PLAN VIVO ANNUAL REPORT

zeroCARBON Program Guatemala

Annual Report Number 1
2020-2024

Contents

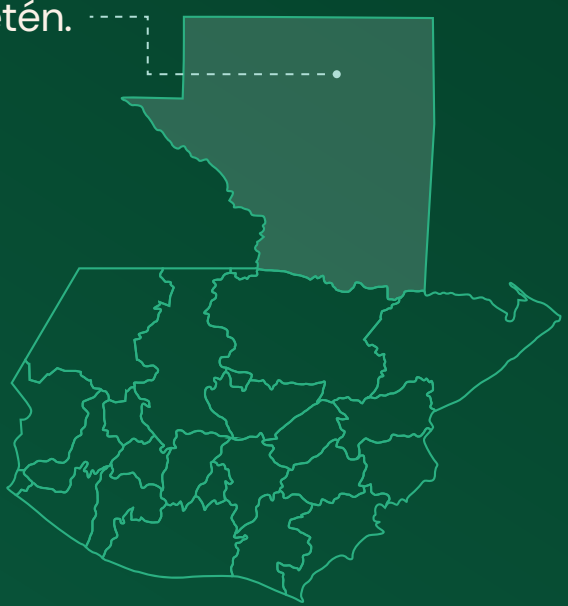
Overview

Project Title:

zeroCARBON Program

Location:

Guatemala
Petén.



Annual Report Number:	1
Project Period:	2020–2050
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Project coordinator:

zeroCO2 Srl SB
Vivero Mundo Verde

Project Interventions:

Improved land management through forest plantations and agroforestry.

↑ Paxcaman, Petén, Guatemala.

Progress Summary

zeroCARBON genesis and evolution

The zeroCARBON program builds upon a history of reforestation work initiated in 2019 by zeroCO2, social enterprise founded between Italy and Guatemala and operating in the Petén region.

Between 2020 and 2021, the organization implemented full-scale activities focused on restoring degraded landscapes and strengthening rural livelihoods through the planting of native species across multiple municipalities of the Petén region. Of the areas involved, around 16 hectares were later retroactively included in the zeroCARBON program after demonstrating compliance with Plan Vivo's and the program eligibility criteria. Beyond their technical function, these plots provided critical insights into field logistics, species selection, and community engagement, helping to refine the project's long-term ecological and carbon modeling. From 2020 to 2022, the program expanded and matured, highlighting the importance of co-design processes where communities played a central role in choosing interventions aligned with their cultural practices and livelihood goals. In 2022,

zeroCO2 made the strategic decision to align the project with the Plan Vivo Climate Standard v5 and to enter the voluntary carbon market (VCM), a step that enabled access to sustainable financing and broader impact. To meet certification requirements while maximizing environmental and social benefits, the team identified the most suitable intervention type based on technical feasibility, community preferences, and long-term resilience. Timber-based forest plantations using high value native species like Cedrela odorata and Swietenia macrophylla, combined with Assisted Natural Regeneration (ANR), were selected as the core model. This configuration offered a balance between ecological integrity, carbon sequestration potential, and livelihood value. Agroforestry systems, although considered in the initial design, were not included in the certified framework due to practical limitations such as land fragmentation and limited carbon credit potential under Plan Vivo's methodology. Nonetheless, zeroCO2 continues to support the distribution of fruit trees for subsistence and social purposes, and the integration of agroforestry as a certified intervention remains a possibility for future expansion. These formative years confirmed the importance of community-led implementation and adaptive design. Landowners and local structures were deeply involved in shaping the project's technical and operational model, fostering ownership, ecological stewardship, and program permanence. The strategic focus on timber forestry was not only a reflection of local preference but also a deliberate choice to ensure alignment between carbon removal objectives and the socioeconomic development of Petén's rural communities.

↑ Team monitoring a plantation in Monte Carmelo.

Certification Process

The certification process for zeroCARBON Guatemala began in 2022 and concluded with validation by the VVB and program certification by Plan Vivo in October 2024. This achievement required coordinated efforts between the local team and the Italian team, integrating technical expertise, management skills, and fieldwork. The certification journey was iterative, involving alignment with Plan Vivo's guidelines to develop a community-based carbon project while addressing the specific challenges of the Guatemalan context.

Below is a summary of the **key milestones** in the **zeroCARBON certification process:**

2022 / 2023

The zeroCO2 team, supported by Vivero Mundo Verde's field team, successfully submitted the Project Idea Note (PIN) under the Plan Vivo v4 Standard (August 2022) and prepared the Project Design Document (PDD) under Plan Vivo Climate v5 Standard (March 2023).

May / August 2023

Plan Vivo conducted a comprehensive review, initiating the validation process in October 2023, which concluded in October 2024.

Third-party validation

Conducted by Control Union, the project underwent document review (October 2023), a field visit in Guatemala (November 6–9, 2023), and preparation of the Validation Report (January–September 2024).

↑ Aerial photo of Santa Ana, Guatemala (2023).

During the field visit, two auditors from Control Union visited six communities in Santa Ana, Sayaxché, and La Libertad to validate compliance with PV Climate v5 standards and ensure alignment between submitted technical documentation and field conditions. The final Validation Report, delivered to Plan Vivo in September 2024, identified 1 Forward Action Request (FAR) to be addressed during the first verification cycle (2026). This FAR concerns improving community engagement practices to effectively implement Assisted Natural Regeneration (ANR) as part of the project.

↑ Team monitoring a plantation in Las Camelias.

Integration of Assisted Natural Regeneration (ANR)

To enhance the program's ecological benefits and meet Plan Vivo standards, zeroCO2 integrated ANR into the project intervention (forest plantations with cedar and mahogany). This approach aims to increase native species diversity and ecosystem services for both the local environment and project participants.

2023

Feasibility assessments were conducted, technical specifications developed, and initial proposals presented to participants.

2024

The first inventories in zeroCARBON sample areas were completed to evaluate existing species and abundance.

Mitigation measures addressing the FAR included pilot inventories, methodology development, and community-specific training sessions, started in 2024 to the 2020 group. These activities supported participants preparing for the fourth project year.

Preliminary data will inform carbon modeling and integrate ANR into the program's benefits, further incentivizing participant engagement and ensuring project sustainability.

Monitoring plan

In 2023, a digital monitoring system was developed to collect field data on progress indicators and carbon metrics. Initially deployed in a hybrid format (paper-digital), the system transitioned to fully digital management by November 2023.

Two annual monitoring cycles (2023 and 2024) **were completed.**

Management Monitoring Plan

Between 2 and 4 field visits per year were carried out, covering 100% of the participants. The visits aimed to assess the health status of the plantation, monitor survival rates, and verify the implementation of the practices outlined in the management plan, in order to plan field activities and implement any necessary mitigation measures.

Carbon Monitoring

The carbon monitoring was conducted in accordance with the approved methodology described in the PDD, covering 1% of the total project area. The first monitoring cycle was carried out in November 2023, focusing on plantations from the 2020-2022 cohorts, while the second monitoring cycle took place in August and December 2024, incorporating data from the 2023 cohort. To enhance data reliability and statistical robustness, additional permanent plots were established beyond the 1% methodological requirement, with a particular emphasis on the 2020-2022 cohorts. This approach aimed to generate a more comprehensive and representative dataset, capturing plantations that had reached at least 2-3 years of growth, which is a critical phase for assessing early-stage carbon sequestration dynamics.

In February 2025, an additional qualitative monitoring assessment was conducted to further evaluate project progress and plantation resilience. Unlike the standard methodology based on permanent sample plots, this assessment focused on a more streamlined methodology, providing insights into tree growth, natural regeneration patterns, and site-specific challenges such as soil conditions. The survey also allowed for direct engagement with beneficiaries, gathering feedback on plantation management practices and potential adaptive strategies to enhance long-term forest growth and carbon sequestration.

In total, 79 permanent monitoring plots were surveyed during the 2023-2024 monitoring cycle, covering plantations established between 2020 and 2023. These data, complemented by the findings from February 2025, contributed to refining carbon stock estimations and ensuring the accuracy of sequestration projections within the project framework. Quantitative data collected in February 2025 did not included in the carbon sequestration quantification, but will be included in 2025 annual report's carbon analysis.

↑ Monte Carmelo, Guatemala.

ANR & Ecosystem

In 2024, a methodology for monitoring ANR and ecosystem indicators was initiated, leveraging preliminary inventories as study areas. In 2025, the first data collection on ANR will begin within the permanent plots selected for carbon monitoring that are at least four years old. Likewise, ecosystem monitoring, which is currently under development, will be incorporated.

Livelihood Monitoring

In 2024 livelihood monitoring has already partially started, considering variables related to direct payments, employment improvement and inclusion. Additional variables will be incorporated into the assessment as the project progresses.

Participant Agreements and Benefit Sharing Mechanism

Starting in 2022, participant agreements were formalized through consultations conducted in accordance with the PDD guidelines. The signing process began alongside the project's validation and registration under the Plan Vivo Climate v5 in 2024.

The first payments to participants from the 2020-2022 cohort were completed between November and December 2024 (corresponding to the first two years of the project as outlined in the plan).

In 2025, it is expected that payments will be extended to the 2023 cohort, as well as following the payment plan for the 2020-2022 cohort as stipulated in the project agreement.

→ Planting activities in Nuevo Horizonte in Guatemala.

Program expansion

Although formal operations officially commenced in 2022, zeroCO2 has been active in the Petén region since 2020, implementing reforestation projects with significant social impact in collaboration with local communities and smallholders. Some pilot areas reforested in 2020-2021 (approximately 16 hectares) were retroactively incorporated into the zeroCARBON program in 2022, following confirmation of compliance with project requirements.

2022	2023	2024
Activities expanded to cover over **120 hectares, with 119 participants.**	The project grew to over **280 hectares, with 139 participants.**	In 2024, the program expanded by an additional **194 hectares with 53 participants.**

The expansion was facilitated by strengthening governance structures through the establishment of community committees, which ensured inclusive representation, particularly for minority groups, and supported project management and activity organization. These committees have served as a key tool for fostering community engagement.

However, adverse climatic conditions,associated with the El Niño phenomenon, presented significant challenges in 2023-2024. These conditions led to a reduction in the planned expansion targets for 2024, with a shift in focus towards monitoring activities, technical support, and replanting efforts. As a result, the team implemented several mitigation measures, including an increased emphasis on replanting activities and a higher frequency of field visits in areas most affected by extreme climatic events. These adjustments were necessary to ensure that the project remained on track despite the challenging climate conditions.

↓ Satellite photo of ***El Niño*** (2023).
Credits: Free Press EFE/NOAA-NHC

Team

↑ Photo of part of the team

Since 2022, the local zeroCARBON team has been formed and expanded to ensure the proper management of the program's activities, from nursery production to field operations, while also supporting the project's expansion goals.

Currently, the team working on the program in Guatemala consists of **12 permanent staff members, with around 35 seasonal workers engaged annually** during the production phase, which takes place between March and May.

From 2022 to date, the zeroCARBON team in Guatemala has been strengthened with the addition of 4 new members, including a woman responsible for managing the program's administration and secretarial tasks, and a Q'eqchi' field technician who supports field activities. The technician was hired after completing an internship within the program, thanks to a collaboration with the La Libertad Municipal Institute (Instituto INDRI Ak'tenamit), specializing in studies related to "local community development."

Thanks to this partnership, zeroCARBON annually hosts training internships for an average of four students, who engage in hands-on activities at the community nursery and in field operations. They support the team and project participants, while fostering capacity building and strengthening the connection between students and the professional world.

12

Permanent staff members.

35

Seasonal workers engaged annually during production phase.

+4

New members from 2022.

01

Project design **updates**

There have been no significant updates to the PDD since its last version (V3.1) dated July 4, 2024.

Table 1a Summary of Changes to Project Design Document

PDD Section:	Description of change:
n/a	n/a

Table 1b Date of Most Recent Updates

PDD Section:	Required Update Frequency:	Date of Most Recent Update:
3.1 Baseline Scenario	Every 10-years	V3.1, 04/07/2024
3.2 Carbon Baseline	Every 10-years	V3.1, 04/07/2024
3.3 Livelihood Baseline	Every 10-years	V3.1, 04/07/2024
3.4 Ecosystem Baseline	Every 10-years	V3.1, 04/07/2024
3.5 Project Logic	Every 10-years	V3.1, 04/07/2024
3.6 Project Activities	Every 10-years	V3.1, 04/07/2024
3.7 Additionality	Every 10-years	V3.1, 04/07/2024
3.8 Carbon Benefits	Every 10-years	V3.1, 04/07/2024
3.11 Reversal of Carbon Benefits	Every 10-years	V3.1, 04/07/2024
3.12 Leakage	As needed	V3.1, 04/07/2024
3.13 Double Counting	As needed	V3.1, 04/07/2024
4.5 Monitoring Plan (optional)	As needed	V3.1, 04/07/2024
5.3 Legal and Regulatory Compliance (optional)	As needed	V3.1, 04/07/2024
Annex 7 [Improved land management through forest plantations and agroforestry]	Every 10-years	V3.1, 04/07/2024

Table 1c Response to Corrective/Forward Actions Required

Source	CAR/FAR	Response	Status
Validation report 17/09/2024	**#23/01** During the site visit FAR #23/01 was raised (requirement 2.4 Participatory Design), related to the observation that most of the farmers could not describe properly how the natural restoration of the forest after 5 years of plantation will be implemented and monitored. The FAR was raised to ensure that the Project Interventions reviewed will be discussed in collaboration with the Project Participants, who must work in partnership to explore and identify preferred options of natural regeneration and in addition, to discuss biodiversity (selection of species) and the monitoring process.	In 2024, the program implemented mitigation measures to address the FAR identified during validation, related to participant engagement in the application of ANR practices. We initiated the first field data collection (inventory) on selected zeroCARBON areas, developed a preliminary technical methodology, and carried out specific training activities in the communities entering their fourth year since planting. The goal is to increase participants' awareness of ANR practices, enhancing their knowledge on the identification, conservation, and use of ecologically, nutritionally, and commercially valuable species, while ensuring they fully understand the required field activities. By the first verification (expected for 2026), the program aims to expand engagement activities, produce clear and practical training materials, and conduct fieldwork and monitoring.	**Open**

02

Project implementation

2.1 New Project Areas

Table 2.1 New Project Areas

Source	CAR/FAR	Response	Status
Improved land management through forest plantations	29 communities, 53 project areas	193,7 ha	53 new participants

↑ Las Camelias, Guatemala.

2.1.1 Stakeholder Consultation

Table 2.2 Stakeholder Consultation Activities

Activity	Stakeholder Group	Description	Participants/ Recipients	Evidence
Capacity building on forest management plan	Direct beneficiaries (smallholders) belonging to the, 2023 and 2024 group of participants.	Training sessions on trees management plan provided in each community following the engagement plan. More details in paragraph 2.4 of the PDD.	~ 180 participants (of which 35 women)	Photographic material in annex 3
Capacity building on Assisted Natural Regeneration practices	Direct beneficiaries belonging to the 2020 group of participants (Monte Carmelo community)	Training sessions (2 meetings) on ANR practices provided in Monte Carmelo community (2020 group).	15 participants (of which 6 women)	Photographic and training material in annex 3

Deviations from Stakeholder Engagement Plan:

No deviations from the Stakeholder Engagement Plan were made.

↑ Photo from annex 3, Management plan.

2.2 Free, Prior and Informed Consent

Table 2.3 FPIC Activities

Activity	Stakeholder Group	Description	Participants/ Recipients	Evidence
2024 zeroCARBON consultation meetings	Potential beneficiaries (representative group or leaders of farming communities and cooperatives) around Petén	Presentation of the zeroCARBON program in existing and new participating communities to integrate new members and attract additional beneficiaries. The presentation includes an explanation of how the program works, an overview of commitments and benefits, a project agreement, Q&A sessions and the registration of new sign-ups.	Approximately 100 people participated, including 53 individuals (6 women and 47 men), who attended the consultation meetings and decided to join the program in 2024. In addition, other stakeholders, such as community leaders and board members, were present at the meetings. A total of 10 consultation meetings were organized in new communities not yet part of the program, along with another 10 meetings in communities that had already joined the program in previous years, between March and May in the region.	Photographic material in annex 3
Evaluation of the social and environmental conditions of the sites.	Direct beneficiaries (smallholders) belonging to the 2024 group of participants	When visiting the areas, the communities select the type of project and intervention to be implemented on their land as part of the initial participation process. This process allows for the review of information provided by local participants to assess whether the forest types proposed by the farmers are suitable (in terms of soil type, drainage and current land use in the area, availability of land for the implementation of the project (no conflict with food production), ownership or tenure of the land, no land conflicts).	53 participants (of which 6 women).	n/a

↑→
Photographs material from annex 3

Activity	Stakeholder Group	Description	Participants/ Recipients	Evidence
Project Agreement Signing & first payments		The process of signing the project agreements with the participants began in November 2024 after obtaining official certification. This signing is a crucial moment in the project that promotes transparency and understanding among the participants. To ensure clarity, special visits were organized to read the agreement together with the participants. These meetings provide an opportunity to review and clarify all sections of the document that have already been shared during the consultation phase. This approach builds trust and ensures that all participants fully understand their obligations and benefits under the agreement.	2 group agreements signed (representing 88 participants). A total of 113 individuals have signed agreements, of which 86 are included under community agreements (signed by the legal representative only), while the remaining individuals signed individual agreements.	Signed agreement folder and some photographic material in annex 4.
Follow-up meetings with new participants	2024 participant group	Coordination meetings and explanation of how zeroCARBON works. Field visit for participants to choose the species to be planted and the type of intervention they wish to implement.	53 participants (of which 6 women)	Photographic material of the activities

Deviations from FPIC Process:

No deviations from the FPIC process were made.

↑ Photo from annex 4.

2.2.1 Environmental and Social Safeguards

Table 2.4 Environmental and Social Safeguard Issues

Issue	Response
–	–

2.3 Grievances

No grievances raised during the reported period.

Table 2.5a Grievance Register

Grievances Raised	Previous Grievances	Grievances Resolved	Unresolved Grievances
–	–	–	–

Table 2.5b Grievances and Resolutions

Date Raised	Grievance	Resolution	Status
–	–	–	–

→ Payments and agreements.
Photo from annex 4.

03

Monitoring results

3.1 Progress Monitoring

The Progress Monitoring section provides a comprehensive overview of the project's key outputs, including carbon sequestration, social and economic impact, ecosystem and biodiversity restoration, and food and sustainable development.

Over the past 2 years, the project has consistently collected data on carbon sequestration and management activities, ensuring alignment with its goals. Monitoring occurs around four times a year, focusing on plantation performance, carbon sequestration, and ecosystem restoration, with the primary goal of maintaining progress towards milestones and addressing any challenges through corrective actions.

Some indicators, such as those related to ecosystem regeneration and livelihood improvements, are scheduled to begin monitoring in future years, in line with the project's timeline. This year, the zeroCARBON team collected both management monitoring data and a first sample of assisted natural regeneration field data. As the project advances, monitoring will expand to cover biodiversity and livelihood outcomes. The table below reflects monitoring results by year where applicable, highlighting achieved milestones, indicator values, and corrective actions taken.

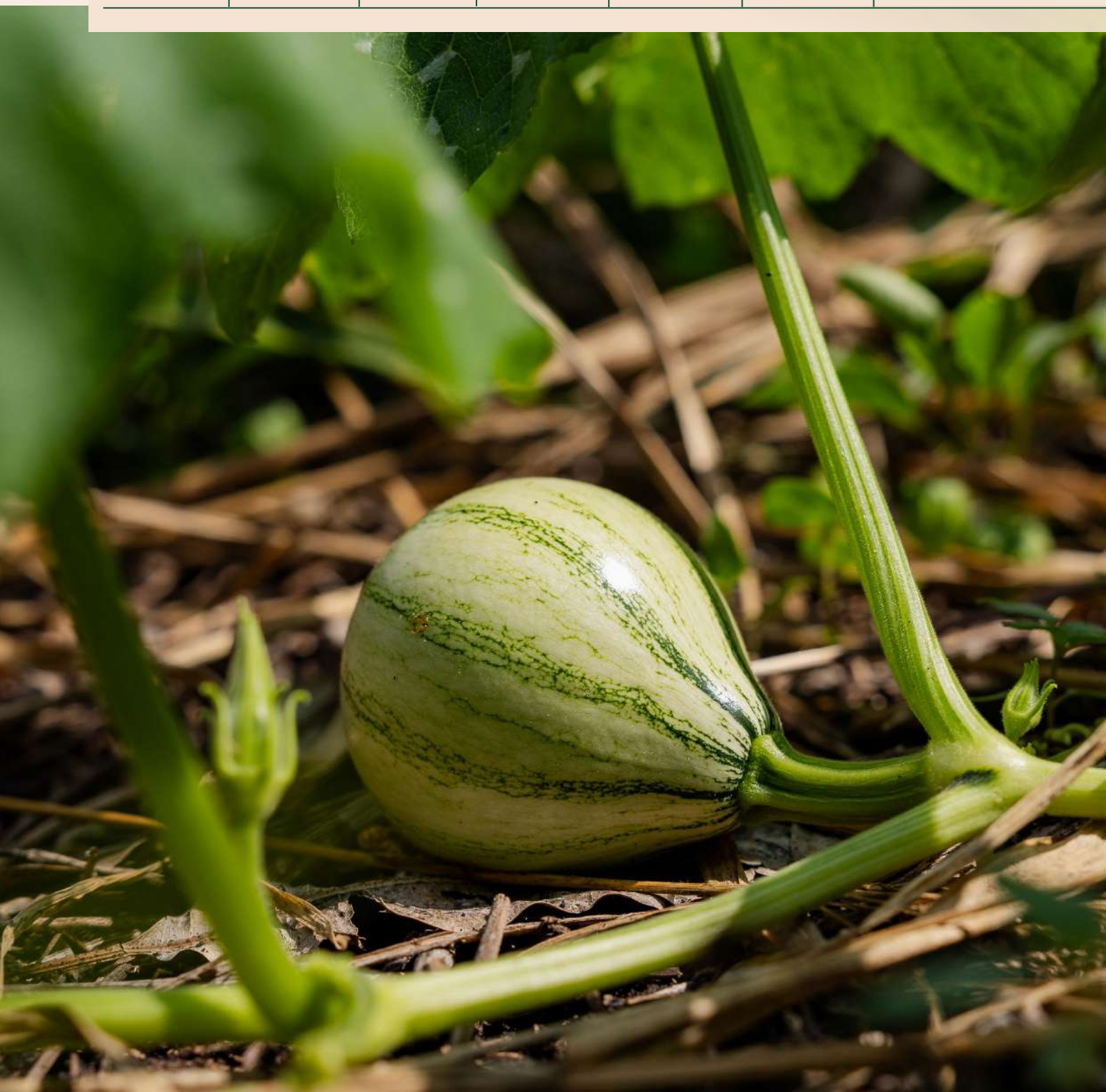
Table 3.1 Progress Monitoring Results

Output/ Activity	Indicator	Milestone	Indicator Value (2020-2022)	Indicator Value (2023)	Indicator Value (2024)	Corrective Actions
Carbon Sequestration						
Forest plantation development	Number of ha reforested per year (tot)		185.0 ha	307.3 ha	194.4 ha	Challenges related to certification and uncertainties in the process, coupled with particularly critical climatic conditions, have led to a temporary reduction in the program's expansion plan, which is scheduled to resume in 2025. More details in par. 4.4.
	Number of ha reforested remained in the program		136.3 ha	282.7 ha	193.7 ha	
	Dropout rate (ha and % out of the initial tot ha)		48.8 ha (26%)	25.6 ha (8%)	0.7 ha (0,36%)	
	Number of trees planted per year		151,949 ha	312,985 ha	214,316 ha	
	Replanting activities (trees replanted in 2024)		Not traced	100,000 ha	n/a	
	Survival rate of trees (%)	Achieve 80% survival in the first two years.	91%	82%	n/a	Various observations of the survival rate are carried out. The survival rate is determined for all participants as part of the monitoring of the management plan. In addition, the survival rate can also be determined on the permanent sampling areas as part of carbon monitoring. Corrective measures to compensate for the loss of trees are carried out by replanting 100% of the affected individuals.

Output/ Activity	Indicator	Milestone	Indicator Value (2020-2022)	Indicator Value (2023)	Indicator Value (2024)	Corrective Actions
Social and Economic Impact						
Training for technical and project management improvements	% of participants trained in tree management practices	Train 100% of participants	100% trained	100% trained	100% trained in 2 out of 4 training modules	Training on the remaining two modules is scheduled to be completed in Q1 2025.
Market access and employment	Number of jobs created (split by gender)	Provide jobs and economic benefits	0	+ 3 new employees (1 woman)	+1 new employee	Four new individuals have been hired full-time and on permanent contracts, including one woman and one person from the Q'eqchi' ethnic group since 2022.
	Number of tree products brought to market	Promote diversified sources of income over the long term.	n/a	n/a	n/a	No wood-based products have been produced or launched on the market yet. Efforts are ongoing to develop the value chain and explore opportunities for utilizing by-products from management activities.
Ecosystem and Biodiversity Restoration						
Forest management plan implementation	Number of hectares of rehabilitated forest	Double the area planted in 2023	136.3	282.7	193.7	
						A list of 38 native species was compiled through an initial inventory conducted in 2020-2021 and 2022 in plots located within 10 communities participating in the program. Ten of these species are part of the preliminary list defined in the first version of the technical proposal for ANR as species to be promoted and supported through field practices. This was the first

Output/ Activity	Indicator	Milestone	Indicator Value (2020-2022)	Indicator Value (2023)	Indicator Value (2024)	Corrective Actions
Biodiversity Monitoring (Flora)	Number of native species (trees, shrubs, herbaceous)	Increase biodiversity on restored plots	Two native species have been introduced into the forest plantation system: Cedrela odorata; Swietenia macrophylla. A further 38 native species (including trees, shrubs and herbaceous plants) have been naturally established in the areas thanks to ANR.	Two native species have been included in the forest plantation system. No ANR practices have been applied in the area to date.	Two native species have been included in the forest plantation system. No ANR practices have been applied in the area to date.	inventory carried out on natural regeneration in the areas involved in the program. The species were classified according to the INAB classification system to specify their primary role in the ecosystem (ecological, nutritional/ medicinal, commercial, timber, etc.). These findings were crucial for initiating targeted training processes in communities with areas of at least four years dedicated to identifying and managing naturally regenerated plants. Data collection will be conducted annually, and the list will be updated periodically to reflect the different ecological successions and biodiversity developments in the areas involved.
Biodiversity Monitoring (Fauna)	Presence of mammals, birds, and soil macrofauna in project sites	Species monitoring from year 5	n/a	n/a	n/a	n/a
Food and Sustainable Development						
Sustainable agriculture and land management	% of participants adopting sustainable practices	50% of participants adopt practices	81%	86%	n/a	Three best practices for plantation management were implemented: 1. **Manual clearing** of plantations to maintain healthy growth. 2. **Fire prevention** through the establishment of firebreak patrols (rondas corta fuego), which involve regular inspections and the creation of cleared strips to prevent fire spread.

Output/ Activity	Indicator	Milestone	Indicator Value (2020-2022)	Indicator Value (2023)	Indicator Value (2024)	Corrective Actions
						3. **Pest control** against Hypsipyla using organic traps developed in collaboration with the zeroCARBON team. Additional best practices will be introduced and monitored in the coming years as part of field activities.



3.2 Carbon Monitoring

The Carbon Monitoring section details the carbon benefits accrued over the verification period.

Carbon sequestration is monitored annually through systematic sampling across permanent sample plots. Every three years, a third-party certification body conducts an audit to verify carbon sequestration estimates and calibrate the carbon model. This monitoring data allows adaptive management to ensure that carbon targets are met. The table below summarizes the carbon benefits for each project intervention.

Table 3.2 Carbon Monitoring Results

Project Intervention	Number of Project Areas	Extent of Project Area (ha)	Total Carbon Benefit (t CO2e)	Average Carbon Benefit (t CO2e/ha/yr)
Forest plantation (2020-2023) – Monitoring 2024	260	418.90	2606,85	32,72
TOTAL	260	418.90	2606,85	32,72

3.3 Livelihood Monitoring

The Livelihood Monitoring section focuses on the project's social and economic impact on participating communities.

Monitoring indicators include household participation, income gains from carbon payments, and the inclusion of women and indigenous groups. Regular assessments, using surveys and interviews, allow the project to adjust its strategies to meet targets. The table below outlines the current progress for livelihood indicators.

→ Team Italia and Team Guatemala. Photo from Annex 4.

Table 3.3 Livelihood Monitoring Results

Indicator/ Stakeholder Group	Initial Indicator Value	Target	Current Indicator Value 2020-2022	Current Indicator Value 2023	Current Indicator Value 2024	Causes and Adjustments
Number of participants	n/a		121	139	53	zeroCARBON has reached a total of 229 individual participants. Of these, 122 have taken part in multiple planting cycles. One of the program's objectives is to increase the average number of hectares per participant. Significant progress has already been made, increasing from an average of 1.6 hectares per participant in the 2020–2022 period to 2.9 hectares per participant in 2024.
Number and percentage of women	n/a	Increase participation of women and indigenous groups in the program	33 (27%)	29 (20%)	6 (12%)	In 2022 and 2023, women's participation remained stable at around 20%. However, in 2024, it declined by 11%, not due to a lack of inclusivity efforts but rather to demographic and social factors within newly involved communities. At the same time, Indigenous participation increased, with 28.5% of participants belonging to Q'eqchi' communities. From 2025 onward, the program will strengthen efforts to increase the involvement of women and Indigenous participants through a context-specific, culturally tailored approach.
Number and percentage of indigenous	n/a		30 (25%)	35 (25%)	15 (29%)	

Indicator/ Stakeholder Group	Initial Indicator Value	Target	Current Indicator Value 2020-2022	Current Indicator Value 2023	Current Indicator Value 2024	Causes and Adjustments
Communities involved	n/a	Expand the program within the Petén region	27	32	30	From 2020 to 2024, a total of 56 communities participated in the zeroCARBON program, with some joining across multiple planting years. This continuity enhances program efficiency and supports the seamless onboarding of new participants. While training and engagement activities are designed for participants, they remain open and accessible to all community members.
Municipalities	n/a		9	10	10	
% of participants who signed the Project Agreement	n/a	100% project agreement signed at the end of the year of participation	80%	0%	0%	The signing of project agreements began in late 2024 after validation but couldn't be completed for all participants due to tight timelines. The remaining agreements will be finalized from 2025 onwards.
						Since the program's inception, each participant has received four training modules focused on proper plantation management, fire prevention, and disease control. Starting in 2024, the first two training modules on Assisted Natural Regeneration (ANR) were introduced for participants with

Indicator/ Stakeholder Group	Initial Indicator Value	Target	Current Indicator Value 2020-2022	Current Indicator Value 2023	Current Indicator Value 2024	Causes and Adjustments
Number of trainings provided	n/a	Enhance and expand the training program modules annually to ensure the capacity building of participants.	4+2	4	4	parcels at least four years old. ANR training consists of a series of theoretical and practical modules (a total of three planned), currently being developed alongside ongoing support and monitoring activities. The 2020 group began ANR training and has completed a total of six training modules, covering both plantation management and ANR. In 2025, the 2021 group will begin their ANR training, followed by the start of training for the 2022 group.
Forest Management Training Completion Number of sessions completed by participants out of a total of 4 sessions	n/a	100% of participants trained on the entire training program	4/4	4/4	2/4	The training program includes four modules: plantation establishment, system management, pest and disease management, and wildfire prevention and control. Participants from the 2020–2022 and 2023 groups have completed Modules 3 and 4, while the 2024 group will finalize their training as planned in 2025. For more details, refer to the PDD.
						ANR training begins in year 4 and consists of three modules: one theoretical, one practical field-based, and one focused on management.

Indicator/ Stakeholder Group	Initial Indicator Value	Target	Current Indicator Value 2020-2022	Current Indicator Value 2023	Current Indicator Value 2024	Causes and Adjustments
ANR Training Completion Number of sessions completed by participants out of a total of 3 sessions	n/a	100% of participants trained (years 4 to 5)	2/3 (2020 group; training for groups 2021 and 2022 begins in 2025-2026)	0/3 (exp. 2026-2027	0/3 exp. 2027-2028	The first session covers a theoretical introduction to natural regeneration, including the characteristics of forests and understory, key species of ecological, commercial, nutritional, and medicinal value. A presentation and species recognition guide are shared. The second session is a field visit where participants practice species identification and selection within the areas. The third module, still under development, focuses on ANR management, including specific practices and monitoring, and will begin in year 5.
Number of evaluation field visits by zeroCO2's technical staff on forest management per participant during 2024	n/a	Regular evaluation visits following visit schedule	2	2	n/a	The number of monitoring and support visits varies depending on the plantation's year and establishment status.These visits aim to assess the health of the areas, define any necessary mitigation actions, and provide technical guidance on management. Field data is also collected during the visits. The plan was successfully implemented for all groups except for the 2023 group, which received only two evaluation visits instead of three. The remaining visit will be completed starting in early 2025.

Indicator/ Stakeholder Group	Initial Indicator Value	Target	Current Indicator Value 2020-2022	Current Indicator Value 2023	Current Indicator Value 2024	Causes and Adjustments
Number of local employees	8	Increase employment opportunities	8	11	12	
Additional income received by participants (carbon payments)	n/a	Improve livelihoods through project participation	20k€	Exp. 2025	Exp 2026	In November-December 2024, the first payment tranches were issued to participants from the 2020, 2021, and 2022 groups. Payments for the 2023 group were postponed. In 2025, following monitoring activities, payments for the 2023 group will begin.
Additional income received by participants (carbon payments)	n/a	Improve livelihoods through project participation	20k€	Exp. 2025	Exp 2026	In November-December 2024, the first payment tranches were issued to participants from the 2020, 2021, and 2022 groups. Payments for the 2023 group were postponed. In 2025, following monitoring activities, payments for the 2023 group will begin.
Value created by commercialization of products (wood and non-wood)	n/a	Increase value through variety, yield and product sales	n/a			The first timber harvest takes place in year 8/9
Number of international partnerships	n/a	Strengthen through partnerships	n/a			zeroCO2 is working to establish a wood value chain to support participants in market access.

3.4 Ecosystem Monitoring

The Ecosystem Monitoring section tracks ecosystem restoration and biodiversity outcomes.

Indicators include reforested areas, plant diversity, and the presence of key species (birds, mammals, and soil macrofauna). Monitoring for these indicators begins in year 5, with the goal of tracking natural regeneration and biodiversity improvements. The table below summarizes the initial and target values for ecosystem indicators.

Table 3.4 Ecosystem Monitoring Results

Indicator/ Project Region	Initial Indicator Value	Target	Current Indicator Value	Causes and Adjustments
Total area of implementation (ha)	0	1000 – 1500 ha (within 5 years)	612,7 ha (2022-2024)	n/a
Disturbed area (wildfires, pests, etc.)	n/a	n/a	0.016%	Placement of traps to prevent Hypsipyla attacks on Mahogany and Cedar species.
Presence of birds (entire project region)	n/a	Identify an average of 5 species	Monitoring begins year 5	n/a
Presence of mammals (entire project region)	n/a	Identify an average of 20 species	Monitoring begins year 5	n/a
Number of tree species planted	0	2	2	n/a
Area on which assisted natural regeneration (ANR) is applied	n/a	Increase ANR coverage across project plots	Monitoring begins year 4	Intervention is applied from year 4
CO2 sequestration through ANR (tCO2/ha)	n/a	22	Monitoring begins year 4	Intervention is applied from year 4
Number of farmers applying ANR measures	n/a	100%	Monitoring begins year 4	Intervention is applied from year 4
Number of ANR species	n/a	Minimum 2 new ANR species in the first years	Monitoring begins year 4	Intervention is applied from year 4

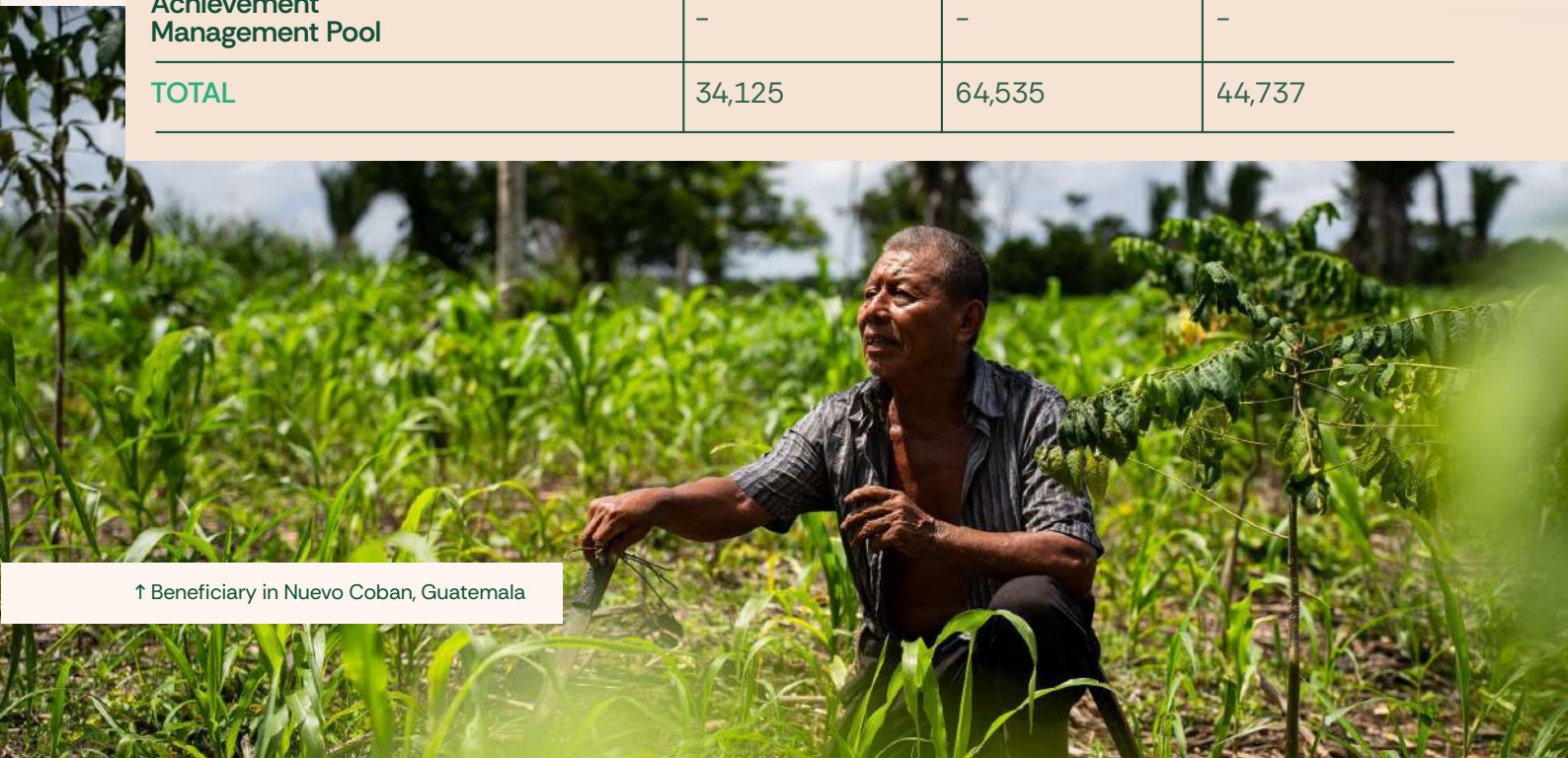
04

Plan Vivo **Certificates**

4.1 Future Plan Vivo Certificates

Table 4.1a Summary of fPVCs at End of Reporting Period

	Vintage [Enter a column for each fPVC vintage issued since the start of the project]		
	01-2020 / 12-2042	01-2023 / 12-2043	01-2024 / 12-2044
Status			
Transferable fPVCs	24,570	46,465	32,211
Future Risk Buffer	6,825	12,907	8,947
Achievement Management Pool	2,730	5,163	3,579
TOTAL	34,125	64,535	44,737
Cancellation			
Transferable fPVCs	-	-	-
Future Risk Buffer	-	-	-
Achievement Management Pool	-	-	-
Conversions			
Transferable fPVCs	-	-	-
Future Risk Buffer	-	-	-
Achievement Management Pool	-	-	-
TOTAL	34,125	64,535	44,737



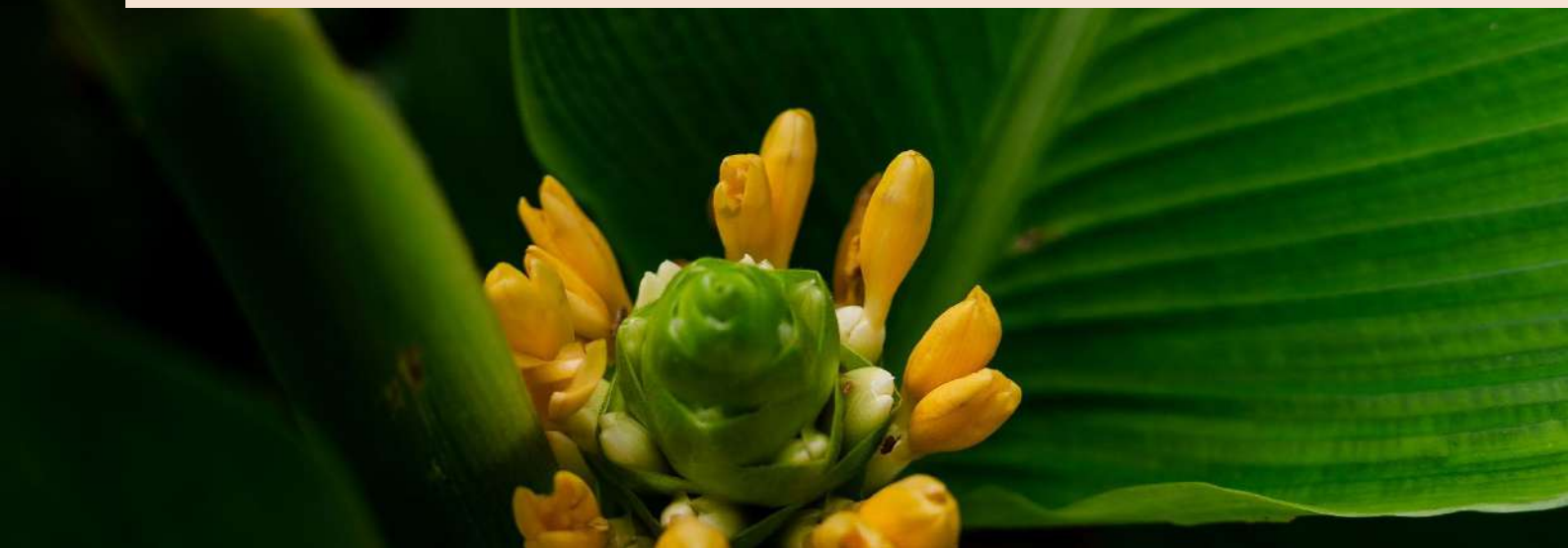
↑ Beneficiary in Nuevo Coban, Guatemala

Table 4.1b Summary of fPVCs Claimed, Cancelled and Converted from this Annual Report

	Vintage [Enter a column for each fPVC vintage issued since the start of the project]		
	01-2020 / 12-2042	01-2023 / 12-2043	01-2024 / 12-2044
Claims			
Transferable fPVCs	24,570	46,465	32,211
Future Risk Buffer	6,825	12,907	8,947
Achievement Management Pool	2,730	5,163	3,579
Cancellation			
Transferable fPVCs	–	–	–
Future Risk Buffer	–	–	–
Achievement Management Pool	–	–	–
Conversions*			
Transferable fPVCs	–	–	–
Future Risk Buffer	–	–	–
Achievement Management Pool	–	–	–
TOTAL	34,125	64,535	44,737

* This section should only be completed for the final annual report in each verification period

**New hectares of the 2024 planting cohort not claimed at the PDD stage.
The fPVCs claimed are different from the fPVCs at the end of reporting period partly due to participants leaving the project and new entrants in 2024.



4.2 Reported Plan Vivo Certificates

Table 4.2a Summary of rPVCs at End of Reporting Period

	Vintage [Enter a column for each fPVC vintage issued since the start of the project]	
	01/2020 - 12/2023	**01/2024 - 12/2024**
Claims		
Transferable fPVCs	274.97	1601.97
Future Risk Buffer	76.38	444.99
Achievement Management Pool	30.55	177.99
Cancellations		
Transferable fPVCs	-	-
Future Risk Buffer	-	-
Achievement Management Pool	-	-
Conversions		
Transferable fPVCs	-	-
Future Risk Buffer	-	-
Achievement Management Pool	-	-
TOTAL	381.90	2224.95

Table 4.2b Summary of rPVCs Claimed, Cancelled and Converted from this Annual Report

	Vintage [Enter a column for each rPVC vintage issued since the start of the project]	
	01/2020 - 12/2023	**01/2024 - 12/2024**
Claims		
Transferable fPVCs	274.97	1601.97
Future Risk Buffer	76.38	444.99
Achievement Management Pool	30.55	177.99

Cancellations		
Transferable fPVCs	–	–
Future Risk Buffer	–	–
Achievement Management Pool	–	–
Conversions*		
Transferable fPVCs	–	–
Future Risk Buffer	–	–
Achievement Management Pool	–	–
TOTAL	381.90	2224.95

* This section should only be completed for the final annual report in each verification period.

4.3 Verified Plan Vivo Certificates

Table 4.3 Summary of vPVCs Issued, Claimed and Converted

	Vintage [Enter a column for each fPVC vintage issued since the start of the project]				
	2023	2024	2025	2026	2027
Status					
Transferable fPVCs	–	–	–	–	–
Future Risk Buffer	–	–	–	–	–
Risk Buffer Cancellations	–	–	–	–	–
Claims*					
Transferable fPVCs	–	–	–	–	–
Risk Buffer	–	–	–	–	–
Cancellations*					
Risk Buffer	–	–	–	–	–

	2023	2024	2025	2026	2027
Conversions*					
Transferable fPVCs	–	–	–	–	–
Risk Buffer	–	–	–	–	–
TOTAL	–	–	–	–	–

* This section should only be completed for the final annual report in each verification period

4.4 Losses and Underachievement

Table 4.4.1 Summary of Events Generating or Expected to Generate Losses or Underachievement of Carbon Benefits

Event Number	I
Project Area(s) Affected	96 (total project areas planted in 2022)
Total Extent of Project Areas Affected (ha):	119,8 ha (total project area planted in 2022)
Description	The main event that generated a loss in expected carbon benefits was the occurrence of El Niño, a complex climatic phenomenon occurred during the 2023–2024 period. This event brought exceptional climate events with high drought and high rainfall periods, particularly affecting the 2022 plantation cohort, which was at its most vulnerable developmental stage. In particular, the excessive rainfall led to soil saturation, reducing oxygen availability at the root level and hindering seedling establishment and growth. The impact of El Niño has also raised concerns regarding potential future underperformance in similar low-lying, flood-prone areas of the project site. Furthermore, El Niño's effects have highlighted the increased climatic risk associated with early-stage plantations, pointing to the importance of adaptive species selection and site-specific planting strategies in future planting cycles.
Cause	The underachievement of carbon benefits was primarily caused by high seedling mortality rates in the 2022 plantation cohort, due to prolonged waterlogging resulting from above-average precipitation occurred after a high drought period during El Niño event. In the community of Nuevo Horizonte, a massive replanting rate was necessary to compensate for losses. As a corrective measure, replanting efforts exceeded the initially planned 15% replacement rate guaranteed for the following year. An average of 265 trees per hectare were distributed for replanting in the 2022 plantation, totaling 18,645 replanted trees and 81,355 replanted trees in 2023 plantation. In addition, some plots were established on flood-prone soils, which were unsuitable for the originally selected species. These conditions exacerbated the vulnerability of the plantations and contributed to reduced growth rates and carbon accumulation. As a corrective measure, the project team is currently evaluating the introduction of more flood-tolerant species in these areas to improve future survival and resilience. These interventions are expected to enhance long-term carbon sequestration performance in the affected zones.

Impact	The monitoring results highlight the variability across different cohorts within the project, reflecting its complexity not only in terms of planting year stratification but also in relation to soil type heterogeneity, pre-project land use, and the forest management approach adopted by each beneficiary. Specifically, the 2020 -2021-2023 cohorts show results that are relatively aligned with the projections of the ex-ante model, indicating a stable growth trajectory. In contrast, the 2022 cohort exhibits a high underperformance compared to the model's predictions. In fact, of the 1921,46 tCO_2e total fPVCs for the cohort 2022, 973.33 tCO_2e rPVCs were confirmed after monitoring. No vPVCs have been issued yet, final issuance will depend on future monitoring and verification rounds.
Response	Replanting activities are being carried out to compensate for the loss of trees. In addition, further training and technical support is offered to participants, especially to adapt to changing climate conditions. The ANR training to enhance biodiversity also covers climate adaptation strategies.

Table 4.4.2 Summary of Events Generating or Expected to Generate Losses or Underachievement of Carbon Benefits

Event Number	II
Project Area(s) Affected	45
Total Extent of Project Areas Affected (ha):	2020-2022: 48.8 ha and 2023: 24.6 ha
Description	Loss of some participants who left the program (abandonment of 26% in 2020-2022 and 8% in 2023). The dropout rate of the zeroCARBON project has shown significant variability over the years, with a marked reduction from the 2020-2022 group to the 2023 group. This improvement is primarily due to obtaining the Plan Vivo certification in October 2024 and the initiation of carbon benefit payments, which have generated greater trust and motivation among participants, encouraging them to remain in the program.
Cause	The dropout rate, calculated since the beginning of the project in 2020, has been influenced by a combination of factors related to the certification process, critical climatic conditions, and social dynamics within the intervention area. One of the main factors that led to the withdrawal of some participants was the uncertainty associated with the certification process and, consequently, access to carbon benefits. The zeroCARBON project, which began in 2022, achieved certification in October 2024 after two years of intense work and complex documentation activities. During this long period of uncertainty, many participants, particularly those enrolled in the 2022 group, lost motivation to continue, preferring to withdraw rather than wait for the certification outcome. Additionally, the project has faced significant challenges related to critical climatic conditions that have hindered growth and the implementation of maintenance activities. Periods of extreme weather conditions have compromised planting efforts and seedling survival, demotivating participants and making it difficult to meet growth targets and comply with management plans. In some cases, participants were unable to maintain the required levels, leading to their withdrawal from the program.

Social factors have also impacted the dropout rate. Although the project aims to consolidate long-term commitment through benefit-sharing mechanisms and capacity-building activities, some farmers have found it challenging to stay motivated and actively participate over time, especially those who expected immediate returns rather than long-term benefits linked to carbon payments.

Impact

When a participant leaves the project, in most cases the event affects 100% of that participant's areas. In some cases, the project can be continued by other participants. The influence can be seen in the number of fPVCs and rPVCs, but the influence of this particular event cannot be individually determined. It is important to note that the areas lost due to dropout had not yet generated carbon credits, and therefore there is no impact on the issuance of Plan Vivo Certificates.

Response

To minimize participant dropout and ensure long-term engagement, the project has adopted and is willing to adopt the following strategies:

Local Presence and monitoring: Increased staff presence and targeted monitoring in high-risk areas have reinforced participant relationships and allowed timely interventions.

Communication and training: Clearer communication on carbon benefits and enhanced training on sustainable management practices. Local technical staff provide ongoing support, especially in remote areas.

Transparency in agreements: Ensuring participants understand carbon payments and sign agreements before tree distribution strengthening commitment. Providing financial projections with and without the project helps set realistic expectations.

Timely incentives: Prompt payments and continuous local support.

Risk mitigation measures: Regular interaction with technical staff helps prevent issues like fire and abandonment, while monitoring engagement levels identifies at-risk participants early.

Preliminary questionnaire: Creating preliminary questionnaires assess participant motivations before enrolling.

↑ Photo from annex 3, Management plan.

↑ Photo from annex 3, Management plan.

Table 4.4.3 Summary of Events Generating or Expected to Generate Losses or Underachievement of Carbon Benefits

Event Number	III
Project Area(s) Affected	Than 313 (total project area) and future expansion
Total Extent of Project Areas Affected (ha):	612.7 ha (total project area) and future expansion
Description	In general, the project has also been affected by the ongoing crisis in the VCM, which has delayed access to anticipated financing. This market instability has undermined stakeholders' confidence, and in some cases, discouraged the continued engagement of beneficiaries who did not find the project economically sustainable under such uncertain conditions. While initial carbon revenue payments were made in December, the financial constraints caused by limited market demand remain a risk factor that could affect long-term participation and forest maintenance in some communities.
Cause	On the financial side, the volatility of the VCM significantly affected project operations. The lack of expected carbon revenues prevented the delivery of timely financial incentives to beneficiaries. Despite making the first payments in December, the delay led some participants to disengage from the project due to reduced perceived benefits, particularly in cases where the maintenance of the plantation required continued effort and resources.
Impact	Market instability has undermined stakeholders' trust in the long-term sustainability of the project, with some beneficiaries questioning the project's economic viability under uncertain market conditions. fPVCs, rPVCs, and vPVCs could be affected, although at this stage it is challenging to quantify the impact.
Response	The project is revising financial models and providing participants with clearer, updated projections of potential earnings with and without the project, setting more realistic expectations about future payments and reducing the risk of disappointment. The project is moreover developing contingency plans for navigating continued market volatility, ensuring that the project can adapt to changes and continue operations even in uncertain financial environments.

05

Project **Finances**

Table 5a Summary of Project Finances Since the Start of the Project

Income from PVC sales	€0 – No PVCs were sold during the reporting period, so no income was generated.
Project overheads	601k€ were spent on project coordination and management, including administrative costs, HR, marketing & sales, and certification expenses.
Monitoring, Reporting and Verification	16.2k€ spent on **progress and performance monitoring** activities costs to ensure the monitoring activities of permanent plots.
Local stakeholders and beneficiaries based in Petén	**Total:** 463.1k€ **Payments:** 20.2k€ First direct payment made to the 2020-2022 group **In-kind Support:** 412.8k€ Production and field operational and technical support costs. **Training:** 30.1k€ Community training costs, related to materials, personnel, and events.
Amount directly beneficial to project participants and other stakeholders	463.1k€

Table 5b Summary of Project Finances for the Reporting Period

Income from PVC sales	€0
Project overheads	160k€
Monitoring, Reporting and Verification	10.2k€
	Total: 165.1k€ **Payments:** 20.2k€ **In-kind Support:** 136.8k€ **Training:** 8.1k€
Amount directly beneficial to project participants and other stakeholders	165.1k€

Annexes

Annex 1 Updated Project Design Document	There have been no significant updates to the PDD since its last version (V3.1) dated July 4, 2024.
Annex 2 New Project Participants	The attachments have been uploaded.
Annex 3 Stakeholder Consultations	The attachments have been uploaded.
Annex 4 Free, Prior and Informed Consent	The attachments have been uploaded.
Annex 5 Progress Monitoring	The attachments have been uploaded for internal use only. This attachment contains sensitive information related to project participants. (V3.1) dated July 4, 2024. **Progress monitoring indicators sources** **Carbon sequestration** **- Project database.** The database includes: participant anagraphic information, legal and financial details, records of trees and species received, and other relevant data. An excerpt from this database, specifically a list of participants and their allocated number of trees per year, is available in a public format in Annex 2 of this document and Annex 3 of the PDD. **- Carbon monitoring field data** (2023 & 2024). Carbon monitoring field data was collected from permanent plots in 2023 and 2024. An extract of this data is available in annex 6, and the complete dataset is available upon request. **- Forest management plan monitoring** (2024): Field data collected from each plot. Dataset is available upon request. **Economic and social impact** **- Payment plan.** Payment database containing received amounts for each participant. Sensitive document not publicly available. **- Job creation.** Job creation through labour contracts. Sensitive document not publicly available. **- Training and visits.** Operational Plan 2024 containing planning document for visits and training in each community. This document is intended for internal use only and it is available upon request.

Ecosystem and biodiversity restoration

- **ANR inventory** (field data collection and elaboration derived from ANR first inventory took place in 2024). An extract of this data is available, and the complete dataset is available upon request.

Annex 6
Carbon Monitoring

A single attachment including Appendices 6, 9, and 10 has been uploaded in a condensed format. For any additional information, please contact the program team.

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Refer to "**Monitoring stratification**"; "**Monitoring 2023-1**" and "**Monitoring 2024-1**" for results of carbon monitoring. Refer to "**Field data_2023**" and "**Field data_2024**" for raw data retrieved from field data collection.

Annex 7
Livelihood Monitoring

The attachments have been uploaded.

Annex 8
Ecosystem Monitoring

N/A
Ecosystem monitoring will start between year 4 and 5 so no attachments are present. Data collected on the ANR can be consulted within the folder on progress monitoring (Annex 5) and in the carbon modeling in the attached file with also the list of favored tree species in the sheet **"ANR carbon assessment"**

Annex 9
Future Carbon Benefits

A single attachment including Appendices 6, 9, and 10 has been uploaded in a condensed format. For any additional information, please contact the program team.

Refer to **"Future PlanVivo Certificates"** sheet in the annex uploaded to get a table resume of the fPVCs.

Annex 10
Reported Carbon Benefits

A single attachment including Appendices 6, 9, and 10 has been uploaded in a condensed format. For any additional information, please contact the program team.

Refer to the **"Reported PlanVivo Certificates"** sheet in the annex for a table resume of project rPVCs.

Annex 11
Audited Accounts

The attachments have been uploaded for internal use only. This attachment contains sensitive information related to project participants.

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