CCB & VCS MONITORING REPORT
SECOND MONITORING NORTEAK GROUP

Project title	Reforestation Grouped Project Norteak Nicaragua
Project ID	2647
Crediting period	29-March-2022 to 30-April-2025
Monitoring period	29-March-2022 to 30-April-2025
(CCB) GHG accounting period	29-March-2022 to 30-April-2025 3 years and 1 month
Original date of issue	17-Nov-2025
Most recent date of issue	17-Nov-2025
Version	Version 1
VCS Standard version	4.7
CCB Standards version	3.0
Project location	Nicaragua, Departments of Boaco, Matagalpa and Chinandega
Project proponent(s)	Norteak Nicaragua SA Contact: Ove Faurby, faurby@norteak.no , phone +505 896611169
Validation/verification body	ICONTEC Orlando Mario Ramírez, oramirez@icontec.org +57 300 492 5871
History of CCB Status	Validation: 20-12-2024 1st Verification: 20-12-2024 (period 2016-2022)
Gold Level criteria	Climate: The implementation of the project has created and will create positive net climate change impacts. The sequestration of carbon in living biomass and the avoided deforestation of natural covers, act as CO2 sinks and contributes to the reduction of greenhouse gas (GHG) Emissions
Prepared by	*Ove Faurby, Norteak Nicaragua SA*

CONTENTS

Update the page numbers of the table of contents below upon completion of the project description.

Content

1 SUMMARY OF PROJECT BENEFITS

1.1 Unique Project Benefits

Table 1: Unique Project Benefits

Outcome or Impact	Achievements during the Monitoring Period	Section Reference	Achievements during the Project Lifetime
1) Restoring extinct ecosystem to improve biodiversity	Establish 17 hectares of ecosystem almost extinct in the region, connecting to existing rainforest.		Document and reproduce the model
2) Economically feasible plantations with native tree species.	Test plantation combining teak with a native species. Plant more native species in observation areas		Identify viable systems and implement at scale
3) Promote community members to leading positions.	All forestry field operations are directed by people from the area.		Keep a mix of local and external, but with locals involved in technical designs and decisions.
4) Add value to the wood locally / in the country	MSSA furniture factory established in the US market with wood houses, increasing demand for wood. Norteak got a sawmill work efficiently in the community		Wood working becomes an important area of employment in the villages

1.2 Standardized Benefit Metrics

Table 2: Standardized benefit metrics

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
GHG emission reductions & removals	*Net estimated emission removals in the project area, measured against the without-project scenario*	*63979*	*3.2.4*	*98589*
	Net estimated emission reductions in the project area, measured against the without-project scenario	*63979*	*3.2.4*	*98589*
Forest[1] cover	*For REDD[2] projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario*	*N/A*		*N/A*
	For ARR[3] projects: Number of hectares of forest cover increased in the project area measured against the without-project scenario	*27.2*	*2.1*	*699.8*
Improved land management	*Number of hectares of existing production forest land in which IFM[4] practices have occurred as a result of the project's activities, measured against the without-project scenario*	*N/A*		*N/A*
	Number of hectares of non-forest land in which improved land management has occurred as a result of the project's activities, measured against the without-project scenario	*N/A*		*N/A*
	Total number of community members who have improved skills and/or knowledge	265	*4.1.3*	621

[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*)

[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*)

Training	*resulting from training provided as part of project activities*			
	Number of female community members who have improved skills and/or knowledge resulting from training provided as part of project activities of project activities	26	*4.1.3*	*51*
Employment	*Total number of people employed in of project activities,[5] expressed as number of full-time employees[6]*	132	*4.1.3*	132
	Number of women employed in project activities, expressed as number of full-time employees	18	*4.1.3*	18
Livelihoods	*Total number of people with improved livelihoods[7] or income generated as a result of project activities*	528	*4.1.3*	528
	Number of women with improved livelihoods or income generated as a result of project activities	189	*4.1.3*	189
Health	*Total number of people for whom health services were improved as a result of project activities, measured against the without-project scenario*	136	*4.1.3*	136
	Number of women for whom health services were improved as a result of project activities, measured against the without-project scenario	19	*4.1.3*	*19*
Education	*Total number of people for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario*	20	*4.1.3*	*20*
	Number of women and girls for whom access to, or quality of, education was improved as a	10	*4.1.3*	*10*

[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 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.

	result of project activities, measured against the without-project scenario			
Water	*Total number of people who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario*	430	*4.1.3*	430
	Number of women who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	165	*4.1.3*	165
Well-being	*Total number of community members whose well-being[8] was improved as a result of project activities*	1286	*4.1.3*	*1584*
	Number of women whose well-being was improved as a result of project activities	497	*4.1.3*	*522*
Biodiversity conservation	*Change in the number of hectares significantly better managed by the project for biodiversity conservation,[9] measured against the without-project scenario*	50	5.1.1 and 5.1.2	50
	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	1 (Spider Monkey)	5.1.1	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, Health, Education, Water, etc.), but could also include other benefits such as empowerment of community groups, strengthened legal rights to resources, conservation of access to areas of cultural significance, etc.

[9] 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.

[10] Per IUCN's Red List of Threatened Species

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

2 PROJECT DETAILS

2.1 Summary Description of the Implementation Status of the Project

2.1.1 Summary Description of the Project (VCS, 2.1, 3.6; CCB, G1.2)

The Reforestation Grouped Project Norteak Nicaragua, implemented by Norteak Nicaragua S.A. together with Ekoteak S.A. and Maderas Sostenibles S.A. (MSSA), has been carried out in line with the original Project Description. The monitoring period covers 29 March 2022 to 30 April 2025.

The project involves afforestation and reforestation of degraded grasslands in Nicaragua using teak (*Tectona grandis*) and native species such as coyote (*Platymiscium dimorphandrum*) and genízaro (*Samanea saman*). Plantations have been established across 8 farms within the departments of Boaco, Matagalpa, and Chinandega, all in Nicaragua.

During the monitoring period almost 200 hectares were planted, but most of this was replacement of older, low productive plantations, others in small areas or with low productive species, wherefor the total new project area is only 26.9 hectares.

The new areas included 16 hectares of marginalized native species, much of this in potentially eligible areas. This areas are not included in the project as those are small areas with rather complex composition, wherefor the uncertainty of the calculations will be rather high compared to the total amount. However, the plantations will form part of the project as a biodiversity contribution.

Table 3: Plantations in the Project area – hectares

Year planted	Teak	Native species	Project
2016	212.1	10.8	222.9
2017	121.0	16.5	137.5
2018	145.1	0.0	145.1
2019	80.0	0.0	80.0
2020	47.3	3.0	50.3
2021	36.9	0.0	36.9
2022	3.5	0.0	3.5
2023	23.7	0.0	23.7
2024	0.0	0.0	0.0
To date	669.6	30.2	699.8

For VCU-calculation purposes the project area is subdivided in Management Units according to year of plantation, company and species.

Table 4: : Area in hectares by Management Unit

Management Unit Caracteristics			Company			
MU-number	Year Planted	Tree speciez	Ekoteak	Limonapa	Norteak	Total general
1.1	2016	Teca			104.8	104.8
1.2	2016	Teca	17.6			17.6
1.3	2016	Teca		89.8		89.8
1.4	2016	Coyote			10.8	10.8
2.1	2017	Teca			96.7	96.7
2.2	2017	Teca		24.4		24.4
2.3	2017	Coyote			16.5	16.5
3.1	2018	Teca			145.1	145.1
4.1	2019	Teca			80.0	80.0
5.1	2020	Teca			47.3	47.3
5.2	2020	Genízaro			3.0	3.0
6.1	2021	Teca			36.9	36.9
7.1	2022	Teca			3.5	3.5
8.1	2023	Teca			23.7	23.7
Total general			17.6	114.1	568.1	699.8

Silvicultural measures included 2–3 annual weed control applications during the first 2 years (mechanical combined with chemical if necessary), continuous plant health and pest monitoring, formative pruning in years 3–4. In the Ekoteak case annual fire mitigation and monitoring is in place. No fire events occurred in Norteak or MSSA farms.

Table 5: Carbon removals and VCU-calculation

Vintage Year	Total removal (t)	Buffer (t)	Projected VCUs
before 22	34611	5192	29419
2022	16645	2164	14481
2023	24339	3164	21175
2024	22995	2989	20005
Total Monitoring Period	63979	8317	55661
Total project to date	**98589**	**13509**	**85080**

The implementation during this monitoring period is consistent with the planned activities, and the project continues under its 30-year crediting period ending 17 June 2046.

The impact in the Community continues to be strong through employment, keeping 140 jobs in a period of low activity in the plantation cycle. Additionally, the project has reached 1146 people with considerable improvement of living conditions, such as access roads and water supply. The project partners have also created about 350 jobs in a wood working factory, of which about 200 jobs depend directly on timber from the plantations. Impact on the communities is expected to increase when plantations get mature, and there will be conditions for creating jobs in wood processing close to the farms.

Biodiversity is supported by the combination of a bio-friendly management of 2400 hectares of plantations and 1045 hectares of naturally grown protected forest within the partners farms, among other 140 hectares of established rainforest. Species and forest types that have been marginalized are intended to be restored, and overall state of natural values is monitored annually, paying special attention to endangered animal species.

2.1.2 Audit History (VCS, 4.1)

Table 6:

Audit Type	Period	Program	VVB Name	Number of years
Validation/ Verification	17-June-2016- 28-March- 2022	VCS-CCB	AENOR	Five years
Verification	29-March- 2022 - 30-April-2025	VCS-CCB	ICONTEC	Three years

2.1.3 Sectoral Scope and Project Type (VCS, 3.2)

Table 7:

Sectoral Scope	14: Agriculture, forestry, and other land use
AFOLU Project Category	ARR (Reforestation)
Project Activity Type	Planting trees

2.1.4 Project Proponent (VCS, 3.7; CCB, G1.1)

Table 8:

Organization name	Norteak Nicaragua S.A.
Contact person	Ove Faurby

Title	General Manager
Address	Paseo de Las Colinas, Casa #1, Las Colinas, Managua, Nicaragua
Telephone	+505 87017693 – Tel. 22766338
Email	faurby@norteak.no

2.1.5 Other Entities Involved in the Project

Table 9:

Organization name	Ekoteak S.A..
Role in the project	Instance - Plantation owner
Contact person	Per Hansson
Title	General Manager
Address	El Viejo Comunidad Elena Maria, Finca La Fe. Chinandega, Nicaragua
Telephone	+(505) 8272 7303
Email	per@ekoteak.com

Organization name	Maderas Sostenibles S.A.
Role in the project	Instance - Plantation owner
Contact person	Aram Terry
Title	General Manager
Address	KM 13.5 Carretera Nueva a Leon Plantel Deconcreto, Ciudad Sandino Managua, Nicaragua
Telephone	+(505) 2220-7973
Email	aram@masayacompany.com

Organization name	Norskog
Role in the project	Formulation support

Contact person	Simen Haugom Nordengen
Title	Forestry assistant
Address	Lilleakerveien 31, oppgang B, 0283 Oslo, Norway
Telephone	
Email	simennordengen00@gmail.com

Organization name	Ecosilv S.A
Role in the project	Quality control
Contact person	Jens Bergenheim
Title	Manager
Address	PH Emilion, Street 69, 0801, San Francisco, Ciudad de Panamá,
Telephone	+507 6827-6752
Email	jens@ecosilv.com

2.1.6 Project Start Date (VCS, 3.8)

Table 10:

Project start date	17-June-2016
Justification	The project was formulated 5 years after start date, to take advantage of the biggest possible volume from the first years of growth, which is generally modest. The VCS rules allows this timeframe from project start to starting validation.

2.1.7 Benefits Assessment and Project Crediting Period (VCS, 3.9; CCB, G1.9)

Table 11:

Crediting Period	30 years. The project's crediting period is 30 years and 0 months from starting. This conforms to the VCS Program requirements for ARR (Afforestation, Reforestation, Revegetation) projects, which allow a maximum crediting period of 30 years for such activities

Start Date of First or Fixed Crediting Period	17 June 2016 and ending 17 June 2046.
Total Number of Years of Crediting Period	30 years
CCB Benefits Assessment Period	30 years

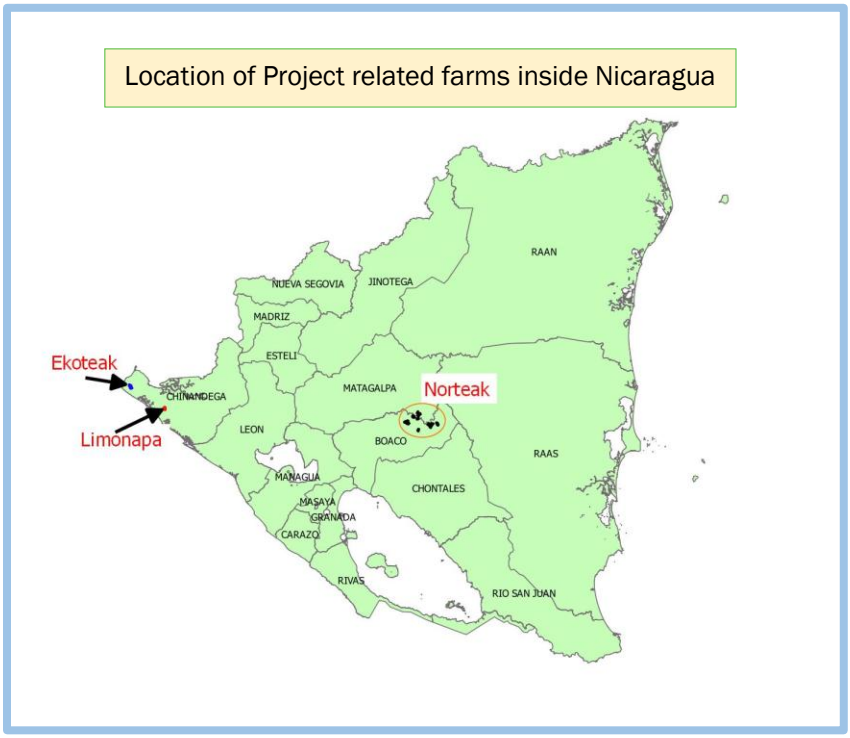
2.1.8 Project Location (VCS, 3.11; CCB, G1.3)

All project areas are concentrated in two places in Nicaragua: Northwest (Chinandega Department) and Center (Boaco and Matagalpa Departments)

Table 12: Farms with Project area

Company	Farm	Municipality	Latitude	Longitude
Ekoteak	Apascalí	El Viejo	12° 55' 58" N	87° 37' 48" W
MSSA	Limonapa		12° 45' 31" N	87° 20' 35" W
Norteak	Tanzania	Boaco	12° 38' 24" N	85° 22' 57" W
	Camboya		12° 40' 48" N	85° 19' 34" W
	Malasia	Matiguás	12° 39' 53 " N	85° 17' 21" W
	Birmania		12° 42' 44" N	85° 17' 16" W
	Laos		12° 41' 57" N	85° 16' 17" W
	San Antonio	Camoapa	12° 35′ 41″N	85° 11′ 10" W
	Ecuador		12° 34' 26" N	85° 17' 12" W

XX KML file has been provided



2.1.9 Title and Reference of Methodology (VCS, 3.1)

Provide the title, reference, and version number of the following information for the methodology(ies), tools, and modules applied to the project (where applicable).

Type (methodology, tool, module)	Reference ID (if applicable)	Title	Version
AR-ACM0003		Afforestation and reforestation of lands except wetlands	2.0
AFOLU Non-Permanence Risk Tool	...	AFOLU Non-Permanence Risk Tool (web version)	4.2

2.1.10 Double Counting and Participation under Other GHG Programs (VCS, 3.23; CCB, G5.9)

2.1.10.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program, or any other form of community, social, or biodiversity unit or credit?

☐ Yes ☒ No

2.1.10.2 Registration in Other GHG Programs

Is the project registered or seeking registration under any other GHG programs?

☐ Yes ☒ No

2.1.10.3 Projects Rejected by Other GHG Programs

Has the project been rejected by any other GHG programs?

☐ Yes ☒ No

2.1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions (VCS, 3.24)

2.1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the VCS Program Definitions for definitions of emissions trading program and binding emission limit.

☐ Yes ☒ No.

2.1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the VCS Program Definitions for definition of GHG-related environmental credit system.

☐ Yes ☒ No

2.1.11.3 Supply Chain (Scope 3) Emissions

Do the project activities affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

☐ Yes ☒ No

2.1.12 Sustainable Development Contributions (VCS, 3.17)

1. Summary description of project activities implemented during the monitoring period that result in SD contributions

Developing the forestry practices continued, improving models for using native species, restablish 17 ha of native rainforest and converting 100 ha of low productivity teak plantations to high productive clone plantations increasing carbon sequestration.

There has been further development of the training programs, giving workers access to be “skilled forestry workers” and an ongoing effort to achieve that the staff of the smaller instances can be part of this progress.

Locally adapted technology for timber extraction and wood processing are being increased to make feasible the maximum involvement of local labor and value adding within the neighborhood/the country.

2. Explanation of how project activities result in the SD contributions described in Table 1 of this report

Employment and fair wages directly address poverty reduction (SDG 1) and decent work (SDG 8). Compliance with FSC standards and sustainable silviculture practices support responsible consumption and production (SDG 12). Reforestation and maintenance activities increase carbon sequestration, contributing to climate action (SDG 13). Managing conservation areas and protecting endangered species improve habitat quality and ecological connectivity, addressing life on land (SDG 15). These results were achieved through coordinated management, continuous monitoring, and adherence to environmental and labour standards, ensuring both social and environmental co-benefits.

---

3. Identification of which SD contributions described in Table 1 of this report contribute to achieving any nationally stated sustainable development priorities, including any provisions for monitoring and reporting these

The SD contributions align with Nicaragua's National Human Development Plan (PNDH) 2022–2026 priorities, which emphasizes poverty reduction, sustainable resource use, job creation, and climate resilience. Job creation and skills development (SDG 1, 8) address employment and income generation goals. Sustainable forestry practices (SDG 12, 15) support conservation and biodiversity targets. Climate mitigation through carbon sequestration (SDG 13) aligns with national commitments to combat climate change. Monitoring provisions include annual payroll reviews, FSC audits, forest inventories, and biodiversity assessments, ensuring transparent reporting of progress toward both SDG and national development objectives.

Table 13: (Table 1): Sustainable Development Contributions

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
1)	1.1	1.1.1 Proportion of population below the international poverty line	Project activities will reduce poverty	Strengthen local economy and physical infrastructure. 140 permanent jobs with increasing salaries over time	Increase number of qualified jobs ensuring incomes clearly above the poverty line. Keep most of wood processing in the communities and other parts of Nicaragua.
2)	8.5	8.5.1 Average hourly earnings of employees	Project focus on increment incomes	Paid daily wages in communities USD 13.3/day (215% of minimum wage for rural workers). Can keep a family of 4 at the poverty line for Nicaragua of (USD 3.65/day) = typical household in the communities.	Fully implement model for skilled forestry workers and incentives for results in production shall allow further increase.
3)	12.0	Number of companies adopting sustainable practices	Implemented activities to increase	80% of farms under project management counts with FSC certification for sustainable forest management. Rest in process for certification	Achieve FSC certification for 100% of project farms during 2026
4)	13.0	Tonnes of greenhouse gas emissions removed	Implemented activities to increase	Removed 98,589 tCO_2e in Project area plus not quantified removal in surrounding forest and plantations due to increasing density of stock	Remove 162,000 tCO_2e over the full project lifetime, and develop forest models for longer rotation forestry including native hardwood species.

5)	15.1	Area managed for biodiversity	Increase area through protection and reforestation	1045 hectares designated for conservation and biodiversity. 50 ha managed to increase biodiversity.	Improve effect of 1045 ha protected areas, through integration with 2500 hectares of managed forest.
6)	15.5	Number of endangered species benefiting from reduced threats	Implemented activities to increase	Protected 5 IUCN-listed species: Spider monkey (*Ateles geoffroyi*), Chachalaca (*Penelopina nigra*), American crocodile (*Crocodylus acutus*), White-lipped peccary (*Tayassu pecari*) and Howler monkey (*Alouatta palliata)*	Continue threat reduction for animal species throughout the project lifetime with special attention to unauthorized hunting. Achieve return or reinsertion of other mamals like Baird tapir (*Tapirus bairdii) and bigger parrots.*

2.2 Project Implementation Status

2.2.1 Implementation Schedule (VCS, 3.2; CCB, G1.9)

During the monitoring period (29 March 2022 to 30 April 2025), the project continued full operation of its afforestation and reforestation activities across the 9 participating farms in Boaco, Matagalpa, and Chinandega. The direct project area was slightly increased with new eligible plantations on degraded pastureland as well as intensification of carbon sequestration in other areas, among others a biodiversity plantation.

All silvicultural activities, (mechanical weed control, pest monitoring, formative pruning, and fire prevention) were implemented according to the validated management plan and FSC standards.

No significant events occurred that negatively impacted GHG removals or monitoring. There were no reversals meeting the definition of a loss event under the VCS Standard. Minor fire incidents in Ekoteak farms were promptly contained with no measurable carbon stock loss. No other disturbances (e.g., pests, diseases, storms) caused material impacts to carbon stocks.

Previously implemented project activities remained fully in place, including biodiversity management on 1045 hectares designated as conservation areas, annual training for workers, and ongoing monitoring of forest growth and carbon stocks.

No changes occurred in the project proponent entities or in the roles of participating organizations. All monitoring activities followed the approved methodology, and data collection protocols were adhered to throughout the period.

2.2.2 Baseline Reassessment (VCS, 3.2.6, 3.2.7)

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes ☒ No

2.2.3 Methodology Deviations (VCS, 3.20)

As part of the second Monitoring central assumptions for tree-volume calculation and carbon estimates were revised. Only in one case was a need for change identified:

Height-diameter relation: The inventory method relies on the measuring of a big number of Diameters, as this variable is the most important in the equations and easy to measure. Height is estimated from the diameter based on a formula taking from exact measuring at a smaller number of trees. As the Height-Diameter relation used in the first monitoring did not match with our current field data, a new formula was defined and implemented.

The new height formula gives a minor increase in the carbon stock at the end of the first monitoring period. To avoid adding credits to former verification periods, all calculations in the second monitoring period are done based on the new formula.

Eligibility for new plantations, which were not included during validation are done using the methodology closest to the original, but as we had not access to the original images, it is not to say, if we match completely. Find description in the enclosed document: "Norteak eligibility New areas 2022-25, OF 221025.docx"

2.2.4 Minor Changes to Project Description (CCB Program Rules, 3.5.6)

The project has been implemented according to the Project Description.

A small area of new plantations has been added to the project area.

2.2.5 Project Description Deviations (VCS, 3.21; CCB Program Rules, 3.5.7 – 3.5.10)

There have been no deviations

2.2.6 Grouped Projects (VCS, 3.6; CCB, G1.13-G1.15, G4.1)

There are no new Activity Instances since the Verification process.

2.2.6.1 New Project Areas and Communities (VCS, 3.6; CCB, G1.13)

The project area included 27.2 hectares of new plantations, all inside farms already belonging to the companies, which carbon potential had not been duly identified at moment of validation.

This small addition will not change relations to stakeholders or include new communities.

2.2.6.2 Removed Project Areas and Communities (CCB, G1.13)

No areas have been removed from the project.

2.2.6.3 Eligibility Criteria for Grouped Projects (VCS, 3.6.14; CCB, G1.14)

The small, new project areas are located within farms that already belonged to the companies and was reported as project influence area in the Validation process.

2.2.6.4 Risk Mitigation for Grouped Projects (VCS, 3.6; CCB, G1.15)

The small additions within areas with existing plantations will not increment risk.

2.2.6.5 Project Zone Map (CCB, G1.13)

There is no change in the Project Zone, just that the San Antonio farm is being reported as having Project Area. The map below is taken from the Project Document, just adding the circle to identify the "new farm".

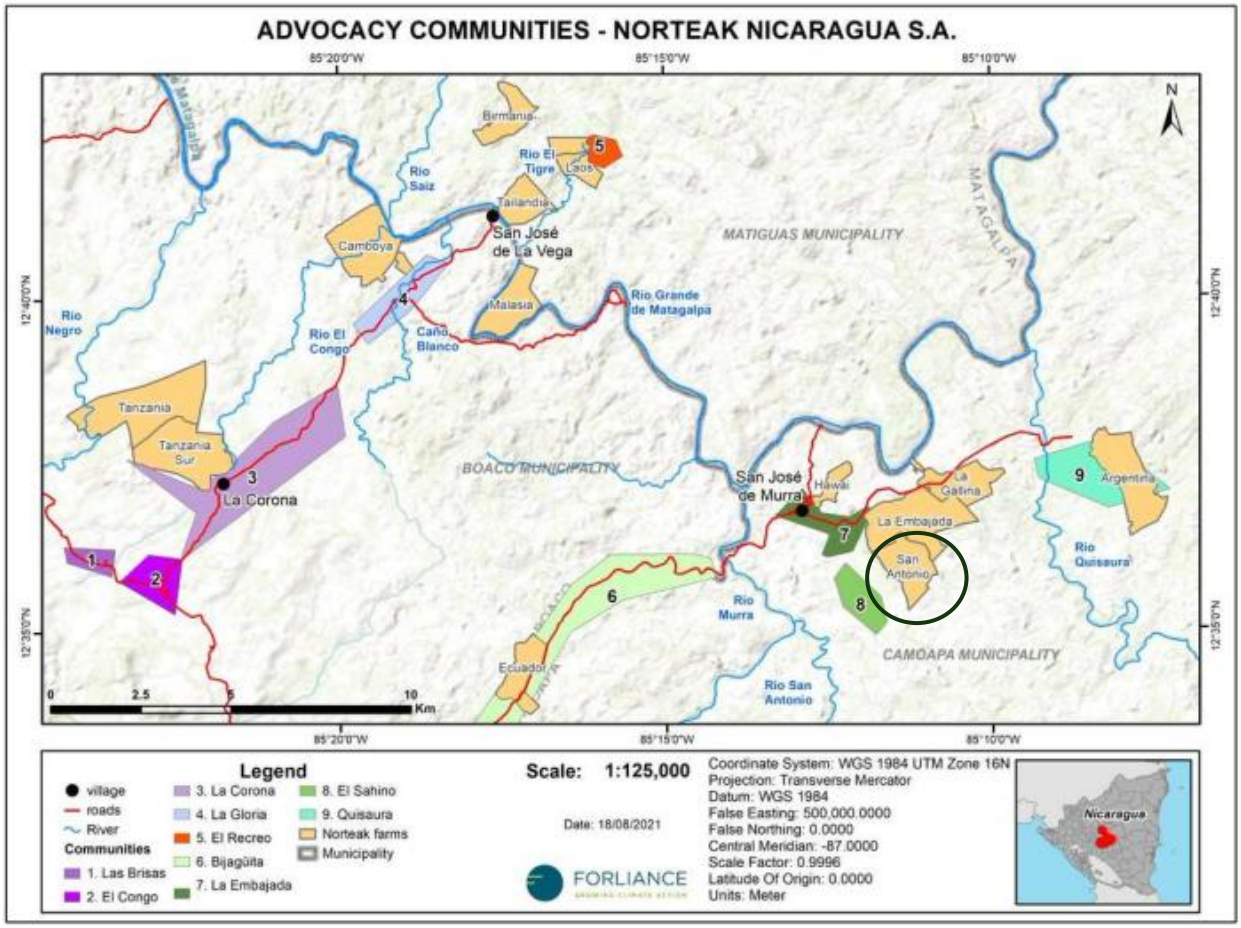


Figure 8. Surrounding communities Norteak Nicaragua S.A.

2.2.6.6 Changes to Management (CCB, G4.1)

No changes in management of the project activities.

There has been a change in the project-formulation unit, as Forliance is no longer involved, and the main responsibility is assumed by Norteak and its partners.

2.2.7 Risks to the Project (CCB, G1.10)

Table 14: Risk identified to require further analysis

Identified Risk	Potential impact of risk on climate, community and/or biodiversity benefits	Actions needed and designed to mitigate the risk
Hurricanes	Wind-felling of the trees may alter the the carbon stock-models, and	Adequate thinning schemes to earlier stem reduction and lower number of

	temporary reduce the standing wood mass.	interventions – as the wind tend to affect areas with recent logging. Assure replacing fallen trees with high yielding material that soon will restore standing biomass.
Governance	According to the World bank, Nicaragua has a low governance score (-1.02), which indicates a complicated business environment.	The companies ensure not be part of any political activity and to keep good relations to all institutions and other relevant actors. Have clear social benefits which make us valuable for the society,

Note on Teak Dieback disease: Generally, well established teak do not suffer significant damage from pests. There are reports from teak plantation with decay and eventually die completely after about 10 years. The direct cause of the decay is related to fungus attack in the roots, but the fundamental issue is that those plantations were planted in inadequate soils. The determinant factors are: Poor drainage, acid soil and lack of a marked dry season. The plantations in the Norteak group are not located, where those factors are present. The disease may be observed sporadically in our plantations, but the incidencie is so low that, it is not present in the standard list for items to observe in the periodic monitoring.

There are waterlogged sites in the farms, where the teak shows poor performance. Even in these spots the dieback is more than rare.

Pests, like root eating worms and leaf cutting ants may effect small trees, but the attacks can be controlled and/or the plants are easily replanted.

Pests are therefore not considered a risk in the project.

2.2.8 Benefit Permanence (CCB, G1.11)

No specific new actions are needed, however changes in the teak market is pushing us to a higher level of wood processing in connection with the plantations. Therefore, our sawmill which was set up mainly to create local employment based on non-commercial timber, is being improved in productivity, possible specifications and sawing quality. The concept is giving a better use to locally available technology and using small machinery that can easily be displaced. This allows to process where the trees are, and using mainly community-staff.

Local processing is complementary to the Maderas Sostenible wood-industry which has the capacity to open demanding markets for higher quality products.

2.3 Stakeholder Engagement & Safeguards

2.3.1 Stakeholder Identification (VCS, 3.18, 3.19; CCB, G1.5)

No new stakeholders identified

2.3.2 Stakeholder Access to Project Documents (VCS, 3.18, 3.19; CCB, G3.1)

Due to the form and language the project documents cannot be directly accessible to the Stakeholders, and a direct translation to Spanish would not change the fact, that the people around us are not skilled for the communication form in these formats.

The most recent project document is available on the website: www.norteak.com

2.3.3 Dissemination of Summary Project Documents (VCS, 3.18, 3.19; CCB, G3.1)

A Spanish summary of the Project documents is available on the website, but more important the website is set up in a way that communicates with short texts and images the shape and aims of the project.

2.3.4 information Informational Meetings with Stakeholders (VCS, 3.18, 3.19; CCB, G3.1)

During the validation period a number of meetings with stakeholders were held, which were duly reported.

For this Monitoring meetings have been held with communities and staff in all instances.

Prior to the meetings we did surveys among staff members about living conditions and perception of the reforestation projects. The result of the surveys among others serves as a platform for inviting to the meetings.

Project activities and projections have been presented and discussed with people considered representative for the communities.

The observations on the direct project execution were few, as activities in private properties, does not automatically attract the interest of the people.

2.3.5 Risks from the Project and No Net Harm (VCS, 3.18, 3.19)

The dialog with community-members and local authorities has not identified specific risks from the project.

The discussions generally focus on the common agenda for local development, such as road improvements, access and maintenance of cemeteries in the companies farms etc.

Concerns have been raised related to the possible attrition of local roads from the heavy equipment and trucks used for timber transportation. As the companies are already involved in road-improvement, the item is not conflictive, but in some cases we have seen the need to enter with a major contribution for specific repair.

In this context is important to note, that the Nicaraguan government has an ambitious program for expansion and improvement of rural roads, which covers more and more of potentially vulnerable roads.

For Ekoteak, the unregulated hunting and use of fire by community members were a topic with the community. The local leaders has a dual approach, as they consider that animals and shall be protected, and fire avoided, but they also see people's needs for proteins and do not like, that the company try to stop them. As the teak fortunately can stand a considerable fire exposition, the problematic is not a fundamental risk to the project, and there should be time to a duly process searching consensus with the involved parties.

2.3.6 Community Costs, Risks, and Benefits (CCB, G3.2)

Besides what is discussed above regarding use and improvement of roads, no relevant negative impact or risk to the communities or the environment has been identified.

Clear benefits will come from employment, increased economic activity and co-investments in social and physical infrastructure. These are duly described in the Project Document.

The project set up is made in a way that allows us to involve surrounding farmers in the project, if they want to establish carbon—fixing plantations. However, before offering this kind of participation, we need to demonstrate that the carbon credit scheme functions and gives some reward.

2.3.7 Information to Stakeholder on Verification Process (VCS, 3.18.6, 3.19; CCB, G3.3)

As mentioned above, meetings with communities have been held.

We generally don´t feel an interest in contributing or participating in rather technical issues like Verification, wherefor no further steps of involvement have been taken.

2.3.8 Site Visit Information and Opportunities to Communicate with Auditor (VCS, 3.18.6, 3.19; CCB, G3.3)

The VVB visit for verification will be announced to the community through social medias, which is the most used communication form in the area.

2.3.9 Stakeholder Consultation (VCS, 3.18; CCB, G3.4)

Table 15: Recent stakeholders consultations

Ongoing consultation	
Date(s) of stakeholder consultation	27-November-2024: Norteak farms: Survey Norteak Staff 20 to 25-June-2025: Survey all households in Communities influenced by Norteak Nicaragua (285 houses): Living conditions and perception of the company 25-June-2025: La Embajada focal group Cattle farmers 26-June-2025: La Embajada focal group Community Leaders

	27-June-2025: La Embajada focal group Community Members 10-July-2025: La Embajada – devolution of results from Survey and focal groups 21-October-2025: Survey Staff Ekoteak 22-October-2025: Meeting Ekoteak Staff 22-October-2025: Meeting community members/leaders around Ekoteak 23-October-2025: Survey Staff Limonapa 23-October-2025: Meeting Limonapa Staff 23-October-2025: Meeting community members/leaders around Limonapa
Communication of monitored results	As the calendar shows, the process has several steps in each place: Surveys – Consulting – Devolution. At Norteak, where survey and consulting were a major process, a separate Devolution Meeting was held. In the other places the activities were mostly dialog
Consultation records	Depending on the activity a report or minute is elaborated, and for the surveys a database with the results.
Stakeholder input	The overall response is that the project is welcome due to the positive impact on employment, local economy and environment. Most observations are related to doing joint development projects, presenting needs and ideas. These are followed up based on proposals and initiatives from the community. In Ekoteak, where there has been a change in administration, there were more concerns related to a possible closure of the project and communication channels with the new administration. We could communicate that the survival of the company is not in danger, while the needs for communication and coordination are noted for follow up. Particularly with attention to the fire-hunting problematic. However, these issues falls within a normal relation between a company and communities and will not require changes. As described that once the business goes into routine, the stakeholders tend to show less interest in participating in meetings.

2.3.10 Continued Consultation and Adaptive Management (VCS, 3.18; CCB, G3.4)

The overall perception is that the stakeholders are not interested in having incidence on the forest management. Their interest is related to the social benefits from employment and joint projects for local development. Meetings, consultations etc. regarding social projects are held according to the scope of each project.

Being the central target group the employees of the companies, there is a more intensive dialog with these about any labor related issue whatever it is training, benefits, planification or safety.

Table 16: Actions taken after comments

Summary of comments received	Actions taken
No comments to the Carbon project have been expressed, except an overall positive attitude.	No specific actions
Ekoteak neighbors expressed concern over conflicts rising from illegal hunting and arson by community members. They agree to avoid fire, and protect fauna, but think some people need to proteins from hunted animals.	The claim was expressed recently. It is planned to open a dialog with communities, when the dry season comes closer.
...	....

2.3.11 Stakeholder Consultation Channels (CCB, G3.5)

Additional to the formal surveys and consultation meetings with community members, there are a number of internal processes of consulting, evaluation and planning in the companies. Being the bigger of the partners, Norteak has the most developed structure, which includes:

Table 17: Internal procedures for consulting staff in Norteak

Group	Assisting	Organizer	Frequency	Objective	Documents
1. Board +Assembly	Directors + Observant + Legal advisor	Manager	1 Assembly+ 2-3 Board M/ year (Virtual)	Strategies and formalities	Agenda, proposals, minute
2. Central Cordination	Manager, Administrator, División managers. Sales	General Administr.	Monthly	Company-strategies Indenty and handle problems	Agenda, Documents, minute

3. Coordination División Forestal	Operations manager + Area leaders	Operations manager	Monthly	Analize status on activities and attend problems	Agenda Register of incidents
4. Forestry Division Planification	Op-manager. Area leaders, Transp+Nursery Infraestructure, Industry Supervisors	Operations manager	Monthly	Updates from the areas. Cordinated and solve bottle necks	Inputs for periodic plans and reports
5. Weekplan Industry	Area leader and sawmill leaders	Area leader	Weekly	Week planning. Evaluate prior and plan next	Statistics and Inputs for the plan
6. Week Plan Management Unit	Supervisor, Foremen	Supervisor	Weekly	Week planning. Evaluate prior and plan next. Apply for chemicals	Forms for week plans
7. Fora for specialized workers	Group + Coordinator + Guests + Secretary	Coordinator + Responsible	Trimonthly	Functioning of work and new ideas	Agenda, information, videos, minute
8. Administrative Cordination	Admin Staff Managua, La Embajada + Camoapa	General Administrator	Monthly	Follow up on administrative issues	

Translation from Spanish of table in the document "DivForestal-y-OrganizGeneral,OF050524.docx"

As a part of the "real world" not all these forums functions all the time. On the other hand, communication is not limited to this internal structure. We also count with:

1. Mixed Commission for Safety (established by law)
2. Thematic WhatsApp groups
3. E-mail communication (spontaneous claims – proposals etc.)
4. Direct dialog. People visiting us for consultations or concerns
5. Workers asking for meeting with leaders, when they have a specific claim

2.3.12 Stakeholder Participation in Decision-Making and Implementation (VCS, 3.18, 3.19; CCB, G3.6)

Through the forums mentioned above: The workers of Norteak are involved in planning of the work through a couple of mechanisms: Annual Planning, Trimestral Planning, Weekly planning, Specialized workers groups for exchange.

According to their expressed will, other stakeholders are only involved in specific projects related to their world.

2.3.13 Anti-Discrimination Assurance (VCS, 3.19; CCB, G3.7)

Discrimination has not been identified and should be prevented through overall inclusive management policies. However, the issue is monitored through the surveys with workers, where there are specific questions related to discrimination.

It should be mentioned that the Nicaraguan society is open and discrimination is not a big risk.

2.3.14 Grievances (VCS, 3.18.4; CCB, G3.8)

Table 18: Grievances

Grievances received	Resolution and outcome
N/A	The type of project - reforestation in private farms is not exposed to get grievances. Norteak has a system to monitor conflicts with workers, neighbors and any other stakeholder. There may be disputes over fencing, cattle out of route, salary payments etc, which have all been attended and agreements reached. None of these incidents have been related to the carbon credit project, the reforestation program or being questioning of the project model.
	...

2.3.15 Worker Training (VCS, 3.19; CCB, G3.9)

Norteak has a brought Training System, set up between 2010 and 2014 with the support from a Norad financed project. The Outline of the System is described in a Regulation (Normativa de Capacitación) and during a month there will be around 10 events of training or consultation, with a mean of 60-100 participants.

In the other instances, with shorter distance between leaders and workers, there have been a lower level of formal education events, and more “masters training”. In case of Ekoteak this approach is to be changed, as the staff is being absorbed by the Norteak organization.

2.3.16 Community Employment Opportunities (VCS, 3.19.13; CCB, G3.10)

It is a company policy to give priority to people living in the communities when contracting. Specialists and administrative staff may be brought in, when these skills are not found locally.

Over the years we have had cases, where engineers have been replaced with people from the communities who have learned during the job.

Some cases are to mention:

Norteak – Leader of extraction and Sawmill, Willaim Gutierrez, is born and grown up in the community and started in the company doing field work. Showing his worth he took increasing responsibility, and before him his job was held by 3 engineers with nice CVs.

Supervisor of Tanzania, Erwin Lumbi, also community member who started as field worker, replaced an university graduate in the position.

Juan Gabriel Diaz, native from a community entered in the company after graduating as a agriculture technician. He now helds the position as plantation manager, replacing a university graduate agronomist.

Women from the communities are given responsibilities according to their interest and profile. For the moment local women are holding the positions of: Nursery leader, Kitchen leader and Administrative assistant.

For the project, 88% of the staff is from the communities.

Table 19: Staff distribution by Sept 2025

Company	Not Community	Total staff	Percent
Norteak	12	98	12%
Ekoteak	0.5	9.5	5%
Limonapa	1	4	25%
All	**13.5**	**111.5**	**12%**

2.3.17 Occupational Safety Assessment (VCS, 3.19; CCB, G3.12)

Norteak has a structure for workers' safety set up according to the national law, which includes:

- General Safety regulations
- Risk map for each important process, which is transformed in a mitigation plan and a protocol for each task.
- Monthly meetings in the Mix Safety Commission, where workers and leaders are present

Additional to the legal requirements Norteak counts with

- For uncommon tasks the workers are trained in making a provisional risk assessment, including safety and environmental risks.
- An internal safety inspector doing bimonthly inspections of different work-processes.
- FSC certification inspections

Due to Norteak's leadership the relevant procedures are implemented in the other farms.

2.4 Management Capacity

2.4.1 Required Technical Skills (VCS, 3.19; CCB, G4.2)

In the following we describe the mechanisms used by Norteak, as this company gives technical back up to the smaller partners:

Maintenance of skills has two strings:

1) Keeping updated on technology

2) Assure that specific skills are not concentrated in single persons.

1) Regarding technology Norteak is linked to two important international networks: Teaknet – a fora for overall exchange of knowledge about teak growing and commerce – and Genfores – an alliance between the Technical University of Costa Rica and a group of leading companies around genetic improvement for tropical tree species.

What concerns natural resources we have been an active partner of the RED-RSP (Nicaraguan Network of Private Natural Reserves) and after its formal closedown, we keep coordinating through an unformal net. On the topic, we count with the advise from the Canadian Biologist, Kevin Gauthier, specialized in Central American biodiversity, who has made several studies for us.

On wood industry we have an Austrian advisor, Johann Mandlberger, and for administration we have a contract with the Nicaraguan office of BDO.

2) The education program of Norteak includes the components “training”, “updating” and “exchange”. Training is the central measure, where you connect people with knowledge with some “pupils” that stepwise will get the all around skills.

F.ex. the monitoring area has 3 levels: A monitoring leader, skilled monitors and monitoring assistants. The monitoring leader started as a trainee for the former monitoring leader, who also started as an support for the former. Depending on their skills on data-management, monitoring assistants may be promoted to monitors and monitors to team leader.

These training schemes are the basic reason for being able to hand over many leading functions to community staff as described in section 2.3.16.

Another example was the last change of Operation Manager in 2023, where the position was given to a staff member, the former Human Resources leader. And early 2025, when the Plantation manager left the company, the area was shared between three of his subordinates having now leaders for: Plantation, Monitoring and Research for separate. And to date no decline in quality of the work has been observed.

2.4.2 Management Team Experience (VCS, 3.19; CCB, G4.2)

Norteak has existed since 2008. During all the years the management has been held by the Danish Forestry engineer Ove Faurby, who came to Norteak from jobs with forestry research, project design and evaluations of private companies and NGO projects.

Other members of the Management team:

Operation Manager	Oswaldo Zeledon, Forestry engineer, with working experience from the USA and several leading jobs in Norteak since 2010
Forestry División Manager:	Marlon Molina, MSc Agrobusiness. Worked in Norteak since 2012
Machinery Manager:	Anders Hansson, Swedish self-made machinery expert, Worked in Norteak-Ekoteak since 2013
Wood manager:	William Gutierrez. Agri-technician learned up in Norteak. Entered 2010
Forestry manager	Juan Gabriel Diez. Agri-technician, working in Norteak since 2016
Farm administrator	Marbely Terán, BSc Business Administration, working in Norteak since 2018
Nursery leader:	Carmen Marenco. Trained by Norteak, since 2009

2.4.3 Project Management Partnerships/Team Development (VCS, 3.19; CCB, G4.2)

Norteak has established an alliance with the Norwegian company Across Nature, which also runs plantations in Nicaragua and has positioned these as high quality carbon credits. The focus is on strengthening social and environmental impacts and making them visible.

https://www.acrossnature.com/norteak

No gaps were identified in the previous CCB

2.4.4 Financial Health of Implementing Organization(s) (CCB, G4.3)

For the moment, no new areas are projected. Small areas are added in this verification, but inside already purchased farms, and the financial burden is small.

The overall financial health of the project relies on that all important investments are financed by the owners. Except for specific purchase of vehicles (less the 1% of assets value), there are no debts to third parties.

The liquidity is guaranteed by the owners. In case of Norteak the Norwegian owner has made a statement within the financial auditing (Deloitte) that it will assure the finances as long as needed. Ekoteaks running expenditure is assured though the administration contract with Norteak, and Limonapa being a private owner, with sufficient financial capacity, there should be no problems.

By 2025 Norteak-Ekoteak has been financed 50% by wood sales, the other 50% were expected to come from sales of Carbon-credits. As the Carbon-credits have not been allocated, the owners have accepted to fill the gap. For 2026 wood sales should cover 90% of the costs, and the remaining by carbon credits.

Limonapa has no significant income for now, and the development of the broader goals on social impact and biodiversity depends on the carbon credits. However, the owners are committed to assure the basic financing to take care of the trees and the property.

Documentation: Statement from owners of Norteak and Limonapa and Adminisitration and Agreement Norteak-Ekoteak.

2.4.5 Avoidance of Corruption and Other Unethical Behavior (VCS, 3.19; CCB, G4.3)

Avoiding corruption has two fundamental pillars:

- Give clear signals that corruption is not allowed, even if a short time benefit for the company may be achieved and make it visible when extra time or costs are spend due to following the formal procedure. Cases of fraud are always followed and sanctioned.
- Decentralized responsibility for use of resources/efficiency combined with thorough accounting ensures that most processes can be evaluated by cross control between registers.

Additionally Annual accounts are duly audited.

Within such a clear framework it is possible to work in Nicaragua without getting in touch with corruption. Fraud may occur, but as long as it is not tolerated, it should not count as corruption.

2.4.6 Commercially Sensitive Information (VCS, 3.5.2-3.5.4; CCB Program Rules, 3.5.13 – 3.5.14)

No commercially sensitive information. There are aspects of the Nicarguan Society which we as a foreign company are not competent to evaluate, but these are avoided in the documents.

2.5 Legal Status and Property Rights

2.5.1 National and Local Laws (VCS, 3.1, 3.6. 3.7, 3.14, 3.18, 3.19; CCB, G5.6)

Most laws and regulations described in section 2.5.7 of the CCB project description document are still valid, and eventual changes have no relation to the scoop of our project.

There has been a change in forestry administration, as the forestry institute, INAFOR was closed, and its responsibilities passed to the Ministry of Environment, MARENA. The procedures are the same, but the cases move slower, including there is a number of administrative dictamens which shall now pass an additional revision at the National Attorneys Office.

Relevant law:

“LEY DE TRASLADO DE FUNCIONES DEL INSTITUTO NACIONAL FORESTAL (INAFOR) AL MINISTERIO DEL AMBIENTE Y DELOS RECURSOS NATURALES, LEY N°. 1222, aprobada el 23 de octubre de 2024”

2.5.2 Relevant Laws and Regulations Related to Worker’s Rights (VCS, 3.18, 3.19; CCB, G3.11)

No new laws have been passed regarding labor relations. We are basically regulated by:

Labor code:	Codigo del trabajo LEY No. 185, Aprobada el 5 de Septiembre de 1996
Worker´s Safety Law:	LEY GENERAL DE HIGIENE Y SEGURIDAD DEL TRABAJO LEY No. 618, Aprobada el 19 de Abril del 2007
Social Security Law:	DECRETO-LEY Nº. 974, LEY DE SEGURIDAD SOCIAL, aprobado el 26 de octubre de 2021

Companies work according to these laws in all relevant aspects, and according to their size. The compliance is based on having internal rules, declaring staff and paying for social security. What concerns worker´s safety; this is covered in section 2.3.17

Workers are informed about their rights through 3 induction sessions, when they start at work.

Documentation for compliance with a wide range of regulations is being attached (9 documents)

2.5.3 Human Rights (VCS, 3.19)

The project has no injuries, cases or conflicts related to Human Rights. The recognition is established in our Internal Rules, Ethic platform and FSC certification, and what concerns labor rights, these are duly monitored by the Ministry of Labor.

2.5.4 Indigenous Peoples and Cultural Heritage (VCS, 3.18, 3.19)

No indigenous people around the project areas. In the municipality El Viejo exist an ancient indigenous community with legal status. During the monitoring we performed an interview with the leader of "Indigenous Community of El Viejo" and confirmed that there is no overlapping of areas or interests between project partners and the community members.

2.5.5 Recognition of Property Rights (VCS, 3.7, 3.18, 3.19; CCB, G5.1)

Table 20: Property rights

Disputes over rights to territories and resources	N/A	
Respect for property rights	At the moment, no threats are identified to the property rights. In former periods of Nicaraguas history with land-disputes, three central measures to protect properties were identified: ● Show presence and use of the properties ● Be a friend with local actors and let them feel benefits from your activity	

	• Avoid complicated legal disputes with private and public, which could give other the idea “you are week”. The Norteak group takes measures in all these issues	

2.5.6 Benefit Sharing Mechanism (VCS, 3.18, 3.19)

Summary of the benefit sharing plan	The project does not impact any property rights
Benefit sharing during the monitoring period	No benefit sharing is relevant in the projects socioeconomic context

2.5.7 Free, Prior, and Informed Consent (VCS, 3.18, 3.19; CCB, G5.2)

Consent	No consent was obtained, as no stakeholders have shown interest for being involved.
Outcome of FPIC	*N/A*

2.5.8 Property Right Protection (VCS, 3.18, 3.19; CCB, G5.3)

All properties were purchased in open and voluntary processes, which have been witnessed by a Public Notario. No claims from other parties

2.5.9 Identification of Illegal Activity (VCS, 3.19, CCB, G5.4)

No incidents with legal activities have been reported in the project area or related to the companies´ activities, besides the problems with fire in some of the plantations, which has been attended in the section with stakeholder relations.

All labor is duly contracted and registered in the Social Security, which in supervised by the compentent authorities. Use of children and illegal workers would not be tolerated.

2.5.10 Ongoing Disputes (VCS, 3.18, 3.19; CCB, G5.5)

The project partners have no unresolved disputes

3 CLIMATE

Note that Section 3 relates exclusively to data and parameters for monitoring GHG emission reductions and removals. No community or biodiversity parameter should be entered here with the exception of any relevant information for fulfilling the optional Gold Level criteria.

3.1 Monitoring GHG Emission Reductions and Removals

3.1.1 Data and Parameters Available at Validation (VCS, 3.16)

Table 21: Root shoot ratio

Data / Parameter V1	Root to shoot ratio for mixed tropical broadleaf species (Rts)
Data unit	Dimensionless
Description	Converts the aboveground biomass to the above and belowground biomass
Source of data	Default value AR-TOOL14, Section 6.3(25)
Value applied	0.25
Justification of choice of data or description of measurement methods and procedures applied	Conservatively chosen for Primary tropical/subtropical moist forest
Purpose of data	Calculation of project emissions
Comments	N/A

Table 22: Biomass expansion factor

Data / Parameter V2	Biomass expansion factor (BEF)
Data unit	Dimensionless
Description	Converts trunk biomass to total above and belowground tree Biomass
Source of data	IPCC “Good Practice Guidance for LULUCF”. 2003. Table 3A.1.10

Value applied	1.5
Justification of choice of data or description of measurement methods and procedures applied	Tropical, broadleaf, overbark
Purpose of data	Estimation of belowground biomass
Comments	N/A

Table 23: Carbon fraction

Data / Parameter V3	Carbon fraction (CF)
Data unit	T C t d.m-1
Description	Tonnes of carbon per tonne of biomass dry matter
Source of data	IPCC "Good Practice Guidance for LULUCF". 2003. Equation 3.2.3
Value applied	0.5
Justification of choice of data or description of measurement methods and procedures applied	It is used for the whole tree part calculation
Purpose of data	Calculation of project emissions
Comments	N/A

Table 24: CO2 expansion factor

Data / Parameter V4	CO2-e
Data unit	tCO2/tC
Description	The factor is applied to convert the tree carbon sequestered to tree CO2-e sequestered.
Source of data	IPCC default value.
Value applied	3.6667 (44/12)
Justification of choice of data or description of	Value suggested by the IPCC

measurement methods and procedures applied	
Purpose of data	Calculation of project emissions removals
Comments	N/A

Table 25: Organic soil factor

Data / Parameter V5	SOC
Data unit	tCO2/ha/year
Description	Reference soil organic carbon stock
Source of data	IPCC default value.
Value applied	0.36
Justification of choice of data or description of measurement methods and procedures applied	CDM_AR_tool_16."Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities". Version 01.1.0
Purpose of data	Tropical, moist. Average (HAC and LAR) for the tropical forest
Comments	N/A

Table 26: Tree volume formula native species

Data / Parameter V6	Vtree – Native species
Data unit	m3/ha
Description	Stem volume Calculation from Diameter and Height of Native hardwood species (Samanea Saman and Platymiscium dimophandrum)
Source of data	Islam, Sheikh Sirajul, Jonaed Kabir, and Abdul Kadar Muhammad Masum. "Volume Table of Raintree (Samanea saman) in Bangladesh by Regression Technique." Open Journal of Statistics 2.1 (2012): 115-119.
Value applied	V = exp(a+b*ln(DBH)+c*ln(DBH)) Using the following coefficients Coefficient | Value

	A -9.1864 B 1.8505 C 0.8234
Justification of choice of data or description of measurement methods and procedures applied	This formula was proposed for Genízaro in the first monitoring report, and represents a reasonable form factor according to our experience with "typical hardwoods". As no source has been found related to form-factor for Coyote, this has been chosen for both species.
Purpose of data	This is used to calculate the change in tree biomass in the project scenario for native species, in ex-ante
Comments	N/A

Table 27: Tree volume formula teak trees

Data / Parameter V7	Vtree – Teak
Data unit	m3/ha
Description	Stem volume Calculation from Diameter and Height of Tectona grandis,
Source of data	Cordero, Luis Diego Pérez, and Markku Kanninen. "Provisional equations for estimating total and merchantable volume of Tectona grandis trees in Costa Rica." Forests, Trees and Livelihoods 13.4 (2003): 345-359.
Value applied	V = a * DBH^b * Height^c Using the following coefficients Coefficient | Value A 0.00007319 B 1.5588 C 1.2103
Justification of choice of data or description of measurement methods and procedures applied	This formula was used and accepted during the validation process. The outcome is close to the values obtained using the form-factor model generated in the Norteak Plantations, wherefor there is no reason for a change.

Purpose of data	This is used to calculate the change in tree biomass in the project scenario, in ex-ante
Comments	N/A

Table 28: Wood density factors

Data / Parameter V8	Wood Density
Data unit	g*cm-3 The species-specific wood densities were retrieved from the literature to convert the commercial tree volume into tree biomass.
Description	Tonnes of carbon per tonne of biomass dry matter
Source of data	Tectona grandis: The Tropical Timber Atlas 19 Samanea Saman: Obando, 2010 20 Platymiscium dimophandrum: Zanne et al., 2009 21
Value applied	Samanea Saman: 0.57 Platymiscium dimophandrum: 0.78 Tectona grandis: 0.67
Justification of choice of data or description of measurement methods and procedures applied	The above-ground tree biomass is calculated using the BEF and wood density in connection to the volume data.
Purpose of data	Estimation of GHG Emission Reductions and Removals
Comments	N/A

Table 29: Eligible area

Data / Parameter V9	A (Eligible area)
Data unit	Hectares (ha)
Description	Project Area
Source of data	Identified using a Geographical Information System (GIS) which allows to integrate data from different sources (including GPS coordinates and Remote Sensing data). Norteak GIS registers for areas with tree cover.

Value applied	699.8 ha
Justification of choice of data or description of measurement methods and procedures applied	Output of the multitemporal vegetation cover analysis to identify the eligible areas of the project.
Purpose of data	Data is used for project emission calculation
Comments	Eligibility only tested for areas with tree cover. In first monitoring was included a few areas to be planted.

Table 30: Stratum area

Data / Parameter V10	Ai
Data unit	Hectares (ha)
Description	Area of Stratum i
Source of data	Current and projected planting areas by stratum and species according to GPS-data for net plantation areas.
Value applied	699.8 ha = Total project area
Justification of choice of data or description of measurement methods and procedures applied	GPS coordinates and projected planting areas by stratum and species
Purpose of data	Calculation of project emissions removals
Comments	To classify an area shall fall inside the net-plantation area taken with GPS in the field. If inside these areas there are bare space these should be reflected in lower tree density at the inventory.

3.1.2 Data and Parameters Monitored (VCS, 3.16)

Table 31: DBH measuring

Data / Parameter M1	DBH (Diameter breast height)
Data unit	Centimeters (cm)
Description	Diameter at Breast Height of the trees
Source of data	Is measured by the project proponent in temporal sample plots.

Description of measurement methods and procedures to be applied	Measured 1.3 m above-ground. Measure all the trees in the permanent sample plots that result in the project activity. For small trees, height under 1.3 meter, the diameter is estimated from the height.
Frequency of monitoring/recording	Annually, when staff available, and at least Each time a verification is conducted
Value monitored	Ex-post
Monitoring equipment	Measuring tape
QA/QC procedures to be applied	People involved in the field measurement work should be fully trained in the field data collection. Field measurements shall be checked by a qualified person to correct any errors in techniques.
Purpose of the data	Calculation of volume of woody biomass in the stem of standing trees
Calculation method	Circunference divided by Pi
Comments	N/A

Table 32: Height calculation

Data / Parameter M2	H
Data unit	Meters (m)
Description	Total Height of trees
Source of data	Is calculated from the DBH based on historical data measured and processed by the project proponent. Except for trees lower than 200 cm, where Height is measured directly.
Description of measurement methods and procedures to be applied	Tree height is measured on a sample of standing trees using clinometer or similar projection. The database includes measuring in the past and is continuously updated to absorb eventual changes, f.ex. due to use of clones.

Coeficients for Height	
b * DBH	-0.0073
C	0.9221
Formula used	**H = b* DBH + c**

Frequency of monitoring/recording	Each time a verification is conducted
Value monitored	Ex-post
Monitoring equipment	Measuring tape, clinometer, laser. Sticks (the monitoring team calibrates on trees being cut and uses the specific method that gives higher precision for each operator).
QA/QC procedures to be applied	People involved in the field measurement work are fully trained in the field data collection. Before each operation the eyes are calibrated comparing the standing tree with the same tree being cut. Will be repeated during operations over several days.
Purpose of the data	Calculation of volume of woody biomass in the stem of standing trees
Calculation method	Upper and lower Inclination multiplied with distance to the tree
Comments	Height is a complex indicator. Measuring at scale is time-consuming and tends to give low precision. DBH-relation can differ according to location, age, wind and internal status in the population. These aspects are discussed in a separate paper.

Table 33: Plot location

Data / Parameter M3	Plot location
Data unit	Latitude, longitude by UTM coordenates
Description	Plots are distributed along north-south lines with 100 m of distance. For each 50 meters a plot. Normally using round numbers of coordinates at multiples of 100 and 50 meters.
Source of data	Maps in the Companies GIS-program (QGis) based on GPS-fielddata
Description of measurement methods and procedures to be applied	The geographic coordinate of each monitoring plot is previously defined and search with GPS. The plot center is determined first time the GPS gives the established coordinates, and will not be reconsidered if the GPS changes. The importance is to have a spot, not the very exact location.
Frequency of monitoring/recording	The grid is established Once in the lifetime of a plantation
Value monitored	Variable
Monitoring equipment	GPS device unit

QA/QC procedures to be applied	Random verification of field data. Train personnel in application of SOPs
Purpose of the data	Permanent sampling plots location and identification.
Calculation method	Direct measure
Comments	N/A

Table 34: Plot area

Data / Parameter M4	Plot Area (Aplot)
Data unit	Square meters (m2
Description	Total area of sample plots
Source of data	Calculated in field monitoring
Description of measurement methods and procedures to be applied	Plot area is measured to guarantee quality and accuracy in the estimations.
Frequency of monitoring/recording	Once in the lifetime of the project
Value monitored	A standard plot is circular with a radius of 7 meters and an area of 154m2. In case not all the plot is covered by plantation, the area is reduced as follows: The Plot Location Point falls inside the plantation, value 67% = 103 m2. The Plot Location Point is not planted, but there are plants within the 7 m radio: value 33% = 51 m2
Monitoring equipment	Apply SOPs described in Monitoring plan. Train personnel in application of SOPs.
QA/QC procedures to be applied	Random verification of field data
Purpose of the data	Quantification of the size of meassuring Sample to expand field data to Calculation of Project removals for the project area
Calculation method	Direct measurements
Comments	N/A

Table 35: Disturbed area estimation

Data / Parameter M5	Disturbed area.

Data unit	Hectare (ha)
Description	Any areas affected due to plantation failure or any loss event (e.g. fires)
Source of data	Calculated in field monitoring
Description of measurement methods and procedures to be applied	Field verification of project area, measurement of geographic coordinates with GPS, registration of geographic coordinates in GIS database, and calculation of area from the GPS coordinates, when the event occurs.
Frequency of monitoring/recording	Each time a verification is conducted
Value monitored	No disturbed areas to report, as eventual reduction in tree stock is covered by inventory data, and no disturb has happened post-inventory.
Monitoring equipment	GPS device
QA/QC procedures to be applied	Apply SOPs described in Monitoring plan. Train personnel in application of SOPs.
Purpose of the data	Calculation of Project removals.
Calculation method	Direct measurements. Using GIS and if possible, a sampling of the affected area.
Comments	N/A

3.1.3 Monitoring Plan (VCS, 3.16, 3.20)

During the monitoring period (29 March 2022 to 30 April 2025), data collection and analysis followed the procedures defined in the validated Project Description.

Measurements were executed as follows:

Table 36: Tree inventories during the Monitoring Period

Company	Inventory periods	Covers carbon estimation for
Norteak	November 2022 November 2023 November 2024	2022 2023 2024
Ekoteak	March 2023	2022

	April 2024 April 2025*	2023 2024
Limonapa	Sept 2024*	2022-2024

*Generally teak growth is stronger in the period May-September, with some aftergrowth october-january depending on climate and age of the trees. In the area, where Ekoteak and Limonapa are located, the rain stops early and the growth between September and April is practically absent, wherefor these inventories are directly compareable.

3.1.3.1 Updating Project Area

The first step is to revise and update the project area.

During the first monitoring, eligible plantations from 2016 to 2021 were identified, plus some connecting areas, which were identified for future plantations. This gave a project area of 680.5 ha.

During the second monitoring period, most of the free areas was planted, not all, and two new areas were identified as feasible for the project. These two areas were subject to an eligiblity study. The selection of areas for elibility study and details of the study are described in the document: “Norteak eligibility New areas 2022-25, OF 221025”

Method for eligibility verification

High-resolution imagery (1–5 m) from Google Earth/Airbus (2021) was used to confirm prior land cover.

Each finca boundary was overlaid with the JRC Tropical Moist Forest Change 1990–2024 dataset (Vancutsem et al., 2021) and the Meta Canopy Height 2020 layer (1 m resolution).

Pixels showing forest presence (≥ 20% canopy cover and tree height ≥ 4 m over ≥ 1 ha continuous area) were considered forest.

No such areas were detected within the new planting boundaries,

Soil data (FAO 2022; IPCC soil classification) confirmed that all sites are on mineral soils, with no organic or peat soils present.

The combined analysis demonstrates that the two sections planted in the farms Camboya and San Antonio are eligible in all of its extension-

3.1.3.2 Data collection methods:

Permanent sample plots were established within each Management Unit (MU) following a systematic sampling design for the total farm but taking only data in plots with plantations. Measurements include obligatory DBH (diameter at breast height) and case it cannot be taken (small trees) total tree height. Other parameters may be taken, such as health or pruning status, but those are not relevant for the Carbon Stock quantification. Data was recorded in field forms and digitized in a centralized database. GPS coordinates of plots and single tree ID were recorded to allow quality control and single-tree monitoring over years.

The methodology is described in protocols and in Norteaks case an annual inventory report is submitted to external audit.

During the inventory process, the data collected by the field personnel is monitored from the central data base to detect suspicious data to prevent measurement errors. If there is doubt, the tree is measured.

3.1.3.3 Stratification

The PSPs are distributed over the total planted area following a grid defined with lines and points. Lines are located at distances of 100 meters, while points (representing PSPs) are separated by 50 and 100 meters. Figure 1 represents the grid distribution.

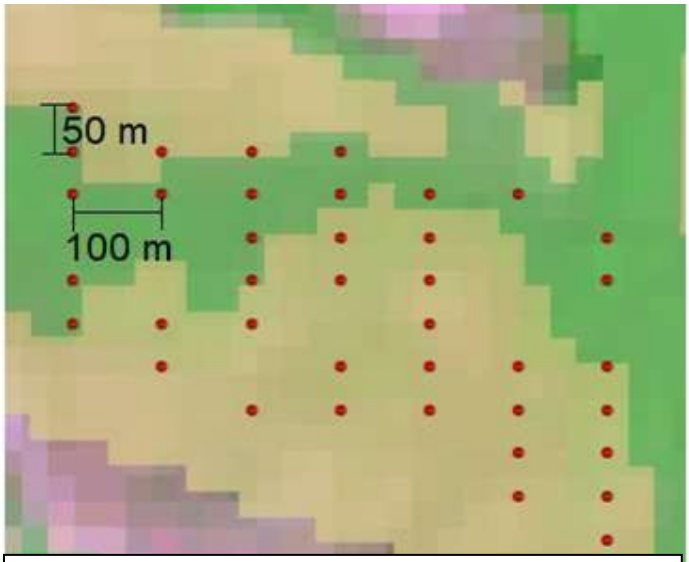


Figure 2. Exemplification of the PSPs grid in the project

The PSPs are distributed over the total plantation area systematically, using the grid with round numbers from the UTM map (WGS 84). A graphical example is provided in Figure 3.

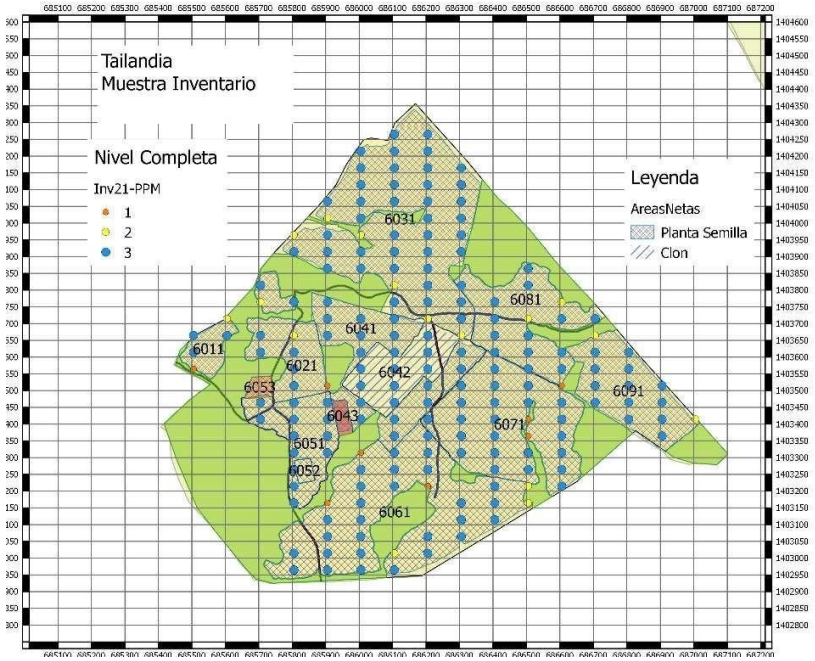


Figure 3. Exemplification of GIS design of sample plots in one of Norteak's Group farm

For the purpose of the Carbon Credits program, only the plots located in the Eligible Areas are considered. Se colored areas in the maps Figures 4, 5 and 6.

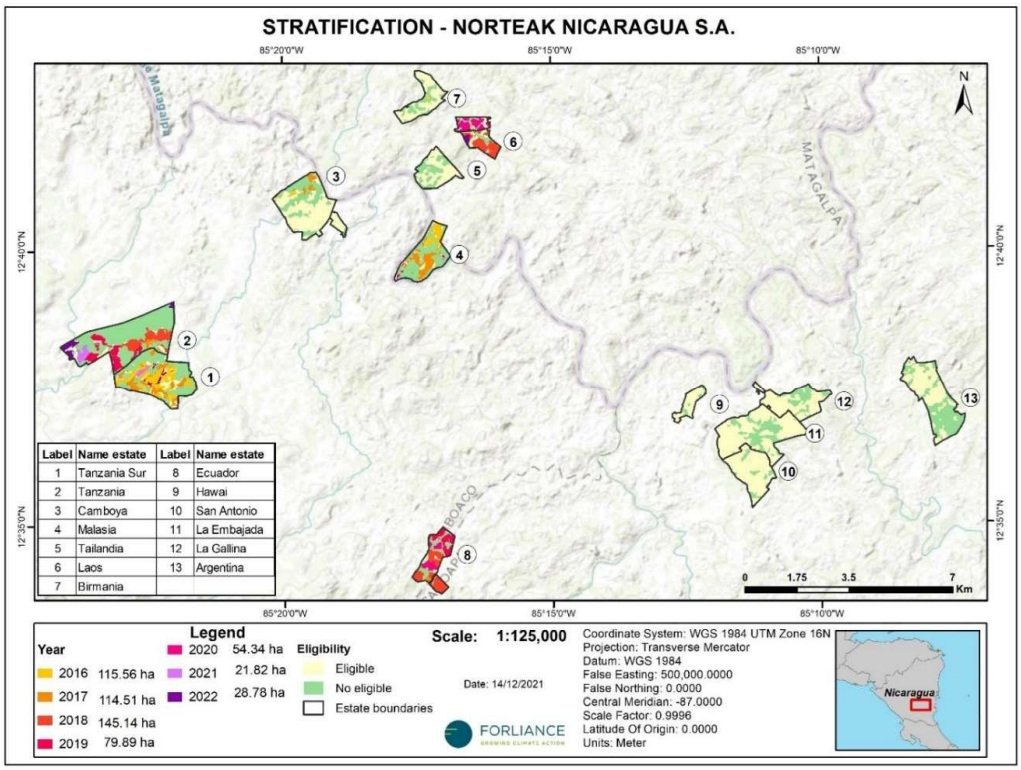


Figure 4. Stratification based on the project planting years for Norteak

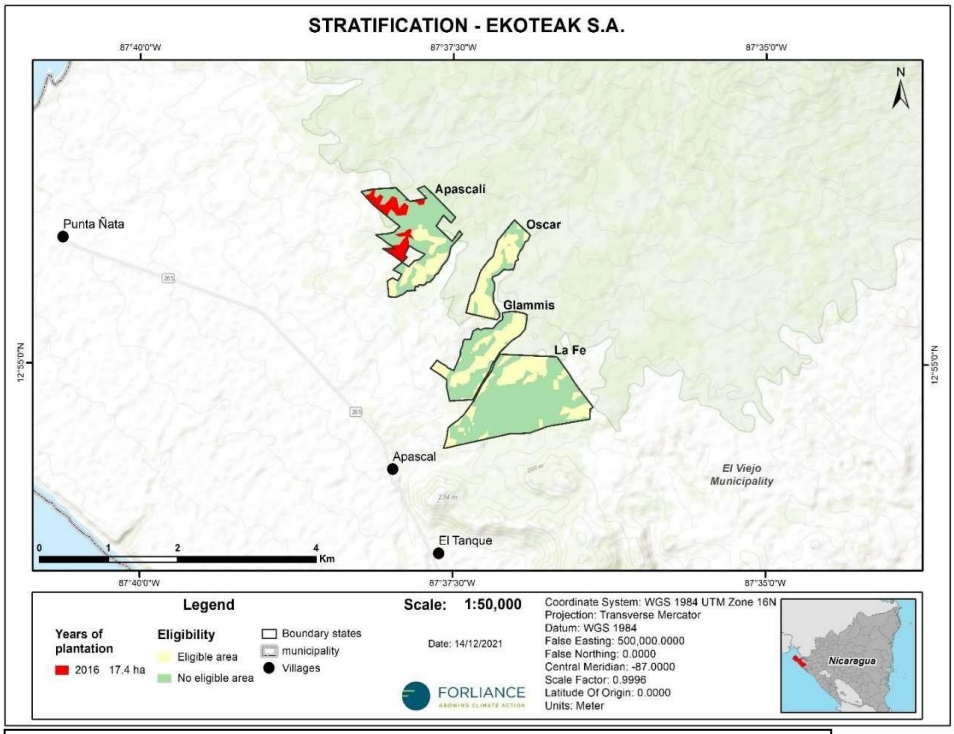


Figure 5. Eligible areas for the project planting years for Ekoteak farms

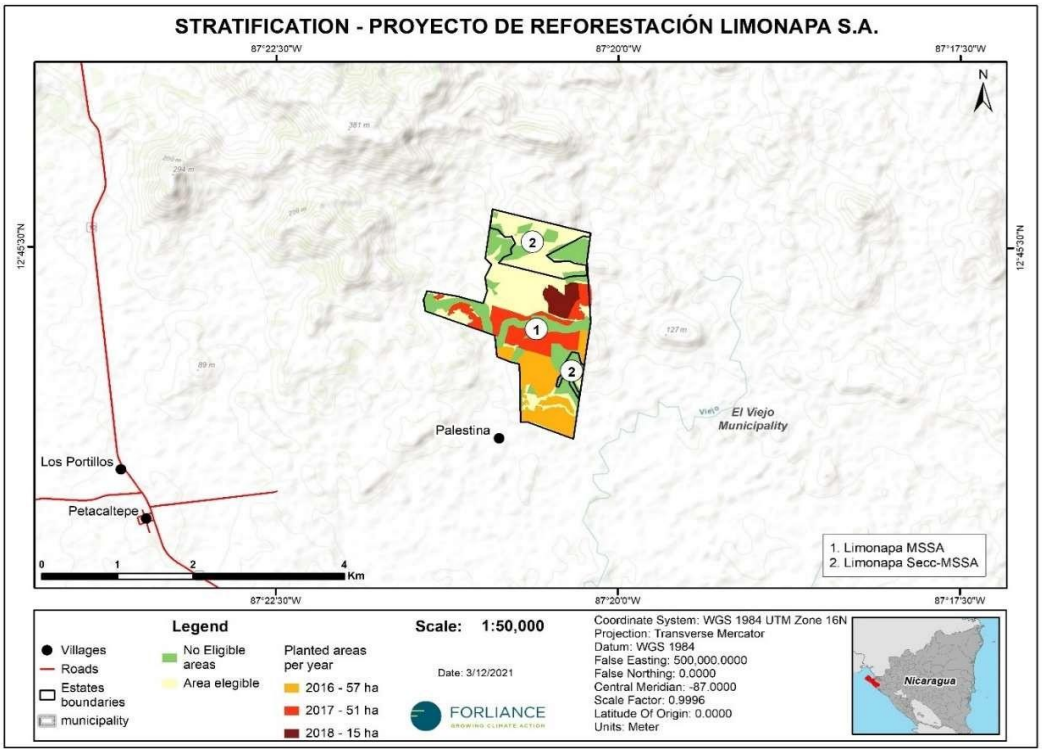


Figure 6. Stratification based on the project planting years for the farms managed by MSSA.

3.1.3.4 Establishment of sample plots

Each circular plot has a radius of 7 meters with an area of 154 m^2. All the plants within this area were measured. The trees in the PSPs were marked in a way that can be identified year after year, which allows having a series of data per tree throughout the inventory history. The trees are marked in the second year, which means that the plots become permanent from the age of 1.4 years.

As starting point, each plot represents 0.5 hectares of the sampled area. However, if the plot is not falling on a complete plantation area, a corresponding deduction is made. Incomplete plots may arise for two reasons: a part of the plot falls outside the net planting area, or the plot covers two sections with different characteristics (e.g. infrastructure, road, etc, and plantation site). The deductions are applied as:

Table 37: Area projection of a Plot according to representation of planted area

Plot Status	Net Area (ha)
Complete Plot	0.50
More than 50% of the plot is planted, but not the entire plot	0.33
Less than half of the plot is planted	0.17

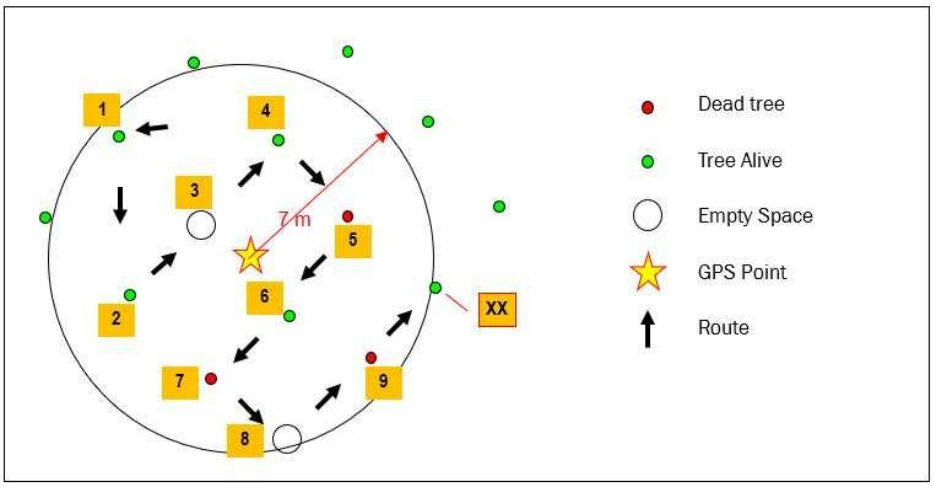


Figure 7 Method to designate tree numbers, to avoid that identification will depend on marked signs.

Tree 1 es always located NW

Following this characterization of the plots, a total of 19.2 ha were monitored as permanent sample plots in the project eligible area for the first instance. The sample plots monitor 15.1 ha in Norteak Nicaragua S.A., 0.45 ha in Ekoteak S.A. and 3.65 ha in MSSA farms (Table 8) which represents an effective 2.7% sampling density. The expected confidence levels with the indicated sampling density is below 10%.

The exact location (coordinates) for each of the plots are presented as support document, as well as detailed report describing of how this graphical representation were achieved ("Supporting Documentation Folder" > "Permanent sample Plots" > "PermanentMonitoring_Explanation_Norteak").

Table 38: Monitoring Plots in Project Eligible Area:

Company	Farm	N Plots	Plots, m2	Eligible	Sample Ratio
Ekoteak	Apascalí	28	4106.7	17.6	2.3%
Limonapa	Limonapa	211	32494.0	114.1	2.8%
Norteak	Birmania	1	154.0	1.5	1.0%
Norteak	Camboya	23	3542.0	16.4	2.2%
Norteak	Ecuador	197	29157.3	107.5	2.7%
Norteak	Laos	150	22124.7	82.1	2.7%
Norteak	Malasia	127	18685.3	65.5	2.9%
Norteak	San Antonio	33	4312.0	14.3	3.0%
Norteak	Tanzania	523	76794.7	280.6	2.7%
Totals		1293.0	191370.7	699.8	2.7%

3.1.4 Monitoring and operational procedures

Standard Operation Procedures (SOPs) are used for measuring and estimating changes associated with the plantations under the project activity, as well as general monitoring of forestry operations. Management inventories normally take place at least once a year with the main purpose of determining the current forest cover, volume and quality of the plantation stands. The inventories are developed in a three-week period by a team of 18 people divided into groups of 2 to 3 that collect data over the plots of the plantations. Figure 1 presents the forest inventory organigram. Table 9 the steps required to ensure that the PSP is measured properly and to guarantee the collection of real, logical, and representative data.

3.1.5 Recording and storing

Data are entered into electronic spreadsheets with embedded QA/QC controls to identify outliers and inconsistencies. All original field forms were archived physically and electronically. Compiled datasets were analyzed using statistical software to calculate mean biomass and carbon stock per stratum.

The spreadsheet records at least the following data:

1. Plot location, including XY coordinates
2. Tree number
3. Year of planting
4. Species
5. DBH (Diameter at 130 cm above ground)
6. Height for smaller trees (under 200 cm), and Calculated height for bigger trees

The equations used for calculating the height in terms of DBH is presented in section 4.2. Further details of how these equations are achieved, can be found in the supporting information. (Determination of Relation Height to Diameter for NorTeak-OF270825.docx)

For each Company a Database in Excel is managed with all data collected year by year.

3.1.6 Data processing

The field data and the parameters established in section 4.1 are merged in a central Excel datasheet for the entire Norteak Group.

The specific use of the Spreadsheet is explained in a manual. The basic logic is:

1. Height and volume are established according to the formulas presented in 4.1 and 4,2, for each calendar year. If annual data is not available, the growth is distributed equally over the years between measuring.
2. The yearly Volume increase is summed by species and planting year and compared to the maximum applicable volume per hectare. This is taken as the mean stock expected in the site according to growth class and thinning scheme, based in Norteak's growth model that is continuously validated in the annual biologic auditing.
3. Comparing standing stock and growth-cycle mean, the lowest value is used and converted to CO_2 equivalents using the factors presented in section 4.1.
4. The Carbon is distributed by growth-year to calculate vintage.
5. Due to a correction of the Diameter-height relation the calculated carbon stock for end 2021 is higher than the value of first verification. In this case the Vintage 2022 is established as the difference between data from the current monitoring. That is to say the gain due to change in the formula is not included in the VCU-pledge.

3.1.7 Procedures for internal auditing and QA/AC

Norteak Nicaragua S.A. is responsible for the centralized documentation of all project planning and implementation. Quality assurance (QA) and quality check (QC) procedures are implemented, and the use of these procedures monitored to ensure that net anthropogenic GHG removals by sinks are measured and monitored precisely, and are credible, verifiable, and transparent.

The capacity of the Norteak monitoring team is validated annually by external biologic audits. Over time 3 different auditing companies from Costa Rica and Panama have been involved.

Regarding the presented Carbon Model, Norteak has hired another Panama-based consulting unit Ecosilv to revise methods and datamanagement.

3.1.8 Organizational and management structure

The design and management of the inventory correspond to the General Manager of the company, (e.g. Norteak S.A., Ove Faurby, who holds a Masters Degree in Forestry from University of Copenhagen.

The field survey and data recording are conducted by the Head of Monitoring of Norteak: Ramon Salazar (for inventories held 2024 and earlier: Lesther Flores).

The same team from Norteak implemented the inventories in the plantations of Ekoteak S.A. and Maderas Sostenibles S.A.

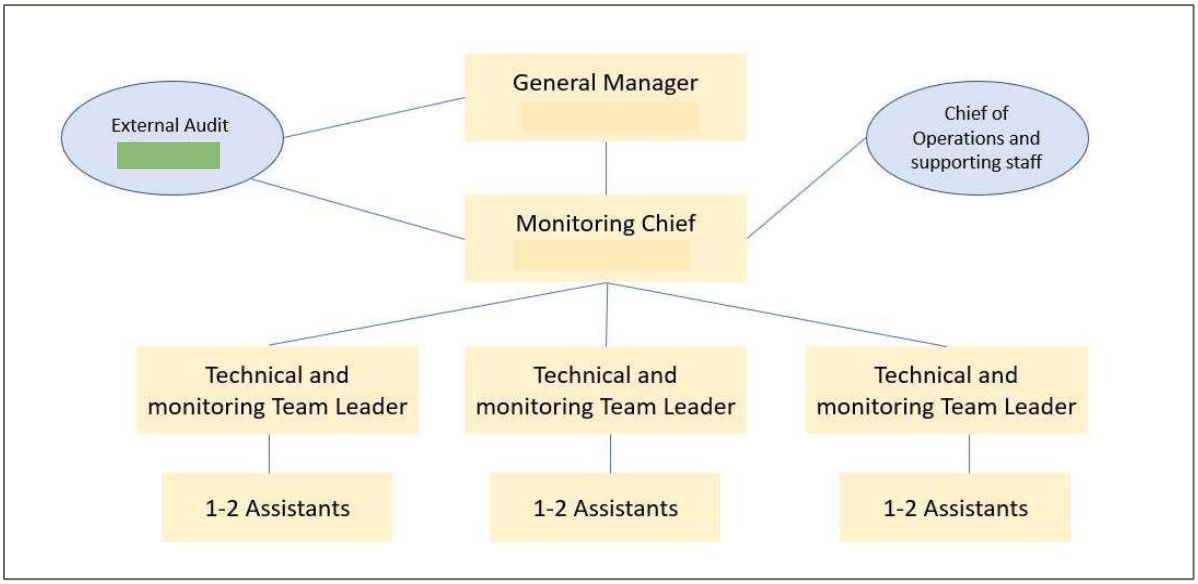


Figure 8. Forest Inventories Organigram

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

Along with the project implementation and monitoring activities, the project documentation will be published on VCS and CCB website for all stakeholders (direct and indirect), so that they can obtain the detailed project information and development progress. The summary of project description and the monitoring report in Spanish are available for the employees and other stakeholders through Norteak webpage and Facebook page. The PowerPoint presentation/ brochure used to communicate the validation process of the carbon project (in June 2022) was updated to reflect the results of the monitoring report and has been widely socialize with the direct and indirect actors.

3.1.10 Calibration and equipment:

Diameter tapes and hypsometers used for measurements were calibrated at the beginning of each field campaign.

GPS units were verified for accuracy before deployment.

Additionally, as described in the height section the use of equipment is also calibrated, when relevant.

3.1.11 Sampling approach and precision:

The Sample approach, using systematically distributed plot over a known UTM-grid has been chosen as it is easy to handle in the field. It is difficult to imagine that forestry staff will identify the plots and give differentiated management, as well as geographic variations are independent to the UTM-grids.

The challenge in this case is that the measuring plots are marked and the staff selecting trees for thinning may be influenced by this special status for the trees. To identify possible errors of this type Norteak sometimes makes additional measuring parcels with trees that are not being marked, and compare with densities in the official parcels. Generally, there have not been mention worth deviations,

and where they have been observed, it is for elder plantations, where the number of trees per plot is small, This ages are not part of the carbon project.

For management units (species-.year) with small planted areas the 3% sample may be insufficient to give a precise volume estimate. However, being the final data to present a global tree volume, for the VCU calculation the total project area is to be considered one single strata, with a 21 hectares sample out of 700 hectares and over 8000 trees measured. Using this reference the error margin is less than 1%.

3.1.12 Dissemination of Monitoring Plan and Results (VCS, 3.18; CCB, CL4.2)

A summary of this Monitoring Report, including Carbon Calculations is being published at the Norteak Web-site: www.norteak.com

3.2 Quantification of GHG Emission Reductions and Removals

3.2.1 Baseline Emissions (VCS, 3.15)

In the Validation process a baseline cero (0 emissions) was established, as the spread vegetation over the pastureland was considered irrelevant for quantification.

This supposition is considered also to be applicable for the new areas included in the project, as the same eligibility criteria has been used (no forest).

3.2.2 Project Emissions (VCS, 3.15)

The validation established that the project activities produce no emission relevant for accounting. No changes are observed.

3.2.3 Leakage Emissions (VCS, 2.5, 3.2, 3.6, 3.15, 4.3)

During the monitoring period, no other activities have been displaced, nor for the existing plantations, nor for the new that are included. Regarding the latter, the areas were already owned by Norteak at validation-time, and planting had be retained due to wind exposure (establish gradually in the hills)

3.2.4 GHG Emission Reductions and Carbon Dioxide Removals (VCS, 3.15, 4.1)

The Norteak Group project is requiered to calculate permanent risk. The risk assesment tool has been uploaded at the VERRA project hub.

Table 39: Non-permanence risk

State the non-permanence risk rating (%)	
Has the non-permanence risk report been attached as either an appendix or a separate document?	☒ Yes ☐ No
For ARR and IFM projects with harvesting, state, in tCO2e, the Long-term Average (LTA).	

Has the LTA been updated based on monitored data, if applicable?	☒ Yes ☐ No
State, in tCO2e, the expected total GHG benefit to date.	98,589
If a loss occurred (including a loss event or reversal), state the amount of tCO2e lost:	Loss event reported, however loss was neglible

Table 40: Removals during the Project Crediting Period

Vintage period	Baseline emissions (tCO_2e)	Project emissions (tCO_2e)	Leakage emissions (tCO_2e)	Buffer pool allocation (tCO_2e)	Reductions VCUs (tCO_2e)	Removals VCUs (tCO_2e)
First monitoring 2016-2021	*0*	*0*	*0*	5192		29419
29-MAR-2022 to 31-Dec-2022	*0*	*0*	*0*	2164	*0*	14481
01-Jan-2023 to 31-Dec-2023	*0*	*0*	*0*	3164	*0*	21175
01-Jan-2024 to DD-Dec-2024	*0*	*0*	*0*	2989	*0*	20005
01-Jan-2025 to 30-Abr-2025	*0*	*0*	*0*		*0*	*No growth*
Total this Monitoring	0	0	0	8317	0	55661
Total Crediting period to date	0	0	0	13509	0	85080

Table 41: Compare Achieved Removals in Monitoring Period with Expected

Vintage period	Ex-ante estimated reductions/ removals	Achieved reductions/ removals	Percent difference	Explanation for the difference
29-MAR-2022 to 31-Dec-2022	27821	16645	-40%	1) Height-diameter relation was found lower than projected. This affects the overall volume calculation, including the long term projection. Total carbon sink for the project will be reduced about 17%. 2) Initial projections were based on the mean growth class of all plantations. However, younger plantations using clones have better growth class, and their growth will count later in the project. Coming years, when the clone-plants will be fully active the volume should exceed initial expectations.
01-Jan-2023 to 31-Dec-2023	32617	24339	-25%	
01-Jan-2024 to DD-Dec-2024	26905	22995	-15%	
01-Jan-2025 to 30-Abr-2025	0	0	0	
Total	87343	63979	-27%	

3.3 Optional Criterion: Climate Change Adaptation Benefits

It is expected that the teak clones can take advantage of the lower tree density and increase timber dimensions.

Combining Teak and Natives (only at test level) should give a forest with more variation and a longer growth cycle. The first enhances biodiversity, the latter increases the carbon pool over time.

3.3.1 Activities and/or processes implemented for Adaptation (CCB, GL1.3)

Being the only significant Climate-change effect for the project area that hurricanes should be more frequent, the measures so far are an adaption of the forestry model with more spacing between trees and earlier and stronger thinnings. This should improve wind-resistance.

Additionally, a new forestry model combining teak with native species is tested. Regarding climate adaptation this should give two benefits: 1) Distribute risk between more species. 2) The dense

understory of native species may reduce risk for winds running over the ground, while the bigger teak trees should have stronger roots, as they have stood at distance, since planting.

4 COMMUNITY

4.1 Net Positive Community Impacts

4.1.1 Community Impacts (CCB, CM2.1)

No negative impacts identified, see sections about dialog with stakeholders.

One case of inconformity related to fire control and limiting hunting at Ekoteak. It is not clear if this means an "impact" for the community as the outcome of the illegal hunting is considered modest, and the activity is more to be seen as a hobby.

Table 42: Negative Community impact

Community group	Unidentified men from Apascalí and Elena Maria communities
Impact	Limited access to fire-hunting
Type of benefit/cost/risk	As the benefit is minimum, the problem is more related to the potential tensions with the community.
Change in well-being	Minimum

In 2023 Norteak formulated a plan for improving impact in the communities financed with sales of carbon credits, and to be implemented, once the sales of VCUs start to generate income:

https://cdn.prod.website-files.com/67c58fec0e41b17e30f0ae27/686d94623dc83558e562c00f_Plan%20de%20Acci%C3%B3n%20Impacto%20Social%20en%20las%20Comunidades%202023-24-0F030523.pdf

4.1.2 Negative Community Impact Mitigation (VCS, 3.19; CCB, CM2.2)

As mentioned above, get a better dialog with the involved people through community representatives.

4.1.3 Net Positive Community Well-Being (VCS 3.19; CCB, CM2.3, GL1.4)

According the Norteak´s monitoring of living conditions in the communities, through a survey visiting 285 households, there has been a consistent improvement of living standards in the communities over the last 12 years. In table 43, the results of the last two surveys are compared. A similar tendency is seen between 2013 and 2019, but due to variations in the questions, the elder data does not fit in the table.

Table 43: Comparing Indicators of living standard in Communities around Norteak farms, between 2019 and 2025 - Survey by Norteak

Indicator	2019	2025	Evaluation
How many people live in the house?	4.5	4	No clear message
Running Water supply from public or pond	60%	80%	Clear improvement
The house has a water-closet	30%	13%	Clear improvement
The house only has a latrine	61%	74%	(link to line above)
Clay floor in the house	80%	53%	Clear improvement
All the house build of wood	56%	47%	Minor improvement
Electricity connected to grid	76%	89%	Clear improvement
Privat energy supply (sun panels)	10%	7%	(link to line above)
Poses refrigerator	36%	57%	Clear improvement
Poses television	67%	50%	Reduction
There is a cellphone in the house	92%	97%	Minor improvement
There is a smartphone in the house		89%	(link to line above)
Have access to data/internet	61%	86%	Clear improvement
Passed a day without meal due to lack of money	17%	18%	No change
Receive money transfer from abroad	24%	32%	Minor improvement
Mean years assisting to school and higher education	3.62	4.14	Clear improvement
Clear improvement			7
Minor improvement			3
No change			1
Declive			1
% improvement			83%

It is not possible to establish a specific cause for this progress, as the nations economy has been growing, and there are several public programs to reduce poverty in rural areas. Norteak´s share of the land in the zone of direct incidence is less than 10%, and its is not realistic to get in touch with and benefit the entire society.

However, we consider, Norteak has contributed to the progress, with considerable benefits for our workers and also important benefits for another number of people.

Training

Training is here considered an **activity, where the person get skills for working**.

Norteak runs a number of training activities like courses, workshops, exchange and accompanying during implementation of a new skill.

Generally, the training is directed to the staff.

During the first monitoring period 25 Community members assisted at “real training activities”, 7 or 28% women. The major effort was a literacy program, which concluded in this period. Ohers were nursery management and use of specific tools.

In the second monitoring period, the activities with communities was only projects, consulting and information

Table 44: Extracts from the Training Register of Norteak, Training during the monitoring period:

		Activities attended				
Group	**Gender**	**Total**	**1 a 2**	**3 a 5**	**6a10**	**More than 10**
Permanent staff	Masc	138	21	24	32	61
	Fem	18	6	2	2	8
	Total	**156**	**27**	**26**	**34**	**69**
Temporary staff	Masc	101	63	24	32	1
	Fem	8	6	0	1	1
	Total	**109**	**69**	**24**	**33**	**2**
Other people		105	103	0	1	1
Totales personas		**323**	**295**	**100**	**135**	**143**

			Activities attended			
Group	**Gender**	**Total**	**1 a 2**	**Group**	**Gender**	**Total**
All employees	Masc	239	84	48	64	62
	Fem	26	12	2	3	9
	% Fem	10%	13%	4%	4%	13%
	Total	**265**	**96**	**50**	**67**	**71**

Table 45: Extracts from the Training Register of Norteak, data for project to date:

Gender	**Total**	**1 a 2**	**3 a 5**	**6a10**	**More than 10**
Male	570	166	156	110	138
Female	51	15	8	11	17
% Females	8%	8%	5%	9%	11%
Total	**621**	**181**	**164**	**121**	**155**

The percentage of women is low for two reasons. Those who come in stay longer, and tasks like kitchen, cleaning and nursery are frequently learned by informal training, as the group is small.

Conclusion: 265 people, 26 women has passed training during the monitoring period. During project lifetime the figures are around the double, as we count a mean of 140 people in training each year. However, it is difficult to state how many of these are the same

Employment

In the monitoring period the employment has been slightly below the aim for the project, and lower than in former stages. There are several reasons for that:

1. Most plantations have been established and have passed the age for intensive care. Only Norteak is planting new, such as renewal of older plantations and a biodiversity forest.

2. Employment from Logging is still modest, as the project-areas are still young, and for 2024-25 there have been delays in getting approvals.

3. Wood-processing is mainly done outside the communities, at Maderas Sostenibles factory, where there are better options to make quality products. If jobs at MSSA are added, the figure is significantly above expectations.

   So far, MSSA has processed the logs in a city, where poverty exists, but not at the subsistence-level described in the project document. Recently the sawmill part has been moved to a rural area, where conditions are more similar to the project area.

   Additionally, Norteak has installed a sawmill in La Embajada, wherefor some industry jobs are being created here.

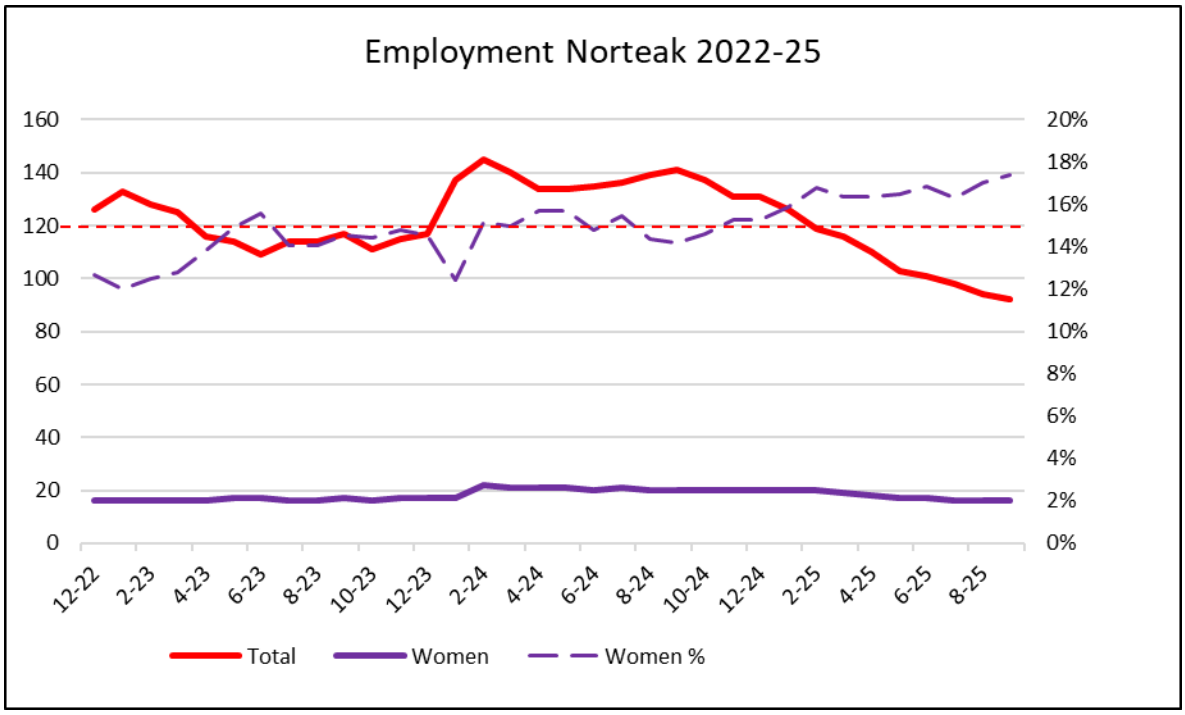


Table 46: Employment during the monitoring period and projection for the coming years

Company	2022	2023	2024	2025	2026	2027	2028	2029	2030
Norteak	116	117	136	105	115	125	130	135	135
Ekoteak	8	8	7	9	12	8	12	12	12
Limonapa	7	6	5	4	8	10	10	10	10
Jobs project área	131	131	148	118	135	143	152	157	157
MSSA factory	168.8	168.8	168.8	168.8	168.8	168.8	168.8	168.8	168.8
Jobs in Nicaragua	299.8	299.8	316.8	286.8	303.8	311.8	320.8	325.8	325.8
Women rural áreas	17	17	21	18	19	20	21	22	22
Women %	13%	13%	14%	15%	14%	14%	14%	14%	14%

Table 47: Salaries paid to community staff

Indicator	N – Obs	Paid salary US$	% of minimum wage	Including social benefits	Per day
Techncial Community staff	12	534	326%	605	20.2
Mean all community staff	77	377	230%	427	14.2
Mean all workers	65	350	214%	397	13.2
Lowest wage Norteak	1	236	144%	267	8.9
National minimum for agriculture		164	100%	186	6.2

* Only benefits paid in cash: 13th month and end of work compensation

Livelihoods, Overall living conditions

As shown in the table from the living conditions survey, there is a general improvement in living conditions in the area, and some of them are related to income. Additional income may come from working for Norteak or for companies and traders who sell us services and buy our products, others improve their grocery store selling to Norteak and our workers.

However, it is rather complicated to register these benefits, and for the report we will only register our staff and a few cases of people who left Norteak for better income. The major activity here is emigration, which sure increase income, independent what you can say about this as a solution for poverty. Others got a pension or bought enough cattle to live from that.

In the Norteak Group we have identified 20 former workers who have such a permanent benefit. One of the women.

Health

Norteak and Ekoteak has supported health infrastructure and watersupply, and we are convinced that people who has worked with us and their families have got better habits and better infrastructure in their homes. However, this issue needs further investigation to be documented, and for now we keep the approach from the Project Document and include only those covered by Social Security

The families of the staff get some health benefits from the workers' social security, as children and pregnant partners are covered by health care. However, we don´t poses data about how many get this benefit.

Therefore, for aims of this report health improvement is only documented for direct workers.

Education

Formal education. Formal education is generally promoted by the government, and our support tend to be very specific. However, there have been significant help to 3 schools in minor communities, where the children would not pass the first school years due to distance to the village.

In two communities, we consider the schools would not have been build with other resources, and therefor the children was in risk no to get into the education system.

Once the school is build, the Government has supplied teachers.

Table 48: Village-schools build or considerably improved with support from Norteak

Community	Help	Level	Estimated students	Women
Bijagüita	General building materials	Determinant	10	5
La Vega – Matagalpa	General building materials	Determinant	10	5
El Recreo	Materials for flooring	Important	10	5
Determinant help to			**20**	**10**

Water supply

The partners are aware of the importance of good drinking water.

The table shows different cases we have supported.

Table 49: Drinking water supply improvements from the project

Support for drinking water in rural households			
Community	**Support**	**Beneficiaries**	**Share of "investment"**
La Embajada	Materials for tube-system from new pumping house	500 (Women 250)	Modest
La Vega	Materials and legal help restoring water supply from well	50 families 200 (Women 100)	Decisive
Neighbors to farms	Permission to permanent use of wells at the farms	5 rural households 50 (women 25)	Generally, only permission. Other owner had given.
Elena Maria (Ekoteak)	Supporting water supply projects with materials and machinery	45 rural families (180 / 90 women)	Important

In the public water supply, including La Vega, the Health Ministry guaranties monitoring of water quality. In the private wells, Norteak has effectuated testing of water quality, finding no problems.

Except the project at La Embajada, we think the partners made a significant difference giving a total of beneficiaries: 430, 50% expected to be women = 165

General wellbeing

Beneficiaries of well-being are considered everyone who is considered having better livingconditions due to the project.

The indicator has a major risk of double-accounting, f.ex. that a worker and his family also improve access to water. We try to avoid this, using estimates:

Additional benefits not mentioned in former sections:

Improved access to remote sectors:

The major rural roads are built and maintained by central government, and the quality is steadily increasing. Sideroads are responsibility of Municipalities, which do not have the capacity to cover all demand. We have the following achievements:

Elena Maria community (Ekoteak): Road cut for vehicles for years. Ekoteak restored access at their own cost.

El Recreo (Norteak-Matiguas): Long passages of Access road from La Vega repaired at Norteak's account. Long term perspective to give full year access via a ferry over Rio Grande.

El Sahino, Quisaurita, Monteverde (Camoapa): Continuous co-investments: for maintenance and improvements

Main road to La Vega: 18 km with shares maintenance Community-Municipality-Norteak, and Norteak is building an alternative route to avoid heavy traffic on a vulnerable stretch

Cemeteries

Inside Norteaks farm there are 3 cemeteries attending several communities, such as La Embajada, Las Brisas and La Vega. In two cases there exist an agreement, and the third is to be negotiated. The history of these is different. At La Embajada it was a donation, the two other started spontaneously.

A rural household normally consist in more than one house, wherefor the mean of "family-members" is estimated to 10, different from a village-house, where the mean is registered to 4.

Overall Well-being calculations:

Only people who have received benefits to date, and in most cases continue to receive.

Table 50: Overview People with improved living conditions

Beneficiary	Benefits	People	Women
Current workers	Training, Employment, Health, Livelyhood	132	18
Current workers families	Higher, and stabile income-Family cover from Social security. Mean 3 per worker Women; 3 per male worker	396	171
Former workers	Long time benefits: Pensions, capital to improve living conditions.	20	2

	Training, monitoring period Training 2016-2021	133 (298)	8 (25)
. La Vega Community	45 village families, permanent water supply (minus workers)	170	90
Neighbors – water supply	5 rural families access to well in Norteaks farms	50	25
Elena Maria Community (Ekoteak)	Drinking water, access road and school. 45 families	180	90
Schools in 3 Community (Norteak)	Building materials for small primary schools. 10 students at a time, 50% children of workers	15	8
Neighbors – access	Permanent better access road, based on Norteak investment, 19 rural households	190	85
		0	0
Total Monitoring Period		**1286**	**497 (41%)**
Total project period		**1584**	**522 (33%)**

Activities not included, as the benefits were probable to happen anyhow, or not considered significant for well being compared with other factors present in the development of the society:

- Water supply La Embajada
- Small contributions to public school and health center, La Embajada
- Electricity, Elena Maria Community
- Cemeteries: Tailandia, La Embajada, Tanzania
- Improvement of existing public roads, even in some cases significantly improved

Adaptation to Climate Risk

So far, no specific climate risks are detected for the communities, which need specific measures. It has been told, that there will be more extreme weathers, including hurricanes, which is more a problem for a forestry business than for a cattle farm. The essential measures at this unspecific stage are to assure good standard of the houses and road infrastructure, which is a natural part of the ongoing development activities.

An additional activity could be to detect possible risks of flooding in residential areas. With the current low population density, the problem is considered marginal, as the people has space enough to place there house in a safe place.

4.1.4 Protection of High Conservation Values (CCB, CM2.4)

No HCVs related to community well-being in the project zone were identified

4.2 Other Stakeholder Impacts

4.2.1 Mitigation of Negative Impacts on Other Stakeholders (VCS, 3.18, 3.19; CCB, CM3.2)

No negative impacts identified

4.2.2 Net Impacts on Other Stakeholders (VCS, 3.18, 3.19; CCB, CM3.3)

No negative impacts identified. See sections about stakeholders consultation

4.3 Community Impact Monitoring

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

As mentioned in section 4.1.3 and reflected in table 33, Norteak conducts a formal survey each 5-6 years to observe general development of living conditions with the aim to adapt our activities to the actual problems and challenges.

In the other instances, which are minor players in their areas, the monitoring is limited to meetings with workers and other community members.

For the living conditions survey the central methodic elements are:

- Visiting basically all households in the surrounding communities. Potential target group aprox. 300 houses.
- For compare, from survey to survey the same houses are visited. Totaling 285 and 288.
- Survey with a closed list of previously formulated questions. As far as relevant, questions are repeated from one survey to another.
- Interviewers are preferably students, who don´t live in the communities.

Results of the 2025 survey:

- Living conditions increase continuously (se table 43)
- Our communities perform much better on social indicators than on income level
- Overall positive perception of Norteak and our activities, but the profile was lowered since 2019 with more neutral and blank respondents.

These results confirms that Norteak´s approach with focusing on creating quality jobs and economic activity is correct, and that we shall not give in to those who try to push on in direction of investing considerably in social programs.

This also validates the method in monitoring plan proposed in the project document:

4.3.2 Monitoring Plan Dissemination (CCB, CM4.3)

Results of the surveys and meetings have been shared with the relevant workers and community leaders.

4.4 Optional Criterion: Exceptional Community Benefits

Not relevant

4.4.1 Short-term and Long-term Community Benefits (CCB, GL2.2)

The central long-term benefit is that the project creates permanent skilled employment, including giving community members access to leading positions. This meets the central development challenge according to our community survey, which is to get access to monetary income.

Additionally, the project has a vision for creating increased economic activity in an associated wood working sector. The company expects to provide raw materials, skills and support market access to a local handicraft sector. This investment, however, is to be financed with the carbon credit sales, as it could not be expected to show any results at this stage.

4.4.2 Marginalized and/or Vulnerable Community Groups (CCB, GL2.4)

Table 51: Possible marginalized groups affected by the project

Community Group	Young people from rural communities with rather low formal education, whose skills are poorly recognized by society, wherefor they often get only temporary jobs at minimum wages
Net positive impacts	The project gives job opportunities which give directly income increase, but also gives a swift of skills, prepares them for a job at the formal jobmarket – whenever they continue at Norteak or go elsewhere.
Benefit access	Main barrier to grow in the job is illiteracy. Norteak has offered literacy courses to the workers in that situation.
Negative impacts	Negative impacts not identified

4.4.3 Net Impacts on Women (CCB, GL2.5)

As forestry work tend to be physically demanding, the project will not reach the equal numbers of men and women. The approach has therefore been to assure that the women coming into the organization have access to positions at all levels.

As demonstrated in section 2.3.10 of the Project Document women has relatively better positions and income than men. For present we have women in the following positions:

- Safety inspector
- Forestry Division Administrator
- Sales official
- Nursery leader
- Kitchen and household leader

With deep satisfaction, we have noted that in the internal surveys, no female respondents indicate any signs of sexual harassment or discrimination.

4.4.4 Benefit Sharing Mechanisms (CCB, GL2.6)

The project setup does not involve benefit sharing as the stakeholders are not partners to the project and have not ceased and rights or benefits to it.

4.4.5 Governance and Implementation Structures (CCB, GL2.8)

The project are organized as private companies with participative planning processes, and searching dialog with neighbors and other stakeholders, but the final decisions are taken by the competent structures.

4.4.6 Smallholders/Community Members Capacity Development (CCB, GL2.9)

Norteak has a constructive relation with the communities, which involve cofinancing a number of projects related to roads, schools, cemeteries, police station, health center and water supply. These projects are possible due an existing capacity in the communities do take actions together, and we consider these capacities increase by doing projects.

5 BIODIVERSITY

5.1 Net Positive Biodiversity Impacts

5.1.1 Biodiversity Changes (VCS, 3.19; CCB, B2.1)

The central biodiversity aim of the project is not to establish conditions for reducing vulnerability of a strongly challenged biodiversity.

We think most native species of flora and fauna are still present in the landscape, but some populations are reduced to critical levels and may be expelled little by little, as it has allready happened for jaguar and puma. We also identify tree species belonging to the ecosystem, which can be hard to find.

Our central effort is to assure habitats, where the populations can restore, such as the case with the monkeys mentioned in the first form. One important exception to this approach is the original high forest on fertile soil, which has been totally replaced by grass and crops. For this we have the project mentioned in table 52 – block 3.

Table 52: Changes in biodiversity

Change in Biodiversity	*Monkey populations*
Monitored Change	*Monkeys were seldom when the project started. Now there are frequent observations of* *Spider Monkey: At least two gangs)* *Howler Monkey: Several groups being seen and heard*
Justification of Change	*Monkeys depend on tree cover and return with reforestation. Fortunately, they also like to climb teak, but the extended protection areas surely play a key role.* *Methodology – simple observations*

Change in Biodiversity	*Closed native forests*
Monitored Change	*30% of the farms are covered with protection forests, which is allowed to grow wild (1000 hectares). These forests are significantly more extensive, denser and older than before project.*
Justification of Change	*A portion of the grassland taken over by the forestry projects is not feasible for commercial forestry, wherefor the project partners opted for leaving it to nature.*

Change in Biodiversity	*Bringing marginalized tree species back to the area*

Monitored Change	*17 hectares of Plantation established in connection to existing rainforest with species know in the area, but very rare to observe in the fields as their habitat does not combine with cattle grassing.*
Justification of Change	*This is an artificial plantation established by Norteak, as the species are considered to marginalized to reestablish spontaneously within a reasonable timeframe.*

Change in Biodiversity	*Diversified Habitats managing tree cover*
Monitored Change	*33 hectares of protected area around a stream managed with a major open area of grassing cattle to ensure living conditions for species demanding light and space. Additionally, developing systems with mixture of teak and native species, which will give a more open forest with two canopy level.*
Justification of Change	*Reforestation tends to be more uniform than natural forests, and as young forests are rather dense there will be few gaps that are needed by bird, butterflies, and several herbs.*

5.1.2 Mitigation Actions (VCS, 3.19; CCB, B2.3)

The teak plantations combining with "wild" protection areas are considered positive for the biodiversity. The company has analyzed available data and performed our own research regarding risks that the massive presence of the exotic species Teak may represent. No critical indications have been found.

We have a – so far theoretical – concern, that when closed forests raise over the land, a number of light demanding habitats will disappear, such as wetlands along streams and rivers. By natural circumstances, floods, fires and fallen old trees will create such gaps, while a commercial reforestation will generate only, high healthy forests. A simple indicator of this, is when we visit our rainforest. Inside the forest you see practically no animals or insects, but just you come to a clearing, you are met by butterflies.

The concern is theoretical, as we only manage about 8% of the area and the rest is kept with cattle. However, as a symbolic measure upon the risk, Norteak has designated a waterlogged area close to a stream to permanent grassing.

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

In this section we follow up on the biodiversity indicators analyzed in the first monitoring report section 5.1.1.

Table 53: Monitoring Biodiversity Elements

Biodiversity Element	Forest Cover

Monitored Change	Positive - Actual - Direct . During the monitoring period, the increase in forest cover through reforestation activities with Teca (Tectona grandis) and a variety of native species added 42 hectares of forest. During the same period the first plantations grew up and formed forests, which due to our management methods stepwise will give gradually improve conditions for many types of wildlife. The health and composition of the forests are duly monitored and found healthy.
Justification of Change	The monitored changes are direct, positive and actual because the reforestation with teak plantations promotes the gradual recovery of lands degraded due to anthropic pressure (by cattle raising and subsistence agriculture). The project site has increased its forest cover improving habitat and ecological connectivity within plantations patches.

Biodiversity Element	**Flora**
Monitored Change	Positive - Actual - Direct As a result of direct action from the project, tree species almost extinct in the area have been planted in an area of 17 hectares. In the protection areas, f.ex. along the rivers, other native tree species are assured space for establishing and growing elder. With the age, the trees facilitates niches for climbers and epiphytes as well as for insects and fungus. This process is also observed in the teak plantations, where a herb and bush vegetation establishes over the ground, and after 12-15 years the first epiphytes take place in the individuals with open crowns. Finally, the change is direct because the mere action of planting native species is restoring the structure and composition of native forests in the area.
Justification of Change	The change is a direct consequence of the reforestation model with interconnected areas of naturally growing forest and teak plantations, where the latter is managed in a way that admits the entrance of light and the presence of a forest floor vegetation The impact will improve as the forest ecosystem as a whole get older.

Biodiversity Element	Fauna
Monitored Change	Positive - Actual - Indirect The implementation of project activities, with the aim of producing a positive impact on biodiverszity resulted in positively impacted the fauna in the project area. The dense teak understory and Tanzania reserve act as biological corridors that enhance and maintain crucial habitats for wildlife. By the 2024 Natural Values inventory the list of animal species was revised with the staff moving in the field, and generally presence of the same species was confirmed: Mammals: 49 Species (no changes) Reptiles: 45 species (no changes) Amphibians: 16 species (no changes) Birds: 221 species. (8 more) Being the species basically the same, there is a change in the frequency for observing some animals, such as monkeys and parrots. Finally, the change is indirect because the project is not introducing fauna species; however, the site management is actively supporting habitats, and consequently, wildlife can thrive.
Justification of Change	Only little change was observed, but a stabilization of some vulnerable populations, which is considered a result of having more extended forest areas and a strong discipline within the staff about avoid hunting and killing of animals.

Biodiversity Element	Habitat Connectivity/Fauna
Monitored Change	Positive - Actual - Direct Foster ecological corridors All forest types in the areas are improving, Plantations closing canopies to forests and the different types of protection forest being completed by natural processes. After establishment weed control and use of chemicals gradually reduced. There are therefore, year by year, less inhibitors for the traffic of animals and seeds through the farms. The change is direct, as it is a consequence of the land-use model and forest management technics.

[29] Gauthier (2019). Norteak: A Profitable Ecosystem Project.

Justification of Change	Connectivity is important for most species in nature, to avoid inbreeding and degeneration in the populations over time. The connections work in different ways, according to the means for transportation. The animals move themselves, and for some the most important is connected tree crowns, others need protection. For some plants these movements of the animals are fundamental moving seeds, other plants have airborne seeds and pollen, and they may be sensitive to direct distance between the families. Those which do "migration via settlements" need to find open soil, or older standing trees, where the can germinate and start a new population.

Biodiversity Element	**Protection of riparian forest**
Monitored Change	Positive – Actual - Direct Conservation/ Foster ecological corridors Protecting riparian forest through the maintenance and no silvicultural activities are actual and direct changes. Additionally, the changes are direct because is fostering ecological connectivity within the project area. During the monitoring period there has been no intervention in the riparian forests and they are all reported to be healthy. Montoring reports spread traffic of cattle, mostly going for drinking water. At the current level, the movement of cattle is considered more beneficial than harmful to the ecosystem. The protection is Direct, as Norteak has been conscient in leaving these areas without intervention.

Justification of Change	Riparian forest protection and teak plantations improve connectivity conditions that are favorable for many species of generalist mammals that use these forests as a refuge and food source. The quality of the habitat is favored by the availability of permanent surface water, which represents a very favorable condition in the dry season. Riparian forests also play an important role as biological corridors between natural habitats for birds and mammals because of the protection they offer, the abundance of for birds, the protective forests

5.1.4 High Conservation Values Protected (CCB, B2.4)

As mentioned in the VCS Project Description (section 2.3) in the project zone, specifically in the north of Tanzania farm, is possible to find the Tanzania Wildlife Private Reserve. According to the inventories carried out, it is estimated that the forest in the reserve is around one hundred years old. The area has had little intervention, it has considerable volumes of valuable woods such as Mahogany and Pochote, and it is sufficiently recovered to be called a natural forest. Since it is rare to find forest formations of this quality in the central region of Nicaragua, Norteak decided to declare it a Natural Reserve and commit not to intervene in the area in any way that could affect the natural values.

The reserve covers a total of 170 ha, including a buffer area with teak plantations. Flora and fauna studies have been carried out in the reserve, and the results indicate that there is greater biodiversity, compared to the secondary forest areas in the rest of the farms. This confirms the importance of protecting the area. The activities contemplated in the reserve are:

1 Research and monitoring, mainly through external experts, since Norteak's staff has no experience with the biology of this forest.

2 Protect fauna threatened by hunting and find ways to control this activity.

3 Give access to people interested in observing biodiversity, but without the intention of entering the tourism business.

4 Annual assessment of the status of the protection area (inventories of fauna and flora, identification of threats, damages, or changes). The assessment involves workers, neighbors, and university students.

4.1.1 Species Used (VCS, 3.19; CCB, B2.5, 2.6)

To date, the project has only used tree species. At an initial stage there was some intents to make weed control with leguminous plants. At that time, it was no success, as these could not stand the competition with the grass.

Teak (Tectona grandis) is by far the most used species in the plantations. Other exotic tree species have been planted, more for knowing them and their potential, than with the idea of giving them a role in commercial forestry. 26

Table 54: Tree species planted by Norteak group	
Exotic - introduced from other Country	
Azadirachta indica var. siamensis	Neem
Eucaliptus camaldulensis	Eucalipto
Gmelina arborea	Melina
Paulownia elongata	Paulownia
Tectona grandis	Teak
Introduced from other parts of Nicaragua	
Ceasalpinea violacea	Chocuabo
Dalbergia retusa	Cocobolo
Dalbergia spp.	Granadillo
Dipteryx oleífera Benth	Almendro
Guiacum sanctum	Lignum vitaea
Phyllostylon brasiliense	Escobillo
Pinus cariberea	Alamikamba Pine
Pinus Tecunumanii	Yucul Pine
Vochysia guatemalensis	Palo de agua
Native to the region	
Anacardium excelsum	Espavel
Cedrela odorata	Cedro real
Cordia alliodora	Laurel
Enterolobium cyclocarpum	Guanacaste
Ficus elastica	Rubber tree
Gliricidia sepium	Madero Negro
Hymnea courbaril	Chatoba - Guapinol
Manilkara chicle	Nispero de Montaña
Myroxlon balsamun	Balsamo
Platymiscium dimorphandrum	Coyote
Samanea saman	Genizaro
Swietenia macrophylla King	Caribean mahogany
Tabebuia guyacan	Caribean ipé

Table 55: Exotic species used by Norteak

Species introduced	Classification	Justification for use	Adverse effects and mitigation
Teak, Tectona grandis	Tree	Support projects economy	Not identified
Azadirachta indica var. siamensis	Tree	Genetic bank	Not identified

Eucaliptus camaldulensis	Tree	Test plantation	Not identified
Gmelina arborea	Tree	Test plantation	Not identified
Paulownia elongata	Tree	Test plantation	Not identified

4.1.2 Invasive Species (VCS, 3.19; CCB, B2.5)

The adverse effect of planting a non-native species such as teak has been thoroughly investigated and found to be close to nonexisting, when just basic forestry practices are respected. For any case, the teak is not planted in the river buffer zones and the spread of teak outside the plantation can easily be controlled, since dispersal distance of teak seeds is limited. Teak cannot invade areas with high grass vegetation (such as the ones surrounding the plantations) without human interference because it is a high light demanding species. Therefore, no ecological damage is caused to the environment although the project is mainly focus on non-native species.

Several studies a good integration of teak in the local flora and fauna.

Table 56: Invasive species

Existing invasive species	Mitigation measures to prevent spread or continued existence of invasive species
Panicum maximum (pasto India), a gramine used for grassing. Spreas easily with the wind, establish dense root systems and make a compact cover at 2-3 meters height. Small forestry plants cannot compite.	The plant must be eradicated from the plantations by a combination of glyphosate, grassing and shading.

4.1.3 GMO Exclusion (CCB, B2.7)

GMOs are prohibited in Nicaragua and not available.

4.1.4 Inputs Justification (VCS, 3.19; CCB, B2.8)

Generally, the project does not use fertilizers or biologic agents. There has been some testing of adding mycorrhiza fungus to the soil and different treatments with fertilizers, such as Calcium, Nitrogen and in an early stage also NPK combinations. The effect on growth did not justify these interventions, and lately the trials are focused on action that may avoid bending of trees in the young age due to deficit of specific nutrients. At present a trial is active at Ekoteak with Manganese, and as the method is probable to be implemented at scale, in that area, we include a box about it.

Table 57: Fertilizers in active use

Name	Manganese fertilizers
Justification of Use	Teak trees bend and develop a crwon at the height of 2-5 meters, where you normally expect a commercial bole of 7-12 meters.
Name	Available compositions containing mainly Manganese
Justification of Use	Justify manganese deficit has been detected through decolorization of leaves and later confirmed at laboratory both in soil and leaf tests. According to literature, this deficiency cause fragile sprouts and potential bending. The project area got an initial dose in 2016, and seems to have improved compared to other areas. In 2023 a formal trial was set up.
Adverse Effect	Manganese may cause injury when used in excess. However, an eventual systematic use would be limited to small doses during first years of living, which are expected to be absorbed by the trees. In case not absorbed, it should be bound to the soil due to the rather high pH (aprox. 7)

General note about use of pesticides: As an FSC certified operation Norteak counts with a specific study for each product used (ERAS), in which the need and potential harm is revised. These studies includes measures to avoid leakage to nature or harm to the workers. The application of these protocols is supervised by the internal safety inspector and the FSC-certification.

The two small instances, which are for now not FSC-certified, do not use pesticides.

Table 58: Pesticides in active use

Name	Glyphosate
Justification of Use	Eliminate invasive pasture affecting tree growth
Name	Different compounds are used
Justification of Use	Glyphosate is clearly the most used chemical at Norteak To improve grassing the cattle farmers have introduced pastures with extra strong growth and resistance, among these Panicum maximum. Young trees cannot compete with these, and mechanical control will just further stimulate the dominance of grass. May be used during the first 3 years of plantations life. As soon as the tree stems are solid, eventual harmful grass is controlled with cattle. Cover-plants that can control grasses in the younger plantations are to be tested, and this may in best case reduce the use to one dose during plantations lifetime.
Adverse Effect	Glyphosate is among the less harmful pesticides, but effects from intensive use are a topic for analysis and dispute at international level. We are quite confident that the reduced quantities we use, only during a short part of rotation, is distant from the cases investigated. Anyhow, as described above, it is intented to keep the use at a minimum.

Name	Triclopyr
Justification of Use	Control of climbers and other aggressive herbs
Name	Mainly using the commercial product Garlon
Justification of Use	Generally broadleaved herbs are welcome in the plantations, as the help to control the grass. However, there are some exceptions, such as climbers of the genus Convolvulus, which may cover the ground with a thick duvet, and when trees rise climb them and bend the stem. Mechanical combat is practically impossible as the plants survive as nodules in the soil. The plant is resistant to glyphosate. Garlon is mixed with the glyphosate in those places where nodules are detected. In elder plantations they can be controlled by the cattle.

Adverse Effect	Garlon is considered not to be harmfull to humans, and surely not in the quantities and frequences of use here.

Name	Imidaclorprid
Justification of Use	Combat worms from the beetle family Melolonthidae eating roots of new plants. Also used against leaf eating ants (zompopos)
Name	If available the product Jade is used. In case not found compounds based on Bifentrina may be used
Justification of Use	Before using, plantations suffered 30% of mortality from the worm. Adding 5 g of Jade to the planting whole practically eliminated this cause of death. Spread attacks of zompopos is not a problem, but the ant tends to identify weak areas in the plantations and keep these plants practically naked. If controlled after the first defoliation, the trees may recover.
Adverse Effect	Used once during plantation life, in small quantities. The product is buried in the soil, and the toxicity is related to gases, which will never come to surface, Combat of zompopo is also beneath the ground.

4.2 Offsite Biodiversity Impacts

4.2.1 Negative Offsite Biodiversity Impacts (CCB, B3.1) and Mitigation Actions (CCB, B3.2)

Table 59: Negative Offside impacts

Negative Offsite Impact	Mitigation Measure(s)
No negative effects identified	.

4.2.2 Net Offsite Biodiversity Benefits (VCS, 3.19; CCB, B3.3)

As no biodiversity harm is identified the net effect are the benefits described in section 5.1.3

4.3 Biodiversity Impact Monitoring

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

Norteak makes an annual evaluation of Natural Values, inside the plantations, along streams and in protection forest. The central objective of the study is to assure that nature-conserving management practices of the plantations are respected, and that the other areas are undisturbed at a reasonable level (f.ex. it is being discussed if modest traffic of cattle is a harm or a good compensation for bigger native herb-eaters like dears and tapirs).

The basic supposition is, that when the ecosystem is healthy biodiversity will strengthen.

Table 60: Outcome of evaluation of status of Natural Values Management

Note	Meaning	2016	2017	2019	2020	2021	2022	2024	2025
1	Critical	0	0	0	1	0	0	0	0
2	Concern	1	1	1	0	2	1	2	1
3	Observation	32	27	40	18	6	6	24	58
4	All OK	101	136	133	155	166	167	148	114

As seen in the table, severe problems are not a topic. There is a number of observations, which depend a little on the time of year the data is taken (variation is intentional), as small quantities of garbage and other traces may be hidden, when grass is strong or washed away by the water.

Most observations are related to cattle, which may be part of the management, ref. note about reducing use of pesticides. However, the monitoring is important to assure that presence does not merge into injury.

The evaluation also includes revision of list of animal species, among others confirming that species of special interests, such as monkeys, sloths and arnt eaters are still present. So far, no species has been lost.

Table 61: Animals with a risk level at IUCN

Species	Cientific name	UICN Status	Norteak Status
Spider Monkey	*Ateles geoffroyi*	Endangered	Rare, Improving
Higland guan	*(Penelopina nigra)*	Vulnerable	Common
Crocodile	*Crocodylus acutus*	Vulnerable	Stable, big rivers
Howler monkey	*Alouatta palliata*	Vulnerable	Common, Improving
White-lipped peccary	*Tayassu pecari*	Vulnerable	Stable
Neotropical otter	*Lontra longicaudis*	Observation	Stable
Oncilla	*Leopardus wiedii*	Observation	Stable

Additionally, when there is an opportunity to count with specialists, specific studies are implemented. We can mention:

Table 62: Studies of biodiversity in Norteak Group farms

Study	Topics	Year
Perfil ecológico rápido de Limonapa, by Martín Lezama-López y Kevin Gauthier	General review of conservation status and biodiversity in the properties	2021
Perfil ecológico rápido de Ekoteak, by Martín Lezama-López y Kevin Gauthier	General review of conservation status and biodiversity in the properties	2021
Perfil ecológico rápido de Norteak, by Martín Lezama-López y Kevin Gauthier	General review of conservation status and biodiversity in the properties	2021
INVENTARIO FLORISTICO DEL SECTOR NORTE DE LA FINCA TANZANIA, NORTEAK, MUNICIPIO DE BOACO, by Alian Meyrat	Inventory of plant species in the Rain forest reserve at Tanzania farm, based on a 2% sample. 254 species identified: 98 trees, 88 herbs, 64 climbers, 4 epiphytes	2019
Butterfly species Tanzania Reserve- two studies: Kevin Gouther and Withold Zawadzki	Listing butterfly species (127 identified). Both published in Revista de Biodiversidad of Nicaragua	2018
Assessment of the ecological quality of tropical creeks and other important aquatic habitats in a landscape dominated by teak plantations under Norteak Nicaragua S. A.. Kevin Gouther and Norteak Staff	Using a method of biologic indicators the health of selected streams in Norteaks farms was revised, and generally found high. Just pay attention to areas close to crossing roads.	2020
Evaluación de la calidad ambiental y de la diversidad faunística de las fincas con plantaciones de teca (Tectona grandis) de Norteak Nicaragua S.A, by Kevin Gouther	Evaluation of role in teak plantations in creating natural values in combination with protection forests. (Led to a publication in Revista de Biodiversidad of Nicaragua)	2019
Representación de Ecosistemas Naturales en fincas de Norteak, Ove Faurby	Revision of local ecosystems marginalized or in danger, with the aim to identify needs for restauration.	2023
Monitoring of Birds	Several visitors and lists	2017 - 2021

Few recent studies are presented, among others because a new regulation states that any monitoring of biodiversity requires a permission from the Ministry of Environment, and we have been waiting to see the implementation of this mechanism.

4.3.2 Biodiversity Monitoring Plan Dissemination (CCB, B4.3)

Most reports have been published at Norteak's web-site (www.norteak.com), but are not available today, as the editors of the page evaluated that excess of material could affect our readers capacity to identify the most relevant stuff.

Present at the website:

List of tree species at Norteak:

https://cdn.prod.website-files.com/67bed2fce690cc4fe2ff4180/67e4051e6864493d56221ab1_List%20of%20trees.pdf

List of animal species at Norteak:

.....

Evaluation of Natural values at Norteak .....

The three articles mentioned above at Revista de Biodiversidad de Nicaragua, were available at the editors website, until this closed down.

Bird-watching registered at E-Bird.

Studies have also been mentioned and published at Facebook, f.ex.

https://www.facebook.com/photo?fbid=924539844580595&set=a.559084174459499

https://www.facebook.com/watch/?v=288711299249589

Specific observations of animals have been publiced on Facebook to see if locals could respond, f.ex. helping with identification, but there have been little interest.

Further communication should be part of the long term social and environmental plan, mentioned in the Social Impact section, however major actions are now subject to the Biodiversity Monitoring rules and may be difficult to implement in the current national context.

Results for monitoring:

- The forest restauration project connecting to the Rainforest at Tanzania is formulated based on tree-species monitoring. F.ex. finding elephant bills in the farm, and realizing that these need stems from big dead trees to survive, it was decided to cut a number of not relevant, big trees (Guanacaste, brought in by the cattle) and leave at the ground in the new forest.
- The rather good biodiversity found in relation to teak (not expected) has lowered our focus and creating corridors through the plantations, and instead focus on assure a healthy forest floor vegetation, promote combination with teak and other species and revise possibility for letting part of the teak be older.

4.4 Optional Criterion: Exceptional Biodiversity Benefits

The advance of the endangered Spider monkey to have permanent presence in the area is considered a significant achievement

4.4.1 Trigger Species Population Trends (CCB, GL3.2, GL3.3)

Not identified

6 APPENDIX 1: NEW PROJECT AREAS AND STAKEHOLDERS

No new areas included, no additional stakeholders identified

7 APPENDIX 2: PROJECT RISKS TABLE

Table 63: Project External Risks

	Identified risk(s)	Potential impact of risk on stakeholders, ecosystem health, and biodiversity	Mitigation or preventative measure(s) taken
Impacts on biodiversity and ecosystems	Teak monoculture affects biodiversity	Our studies show that the problem is modest, and that teak is not invasive.	Leave bigger, old trees of non-commercial inside the plantations, if present. Let a bush vegetation grow under the teak. Testing combinations of teak with other, slower growing species of precious woods.
Soil degradation and soil erosion	No relevant risk	Climate topography of central Nicaragua does not make negative effects likely. Western Nicaragua has problems with dust storms from naked soils after ploughing during dry season.	The plantations create a Permanent soil cover and a wind shelter that may mitigate effects of dusts from peanut farming. Good road maintenance.
Water consumption and stress	No relevant risk	Water supply is abundant in the areas compared to population	Good soil management and minimization of use of chemicals.
Risks from heavy traffic	Log transportation uses heavy trailers, which can be difficult to handle on smaller rural roads in poor conditions.	Accidents make cause injuries to people, houses, cattle etc	Ensure that drivers – also subcontracted – are duly instructed in their responsibility and specific risks on their route. Procure high standards of road maintenance,

8 APPENDIX 3: COMMERCIALLY SENSITIVE INFORMATION

Use the table below to describe the commercially sensitive information included in the monitoring report to be excluded in the public version.

Section	Information	Justification

So far, no sensitive information included