ArBolivia Project
Report -January 2023- June 2024

Submitted by: Anko Stilma

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Summary

Project overview

Reporting period	1st January 2023 – 30th June 2024
Geographical areas	Cochabamba Tropics (dpt Cochabamba), Ichilo province (dpt Santa Cruz), Ituralde province (dpt La Paz), J.Balivian province (dpt Beni)
Technical specifications in use	Mixed Species Forest Plantations – MSFP (revised version 2019)

Project indicators	**Historical (2011 -2022)**	**Added/ Issued this period (Jan 2023- Jun 2024)**	**Total**
No. smallholder households with PES agreements	676	459	1135
No. community groups with PES agreements (where applicable)	226	88	314
Approximate number of households (or individuals) in these community groups	4,600	1,760	6,360
Area under management (ha) where PES agreements are in place	1,051.6	704.0	1,755.6
Total PES payments made to participants (USD)	1,806,221	1,689,360	3,495,581
Allocation to Plan Vivo buffer (tCO_2)	27,078	19,768	46,846
Allocation to project withholdings (tCO2e)	9,521	19,768	29,289
Saleable emissions reductions achieved (tCO_2)	279,816	158,147	437,963
Unsold stock at time of Submission (PVCs)			
2023/2024 Q1 Vintage	N/A	0	0
Total Unsold Stock (PVC)			
Plan Vivo Certificates (PVCs) issued to date			**279,816**
Plan Vivo Certificates requested for issuance (2023/2024Q1&2 Vintage)			**158,147**
Total PVCs issued (including this report)			**437,963**

Project updates

During this period, we saw again a growing interest of small holders and indigenous communities in joining the Arbolivia program.

This document provides a report on the plantations established and maintained under the ArBolivia-Plan Vivo program, between 2008 and 2022 and on new plantations brought under the Plan Vivo Standard between the 1st of January 2023 and 30th June 2024.
The plantations are located in the Pre-Andean or Pre-Amazon region in Bolivia (see map figure A.1), characterized by high precipitation, dominance of fragile alluvial soils.

Figure A.1. Location of ArBolivia project areas

The area is populated by communities of small farmers, most of Quechua and Aymara origin whom have moved to this region from the highlands in recent decades, due to increased poverty, and deterioration of the mining and agricultural economic bases that have traditionally supported the people of the Bolivian highlands. Besides there are communities of Tacanas, Mosetenes, Tsimanes and Yuracarés, native to this area.

The project area is distributed among 4 departments: La Paz, Beni, Cochabamba and Santa Cruz and 16 municipalities.

- La Paz: province Abel Iturralde, municipalities San Buenaventura and Ixiamas
- Beni: province José Ballivian: municipalities Rurrenabaque, Reyes and San Borja.
- Santa Cruz, provinces Ichilo and Sara, municipalities Yapacani, San Carlos, Buena Vista, Porongo, San Juan and Santa Rosa de Sara.
- Cochabamba: Tropics of Cochabamba, municipalities Chimoré, Shinahuata, Pto Villarroel, Villa Tunari and Entre Ríos.

A1 Key events

A.1.1 El Niño phenomenon

A.1.1.1 Extreme drought

The reporting period from January 2023 until 30th of June has been strongly characterized by the El Niño phenomenon.

The dry season in 2023 started early in July with record high temperatures in September (Mishra., 2023), this resulted in numerous forest fires even in the project areas where forest fires haven´t been that intensive and frequent in the past. This shown as well in the figure A.2 , where big part of the project areas is situated in the red coloured areas, in other words in new hotspots of fires (WRI, 2025).

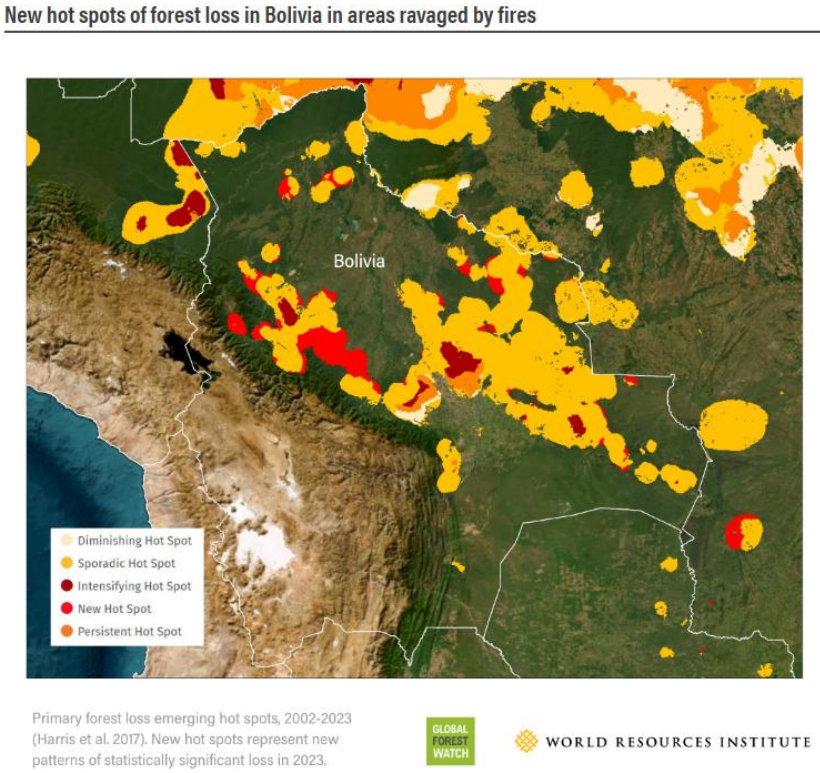

Figure A.2. Hot spots of forest loss in Bolivia in areas ravaged by fires (source WRI 2024)

Especially the North of La Paz and in the Beni department forest fires have been very frequent and intensive in 2023. Not only the remanent natural forests have been lost, but also crops and fruit orchard, agroforestry systems and woodlots suffered from fire, causing income loss and even a loss of food security of a huge number of families. Only by the beginning of December 2023 the rainfall was sufficient to extinguish with the numerous forest fires.

The drought also affected the planting schedule, substantial planting could only start in December 2023 whereas in other years planting started already in October. The rainy season itself was less humid as normal and stopped as well earlier then in "normal years". Though hydrogel was used in April and May, mortality rates have been similar or even a bit higher in 2024 than in 2023 and much higher than in the years 2022 and before.

A.1.1.2 Resilient systems

From the positive site, there was more interest in the program, not least because the tangible as well non tangible benefits of the programme are becoming more and more visible.
Tangible benefits generated from the land of the smallholders who joined the program in earlier years helped to motivate new farmers to join the program as well, e.g. a growing number of farmers is getting substantial income from coffee, cacao and wood from managed woodlots. At the other hand ArBolivia farmers also experienced the indirect benefits of woodlots and agroforestry systems in this El Niño year. Where ArBolivia farmers have suffered some effects of the drought and had about a 50% decrease of the harvested volumes of coffee, cacao and other crops, neighbouring farmers without trees on their land suffered heavily from drought and lost in many cases their complete harvest.

A.1.2 Presence in fairs

In 2023 and the first two quarters of 2024 Sicirec Bolivia ltda participated in different fairs on national, regional and local level with the aim of:

- Creating awareness among a broader public on the need for forest conservation, restoration and agroforestry
- Sales on local, regional and national level of cacao, coffee, seeds, seedlings and wood products
- Generating interests in other farmers to participate in the tree planting activities

Amongst other participation in national fairs: The ExpoForest in Santa Cruz in April 2023 and April 2024 and several regional fairs for example:

- Chocolate fair in San Carlos (Santa Cruz) as well in April 2023 and April 2024
- Coffee fair in Buena Vista (Santa Cruz) in September 2023
- ExpoYapacani (Santa Cruz) in August 2023
- Traditional fair Reyes (Beni) in August 2023

Figure A.3. Chocolate fair in San Carlos

A.1.3 Growing interest in joining the program

As already mentioned, tree planting on farmland showed positive effects compared with deforested areas which increases the interest of farmer families in the communities ArBolivia is working. However, the interest of communities and individual farmers has not been limited to communities and municipalities where activities are already carried out but there is also a growing interest in other parts of the country:

- Communities in the Chiquitania region, (in the east of the country), suffering from high deforestation rates applied for support in agroforesty activities as an alternative for the increasing pressure of soya and cattle farmers. A successful pilot was started on agroforestry production in Santiago de Chiquitos.
- The program worked already with the Indigenous Tsiman communities, but more indigenous communities of the Tsiman have asked to join the program, therefor in coordination with the Regional Council of the Tsiman and Mosetenes (CRTM) the program has extended to communities east of our original project area. These areas have been and are subject to high deforestation rates due to a conversion from traditional slash and burn agriculture towards cattle farming. With the proposed activities establishing woodlots and agroforestry activities the communities and the Arbolivia program is aiming to revert this process of ongoing degradation. Additional to this silvipastoral systems will be developed.
- Invitations of farmer and indigenous organisations from other parts of the country have been received to extend the activities to theTarija department, in the extreme south of the country) and Pando in the extreme North. These options are currently analysed by Sicirec Bolivia, since this will require the recruitment of new staff, opening of new field offices with corresponding logistics and adaptations of the proposed activities to a situation which is slightly different from the current circumstances.

A.1.4. Training

A.1.4.1 Training the trainers

A two staged training was given to all staff members with the aim of guiding new staff, as well as refresh the main technical criteria with more experienced personnel through the exchange of experiences in the main activities of the company. During the first stage in May 2023, general aspects regarding the nature of the company, the various requirements of the technical teams in each of the areas, and the scheduling of tasks aimed at addressing these needs were analyzed. The program of the event in its second stage, in July 2023, was more focused on addressing present and specific topics, seeking to improve and expand technical, theoretical, and practical knowledge that allows for better professional performance aimed at the productivity of the company.

In August 2024 another 6 days training for all technical and part of administrative staff has taken place in Rurrenabaque. Objective of this training was to guide new employees, refresh criteria of the whole team and exchange experiences about the activities developed by Sicirec Bolivia ltda. The program was focussed on improving and expand technical, theoretical and practical knowledge, with the aim of an improvement in the performance of the whole team and the professional development of each of the team members.

Among others the following topics have been discussed:

- Fire prevention and Fire Control
- Social values and participatory planning and implementation of activities

- Soil classification, theory and field practices
- Cacao and coffee (site requirements, planting design, management, pre harvesting, harvest and post-harvest activities, chain development and organic certification. (Theory and field exercises)
- Silvicultural management of woodlots (theory and field practices)
- Sustainable wood harvesting, thinnings (theory and field practices)
- Safety measures in plantations management and wood harvesting (theory and field practices)
- First aid practices and security

Figure A.4: Sicirec Bolivia team receiving training in fire control

After this general training specific trainings during the year specific trainings took place on tree growth monitoring and impact measurement for the field staff and monitoring team.

A.1.4.2 Farmer trainings

On site training have been provided to farmers as well formal training:

All farmers received at least one site visit per year with training. Depending on the age of the woodlots/agroforestry systems farmers received on-site training in planting, weeding, pruning, thinning
In the agroforestry plots they received training on the importance of shade trees but also on the management of shade trees (pruning)

Formal trainings have been given on

- Fire prevention and
- Agroforestry:
    - management practices for coffee and cacao, such as pruning, importance of shade and nitrogen fixing trees species and use of organic fertilizers and biological pest control
    - Harvesting and post-harvest practices for coffee and cacao

- Quality control and marketing

Fig A.5: Training, theory on agroforestry

Fig A.6:Training pruning practices

Fig: A.7 Training on organic cropping

Fig A.8: Training on preparation of organic fertilizers

A.1.4.3 Meetings with forest committees

After COVID and the huge forest fires last year regular meetings with all the members of the forestry committees were suspended, but by the end of 2023 meetings with all the members of the committees were started again as well. 8 assemblies have been taken place and 17 assemblies are programmed for the second half of 2024.

Figure A.9: Assembly Forest Committee "Ambiente Sano"

A2 Successes and challenges

A.2.1. New planting

During the reporting period, 707.3 has of new woodlots have been established, see figure A.10.

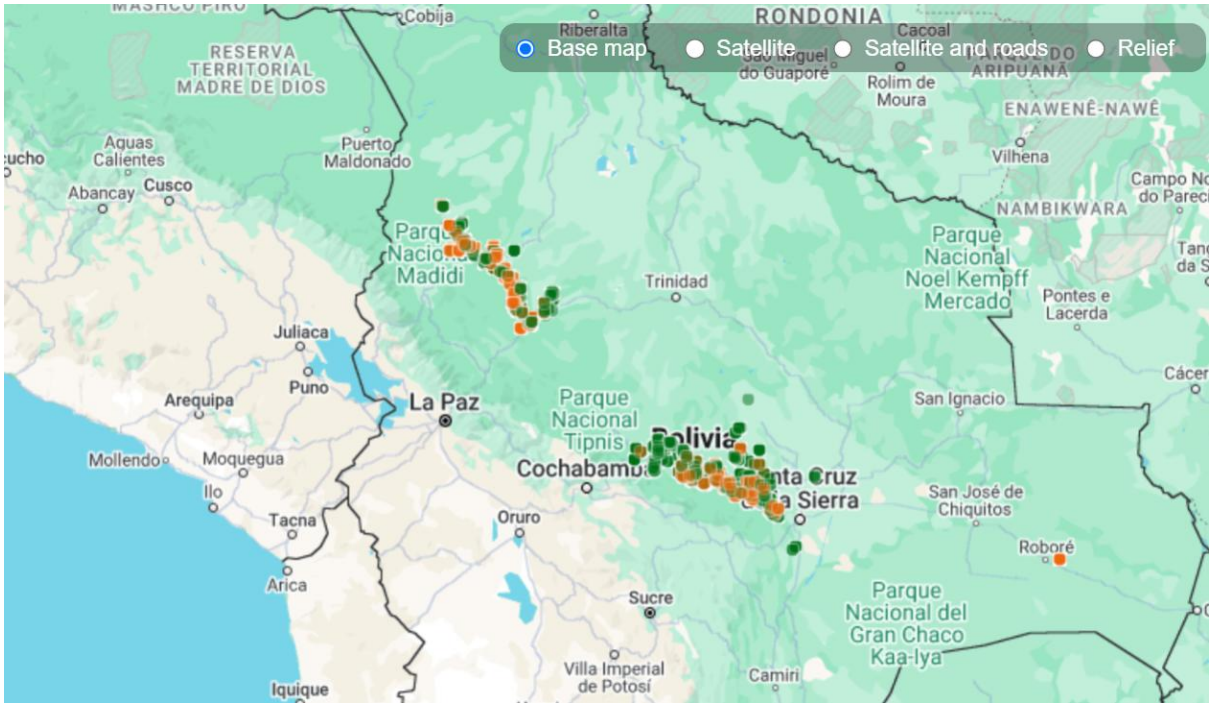

Figure: A.10. newly planted areas

235,880 coffee plants, 92,452 cocoa plants and 12,950 citrus plants have also been distributed and planted, 75 hectares under existing trees and 175 ha with new plantations, mainly with Centrolobium tomentosum and Strhypnodendum purpureum trees since these trees have relatively light crowns and are nitrogen fixing species.

Seedlings of coffee are planted in relative low planning densities of in between 2,500 – 3.000 seedlings per hectare. Planting density of timber trees in the areas wise areas are the same as in the woodlots without coffee and cacao. This will reduce the harvestable volume a bit, but on the other site the litter of these trees provides on this way sufficient organic matter and almost no other fertilization is needed. So, costs remain low for farmers. In figure A.11 a plantation with coffee is shown.

Figure A.11. Coffee with *Centrolobium tomentosum*

A.2.3. Wood production

Silvicultural management of the woodlots based on a polycyclic system, where the management is focussed on the development of uneven aged woodlots and agroforestry systems. If thinnngs take place, natural regeneration is supported, this will enhance biodiversity and will increase the average GHG-ER.

F*ig. A.11: Poles from first thnings*

Fig A.12 Natural regeneration of Sthryphnodendrum purpureum, after thinning

However, further development of domestic markets for wood from woodlots and agroforestry systems is needed. The sales of wood from first thinnings continued and the processing of wood from second thinnings showed interesting results by joining efforts with local carpentries and resellers in Santa Cruz and Cochabamba. 10,046.97 board feet of sawn timber was processed for carpenters and has partly been used for furniture, utilities, samples, and others. With the University in Santa Cruz an

agreement has been signed for the physical and mechanical analysis of the wood, as well the workability of the wood, since the market knows the species but not the wood from these species grown in woodlots.

A.2.4. Forest fires a huge challenge

In spite of very positive developments as a growing awareness among farmers and indigenous people for the need of protection and restoring forests at one hand and to convert non-sustainable production into sustainable agroforestry production there have been also huge challenges due to the extreme drought, caused by El Niño in the months August until December 2023, which have caused forest fires which never have been occurred with this intensity before. Several of the participating suffered from forest fires and lost annual and perennial crops, as well several agroforestry systems and woodlots suffered from fires. More on this will be discussed in the section on monitoring but the fires had an extreme social, economic and environmental impact on the local population. Woodlots, agroforestry systems have been damaged and crops of farmers have been lost. In table A.1 de affected woodlots per species and planting year are given.

		Plan Vivo															
Common name	Species	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total Surface
Verdolago ne	Buchenavia oxicarpa	0,5														0,2	0,7
Palo maría	Calophyllum brasiliense			1,0	0,1							1,0	1,0	4,9	7,8	13,0	28,8
Cedro	Cedrela fissilis		0,0														0,0
Tejeyeque	Centrolobium tomentosum	1,0	0,5	0,4	0,3	0,1					1,4	3,6		9,3	11,3	28,0	55,8
Almendrillo	Dipteryx odorata	1,0	1,7							0,3							3,0
Palo yugo	Stryphnodendron purpureum	0,4	0,5	0,5	0,6						1,3		1,0	0,5	5,2	16,6	26,5
Mara	Swietenia macrophylla	0,0	0,0														0,1
Palo román	Tapirira guianensis	0,7		0,1	0,2										1,0	2,5	4,4
Teca	Tectona grandis	12,7	5,5	0,2		0,0								2,6		6,3	27,2
Verdolago ne	Terminalia amazonia	1,0													1,5		2,5
Gabún	Virola flexuosa		0,0														0,0
	Total Surface	17,3	8,2	2,1	1,1	0,1	-	-	-	0,3	2,6	4,6	2,0	17,3	26,8	66,6	149,1

Table A.1: Affected woodlots per species and age

In the departments of Beni and La Paz the fires have been extremely intensive. As shown in table A.2, 74% of all woodlots have been damage by fires in these departments and since in these areas there is a relative higher surface of young plantations it has been these woodlots which have suffered more from fire.

Department	Surface (ha)	Surface (rel)
BENI	84,3	57%
COCHABAMBA	0,3	0%
LA PAZ	39,4	26%
SANTA CRUZ	25,0	17%
Total	149,1	100%

Table A.2: Surface of affected woodlots by fire

A.2.5.1 First and direct support during and after the fires

Before the fires the field staff worked hard on fire prevention, creating awareness among farmers, their organisations on the risk of fire in the El Niño year. Despite all these work forest fires could not be avoided. Project worked hard on early warning systems and organizing farmers in fire control groups. Also, equipment was distributed among these farmer groups to combat fires. Logistics have been used for the distribution of water and equipment. Despite these affords, damage to crops, agroforestry systems, woodlots and even houses could not be avoided, this was also caused by the scale and intensity which never was seen before in this region. After the fires the field staff supported with logistics, and coordinated with other organizations the first support as providing farmers with

food, medicines, drinking water and in a later stage with seeds and equipment's. The maps of affected areas is available on request.

A.2.5.2 Recovery of woodlots damaged by forest fires

By February 2024 onwards the focus went from direct support towards the recovery of woodlots and agroforestry plots which have suffered from the fires.

A study is started together with the University of Applied Sciences VanHallLarenstein from the Netherlands carried out to the best ways to recover the woodlots. This can be replanting (a process what has been started) or the management of regrowth in of the trees. These activities will be continued in the coming period.

The first results show that not all woodlots which suffered from fires are completely lost. Teak for example was recovering fast after fires, but in the stem a lot of sprouts appeared which needs to be pruned. Most *Centrolobium tomentosum* and *Sthryphnodendrum purpureum* trees seemed completely dead but months after the fire new sprouts starting from the bottom appeared. In figures A.13 and A.14 resprouting is shown 4 months after the woodlot was burned. For these species a proper management of sprouts will be developed and this will be monitored the coming years.

Fig. A.13: Resprouting of Sthryphnodendrum purpureum

Fig. A.14:Resprouting Centrolobium tomentosum

Follow up has been given to all farmers who suffered from fires, and it was clear that a lot of farmers been discouraged by the fires and it is be hard to motivate these farmers to manage resprouts of trees or do replanting. This required and still requires a lot of effort from the field staff and only in

course of 2025 it will be clear if woodlots and agroforestry systems can be restored, replanted or should be considered as lost plantations.

A3 Project developments

A.3.1. Verification process

Project has been successfully verified by the independent Validation and Verification Body (VVB), Control UnionField audit has taken place in December 2023. Clarification requests from the verification in 2019 has been closed now, same for the observations raised in the 2019 report. One new clarification request was raised during the verification process regarding the assemblies which haven't been held in 2020-2022 due to COVI19-pandemic and was again interrupted in the months September-November 2023 due to forest fires. However, with sufficient evidence by the project that after the forest fires the assemblies have been picked up again and others have been rescheduled for 2024, this CAR was lifted and all CARs, FARs and observations could be closed. The complete report, resulted in the verification of 187,242 tnCO2e, and was finished by September 2024. The report includes 19,060 tnCO2e which was taken from the project withholdings. Starting with the next report the project withholdings will be brought back to 10% over the next 4 years.

A.3.2. Global Biodiversity Standard

Huarango Nature and Kew Botanical Garden, with the support of ECOSIA, have been testing and developing the new Global Biodiversity Standard in agroforestry systems and woodlots.
In April 2024, Sicirec Bolivia has welcomed a team of experts from Huarango Nature, the hub for TGBS in Latin America which in collaboration with Bolivian specialists in flora, insects and birds, carried out an comprehensive assessment of biodiversity in project sites, located near the Amboró National Park in Santa Cruz de la Sierra, Bolivia. The assessment, carried out under the TGBS methodology, covered eight criteria prioritized by the standard, including ecosystem integrity, level of protection, social and community participation, and monitoring practices. Attributes in flora and fauna were analyzed in four agroforestry properties of SICIREC. The results of this pilot assessment will be essential to propose improvements in the management of biodiversity in agroforestry practices and to test novel methods in the assessment of biodiversity, such as the assessment of beetles and the use of drones. The findings obtained have been very positive and will be presented in the COP16 on biodiversity in Cali Colombia in October 2024. (In October 2024 in the COP16 in Cali the first 4 project with TGBS certification have been presented including the ArBolivia sites).

A.4 Future Developments

Permanence of the project increased and will increase by making tree planting and agroforestry production a real alternative for conventional farming by small holders and indigenous communities. Therefore, during this reporting period a lot of emphasis was given to chain development, and this will continue over the next few years. Sustainable Chain development is considered a key element, not only for deforestation free production, but also for promoting a successful transition towards land use with a high biomass content. The main focus will be on the further development of the cacao and coffee chain, but also on tonka-beans, of which a market exist in the UK and France and in a later stage on silvopastoral systems.

Due climate change it is expected that extreme climate events as drought and flooding will occur more frequent in the area. The main findings of a study by Torrico (2021) were:

- The projected scenarios for surface temperature by 2050 show, for Bolivia, an increase of +1.6 °C (moderate scenario) and +4.9 °C (high emissions scenario). The western region would see an increase of +1.9 °C.
- Extreme climate events would become more frequent, including floods (tropical region), droughts (tropical regions and valleys)
- Particularly, food production systems and infrastructure could be severely affected by extreme climate events.
- Changes in the timing, intensity, and distribution of precipitation are expected.
- There would be a reduction in freshwater reservoirs, retreat of glaciers, and deterioration of wetlands in the highlands and swamps in the tropics.
- Water vulnerability could increase due to rising temperatures, evaporation, interannual variability, and the greater frequency of dry years.
- Forest fires in tropical areas could increase, as well as the displacement of species to other regions, changing ecosystems in terms of composition and functioning.
  (Toricco, 2021)

This means more prevention activities against fires as well as flooding will be needed in the communities. In 2024 a start with this is made by training staff as well as farmer families in fires prevention and fire control, but this will need to be intensified in the coming years.

To meet farmers' demand and optimize our current capacity, the annual extension of the program for the following years is 650 hectares of woodlots and 200 hectares of agroforestry systems a year. On top of this Sicirec Bolivia will be involved in the development of new projects in Tarija, Pando, Beni and Santa Cruz.

Due to inflation in Bolivia and the need of an integrated approach of tree planting, agroforestry combined with chain development in order to improve farmer's income and people's livelihood, the unit costs per hectare, and the PVU will have a tendency to increase.

Part B: Project activities

B.1. Project activities generating Plan Vivo Certificates

Table B.1 below lists the technical specifications being used in the project, the area covered and the number of participants using them.

Table B.1: Project activity summary

Name of technical specification	Area (Ha)	No smallholder households	No Community Groups
Mixed species Forest Plantation	*1,758.9*	*1135*	*314*

542 families have established new woodlots during the reporting period and the rest continue with maintenance activities of the planted woodlots and agroforestry systems. 83 of these 542 families have been planting as well in previous years and now extended their woodlots or agroforestry system. 459 of the 542 families participated for the first time in the tree planting activities.
Part of these 459 "new" families have been recruited in the communities where other members of the community have been participating already but others are representing new communities. A total of 88 new communities have been included in the reporting period.
The same conditions apply for all new farmers as for the existing PV-families.

B.2. Project activities in addition to those generating Plan Vivo Certificates

Since reforestation activities cannot be seen in isolation from other livelihood activities, project participation begins in all cases with the elaboration of an Integrated Land Use Plan. Integrated Land Use Planning ensures that tree planting does not adversely affect income or food security in the short, medium and long term.

In addition to this:

- Farmers receive advice on land use planning.
- Farmers receive advice on improved cropping practices.
- Agroforestry systems with cocoa, coffee or fruit orchards are established
- Farmers receive training and advice on improving crop production, harvesting techniques and post-harvesting activities.

Monitoring & evaluation together with onsite training is done during the site visits.

More specifically the project focusses on the increase of surface of agroforestry systems, with special emphasis on coffee, cacao and tonka beans.
We believe a transition towards sustainable land use does not only depend on tree planting and establishing more surface of agroforestry systems but goes hand in hand with the development of the supply chain. The permanence of the credits generated by woodlots and agroforestry systems is much more guaranteed if farmers can make a real transition towards sustainable land use, having a stable and better income. A focus on planting, maintenance, harvest, pos-harvest activities result in the sale of coffee and cacao against a higher price than usual in Bolivia and is contributing significantly to the improvement of the livelihoods of participating farmers.

B.2.2. Agroforestry production

An additional 82.2 ha of coffee and 116.5 ha of cocoa have been planted within woodlots, as well as 27.2 ha of fruit trees.

For more information related to the coffee and cocoa crops, you watch the next videos:
https://www.youtube.com/watch?v=Fd12xac0mQ0
https://www.youtube.com/watch?v=_dB0dbdDFf8

Since a bigger surface of agroforestry with cacao and coffee has been implemented over the last years and the ambition is to extend this even more, the export of these products will grow as well. To secure the market for these products Sicirec Bolivia is now proceeding with organic certification. It is expected that this process will be finished in the first half of 2025.

The cooperation with the Dutch company Brute Bonen made it possible to export even more coffee and cacao to the EU than last year. As a result of having created real and visible market for coffee and cacao a substantial higher interest in farmers willing to participate in the project was created. This shows the importance of creating visible markets as well market security for smallholders to make a transition towards sustainable land use. With the help of Brute Bonen BV, new buyers have been found for the coffee as well the cacao, this is needed, since bigger volumes of cacao and coffee will be available in the coming years.

Also, during this year Sicirec Bolivia supported the improvement of the chain with the aim of reducing the loss of production and at the other hand obtain higher quality and therefor higher prices for their products. This was done through training sessions with farmer groups as well on-site training of the individual farmers. At the other hand equipment has been provided to the farmer as. Depulping mills, drying tables (see figure B.1 and B.2) and other equipment to improve the chain development of agroforestry products and be able to access the markets with high quality products.

Figure B.1: Delivery of depulping mills

Figure B.2 drying tables

This all resulted in the export of coffee and cacao in 2023 and 2024 and in December 2024 another container with coffee and cacao will be send to Europe and another two containers are programmed for august 2025.

154 families have been able to export their coffee and cacao during this reporting period. On an average these farmers received during this reporting period 1,294 USD, which is a substantial part of their total farm annual income. Due to the young age of the agroforestry systems production per

farmer will be expected substantial higher in 2025 as well the number of farmers who will be able to export their product will increase to approximately 160 families.

B.2.3. Wood production

76 farmer families had income from thinnings of the woodlots. On average the net revenues for the farmers have been 479 USD per family. Due to low wood prices revenues are relatively low, but an investment proposal is in place now and presented to different financial entities. By investing in harvesting and processing facilities the dependency on the traditional wood industry will decrease and products with added value can be brought to the market. Important to mention that harvesting is done on such a way that there will be a higher biomass increase, no clear cutting will be allowed, and environmental criteria will be respected.

Part C. Plan Vivo Certificate issuance submission

C.1. Contractual statement

The issuance of credits is based on signed agreements with the smallholders, which outline the responsibilities and rights of both the smallholders and Sicirec Bolivia ltda.

C.2. Issuance request

During the reporting period, another 707.3 hectares have been brought under Plan Vivo. These hectares generate a total of 198,752 tCO2e. The issuance request for new areas is specified in table C.1. below.

Table C.1.: Issuance request for Plan Vivo Certificates allocated to new participants and land

Tech. Spec. used	No of participants/ groups allocated	Total area allocated (ha)	Carbon Potential (tCO_2/ha)	Total ER's (tCO_2)	% buffer	No. of PVCs allocated to PV buffer	No. of PVCs allocated to internal buffer	Saleable ER's (tCO_2) from this period
TS Mixed forests	*459*	*704.0*	*280.8**	197,679	*10+10%*	*19,768*	19,768	158,143
TOTAL	*459*	*704.0*	*280.8*	*197.679*	*10%+10%*	*19,768*	*19,768*	*158,143*

**This is an average across all species and all sites planted, specific data per species and sites is shown in annex*

As mentioned in section A.3.1. the total project withholdings are currently less than 10% and the 19,060 tnCO2 which have been taken form the project withholdings will be gradually added to the internal buffer before the next verification in 2028 as shown in table C.2

Table C.2. Delivery of 19,060 to complete project withholdings of 10%

Annual report	Yearly return to project internal buffer	Relative return to project internal buffer (%)
2024-2	2,723	14.2
2025	5,446	28.6
2026	5,446	28.6
2027	5,445	28.6
Total	19,060	100.0

C3 Allocation of issuance request

Table C.3. describes the issuance request and its current allocation to buyers

Table 5: Allocation of issuance request

Funding partner	No. PVCs transacted	Registry ID (if available) or Project ID if destined for Unsold Stock	Tech spec(s) associated with issuance
Trees for All	*158,143*		*MSFP*
TOTAL			

C.3 Data to support issuance request

Table 6 shows the newly established plantations per municipality, farmer or indigenous organisation and forestry committee. A full overview of the new established areas can be found in Annex 1.

Table 6: New established woodlots January 2023-June 2024 per municipality

Department	Municipality	Surface (Ha)	Total GHG (tn CO2e)	**PVU (tCO2e)**
BENI	Reyes	25.0	6,717	5,373
	Rurrenabaque	96.4	26,574	21,259
	San Borja	161.5	44,957	35,966
COCHABAMBA	Chimoré	23.6	6,632	5,306
	Entre Ríos	32.1	9,357	7,486
	Puerto Villarroel	80.7	22,740	18,192
	Shinahota	9.3	2,606	2,085
	Villa Tunari	25.3	6,909	5,527
LA PAZ	Ixiamas	23.5	6,397	5,118
	San Buenaventura	62.3	17,037	13,629
SANTA CRUZ	Buena Vista	31.8	9,549	7,639
	El Torno	2.1	633	507
	Porongo	4.5	1,342	1,073
	San Carlos	11.4	3,395	2,716
	San Juan	20.7	6,005	4,804
	Santa Rosa del Sara	1.5	426	341
	Warnes	5.5	1,577	1,261
	Yapacaní	87.1	24,826	19,861
Total		**704.0**	**197,679**	**158,143**

- *Monitoring data for areas of land and participants, which support the request, can be found in Annex 1.*

Part D: Plan Vivo Certificates

D1: Generating Plan Vivo Certificates

In keeping with ArBolivia's philosophy of reciprocity, farmers are not subsequently subjected to the volatility of the voluntary carbon market and Sicirec Bolivia Ltda commits to funding all project activities, based on the actual costs of implementing and maintaining the woodlots.

The woodlots provide different environmental functions, like biodiversity and the capture of CO2e. Since the start of the project 1,758.9 were planted, which are generating 499,060 tCO2e, so on an average 283.7 tons of CO2e are generated per hectare. In compliance with Bolivian law and regulation, no payments are made related to the CO2e generated by the woodlots. Instead, famers are receiving on different moments direct payments per hectare on compliance of activities as agreed in the contract between Sicirec Bolivia ltda and the farmers. In addition to direct payments, farmers receive in-kind support through the provision of tools and equipment for coffee and cocoa harvesting and processing, fruit trees and seedlings by the project coordinator. In accordance with the provisions established in the PDD, if the revenues linked to the generation of Plan Vivo certificates cannot cover these costs, the project manager (SICIREC Bolivia ltda) is obliged to cover the deficit.

Table D.1. provides details of all the transfers of Plan Vivo Certificates to date.

Table D.1: Transfer of Plan Vivo Certificates

Vintage(s)	Supporter	No. of PVCs	Financial support per PVC ($)*	Total support ($)*	Support to participating farmers per PVC in first year ($)*	Support to participating farmers per PVC in first year ($)*	% financial support received by participants
Previously received							
2011 – 2022	Various (see previous annual reports)	259,894	9.86*	2,562,329		1,806,721	70.5%
Transfers 2023/2024							
2023	Trees for All	*120,000*	11.00	1,320,000	10.62	1,274,980	97%
2024	Trees for All	*38,143*	14.60	556,888	10.62	414,380	74%
Subtotal		158,143		1,876,888		1,689,360	90%
Total		418.037		4,439,217		3,496,080	79%

**Payments to farmer are hectare based, resp 1,806,721, 1,2740,980 and 414,380 are payments to farmers based on the surface established and maintained. The financial support per PVC is the total amount divided by the number of PVC issued. The unit cost per PVC are rounded to 2 decimals*

Important to mention that the support to the farmers during the first year has an average value 10.62 USD dollars, but in the following years the support will continue and only between the second and the fifth year after planting, farmer support ascends to another 3.90 USD, between direct payments and in-kind support, so totalling an equivalent of 14.59 USD per PVU for farmer support. For now, the support received form Sicirec Bolivia Ltda by the farmers is higher than the support received for the generation of PVCs. The difference is covered by Sicirec Bolivia ltda and financed by impact investors, consultancies, and the sale of agroforestry and wood products.

Part E: Monitoring results

E1: Monitorig environmental functions

In the reporting period 704.0 hectares were established with 9 different tree species. In Table E.1, species distribution is shown together with the Average Net GHG Emission Reduction per species.

Table E.1: Species distribution of new planted areas

Species	Common name	Surface (has)	Total GHG-ER	Project with-holdings	Buffer PlanVivo	PVU Issuance request
Buchanavia oxicarpa	Verdolago negro	10,2	2,378	238	238	1.902
Calophyllum brasiliense	Palo maría	145,9	41,864	4,186	4,186	33.492
Centrolobium tomentosum	Tejeyeque	203,7	61,312	6,131	6,131	49.050
Dipteryx odorata	Almendrillo	32,5	8,982	898	898	7.186
Stryphnodendron purpureum	Palo yugo	271,3	72,698	7,270	7,270	58.158
Tapiriri guianensis	Palo román	0,9	250	25	25	200
Tectona grandis	Teca	20,7	5,100	510	510	4.080
Terminalia amazonia	Verdolago negro de ala	16,1	4,482	448	448	3.586
Terminalia oblonga	Verdolago amarillo	2,7	614	61	61	492
Total		**704,0**	**197.680**	**19,767**	**19,767**	**158,146**

10% of the emission reduction will be kept in the PV buffer. Another 10% will be retained by the project itself, resulting in an issuance request of 158,146 tCO2e. This issuance request is supported by the detailed monitoring results shown in Annex 1.

Total issuances of credits is shown in Table E.2.

Table E.2: Issuance over time

#	Tech. Spec. used	No of participants / groups allocated	Total area allocated (ha)	Average carbon Potential (tCO_2/ha)	Total ER's (tCO_2)	Issuance	PV buffer contribution	Withheld by project
1	Historic (see AR 2022)	*676*	*1,051.6*	*285.6*	*300,308*	*260,756*	*30,030*	*28,581*
2	Extra issuance (2022)					*19,060*		*-19,060**
2	Jan 2023-Jun 2024 recruitment	*459*	*704.0*	*280.8*	197,683	*158,147*	*19,768*	*19,768*
	TOTAL	*1,135*	*1,755.6*		*497,991*	*437,963*	*49,798*	*29,289*
	Percentage split					*84.1%*	*10%*	*5,9%*

- PV-buffer increased to 49,798 tCO2, this is 10% of the total ERR and Arbolivia's.
- The voluntary reserve has increased slightly to 29,298 tCO2e since 10% of the new issuance (19,876 tCO2e) is added. The total project withholdings is now 5.9%, this has to increase gradually to 10% until 2028.
- Total consolidated area is 1,758.9 hectares
- The column of average carbon potential is the overall number of all carbon potential calculations

During 2023, 136 farmers and a total surface of 149 has of woodlots and agroforestry systems suffered from fires. The damage itself varies from farm to farm, some species are more vulnerable to fires than others.

In table E.3 the number of farmers who´s woodlots suffered from fire are shown

Department	Municipality	Surface (Ha)	Farm families
BENI	Rurrenabaque	78.8	74
	San Borja	5.5	9
LA PAZ	San Buenaventura	39.4	24
COCHABAMBA	Entre Ríos	0.3	1
SANTA CRUZ	Buena Vista	4.2	2
	San Carlos	8,0	8
	San Juan	4.2	5
	Yapacaní	8.7	13
Total		149,1	136

Table E.3: Surface damaged by family and location

Not all these woodlots and agroforestry systems are completely destroyed, however in all cases extra attention has been provided by the field staff. In table E.4 the surface per species affected by fire is shown.

Species	**Common name**	**Surface (has)**
Buchanavia oxicarpa	Verdolago negro	0.7
Calophyllum brasiliense	Palo maría	28.8
Centrolobium tomentosum	Tejeyeque	55.9
Dipteryx odorata	Almendrillo	3.0
Stryphnodendron purpureum	Palo yugo	26.5
Swietenia macrophylla	Mara	0.1
Tapiriri guianensis	Palo roman	4.4
Tectona grandis	Teca	27.2
Terminalia amazonia	Verdolago negro (TA)	2.5
Virola sp	Gabún	0.0
Total		149,1

Table E.4: Surface damaged by fires per tree species

Teak has been relatively resistant to fires and most of the 27.2 hectares of teak burned only needed some extra pruning to avoid excessive growth of branches. Tejeyeque and Palo yugo trees of an age over approximately 6 years old showed resprouting from the roots. However, the management of the sprouts needs a lot of attention and not all farmers are motivated to do so.

73 families have received in total 42,004 new seedlings for replanting their burned areas, this includes 13,758 seedlings of coffee and cacao which showed a very low resistance for fires.

Since the recovery of the woodlots and agroforestry systems is costing a lot of effort to the farmers there is high-risk farmers are losing motivation to recover their woodlots. During training and site-visits staff is working on the motivation of farmers to continue, but only in course of 2025 it can be shown what the actually recovery rate will be of these plantations.

E2: Maintaining commitments

- As in previous years farmers received several visits before and after planting and during the maintenance of the trees. All farmers receive instructions on how to plant and farmers also receive specific recommendations based on their specific site conditions, site-preparation (in case of establishment) and the quality of the plantation. Information on this is noted on field forms and stored in the Decision Support System for each of the farmers.
- During the first two years, 6 evaluation visits of the plantations are foreseen. After that, this is reduced to one per year.
- The visits have been carried out according to the following scheme:
  1. During the delivery of seedlings, a number of recommendations are made. Compliance with these recommendations is checked 1 to 3 weeks afterwards. Although the coordinates are initially measured by GPS at the planning stage, the area finally planted is also re-measured by the fieldworkers after planting, giving the exact coordinates (UTM WGS84) and surface area of each sector. Once introduced into the database, a unique sector code is automatically generated by the system to avoid any possibility of duplication of data and/or double counting. This data can be found in Annex 1 and 2. This code is shown in the 5th column (sector code). If any corrective work is required, the field technician checks that this work has been concluded satisfactorily and then is authorized to proceed with the payment due to the farmer, which is based on surface area as measured and recorded.
  3. In the first year after planting, regular visits are carried out with the purpose of on-site training and evaluations. If evaluations show that the woodlots are established well, payments are made to the farmers.

  For all areas: All the recommendations on the themes shown below were subsequently implemented, albeit not always within the suggested time frame.

- **Pest control:** Some pests, mainly ants, might attack the plantations and there is a need to apply biological pesticides. These products were either provided by ArBolivia or training was given on how to produce biological pesticides.
- **Cover crop:** Due to soil conditions, farmers are advised to plant leguminous cover crops, in which case appropriate seed is provided by ArBolivia.
- **Weeding:** This is necessary in order to avoid excessive competition between weeds and trees. In year 1, 3 to 4 times, in year 2 weeding is done2 to 3 times, in year 3, 2 times and for the nextyears, once a year. Depending on the growth of the weeds, this could be adjusted
- **Replanting:** This is recommended in all cases whenever mortality exceeds 20%. ArBolivia provides the plants and the farmer carries out the planting.
- **Pruning required:** Branches and shoots were required to be removed to encourage desirable plant growth. The type of pruning depends on age: For the younger plantations, this means low pruning or so-called “shape pruning” is recommended; for the plantations up to 4 years, medium pruning is recommended; and for higher trees, a high pruning is recommended, generally with the purpose of obtaining at least 6 meters of branch-free stems.

- **Protection against cattle:** In cases where no fencing or insufficient fencing was in place before tree establishment, or where the land use has changed (for example where one of the neighbours has decided to begin raising cattle), new fencing is necessary. ArBolivia provides a quantity of barbed wire, whilst the farmer provides the poles and any additional barbed wire as required.
- **Fertilization:** Organic fertilizers are used as required.
- **Fire control measures:** Wherever an elevated risk of forest fire has been identified, extra measures have been taken such as incorporating firebreaks, clearing the area of undergrowth and establishing cover crops.
- **Thinning required:** With the aim of optimizing tree growth and biomass increment, and obtaining desirable and marketable diameters of stems, different thinning's will take place during the rotation of a plantation. The timing and intensity of thinnings are based on measurements of: tree height, diameter at breast height (dbh), competition between trees and crown cover. A field worker of ArBolivia makes yearly assessments; if a thinning is necessary, a plan will be made together with the farmer, which details the period in which the thinning will take place, who will carry out this work and to whom products can be sold. Trees to be thinned will be marked by ArBolivia's field staff. Thinnings are carried out by a specialized team from ArBolivia with the participation of the farmer. Before and during this operation, the farmer receives on-site training in silviculture, low impact harvesting techniques and safety measures of the operations.
- **No recommendation:** No specific recommendations were necessary.
- For older plantations, most emphasis is made on pruning and thinning.

Part F: Impacts

F1: Evidence of outcomes

In 2023 a study was carried out, by a thesis student from the University of Applied Sciences Van Hall Larenstein from the Netherland on biodiversity. Finding showed the positive impact of the woodlots on macro-fauna, flora diversity and even on mammal and bird species compared to non-forested land. Also a positive impact was found for especially the Centrolobium tomentosum on organic matter in soil. In the first half of 2024 a study on biodiversity was carried out by Huarango Nature with the purpose of developing The Global Biodiversity Standard. A positive impact on biodiversity was proven resulting in Sicirec Bolivia´s sites are among the first sites certified under this standard.

Part G: Payments

G1: Summary of payments by year

- In contrast to a market-based approach, project guarantees to make staged payments to the farmers for the establishment and maintenance of plantations, as well as in-kind benefits, for example in the form bush cutters, tools, equipment, agroforestry plants and seed for cover crops. These payments are made periodically according to the fulfilment of specific monitoring targets rather than upon the sale and/or transfer of "carbon credits.

- In accordance with the provisions established in the PDD, even if the revenues from its sponsors for the completion of activities, are not sufficient to cover these payment commitments, the project manager (SICIREC Bolivia ltda) is obliged to cover the deficit.

- Table G.1 show the payments made to farmers in the period 1st Januari 2023 until de 30th June 2024 for the new established woodlots. Cash payments amounting to the equivalent of 65,645 USD has been made to the farmers for establishment and another 62,262 USD was paid for maintenance of these plantations to the farmers.

Table G.1: Direct performance payments to farmers between 1st January 2023 and 30 th of June 2024, new plantations

No Verif	Moment of Payment	Number of farmers	Surface (ha)	Total Amount (USD)*
V-01	Establishment	542	707,3	65,645
V-02	Maintenance 1 (after 3 months)	340	422.9	25,721
V-03	Maintenance 2 (after > 6 months)	240	280.5	17,060
V-04	Maintenance 3 (after > 10 months)	200	228.0	13,870
V-05	Maintenance 4 (after > 14 months)	83	74.8	4,550
V-06	Maintenance 5 (after > 20 months)	16	10.9	660
V-07	Maintenance 6 (after > 26 months)	8	6.6	401
				127,907

Payments to the farmers with woodlots established during the previous years are shown in table G.2 and table G.3 show the total of payments made.

No Verif	Moment of Payment	Surface (ha)	Total Amount (USD)*
V-01	Establishment		
V-02	Maintenance 1 (after 3 months)		
V-03	Maintenance 2 (after > 6 months)	59	3.571
V-04	Maintenance 3 (after > 10 months)	111	6.764
V-05	Maintenance 4 (after > 14 months)	462	28.077
V-06	Maintenance 5 (after > 20 months)	423	25.735
V-07	Maintenance 6 (after > 26 months)	375	22.805
V-08	Maintenance 7 (after > 36 months)	70	4.233
V-09	Maintenance 8 (after > 48 months)	30	1.807
V-10	Maintenance 9 (after > 60 months)	19	1.137
V-11	Maintenance 10 (after > 72 months)	56	3.394
V-12	Maintenance 11 (after > 84 months)	- 26	- 1.575
V-13	Maintenance 12 (after > 96 months)	- 42	- 2.554
V-14	Maintenance 13 (after > 108 months)	81	4.911
V-15	Maintenance 14 (after > 120 months)	133	8.083
V-16	Maintenance 15 (after > 132 months)	155	9.428
V-17	Maintenance 16 (after > 144 months)	59	3.589
V-18	Maintenance 16 (after > 144 months)	19	1.156
			119.403

table G.2, Payments to farmers for existing woodlots

No Verif	Moment of Payment	Surface (ha)	Total Amount (USD)*
V-01	Establishment	1.773	164.120
V-02	Maintenance 1 (after 3 months)	1.478	87.155
V-03	Maintenance 2 (after > 6 months)	1.327	80.716
V-04	Maintenance 3 (after > 10 months)	1.273	79.161
V-05	Maintenance 4 (after > 14 months)	1.107	86.917
V-06	Maintenance 5 (after > 20 months)	966	58.746
V-07	Maintenance 6 (after > 26 months)	800	48.637
V-08	Maintenance 7 (after > 36 months)	414	25.178
V-09	Maintenance 8 (after > 48 months)	335	20.372
V-10	Maintenance 9 (after > 60 months)	321	19.519
V-11	Maintenance 10 (after > 72 months)	287	17.487
V-12	Maintenance 11 (after > 84 months)	239	14.556
V-13	Maintenance 12 (after > 96 months)	229	13.942
V-14	Maintenance 13 (after > 108 months)	223	13.536
V-15	Maintenance 14 (after > 120 months)	207	12.615
V-16	Maintenance 15 (after > 132 months)	189	11.484
V-17	Maintenance 16 (after > 144 months)	63	3.832
V-18	Maintenance 16 (after > 158 months)	19	1.156
			759.130

Table G.3: Total payments

Table G4 shows the distribution of these payments according to the planting year. As can be seen, a big part of the payments made have been concentrated on the recently established woodlots. The first year of a woodlot is the most critical one. That is why payments during the first year are made more frequently.

1. Reporting year	2. Total previous payments (previous reporting periods)	3. Total on-going payments (in this reporting period)	4. Total payments made (2+3)	5. Total payments in budget subsequent years
PV1 (<2013)	61,719	119,403		152,600
PV2 (2014)	90,785			
PV3 (2015/2016)	47,112			

PV4 (2017)	21,509			
PV5 (2018)	27,272			
PV6 (2019)	25,286			
PV 2020	57,214			
PV2021a	34,390	7,444		
PV2021b	21,577	26,290		
PV 2022	56,674	87,754		
PV 2023 2024		127,907		238,893
TOTAL	**443,538**	368,798	802,237	391,493

Table 15: Summary of payments made to farmers and direct payments budgeted for the later years

Part H: Ongoing participation

H1: Recruitment

An additional 82.2 ha of coffee and 116.5 ha of cocoa have been planted within woodlots, as well as 27.2 ha of fruit trees. (resp. 221,430, 67,554, 11,250 seedlings).

H2: Community participation

After the end of the COVID-pandemic regular meetings with farmer and indigenous organizations have been resumed. Meetings have been held with the board members of FESPAI (Northern La Paz), FEPAY. FECAR (Beni), FECCT, FCIC, FUCU (Cochabamba Tropics), FSCIPAY (Yapacani) and the farmer organization CSUTB (Santa Cruz). In the areas, which belong to an indigenous territory, meetings have been held with the Council of Indigenous Tacana People (CIPTA) and the Regional Council Tsimane Mosetene (CRTM). The purpose of these meetings has been to inform these organizations about the ongoing project activities with the communities and farmers belonging to them.

"Forestry Committees" constitute the primary formal mechanism for the engagement of smallholders in discussions about the project goals and implementation. These committees are established not only in co-ordination with but also within the pre-existing grassroots political mechanism, which defines the smallholder communities as their "syndicato" (union). The internal regulation document explicitly describes the role of the committees, as well as their constituent parts and operations. Mechanisms for the resolution of conflicts between the project management and smallholders are also described therein.

All committees have internal rules and procedures, which were originally approved at a meeting attended by all the farmers. All committees have a board of 4 members, of which 2 represent ArBolivia and 2 represent the communities. Board meetings take place at least every 2 months and here the members representing ArBolivia give an update of the situation on completed and planned activities and quality of the plantations. According to the internal rules of the committee's assemblies have been organized in 2023 and 2024 in which ArBolivia has been presenting the financial and a technical report to each of the forestry committees.

Part I: Project operating costs

Project expenditures over 2024 has been as shown in table 16

Table 16: Project expenditures during reporting period in USD

Expense	Narrative	Cost (USD)	In kind to participants
Social Engagement & site selection	Explanation about the project to new farmers. meetings with forestry committees, conflict resolution. Registration of woodlots	72,821	
Trees to nursery gate	Seed collection. seedling production in nursery	522,106	522,106
Land preparation, establishment: Transport + Training	Sites species matching. plantation design and capacity building for farmers	141,840	141,840
Land preparation, establishment	This are direct payments made to farmers upon establishment of the woodlots	65,645	65,645
Plantation maintenance: Training	Training of all PV farmers in plantation management. weeding. replanting. pruning. Thinning	631,005	631,005
Equipment for farmers	Brush cutters, pruning tools	147,099	147,099
Plantation maintenance	Direct payments to farmers once woodlot is well maintained	181,665	181,665
Monitoring	Quality control of plantations. measurements in permanent sample plots and research	71,058	
Carbon costs	Payments to PV + certification costs	63,600	
Management + Technical advice	Management, chain development, technical advice (consultancies)	66,676	
Overhead	Includes financial audits. office rents. depreciation of vehicles	131,933	
Total		**2,095,448**	**1,689,360**

Literature

Mishra. (26 de 9 de 2023). *www.independent.co.uk*. Obtenido de https://www.independent.co.uk/climate-change/news/brazil-temperature-peru-bolivia-heatwave-b2418711.html

Toricco, A. (2021). Obtenido de https://www.institutoagrario.org/2021-1-escenarios-climaticos-bolivia

WRI. (6 de 3 de 2025). *https://gfr.wri.org/latest-analysis-deforestation-trends*.

Annexes