



2025

BASELINE REPORT

VERIFIED CARBON CREDITS (VCC)

Proyecto Pájaro

JJCL-001-MEX-15102024 ALVARADO, VERACRUZ DE IGNACIO
DE LA LLAVE, MÉXICO

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EXECUTIVE SUMMARY

The baseline report of the plantation project is a necessary activity for their certification since it will allow for establishing the initial parameter of biomass generation and carbon sequestration in each of the projects. The report will consist of the generation of NDVI and biomass indexes, which are generated through a specific methodology and with the use of satellite images and high-resolution ortho mosaics.

The mangrove reforestation and restoration project in Veracruz, Mexico, entailed planting a total of 85,240 mangrove trees, representing three (3) distinct species consisting of a variety of mangrove plants native to the region and well-suited for adverse environmental conditions. The primary objective of this initiative is to restore degraded mangrove ecosystems, rehabilitate the hydrological network, and enhance natural regeneration while mitigating the effects of livestock activities, climate change, and deforestation. Additional activities include forest inventory, mapping, fire prevention, and community engagement to promote ecological balance and long-term conservation.

The project area covers a total of 179.56.56 hectares, with 80 hectares undergoing restoration. Within this, 53 hectares have been designated as the active intervention zone, while 23.7 hectares were impacted by fire. Reforestation efforts were strategically planned based on microtopographic levels, with species distribution zoned accordingly:

- 46 hectares for Black Mangrove (*Avicennia germinans*)
- 30 hectares for White Mangrove (*Laguncularia racemosa*)
- 1 hectare for Red Mangrove (*Rhizophora mangle*), planted along the site's borders and interior lagoons

To support natural regeneration, 10,000 seeds were dispersed, and over 6,592 m³ of channels were excavated to restore water flow. Firebreaks and fencing covering 5.82 km were also implemented to prevent wildfires and protect reforested areas. After six (6) years of intervention, the site has experienced a 25% increase in natural regeneration, with an estimated 80,560 surviving mangrove trees in the intervention area and an additional 60 hectares of mature mangrove trees.

Attributed to the reforestation activities, a total CO₂ capture of **47,517 tCO₂eq** was calculated over the 32-year lifespan of the project. Additionally, beginning in Year 1 of the project registration (2026), the project may also generate carbon credits attributed to natural regeneration, which will be estimated in the dynamic baseline report.

Moving forward, the project aims to restore the burnt region, implement further fire protection, and support the natural regeneration of the mature mangroves, thereby ensuring the long-term health and sustainability of the ecosystem.



I. PROJECT DESIGN

This section is based on the information compiled in the PSF Format - Project Submission Form prepared by the project developer.

I.1. PROJECT LOCATION

The project is in Alvarado, Veracruz (Mexico). The reforested plot is composed of mangrove and open water channels. A project location map is illustrated in Figure 1. Table 1 shows the central coordinates of the reforested Plot.



FIGURE 1 PROJECT LOCATION
TABLE 1 LOCATION OF PROJECT PLOT

Plot	Coordinates	
	Latitude	Longitude
1	18.638917°N	-95.746944°W



I.2. ADMINISTRATIVE SPECIFICATIONS

This section introduces the project developer, outlines the project type, and specifies the nature-based credits for which the proponent is applying.

I.2.1. PROJECT DEVELOPER

Key project	JJCL-001-MEX-15102024 ALVARADO, VERACRUZ DE IGNACIO DE LA LLAVE, MÉXICO
Title of the project activity	Proyecto Pájaro
Company	Juan José Cervantes Lara
Person responsible	Juan José Cervantes Lara

I.2.2. TYPE OF PROJECT

Project registration year	2025
Project duration	32 years
Issuance of credits	Annual
Methodology applied	<i>Methodology for carbon removal through mangrove restoration V2.0</i>
Type	<input checked="" type="checkbox"/> Forest management <input type="checkbox"/> Regenerative agriculture <input type="checkbox"/> Silvopastoral management <input type="checkbox"/> Individual tree-based climate action / urban forest <input type="checkbox"/> Water flow restoration <input type="checkbox"/> Biochar

I.2.3. VNPCs THE PROJECT IS APPLYING TO

Type of VNPCs the project is applying for	<input checked="" type="checkbox"/> Verified Carbon Credits (VCC) <input type="checkbox"/> Verified Biodiversity Based Credits (VBBC) <input type="checkbox"/> Verified Water Credits (VWC) <input type="checkbox"/> Verified Soil Credits (VSC)
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II. PROJECT AREA BASELINE

According to the ESA-worldcover-v200 land-use/land cover map, the project area is composed of mangroves, wetlands, open water, and it includes a few patches of forested areas in the far north and far south quadrants of the project area.

II.1. SPECTRAL RESPONSE

When solar radiation interacts with an object, one of three situations can occur, either individually or in combination:

- Reflection: The radiation can bounce off the object partially or entirely, resulting in reflection.
- Absorption: The object can absorb the radiation, taking in its energy.
- Transmission: Radiation can pass through one object and reach another, known as transmission.

The extent to which radiation is reflected, absorbed, or transmitted depends on the specific physicochemical characteristics of the objects involved. However, for object identification purposes, our primary interest lies in the reflected light or radiation at different wavelengths. For instance, vegetation exhibits low reflectance in the visible range, but the presence of chlorophyll in plants increases reflectance in the green channel. On the other hand, plants demonstrate the highest reflectance in the near infrared region of the electromagnetic spectrum.

II.1.1. INDEX

Vegetation indices (VI) are extensively employed for monitoring and detecting changes in vegetation and land cover. These indices are created by considering the contrasting absorption, transmittance, and reflectance of energy by vegetation across the red and near-infrared portions of the electromagnetic spectrum. Numerous studies have demonstrated that the Normalized Difference Vegetation Index (NDVI) is particularly resilient against the influence of topographic factors. NDVI is commonly utilized as a broad indicator of photosynthetic activity in plants and the corresponding aboveground primary production.

The calculation of NDVI was performed using Sentinel-2 satellite images in the Google Earth Engine platform. Images with less than 30% cloud cover were selected for each month. The assessment focused on the average monthly NDVI time series spanning from January 2019 to January 2025. The NDVI analysis in Figure 2 shows relatively stable vegetation health over time, with some seasonal and interannual fluctuations. The 12-month moving average remains consistent, staying within the 0.65–0.75 range, indicating sustained healthy vegetation cover. However, there are notable variations, particularly in individual NDVI values, which show wider variability in some periods, influenced by climatic factors or disturbances. Monthly rainfall fluctuates significantly, with peaks aligning with higher NDVI values, suggesting a correlation between precipitation and vegetation health. Periods of reduced rainfall appear to coincide with dips in NDVI, highlighting the dependence of vegetation on hydrological conditions. Overall,





continuous monitoring is necessary to assess any potential impacts of climate variability or land use changes on the ecosystem.

Given the known information that a healthy, dense vegetation canopy typically exhibits NDVI values above 0.5, while sparse vegetation generally falls within the range of 0.2 to 0.5, the current assessment indicates that the project area boasts healthy vegetation, and further project activities are expected to maintain and improve vegetation health and support ecological balance within the mangrove.

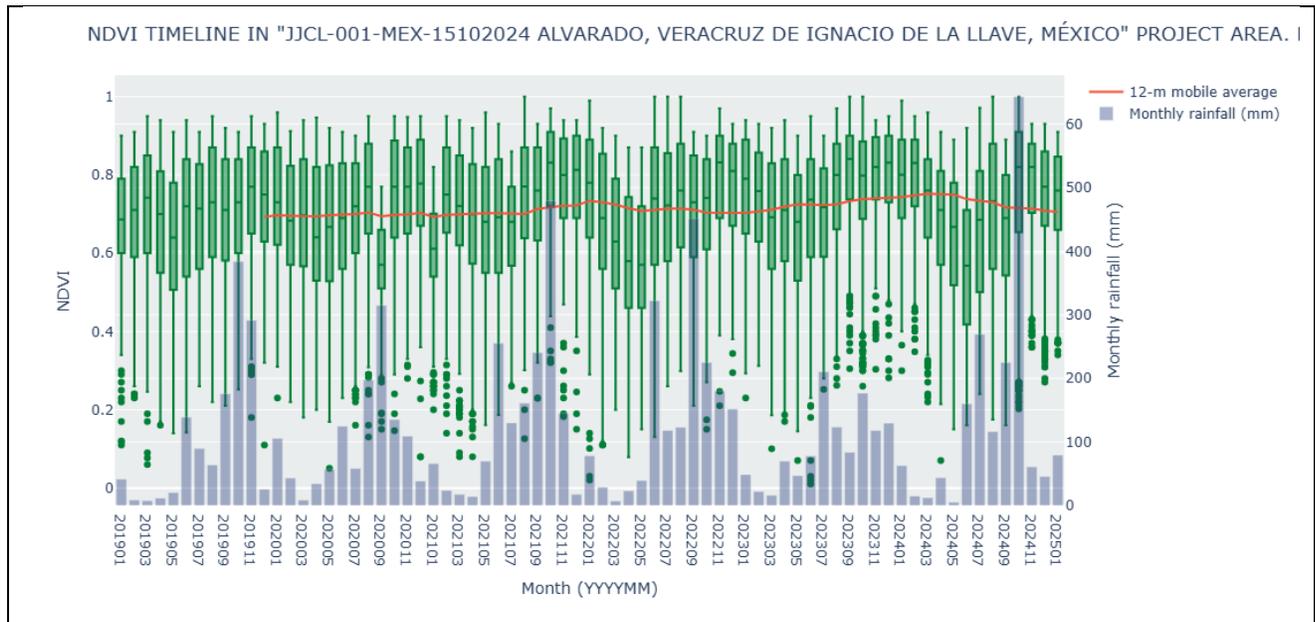


FIGURE 2 NDVI TIMESERIES IN THE AREA OF INTEREST

II.2. IMPACT ON THE LANDSCAPE

The project has significantly transformed the landscape through large-scale mangrove restoration and conservation efforts. Spanning 179.56 hectares, with an active intervention zone of 80 hectares across both restored and naturally regenerating areas, the initiative has focused on rehabilitating mangrove forests, enhancing wildlife habitats, and implementing fire prevention and illegal logging monitoring. With 85,240 mangrove trees planted and 44,451 naturally regenerating trees identified, the project aims to counteract deforestation, promote biodiversity, and strengthen carbon sequestration. Overall, this initiative plays a crucial role in climate resilience, biodiversity conservation, and the promotion of sustainable livelihoods for local communities. Figure 3 presents an aerial view of the project, highlighting its distinct zones:

- **Green zone:** Represents the total project boundaries.
- **Red zone:** Indicates the burnt area, which will undergo further restoration as the project progresses.
- **Yellow zone:** Covers 80 hectares designated for active restoration.





- **Brown zones:** Encompass mature mangroves, which are being monitored for natural regeneration.

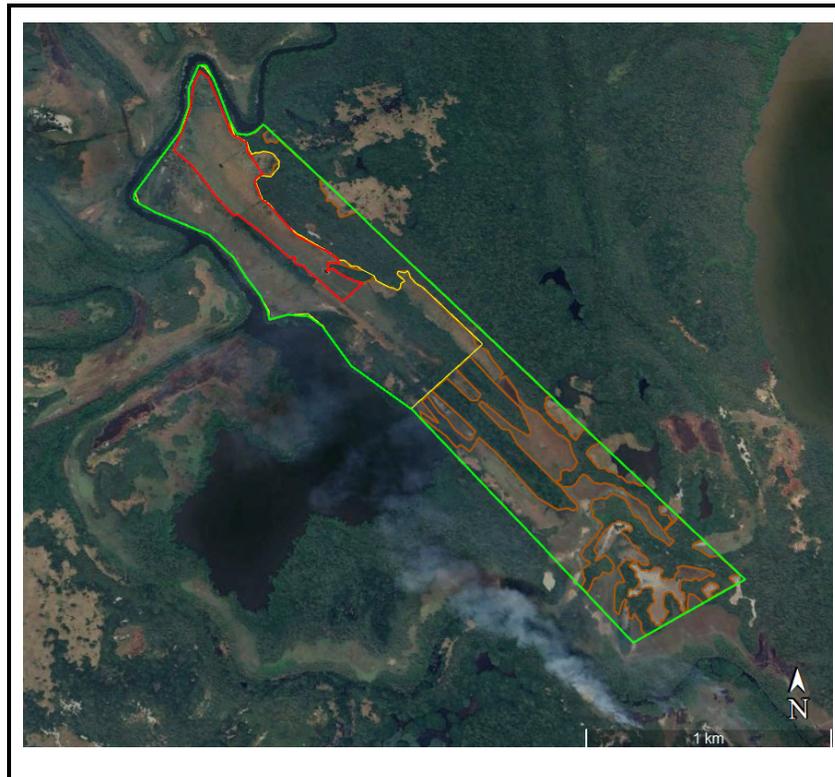


FIGURE 3 SATELLITE AERIAL VIEW OF THE PROJECT AREA (2024)

III. TECHNICAL SPECIFICATIONS

III.1. CARBON REMOVAL

This section analyzes the estimated carbon sequestration expected from the reforestation efforts implemented by the project.

III.1.1. REFORESTED AREA

The restoration activities of the project encompass a plot with a total area measuring 80 hectares; the demarcated plot is shown in Figure 3.

III.1.2. SPECIES

The reforestation project successfully planted a total of 85,240 trees, encompassing (3) different species. The number of individuals of each species is shown in Table 2. The selection of species was based on a preliminary assessment of the region, considering available bibliographic information, as well as the prevailing climatic, vegetational, and meteorological conditions. All species chosen are indigenous to the area and well-suited to the local climate and environmental conditions.



Out of the total number of trees planted (85,240), the percentage by species is presented in Table 2.

TABLE 2 NUMBER OF TREES BY SPECIES

Species	Number of trees	Percentage (%)	Origin
<i>Rhizophora mangle</i>	1,100	1	Native
<i>Laguncularia racemosa</i>	33,540	39	Native
<i>Avicennia germinans</i>	50,600	59	Native
Total	85,240	100%	

III.1.2.1. Distribution of the species selected for reforestation

The distribution of plant species is influenced by a variety of abiotic and biotic factors, including:

- Climate
- Soil
- Topography
- Hydrology
- Competition between plants for resources
- Seed dispersal

These factors interact in complex ways to determine the distribution of plant species across a landscape.

Understanding and knowing the distribution of the flora species that have been selected for reforestation is important to ensure the adaptation of the new trees and their survival, to secure the long-term benefits of the project, and to avoid altering the ecosystem balance by introducing non-adapted species.

To achieve this, each species was consulted in the Global Biodiversity Information Facility GBIF (<https://www.gbif.org>). This database allows you to know the species classified as introduced in each country, their EUNIS habitat, their native range, and observation records.

The Global Register of Introduced and Invasive Species (GRIIS) presents validated lists of introduced (alien) and invasive alien species at the country, territory, and associated island level. The International Union for Conservation of Nature (IUCN) describes an introduced/alien and invasive alien species as follows:

- Introduced/alien species: A species, subspecies, or lower taxon occurring outside of its natural range (past or present) and dispersal potential (i.e., outside the area, it could occupy without human intervention) and which has been transported by human activity; this includes any parts, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce.





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- Invasive alien species: A species that becomes established in natural or semi-natural ecosystems or habitats, is an agent of change, and threatens native biological diversity. This includes widespread species, rapidly expanding, or present in high abundance and that hurts biodiversity.

According to the aOCP's eligibility criteria, species classified as invasive alien species cannot be counted towards the project's benefits.

- *Rhizophora mangle*

Recorded as introduced in Mexico	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Habitat EUNIS	Not Specified
Native range	Not Specified
Georeferenced records	

- *Laguncularia racemosa*

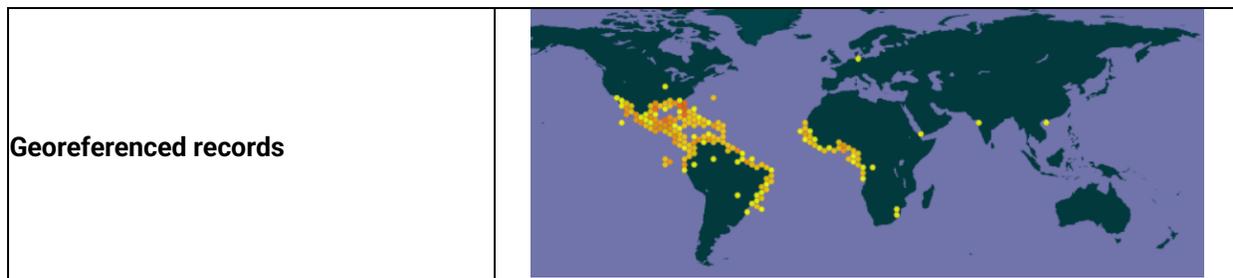
Recorded as introduced in Mexico	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Habitat EUNIS	Not specified
Native range	Not specified
Georeferenced records	

- *Avicennia germinans*

Recorded as introduced in Mexico	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Habitat EUNIS	Not Specified
Native range	Not Specified



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All the mangrove species are native to Mexico; therefore, their inclusion in the project is accepted.

The technical data sheets providing detailed information about the species utilized for the reforestation project are included below, in Table 3. These sheets offer comprehensive insights into the characteristics, growth patterns, environmental requirements, and other relevant details of the selected plant species. These data sheets serve as valuable references for understanding the specific attributes and suitability of each species for the reforestation efforts.

TABLE 3 TECHNICAL DATA SHEETS OF SPECIES USED FOR REFORESTATION

<p><i>Rhizophora mangle</i> – Red Mangrove</p> <ul style="list-style-type: none"> • Pioneer species of mangrove • Evergreen tropical shrub • Grows on stilted roots in marshy mangroves • Increases coastal resilience to geoclimatic hazards • Partially submerged, lives in saline environments 	
<p><i>Laguncularia racemosa</i> – White Mangrove</p> <ul style="list-style-type: none"> • Evergreen tropical shrub • Grows on stilted roots in marshy mangroves • Increases coastal resilience to geoclimatic hazards • Partially submerged, lives in saline environments 	





Avicennia germinans – Black Mangrove

- Evergreen tropical shrub
- Grows on stilted roots in marshy mangroves
- Increases coastal resilience to geoclimatic hazards
- Partially submerged, lives in saline environments



III.1.3. REFORESTATION TECHNIQUE

The reforestation approach used is the Dense Planting technique. This method, also known as high-density or intensive planting, involves closely spacing trees to optimize resource use and enhance ecosystem benefits. Unlike traditional forestry practices that leave significant gaps between trees, dense planting increases the number of trees per unit area, improving resource efficiency by maximizing sunlight absorption, water uptake, and nutrient availability.

In the context of mangroves, this technique offers additional advantages, such as stabilizing coastal sediments, reducing erosion, and enhancing resilience against extreme weather events. Dense planting also suppresses invasive species and accelerates habitat formation, fostering biodiversity. However, successful implementation depends on factors like local hydrological conditions, soil salinity, and ongoing management. Proper monitoring, nutrient management, and controlled thinning will be essential to prevent overcrowding, maintain tree health, and sustain long-term ecosystem functions. By employing this high-density planting strategy, the afforestation project aims to maximize carbon sequestration, restore critical wildlife habitats, and provide essential ecosystem services, ensuring long-term sustainability and resilience.

III.1.3.1. Methodological process

The operational phase is divided into three steps as shown in Figure 4.

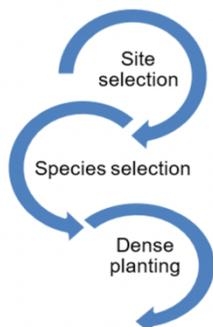


FIGURE 4 METHODOLOGICAL PROCESS

The reforestation process involved a well-defined series of steps. Firstly, a thorough evaluation was conducted to select the most suitable reforestation area, considering restoration needs, climatic and soil feasibility, permit requirements, and cost considerations. It ensured that the chosen location was conducive to successful reforestation. To preserve the ecological integrity of the region, afforestation was not carried out on scarified ground. This approach aimed to leverage the existing ecosystem to facilitate the growth and development of the newly planted trees, promoting biodiversity and increasing the chances of successful reforestation. Local community stakeholders were actively involved in the process, fostering a sense of ownership and sustainability in the reforestation initiative.

III.1.4. GEOLOCALIZATION OF TREES

During a field visit in November 2024, the project developer surveyed multiple different regions of the project area. The inventory and measurement of plants in the project area were conducted using a structured methodology based on standardized ecological assessment techniques. The area was divided into sampling units, where vegetation data were systematically collected. Within each sampling unit, 10x10 meter plots were established, and key parameters such as species identification, tree height, breast height diameter (DBH), basal area, and plant density were recorded. Additional indicators, including the complexity index, importance value index, and size frequency distribution, were analysed to assess species abundance and regeneration potential.

For mangroves, different age classes were considered: adult trees (≥ 1.5 meters), saplings (under 20 cm), and natural regeneration (between 15 and 199 cm). These distinctions helped determine the health and growth trends of the mangrove population. The counting process involved direct field measurements and the use of raffia thread to mark reference areas, ensuring consistency across sampling units. To accurately document the spatial distribution of trees, geolocation techniques were applied using GPS devices, which allowed precise mapping of individual trees and their respective sampling plots. Environmental conditions such as flooding levels and soil composition were also recorded to understand their influence on plant development. This rigorous approach provided reliable data on the status and progression of ecological restoration efforts. Figure 5 shows the proposed planting activity of the mangroves in the restored area.



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This count provides valuable insights into the spatial relative abundance of trees within each plot. The distribution percentages highlight the varying densities and concentrations of trees, indicating areas with higher and lower tree populations in cases where the reforested plots are segmented. These findings help understand tree distribution and estimate the project's carbon absorption capacity. The number of trees and their carbon sequestration capacity are crucial for the estimation of the Project's carbon sequestration potential. The number of geolocalized trees provides an overall measure, serving as a basis for estimating carbon sequestration. Combining tree count with species-specific data allows estimation of biomass and carbon capture potential; this provides a quantitative assessment of the project's capacity to absorb and sequester CO₂.

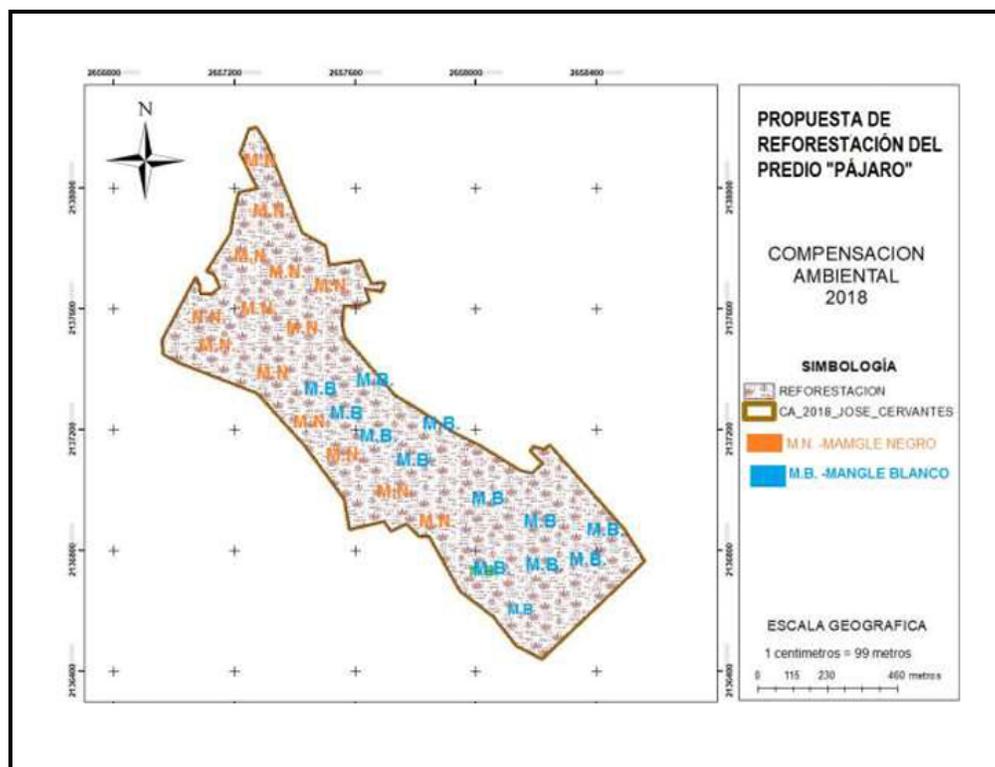


FIGURE 5 REFORESTATION PROPOSAL IN THE RESTORED AREA

III.1.5. PROJECT CAPACITY

This section determines the project's and the area's capacity to absorb CO₂ using Net Primary Productivity (NPP) as a reference parameter. Then, the amount of CO₂ that can be captured is estimated with allometric equations considering the age and height of each species.

III.1.5.1. Net Primary Productivity (NPP)

Net Primary Productivity (NPP) is the result of organic matter production through the process of photosynthesis. However, primary productivity involves more than photosynthesis; it also encompasses the uptake of inorganic nutrients and the assimilation of diverse organic

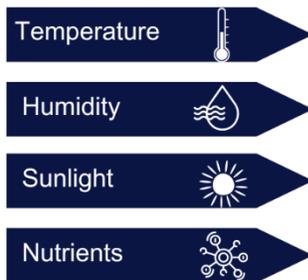




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compounds into protoplasm, which are vital for all photosynthetic organisms. Among various ecosystem processes, NPP is extensively measured due to its ability to reflect carbon accumulation in ecosystems. The calculation of NPP is based on the increase in biomass per unit area over a specified period.

NPP is influenced by several factors, including:



Hence, the net primary productivity (NPP) can be expressed as the difference between the carbon absorbed by vegetation through photosynthesis (referred to as Gross Primary Production or GPP) and the carbon lost through respiration. Temperature and precipitation are key limiting factors for NPP, and it is generally assumed that NPP increases with both temperature and precipitation. However, it is important to note that the NPP cannot exceed the saturation value of 3000 gDM/m²/year (DM stands for dry matter).

For the calculation of NPP, the Miami methodology outlined in section “IV.1. aOCP Methodology for carbon removal and storage in vegetation” was employed. This methodology incorporates the following equations to determine NPP:

$$\mathbf{NPP} = \mathbf{min} (\mathbf{NPP}_T, \mathbf{NPP}_P)$$

Where:

$$NPP_T = 3000(1 + \exp(1.315 - 0.119 \times T))^{-1}$$

$$NPP_P = 3000(1 - \exp(-0.000664 \times P))$$

Where:

T: average annual temperature

P: accumulated precipitation

Carbon capture capacity was calculated using the conversion factor 0.47 (IPCC, 2006), using the following equation:

$$NPP_c = NPP_{dm} \times 0.47$$





Where:

NPP_c: Net primary productivity, gC m² yr⁻¹

NPP_{dm}: Net primary productivity, gDM m² yr⁻¹

Then, the equivalence to carbon dioxide was calculated using the conversion factor of 3.67. This factor represents the molar mass ratio of CO₂: C. CO₂ molar mass is 44 and C is 12, therefore, 44/12 = 3.67. The conversion was done using the following equation:

$$CO_2 \text{ capture capacity} = 3.67 (NPP_c)$$

Finally, the maximal CO₂ capture capacity for the Project area was computed by multiplying the previous result by the Project area surface. The calculation was repeated for each scenario (present with real data, present with CMIP data and future with CMIP data). Real data is privileged over modelled data for the present scenario. To estimate future NPP, the percent-change was calculated between present and future estimates done with CMIP6 data. This percent change was then applied to the present estimate done with real data, this way we obtain a future NPP estimate based on present real data.

The results (Table 4) indicate that the entire project area (179.56 hectares) currently has an NPP of 2,004.45 gDM m² yr⁻¹, which, due to the climatic conditions, will decrease to 1,863.89 gDM m² yr⁻¹ in 2062. This change, of -140.56 gDM m² yr⁻¹, represents a decrease of 7.01%. In terms of CO₂, the total Project area (179.56.56 ha) is currently capable of capturing 6,212,239.52 kgCO₂ yr⁻¹.

TABLE 4 MAXIMUM ATTAINABLE NPP AND BIOMASS WITHIN PROJECT SITE

NPP	Present Real Data	Present CMIP	2062 CIMP	CMIP Change	CMIP % Change	2062 Based on Real Data	Real Data Change
gDM/m ² /yr	2,004.45	2,061.14	1,916.60	-144.53	-7.01	1,863.89	-140.56
gCO ₂ /m ² /yr	3,457.47	3,555.26	3,305.95	-249.31	-7.01	3,215.02	-242.45
gC/m ² /yr	942.09	968.73	900.80	-67.93	-7.01	876.03	-66.06
KgCO ₂ /plot/yr	6,212,239.52	6,387,940.81	5,939,997.30	447,943.51	-7.01	5,776,616.76	-435,622.76

III.1.5.2. Allometric Equations

Allometric equations are mathematical formulas used to estimate the amount of CO₂ that can be captured and stored in certain types of vegetation, such as trees or shrubs, depending on their morphometry.

To quantify the total biomass and associated carbon storage of the restored mangrove stands, both aboveground biomass (AGB) and belowground biomass (BGB) were estimated using





species-specific allometric equations. This approach integrates field-derived structural parameters with established models to generate robust estimates of carbon dynamics within the project area. Key biometric parameters included:

- Number of trees per hectare (N)
- Diameter at breast height (DBH, D)
- Tree height (H)
- Species-specific wood density (ρ)

Biomass values were subsequently converted into carbon stocks using established carbon fraction coefficients. This methodology ensures that both above- and below-ground carbon pools are adequately captured, thereby providing a comprehensive assessment of the CO₂ absorbed.

The estimation of biomass followed the allometric models proposed by Komiyama et al. (2005), which are widely recognized for mangrove ecosystems (as shown in Table 5). To project the theoretical growth trajectory of the restored stands, species-specific height and diameter growth models were incorporated. Table 5 summarizes the parameters and coefficients applied in the calculation of biomass and carbon stocks for each mangrove species considered in the restoration area.

Table 5. Species-specific parameters and allometric functions used for biomass and carbon estimation

TABLE 5. ALLOMETRIC EQUATIONS

Species	Wood density (g/cm ³)	AGB carbon fraction	BGB carbon fraction	Max. height (m)	Years to max. height	Growth equations applied	Reference
<i>Rhizophora mangle</i>	0.78	0.47	0.39	20	20	$H=20(1-EXP(-0.3T))^5$; $D=8.2H^{1.1}N^{-0.24}$	Komiyama et al. (2005)
<i>Avicennia germinans</i>	0.64	0.47	0.39	15	20	$H=15(1-EXP(-0.3T))^5$; $D=7.5H^{1.2}N^{-0.29}$	Komiyama et al. (2005)
<i>Laguncularia racemosa</i>	0.57	0.47	0.39	12	16	$H=12(1-EXP(-0.3T))^{3.5}$	Komiyama et al. (2005)
<i>Avicennia</i> (regeneration)	0.64	0.47	0.39	15	20	Same as <i>A. germinans</i>	Komiyama et al. (2005)

BAT = total aboveground biomass (kg), N = number of trees per hectare, ρ = density (g/cm³), D = average diameter at breast height (cm), H = average height (m), BST = total belowground biomass (kg), T = time (years).





Carbon stocks in planted mangroves at year 32 were calculated by applying these allometric equations to the tree dimensions expected at age 32. The total carbon storage at year 32 for the trees is estimated to be **47,517** Tons of CO₂.

Due to natural ecological processes, a fraction of the planted trees and shrubs will die. The survival/mortality percentages were computed with two different approaches, as described in the following subsection.

III.1.5.3. Carbon Credits

According to the *aOCP Methodology for carbon removal through mangrove restoration V2.0*, this ecological restoration project in Veracruz, Mexico spanning a total area of 179.56.56 hectares with an intervention area of 80 hectares (53 planted, 23.7 under restoration following a fire), including 85,240 planted mangrove trees, has the potential to generate **47,517 Verified Carbon Credits (VCC)** from removals (Table 6).

TABLE 6. TOTAL CARBON CAPTURE OF THE PROJECT

Especie	<i>Avicennia germinans</i>	<i>Laguncularia racemosa</i>	<i>Rhizophora mangle</i>	Total
Área (ha)	47	31	2	80
T (años)	CO ₂ total (t-CO ₂ /ha)			
1	0,0	0,0	0,0	0,0
2	0,2	1,5	0,0	1,7
3	11,2	37,0	0,6	48,8
4	132,0	249,6	5,6	387,3
5	654,8	862,2	24,4	1 541,3
6	1 942,4	1 999,5	65,9	4 007,8
7	4 147,7	3 595,4	132,0	7 875,1
8	7 108,9	5 453,9	216,1	12 778,9
9	10 471,4	7 358,3	308,0	18 137,7
10	13 865,5	9 142,3	398,1	23 405,9
11	17 015,6	10 710,3	480,1	28 206,0
12	19 767,8	12 026,6	550,7	32 345,1
13	22 069,2	13 095,5	609,1	35 773,7
14	23 933,1	13 942,7	656,0	38 531,7
15	25 407,7	14 602,3	692,8	40 702,8
16	26 554,4	15 109,2	721,4	42 385,1
17	27 435,0	15 495,1	743,2	43 673,3
18	28 104,8	15 786,8	759,8	44 651,4
19	28 610,8	16 006,1	772,3	45 389,3
20	28 991,2	16 170,4	781,7	45 943,3
21	29 276,0	16 293,1	788,7	46 357,8





22	29 488,7	16 384,5	794,0	46 667,2
23	29 647,2	16 452,6	797,9	46 897,6
24	29 765,1	16 503,1	800,8	47 069,0
25	29 852,8	16 540,7	802,9	47 196,4
26	29 917,9	16 568,6	804,5	47 290,9
27	29 966,2	16 589,2	805,7	47 361,1
28	30 002,0	16 604,6	806,6	47 413,2
29	30 028,6	16 615,9	807,3	47 451,7
30	30 048,2	16 624,4	807,7	47 480,3
31	30 062,8	16 630,6	808,1	47 501,6
32	30 073,7	16 635,2	808,4	47 517,3

As a result of the carbon capture calculation presented in the previous table – which was developed using a conservative approach – the project’s carbon credits will be granted based on the total capture estimate, amounting to **47,517 Verified Carbon Credits (VCC)**. This calculation considers only the number of reforested individuals, excluding the contribution of natural regeneration, which may be added in **Year 1 of the project (2026)** and quantified through the dynamic baseline.

As established in section III.1.5 of the Project Procedures document, version 2.3, for projects classified as Type “A” according to the Nat5 Scoring, 25% of the credits generated will be allocated to the buffer reserve as a measure to ensure the permanence of the project’s benefits. This corresponds to 11,879 Verified Carbon Credits, resulting in a total of **35,638 Verified Carbon Credits (VCC)** issued over the lifetime of the project.

It is important to note that carbon credits will be calculated annually within the dynamic baseline. This baseline will be adjusted based on the results of audits, monitoring, and the action plan implemented by the project developer.

An after-project issuance of **5,906 Verified Carbon Credits (VCC)** will be carried out, corresponding to the project’s current carbon capture (Year 7). Annually, the capture will be calculated based on the Dynamic review baseline, adjusting the number of credits as necessary and issuing the corresponding credits.

IV. RELEVANT SUSTAINABLE DEVELOPMENT GOALS

The 17 Sustainable Development Goals (SDGs), established by the United Nations in 2015, are essential in guiding restoration projects toward meaningful and enduring outcomes by addressing the interconnected nature of global challenges such as biodiversity loss, climate change, poverty, and social inequalities (<https://sdgs.un.org/goals>). Acting as a comprehensive framework, the SDGs enable project activities and their associated restoration and conservation efforts to align environmental, social, and economic objectives, ensuring that projects contribute not only to





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ecological recovery but also to broader sustainable development. By embedding these principles into restoration efforts, projects contribute not only to ecological recovery but also to the broader pursuit of sustainable development envisioned by the UN. Project initiatives can foster ecosystem resilience, support climate adaptation, enhance community livelihoods, and promote responsible resource use. This holistic approach acknowledges the intricate linkages between healthy ecosystems and human well-being, emphasizing that environmental restoration is also a pathway to achieving social equity and economic stability.

Moreover, aligning restoration projects with specific SDGs facilitates measurable progress, enhances accountability, and ensures the initiatives' relevance within a global context. It also opens pathways to partnerships with stakeholders who share a commitment to these goals, from local communities and governments to international organizations and private entities. By adopting this approach, restoration projects can amplify their impact, making meaningful contributions to global sustainability targets. The following table (Table 6) highlights the SDGs most relevant to the project initiatives, illustrating how each goal serves as a guiding principle in shaping the strategies and ensuring the long-term success of the project.





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TABLE 7 SUSTAINABLE DEVELOPMENT GOALS APPLICABLE TO THE PROJECT

SDG #	Goal	Positive Benefits / Indicator
 <p>6 CLEAN WATER AND SANITATION</p>	<p><i>Ensure availability and sustainable management of water and sanitation for all</i></p>	<p>Mangrove restoration recovers key coastal ecosystems that regulate the water cycle, filter pollutants, and maintain salinity and water quality in coastal areas and estuaries. They act as natural buffer zones between land and sea, protecting freshwater sources from saltwater intrusion.</p>
 <p>13 CLIMATE ACTION</p>	<p><i>Take urgent action to combat climate change and its impacts</i></p>	<p>Carbon Sequestration: The project enhances carbon storage by restoring mangrove ecosystems, which absorb and store significant amounts of CO₂, helping mitigate climate change.</p> <p>Disaster Risk Reduction: Restored mangroves act as natural buffers against storm surges, coastal erosion, and flooding, protecting communities from climate-related hazards.</p>
 <p>14 LIFE BELOW WATER</p>	<p><i>Conserve and sustainably use the oceans, seas and marine resources for sustainable development</i></p>	<p>Habitat Restoration: Mangroves provide critical nursery grounds for fish and marine biodiversity, supporting local fisheries and enhancing ecosystem resilience.</p> <p>Water Quality Improvement: The project helps filter pollutants and sediments, improving water quality in coastal and marine environments.</p>
 <p>15 LIFE ON LAND</p>	<p><i>Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</i></p>	<p>Ecosystem Restoration: The project rehabilitates degraded mangrove forests, promoting biodiversity conservation and strengthening ecosystem services.</p> <p>Soil Stabilization: By restoring mangroves, the project helps prevent land degradation, improving soil stability and reducing erosion.</p>





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This project showcases a nature-based solution to environmental degradation, demonstrating how targeted reforestation and intentional ecological conservation can drive climate resilience, biodiversity restoration, and sustainable land use. By sequestering carbon and improving local ecosystems, it supports global sustainability efforts while delivering long-term ecological and community benefits.

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