIM SAO FRANCISCO SANTO ANTONIO DA PLATINA
Telephone	+55 43 99621-2511
Email	henrique@slbdobrasil.com.br

Organization name	ALOE AGROFLORESTAL
Role in the project	Owner of the farm Paraiso
Contact person	Henrique Glovacki
Title	Administrator
Address	RUA 7 DE SETEMBRO, 1124 SANTO ANTONIO DA PLATINA
Telephone	+55 43 99621-2511
Email	henrique@slbdobrasil.com.br

Organization name	OITI AGROFLORESTAL
Role in the project	Owner of the farm Santa Barbara
Contact person	Henrique Glovacki
Title	Administrator
Address	RUA 7 DE SETEMBRO, 1124 SANTO ANTONIO DA PLATINA
Telephone	+55 43 99621-2511
Email	henrique@slbdobrasil.com.br

1.8 Project Start Date

18 December 2018

1.9 Project Crediting Period

For the current grouped project, the crediting period will be 20 years and 0 months. The period starts on 18 December 2018 and ends on 17 December 2037.

1.10 Project Scale and Estimated GHG Emission Reductions or Removals

The estimated annual GHG emission reductions/removals of the project are:

☒ <20,000 tCO_2e/year

The scale of the project and the estimated annual GHG emission reductions or removals for the project crediting period:

Project Scale	
Project	X
Large project	

Year	Estimated GHG emission reductions or removals (tCO_2e)
2018	–
2019	11,506.34
2020	10,712.80
2021	42,426.00
2022	50,515.50
2023	50,333.17
2024	39,796.53
2025	36,570.67
2026	37,457.71

Year	Estimated GHG emission reductions or removals (tCO_2e)
2027	40.387.44
2028	25,952.28
2029	10,157.44
2030	–
2031	–
2032	–
2033	–
2034	–
2035	–
2036	–
2037	–
Total estimated ERs	**355,816**
Total number of crediting years	**20**
Average annual ERs	**17,791**

1.11 Description of the Project Activity

The project activity will be quantified by the reduction of emissions because of planting *Eucalyptus* through afforestation programs. Since its creation, SLB as project owner, has been developing an alternative eucalyptus silviculture method that brings innovations to the classic model applied in the area. In particular, the cycles of SLB's farms are spread over 20 years instead of seven years, which leads to specific cropping patterns and different markets. In fact, the initial density of the trees is 1,100 trees per hectare against 1,400/ha usually. And most of the production of SLB is dedicated to the sustainable use of wood (e.g. furniture, construction) rather than paper and cellulose production.

This implies a longer growth of the trees to obtain good quality logs. It also implies various additional manual operations to ensure the quality of the wood:

- Pruning of the trunk in the first years to avoid knots within the wood
- Regular thinning (at four, eight and 12 years) to reduce the density of the trees and increase the diameter of the trunk in relation to the height.
- Rigorous monitoring of farms and in particular of diseases – this is less necessary when clear cuts are made every six or seven years.

These specificities allow better technical and economic performances thanks to an economic performance reduction in plantation mortality (from 30% to 5%), and an increase of the average productivity per hectare evaluated at 58.1 m^3/ha/year compared to about 40 m^3/ha/year in conventional itineraries. These long cycles have multiple benefits for the environment compared to the short cultivation cycles:

- Reduction in the frequency of tillage, machinery use, and uncovered soil (once every twenty years versus once every seven years), thus creating less erosion.
- Less use of NPK fertilizers responsible for important emissions at the wood production
- Less use of phytosanitary products such as glyphosate, which are harmful to biodiversity
- Development of organic matter, biodiversity, and undergrowth of the plots during the during the cycle – especially after the first thinning
- More sustainable carbon storage in wood products because the life cycle of furniture and furniture or construction wood is much longer than paper
- Reduced silvicultural area required for constant production, due to higher wood productivity

While providing high-quality, sustainably managed (FSC-certified) wood, SLB's afforestation programs help preserve the environment by reducing pressure on surrounding natural forests (Buongiorno and Zhu, 2014) via the provision of alternative wood. These forests certified as FSC are planted on degraded lands that allows the restoration of soils (WWF, 2018), restructuring them and limiting erosion.

Around 35% of the SLB afforestation programs comprise preserved and naturally regenerated forests. The native forest (Mata Atlântica) is preserved through the Legal Reserve and SLB allows the natural regeneration of the Permanent Preservation Area (APP) that was not respected before the presence of the project.

The cultural cycle can be described in two main phases:

- A development phase from year 0 to year three, that is very intensive in monitoring and manual operations
- A phase of exploitation from year four to year 20 with little follow-up and whose operations are globally limited to mechanized harvests that are not very labor-intensive

Development phase

Table 2 presents all the activities carried out on a farm during the first phase. These operations include in particular:

- The preparation of the plot with the technical study phase and the preparation of the soil

- The maintenance activities to properly manage the young eucalyptus plants herbicides, fertilizers and ant control

Table 2. Description of activities over a crop cycle – Phase 1

Year	Activity
Implementation (year 0)	Road construction
	Soil analysis
	Topographic study
	Desiccation
	Subsoiling
	Application of limestone
	Planting
	Replanting (if needed)
Initial maintenance Year 1/2/3	Application of herbicides after planting
	Fertilization
	1st / 2nd / 3rd pruning
	Ant control (total)

These activities are essentially manual and therefore very labor-intensive, with groups of 20 to 30 workers coming to the plots for several days on consecutive weeks.

The images below were taken in young plots, they show the diversity in these young plots is low and the undergrowth is absent because of the products used and the very high competitiveness of eucalyptus.

Figure 3. Images of planting in phase 1. From left to right (i) planting a few months old, (ii) bags of fertilizer applied to seedlings, (iii) planting before the first thinning and after pruning

Operation phase

The table below presents the activities of the second phase, which corresponds to the exploitation phase. This phase includes limited maintenance each year as the eucalyptus trees have been well supported during the first growth phase, and only need occasionally monitoring to identify potential problems. The core of this phase is the harvesting of the wood which takes place in years four, eight, 12 and 20. During this entire phase the labor intensity is low as all harvesting operations are mechanized.

Table 3. Description of activities over a crop cycle – Phase 2

Year	Activity
Maintenance + cuts at years four, eight, 12, 20	Ant control (partial) Road cleaning and maintenance
	Selection for cutting
	Forestry cut at four, eight, 12 and 20 years
	Application of herbicides on stumps
Maintenance (years five-20)	Cleaning and maintenance of roads
	Continuous inventory

The first three cuts are thinning, the first and the second take away about 50% of standing timber, and the third one takes away about 30% of standing timber. For the first two thinning cuts part of the wood is used for the production of paper. Then the cut wood is sent to local sawmills which carry out the first processing of the wood (see Figure 6 and Figure 7). Much of this wood is then directly exported to assembly plants outside Brazil.

Figure 4. Planting after two thinnings

The last cut is a clean cut that marks the end of the cycle. However, this stage remains theoretical as no farm has reached this age; the wood taken is assumed to be sent to local sawmills and if needed sent in the form of sawn timber or logs to France and Europe.

Figure 5. Mechanical wood cutting in a SLB planting

Cutting is part of the fully mechanized operations at SLB, as at other forest operators in the region. The considerable reduction in costs made possible by these machines makes skilled machine operators much better paid than manual blue-collar workers (at three to four times more).

The appearance of the farms evolves and differs from the young plantations after the first clearings, creating a greater diversity and increased luminosity. In fact, the lower density of trees and the arrival of the sun to the ground allows some development of the undergrowth, regrowth of stumps and regeneration/enrichment of the soils in organic matter.

Finally, SLB has measured its social and environmental impact through the company Kinomé, and has made an impact monitoring plan with concrete actions, objectives and KPIs to improve its impact.

Figure 6. Forests after three thinning

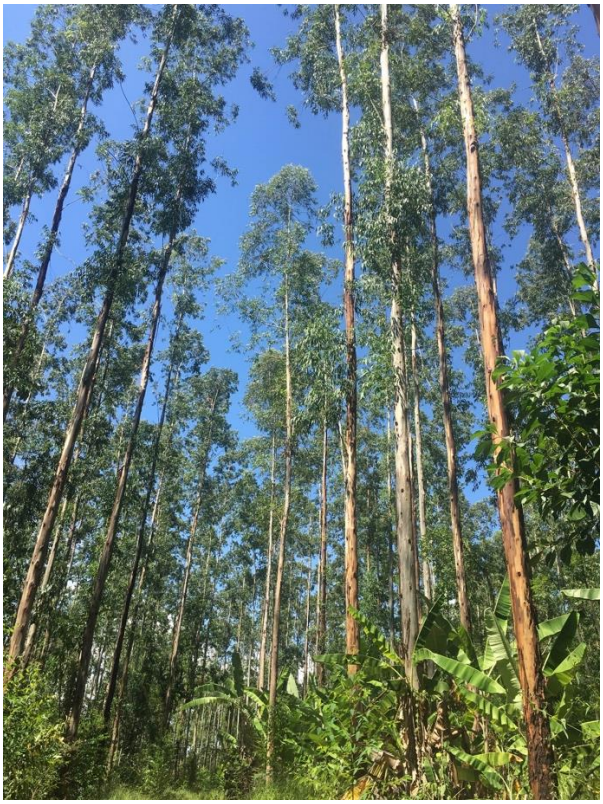


Figure 7. Forests after three thinning

1.12 Project Location

The project is located in Brazil, in the state of Paraná, and the municipalities of Tomazina, Sapopema y Arapoti (see Figure 8 and Table 4)[5].

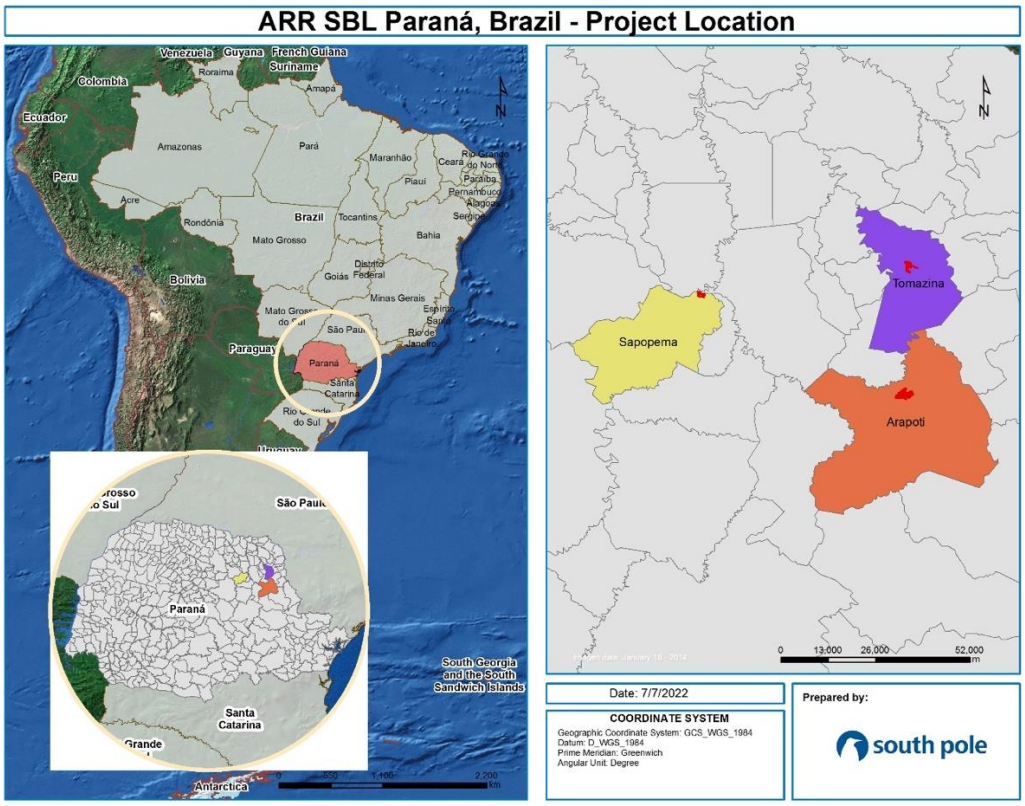


Figure 8. Project location

Table 4. Project location – geodetic coordinates

Farm (centroid)	Coord X (Long)	Coord Y (Lat)
Paraíso	-49.972299	-24.004306
Santa Bárbara	-49.958018	-23.689114
São José	-50.473402	-23.76066
Santo Antonio	-50.479079	-23.756163

Source: Geographic Coordinate System: GCS_WGS_1984
Datum: D_WGS_1984

[5] See Supporting documents/SBL_Parana_ProjectLocation.kml

1.13 Conditions Prior to Project Initiation

Describe the conditions existing prior to project initiation and demonstrate that the project has not been implemented to generate GHG emissions for the purpose of their subsequent reduction, removal or destruction.

Where the baseline scenario is the same as the conditions existing prior to the project initiation, there is no need to repeat the description of the scenarios (rather, just state that this is the case and refer the reader to Section 3.4 (Baseline Scenario).

For AFOLU projects completing a draft project description for the purpose of listing on the pipeline as under development, complete only the following section; otherwise, delete this text:

- **Ecosystem type:** *Provide a brief (1–2 sentence) description of the ecosystem type.*
- **Current and historical land-use:** *Provide a brief (2–4 sentence) description of the current and historical land use of the project area.*
- **Has the land been cleared of native ecosystems within 10 years of the project start date?**

  ☐ Yes ☐ No

  If yes, explain.

For AFOLU projects in all other cases, include the present and prior environmental conditions of the project area, including as appropriate information on the climate, hydrology, topography, relevant historic conditions, soils, vegetation and ecosystems.

The conditions existing prior to project initiation are:

Ecosystem type

According to IBGE (2004)[6], the project area is located in the Mata Atlântica biome (English: Atlantic Forest), which extends along the Atlantic coast of Brazil from Rio Grande do Norte state in the northeast, to Rio Grande do Sul state in the south, and inland as far as Paraguay and the Misiones Province of Argentina.

The Mata Atlântica is the second largest rainforest on the planet, only behind the Amazon rainforest[7], but it is among the most endangered tropical rainforests in the world, with just 28% of its original 1,713,535 square kilometers of native forest cover[8]. Despite the loss of native vegetation cover, this biome remains extraordinarily lush in biodiversity and endemic species, many of which are threatened with extinction[9]. Approximately 40% of its vascular plants and up to 60% of its vertebrates are endemic species.

The Mata Atlântica biome is divided into 15 ecoregions, and the project area is located in Araucaria moist forests ecoregion. This ecoregion has an oceanic temperate climate with frequent frosts during the winter months and considerable snowfalls (generally light) in the highest areas. Annual precipitation is high, ranging from 1,300 to 3,000 mm, without a dry season.[10]

Current and historical land use

Prior to project initiation the areas were covered by grassland for low intensive livestock management. According to the 2019 land cover classification (MapBiomas, 2019) in the municipalities of Tomazina and Sapopema, where part of the project area is located, the largest land use is concentrated in pastures at 22,684 ha and 18,539 ha respectively

Has the land been cleared of native ecosystems within 10 years of the project start date?

☐ Yes ☒ No

According to the results of the eligibility analysis based on MapBiomas information, 1,166.96 ha of the project area had non-forest cover for more than 10 years before the project start date, meeting the eligibility criteria. This area will be considered for the GHG removal estimates.

1.14 Compliance with Laws, Statutes and Other Regulatory Frameworks

The planting and management of eucalyptus forests in Brazil follows law and rules. Therefore, it must comply with the limits of the planting area of the biome in which it is inserted, and the Permanent Preservation Areas (APP). According to the Brazilian Forest Code (Federal Law 12651/12), rural

6 IGBE, 2004. Mapa de Biomas do Brasil.

7 Por, Francis Dov. 1992. Sooretama: the Atlantic rain forest of Brazil. The Hague: SPB Academic Pub.

8 Rezende, C.L.; Scarano, F.R.; Assad, E.D.; Joly, C.A.; Metzger, J.P.; Strassburg, B.B.N.; Tabarelli, M.; Fonseca, G.A.; Mittermeier, R.A. (October 2018). From hotspot to hopespot: An opportunity for the Brazilian Atlantic Forest". Perspectives in Ecology and Conservation. 16 (4): 208–214

9 de Lima, Renato A. F.; Oliveira, Alexandre A.; Pitta, Gregory R.; de Gasper, André L.; Vibrans, Alexander C.; Chave, Jérôme; ter Steege, Hans; Prado, Paulo I. (2020-12-11). "The erosion of biodiversity and biomass in the Atlantic Forest biodiversity hotspot". Nature Communications. 11 (1): 6347

10 Hoekstra, J. M.; Molnar, J. L.; Jennings, M.; Revenga, C.; Spalding, M. D.; Boucher, T. M.; Robertson, J. C.; Heibel, T. J.; Ellison, K. (2010). The Atlas of Global Conservation: Changes, Challenges, and Opportunities to Make a Difference. University of California Press. ISBN 978-0-520-26256-0.

properties located in the Atlantic Forest biome (as is the case of the SLB Group's properties), must maintain at least 20% of their surface with preserved native vegetation in Legal Reserves and Permanent Preservation Areas. The following areas are characterized as APPs:

- Along rivers or any watercourse, from the regular bed in a marginal strip, whose minimum width will be as indicated in the table below.

River width (meters)	APP width (meters)*
Less than 10	30
Between 10 and 50	50
Between 50 and 200	100
Between 200 and 600	200
Above 600	500

* minimum width, on each bank and in horizontal projection (according to CONAMA Resolution 303/02, the APP begins at the limit of the 'greater seasonal bed' or maximum flood quota during ordinary floods).

- Around ponds, lakes or natural or artificial water reservoirs
- In the springs, even if intermittent, and in the so-called 'eyes of water', whatever their topographic location, within a minimum radius of 50 meters
- In the upper third (top) of hills, mountains and mountain ranges
- On slopes or parts of slopes with a slope greater than 45 degrees
- In the sandbanks, for the fixation of dunes and stabilization of mangroves
- On the edges of tableland and plateaus, in strips of land never less than 100 meters in horizontal projection
- at an altitude above 1,800 meters.

In the SLB Group's Forest Register and on the Land Use and Occupation maps of the farms in question, it is possible to prove that the areas are naturally preserved and regenerated.

In addition, the activities comply with the regulations of the Brazilian environmental agency IBAMA (Brazilian Institute of Environment and Renewable Natural Resources), and Certificates of Good Standing and Environmental Declaratory Acts are issued regularly.

Furthermore, the activity of planting and managing eucalyptus forests must comply with the labor, tax, and administrative laws of the Brazilian and Paraná governments, in addition to complying with the principles and standards of the FSC Certification for Small Intensity Forest Management, as proven annually by the certification audit. The principles of FSC certification in question are:

1. Compliance with the laws and principles of the FSC
2. Tenure and use rights and responsibilities
3. Indigenous peoples' rights
4. Community relations and workers' rights
5. Benefits from the forest
6. Environmental impact
7. Management plan
8. Monitoring and evaluation
9. Maintenance of forests of high conservation value
10. Plantations

1.15 Participation under Other GHG Programs

1.15.1 Projects Registered (or seeking registration) under Other GHG Program(s)

The project has not been registered under other GHG programs.

1.15.2 Projects Rejected by Other GHG Programs

The project has not been rejected by other GHG programs.

1.16 Other Forms of Credit

1.16.1 Emissions Trading Programs and Other Binding Limits

Does the project reduce GHG emissions from activities that are included in an emissions trading program or any other mechanism that includes GHG allowance trading?

☐ Yes ☒ No

The project is not registered and does not intend to register under other Emissions Trading Programs.

1.16.2 Other Forms of Environmental Credit

Has the project sought or received another form of GHG-related credit, including renewable energy certificates?

☐ Yes ☒ No

The project is not registered and does not intend to register under other Forms of Environmental Credit.

1.17 Sustainable Development Contributions

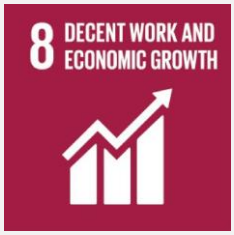
For SLB Brazil, the main objective is to show that it is possible to make positive forestry for the environment and people while ensuring economic profitability. It is therefore key to guarantee a market

for the different timber products at a fair price, create added value for all stakeholders, and demonstrate adaptation to climate change as key aspects for the sustainability of SLB projects.

This innovative model can continue to better take into account the needs of communities and workers, in particular through the creation of quality jobs (job security, health insurance, friendly working atmosphere, access to training) and income opportunities, multiplying and sensitizing its partners in social and environmental issues to truly transform the industry. This also benefits the neighboring rural population living around the farms – promoting living conditions in terms of better access to health, and education.

On the environmental aspect, it is important to continue the existing efforts on alternatives to pesticides in disease control, and lower the use of fertilizers and products phytosanitary for preserving natural resources (soil, water, biodiversity) and the development of surrounding biodiversity. The project will contribute to the national sustainable development goals listed in Table 5.

Table 5: Sustainable development project contributions

	The project provides job opportunities for women, with four female and five male full-time employees in Brazil
	The project aims to achieve full and productive employment and decent work for all women and men. Currently, SLB provides around 500 indirect jobs; 37 of them are full time jobs (plantation, thinning, pruning, etc..). In Brazil there are nine direct full-time employees; four women and five men with all benefits, thus promoting regional economic growth. Staff are granted the following additional benefits to those established in the National Labor Law, such as loans for workers, recreational activities, and financial support.
	The project is concerned with the sustainable development of its activities and its contribution to the mitigation of climate change. The project area has the potential to reduce 355,816 tCO_2e.
	SLB Promotes the implementation of sustainable management of all types of forests, with aims to halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

1.18 Additional Information Relevant to the Project

Leakage Management

Where applicable, describe the leakage management plan and implementation of leakage and risk mitigation measures.

Commercially Sensitive Information

Indicate whether any commercially sensitive information has been excluded from the public version of the project description and briefly describe the items to which such information pertains.

Note - Information related to the determination of the baseline scenario, demonstration of additionality, and estimation and monitoring of GHG emission reductions and removals (including operational and capital expenditures) cannot be considered to be commercially sensitive and must be provided in the public versions of the project documents.

Further Information

Include any additional relevant legislative, technical, economic, sectoral, social, environmental, geographic, site-specific and/or temporal information that may have a bearing on the eligibility of the project, the net GHG emission reductions or removals, or the quantification of the project's net GHG emission reductions or removals.

2 SAFEGUARDS

2.1 No Net Harm

Summarize any potential negative environmental and socio-economic impacts and the steps taken to mitigate them.

2.2 Local Stakeholder Consultation

Describe the process for, and the outcomes from, the local stakeholder consultation conducted prior to validation. Include details on the following:

- *The procedures or methods used for engaging local stakeholders (e.g., dates of announcements or meetings, periods during which input was sought).*

- *The procedures or methods used for documenting the outcomes of the local stakeholder consultation.*
- *The mechanism for on-going communication with local stakeholders.*
- *How due account of all and any input received during the consultation has been taken. Include details on any updates to the project design or justify why updates are not appropriate.*

For AFOLU projects, also demonstrate how the project has or will communicate the following:

- *The project design and implementation, including the results of monitoring.*
- *The risks, costs and benefits the project may bring to local stakeholders.*
- *All relevant laws and regulations covering workers' rights in the host country.*
- *The process of VCS Program validation and verification and the validation/verification body's site visit.*

2.3 Environmental Impact

Summarize any environmental impact assessments carried out with respect to the project, where applicable.

2.4 Public Comments

Demonstrate how due account of all and any comments received during the public comment period has been taken. Include details on any updates to the project design or demonstrate the insignificance or irrelevance of comments.

2.5 AFOLU-Specific Safeguards

For AFOLU projects, provide details on the following:

- *Local stakeholder identification process and a description of results.*
- *Risks to local stakeholders due to project implementation and how the project will mitigate such risks.*
- *Risks to local stakeholder resources due to project implementation and how the project will mitigate such risks, including the plans to ensure the project will not impact local stakeholder's property rights without the free, prior and informed consent.*
- *Processes to ensure ongoing communication and consultation with local stakeholders, including a grievance redress procedure to resolve any conflicts which may arise between the project proponent and local stakeholders.*

For AFOLU projects with no impacts on local stakeholders, provide evidence of such.

For non-AFOLU projects, this section is not required.

3 APPLICATION OF METHODOLOGY

3.1 Title and Reference of Methodology

Large-scale Consolidated Methodology: AR – ACM003 A/R Afforestation and reforestation of land except wetlands (Version 02.0).

In addition, the following tools are applied by the project:

- Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities
- Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities (Version 04.2)
- Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities (Version 01.1.0)
- VCS AFOLU Non-Permanence Risk Tool (Version 4)

3.2 Applicability of Methodology

The project meets each one of the applicability conditions of the methodology as described in the following paragraphs:

a) The land subject to the project activity does not fall into the wetland category

According to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, “Wetlands include any land that is covered or saturated by water for all or part of the year, and that does not fall into the Forest Land, Cropland, or Grassland categories”.

Considering the presence of flat zones and wetlands adjacent to the project area, a GIS analysis was performed to assure that the project is not being developed in the wetlands. A dataset of wetland classes, according to the Amazonian Annual Land Cover and Land Use Mapping (MapBiomas), was compared to the planted area (see Figure 9).

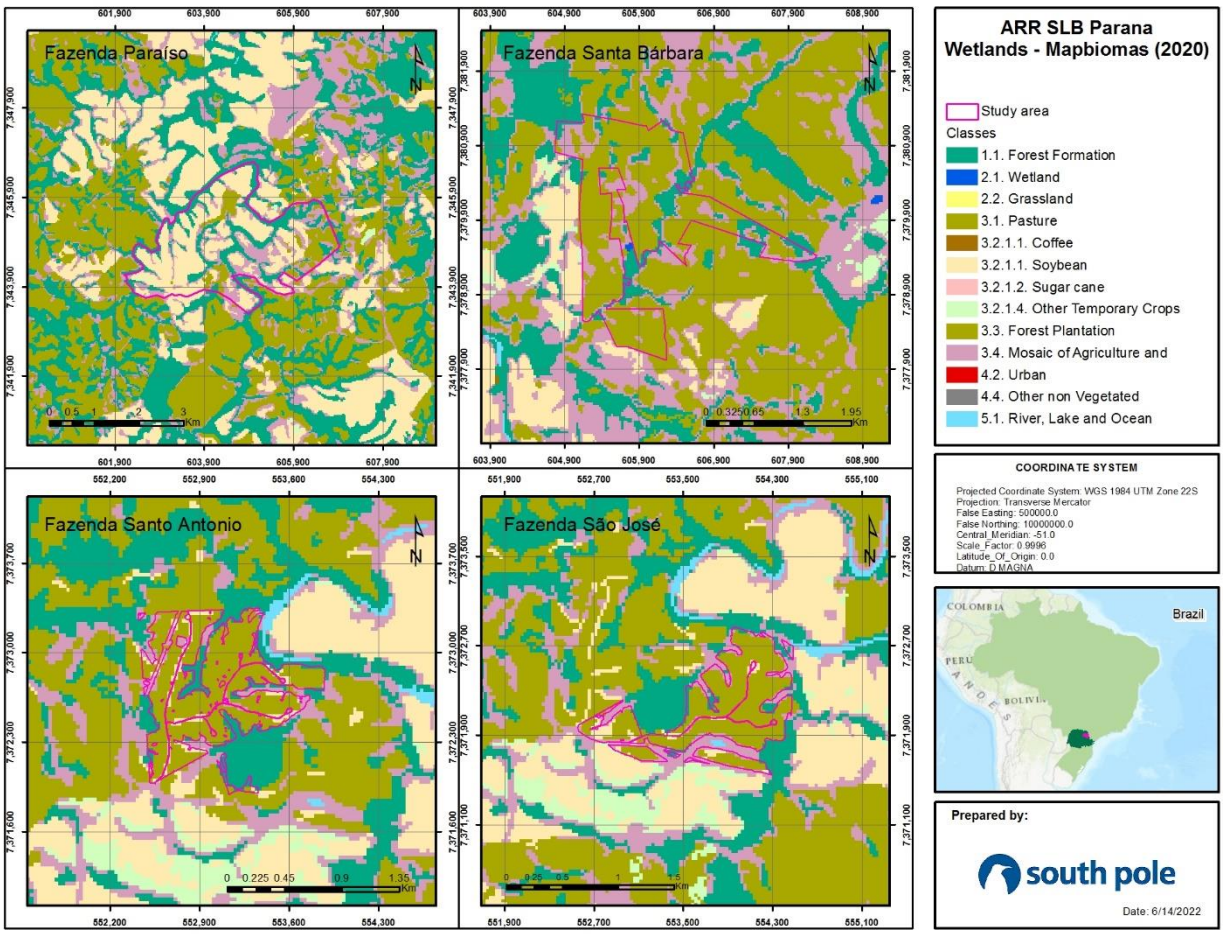


Figure 9. Wetlands identification

(b) Soil disturbance attributable to the project activity does not cover more than 10 per cent of area in each of the following types of land, when these lands are included within the project boundary

(i) Land containing organic soils

The project area does not contain organic soils. According to the soil types identified in soil grids, the soils presented in the area are ferrosols and lixisols; there is absence of histosols which would be the type of soils that would present the organic soils type (see Figure 10).

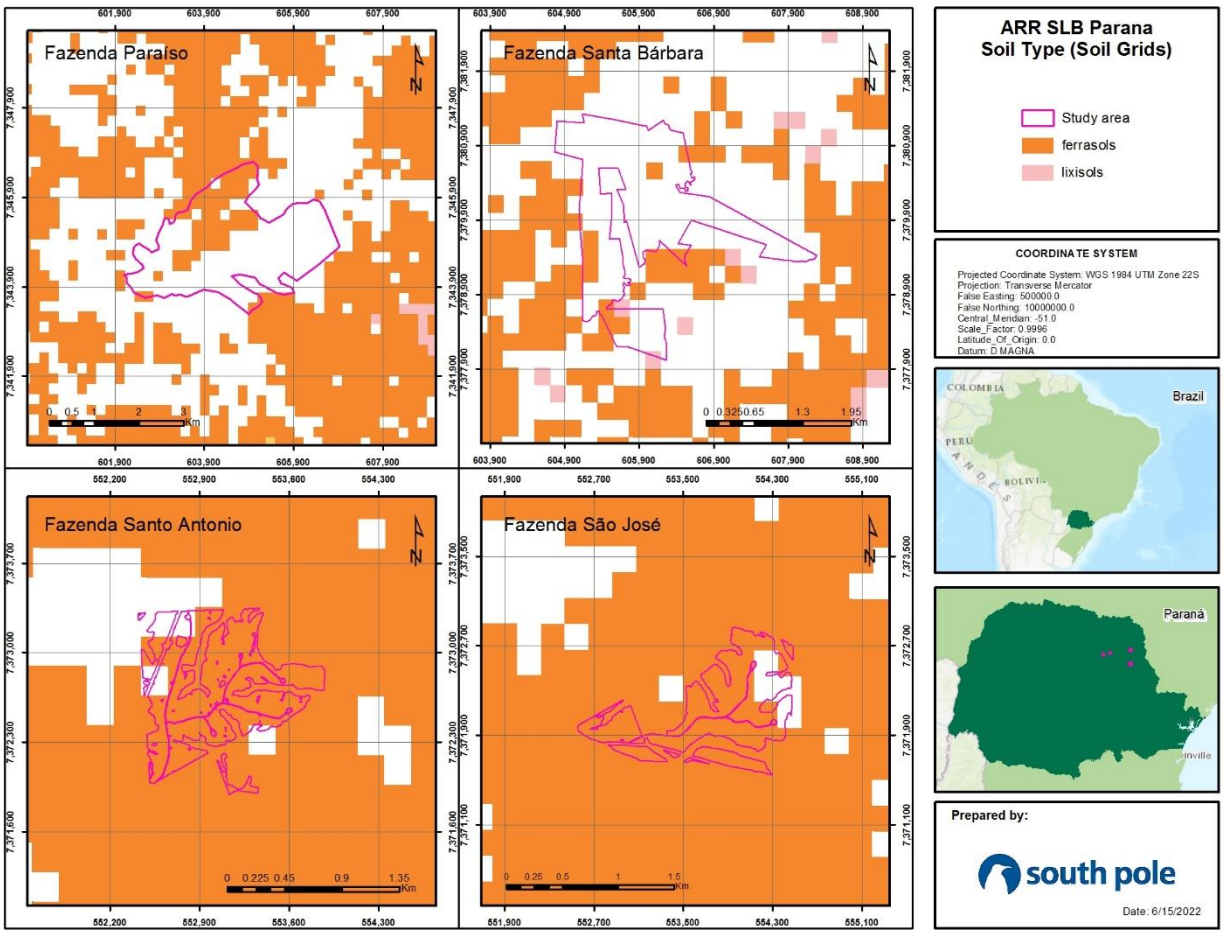


Figure 10. Soil types. ARR SLB Paraná (soil grids)

(ii) Land which, in the baseline, is subjected to land use and management practices and receives inputs listed in appendices 1 and 2 to the methodology.

The area of land on which this tool has been applied is not subject to any of the cropland or grassland management practices listed in Table 1 and 2 of the appendices of the methodology. The baseline before the project start date was grasslands for livestock without any inputs.

3.3 Project Boundary

Define the project boundary and identify the relevant GHG sources, sinks and reservoirs for the project and baseline scenarios (including leakage if applicable).

Source		Gas	Included?	Justification/Explanation
Baseline	Source 1	CO_2		
		CH_4		
		N_2O		
		Other		
	Source 2	CO_2		
		CH_4		
		N_2O		
		Other		
Project	Source 1	CO_2		
		CH_4		
		N_2O		
		Other		
	Source 2	CO_2		
		CH_4		
		N_2O		
		Other		

In addition to the table, provide a diagram or map of the project boundary, showing clearly the physical locations of the various installations or management activities taking place as part of the project activity based on the description provided in Section 1.11 (Description of the Project Activity) above.

For non-AFOLU projects, include in the diagram the equipment, systems and flows of mass and energy. Include the GHG emission sources identified in the project boundary.

For AFOLU projects, include in the diagram or map the locations of where the various measures are taking place, any reference areas and leakage belts.

3.4 Baseline Scenario

Identify and justify the baseline scenario, in accordance with the procedure set out in the applied methodology and any relevant tools. Where the procedure in the applied methodology involves several steps, describe how each step is applied and clearly document the outcome of each step.

Explain and justify key assumptions, rationale and methodological choices. Provide all relevant references.

3.5 Additionality

Demonstrate and assess the additionality of the project, in accordance with the applied methodology and any relevant tools, taking into account of the following:

- *Where a project method is applied to demonstrate additionality and the procedure in the applied methodology or tool involves several steps, describe how each step is applied and clearly document the outcome of each step. Indicate clearly the method selected to demonstrate additionality (e.g., investment analysis or barrier analysis in the case of the CDM Tool for the demonstration and assessment of additionality). Where barrier analysis, or equivalent, is used to demonstrate additionality, only include the most relevant barriers. Justify the credibility of the barriers with key facts and/or assumptions and the rationale. Provide all relevant references.*
- *Where a performance method is applied to demonstrate additionality, demonstrate that performance can be achieved to a level at least equivalent to the performance benchmark metric.*
- *Where the methodology applies an activity method for the demonstration of additionality, use this section to demonstrate regulatory surplus (only) and include a statement that notes that conformance with the positive list is demonstrated in the Applicability of Methodology section above.*

Provide sufficient information (including all relevant data and parameters, with sources) so that a reader can reproduce the additionality analysis and obtain the same results.

3.6 Methodology Deviations

Describe and justify any methodology deviations. Include evidence to demonstrate the following:

- *The deviation will not negatively impact the conservativeness of the quantification of GHG emission reductions or removals.*
- *The deviation relates only to the criteria and procedures for monitoring or measurement, and does not relate to any other part of the methodology.*

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

Describe the procedure for quantification of baseline emissions and/or removals in accordance with the applied methodology. Include all relevant equations, and explain and justify all relevant methodological choices (e.g., with respect to selection of emission factors and default values).

4.2 Project Emissions

Describe the procedure for quantification of project emissions and/or removals in accordance with the applied methodology. Include all relevant equations, and explain and justify all relevant methodological choices (e.g., with respect to selection of emission factors and default values).

4.3 Leakage

Describe the procedure for quantification of leakage emissions in accordance with the applied methodology. Include all relevant equations, and explain and justify all relevant methodological choices (e.g., with respect to selection of emission factors and default values).

4.4 Net GHG Emission Reductions and Removals

Describe the procedure for quantification of net GHG emission reductions and removals. Include all relevant equations. For AFOLU projects, include equations for the quantification of net change in carbon stocks.

Provide the ex-ante calculation (estimate) of baseline emissions/removals, project emissions/removals, leakage emissions and net GHG emission reductions and removals in the table below.

For data and parameters monitored, use estimates. Document how each equation is applied, in a manner that enables the reader to reproduce the calculation. Provide example calculations for all key equations, to allow the reader to reproduce the calculation of estimated net GHG emission reductions or removals.

Year	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated net GHG emission reductions or removals (tCO_2e)
Year A				
Year B				
Year C				
Year...				

Total				

5 MONITORING

5.1 Data and Parameters Available at Validation

Complete the table below for all data and parameters that are determined or available at validation, and remain fixed throughout the project crediting period (copy the table as necessary for each data/parameter). Data and parameters monitored during the operation of the project are included in Section 5.2 (Data and Parameters Monitored) below.

Data / Parameter	
Data unit	*Indicate the unit of measure*
Description	*Provide a brief description of the data/parameter*
Source of data	*Indicate the source(s) of data*
Value applied	*Provide the value applied*
Justification of choice of data or description of measurement methods and procedures applied	*Justify the choice of data source, providing references where applicable. Where values are based on measurement, include a description of the measurement methods and procedures applied (e.g., what standards or protocols have been followed), indicate the responsible person/entity that undertook the measurement, the date of the measurement and the measurement results. More detailed information may be provided in an appendix.*
Purpose of Data	*Indicate one of the following:* • *Determination of baseline scenario (AFOLU projects only)* • *Calculation of baseline emissions* • *Calculation of project emissions* • *Calculation of leakage*
Comments	*Provide any additional comments*

5.2 Data and Parameters Monitored

Complete the table below for all data and parameters that will be monitored during the project crediting period (copy the table as necessary for each data/parameter). Data and parameters determined or available at validation are included in Section 5.1 (Data and Parameters Available at Validation) above.

Data / Parameter	
Data unit	*Indicate the unit of measure*
Description	*Provide a brief description of the data/parameter*
Source of data	*Indicate the source(s) of data*
Description of measurement methods and procedures to be applied	*Specify the measurement methods and procedures, any standards or protocols to be followed, and the person/entity responsible for the measurement. Include any relevant information regarding the accuracy of the measurements (e.g., accuracy associated with meter equipment or laboratory tests).*
Frequency of monitoring/recording	*Specify measurement and recording frequency*
Value applied	*Provide an estimated value for the data/parameter*
Monitoring equipment	*Identify equipment used to monitor the data/parameter including type, accuracy class, and serial number of equipment, as appropriate.*
QA/QC procedures to be applied	*Describe the quality assurance and quality control (QA/QC) procedures to be applied, including the calibration procedures where applicable.*
Purpose of data	*Indicate one of the following:* • *Calculation of baseline emissions* • *Calculation of project emissions* • *Calculation of leakage*
Calculation method	*Where relevant, provide the calculation method, including any equations, used to establish the data/parameter.*
Comments	*Provide any additional comments*

5.3 Monitoring Plan

Describe the process and schedule for obtaining, recording, compiling and analyzing the monitored data and parameters set out in Section 5.2 (Data and Parameters Monitored) above. Include details on the following:

- *The methods for measuring, recording, storing, aggregating, collating and reporting data and parameters. Where relevant, include the procedures for calibrating monitoring equipment.*
- *The organizational structure, responsibilities and competencies of the personnel that will be carrying out monitoring activities.*

- *The policies for oversight and accountability of monitoring activities.*
- *The procedures for internal auditing and QA/QC.*
- *The procedures for handling non-conformances with the validated monitoring plan.*
- *Any sampling approaches used, including target precision levels, sample sizes, sample site locations, stratification, frequency of measurement and QA/QC procedures.*

Where appropriate, include line diagrams to display the GHG data collection and management system.

APPENDIX

Use appendices for supporting information. Delete this appendix (title and instructions) where no appendix is required.