ArBolivia Project
Report -January-December 2022

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Summary

Project overview

Reporting period	1st January 2022 – 31st December 2022
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 -2021)**	**Added/ Issued this period (2022 Jan- Dec)**	**Total**
No. smallholder households with PES agreements	451[1]*	225	676
No. community groups with PES agreements (where applicable)	158	68	226
Approximate number of households (or individuals) in these community groups	3220	1,380	4,600
Area under management (ha) where PES agreements are in place	712,4	339.2	1,051.6
Total PES payments made to participants (USD)	1,143,875	662,346	1,806,221
Allocation to Plan Vivo buffer (tCO_2)	20,356	9,674	30,030
Allocation to project withholdings (tCO2e)	18,907	9,674	28,581
Claims from project withholdings (tCO2e)[2]		-19,060	9,521
Saleable emissions reductions achieved (tCO_2)	164,300	77,396	241,696
Additional request from project withholdings (tCO2e)[2]		19,060	19,060
Unsold stock at time of Submission (PVCs)			
2022 Vintage	N/A	0	0
Total Unsold Stock (PVC)			
Plan Vivo Certificates (PVCs) issued to date			**164,300**
Plan Vivo Certificates requested for issuance (2022 Vintage)			**96,456**
Total PVCs issued (including this report)			**260,756**

[1] in the previous report 455 families have been mentioned, but 4 families where double counted since they planted in 2 different communities

[2] Claims for project withholdings is made to be in compliance with funding partners, see also section C2

Part A: Project updates

A1 Key events

- This document provides a report on the plantations established and maintained under the ArBolivia-Plan Vivo program, between 2008 and 2021 and on new plantations brought under the Plan Vivo Standard between the 1st of January and 31st December 2022.
- The plantations are located in the departments La Paz, Beni, Cochabamba and Santa Cruz:
  - La Paz: province Abel Ituralde, municipalities San Buenaventura and Ixiamas
  - Beni: province José Ballivian: municipalities Rurrenabaque, Reyes and San Borja.
  - Santa Cruz, Ichilo province municipalities Yapacani, San Carlos, Buena Vista, Porongo, San Juan
  - Cochabamba: Tropics of Cochabamba, municipalities Chimoré, Shinahuata, Pto Villarroel, Villa Tunari and Entre Ríos.

Figure 1.1: Location of the province of José.Balivian in the dpt. Of Beni and the province A. Ituralde in the dpt. Of La Paz

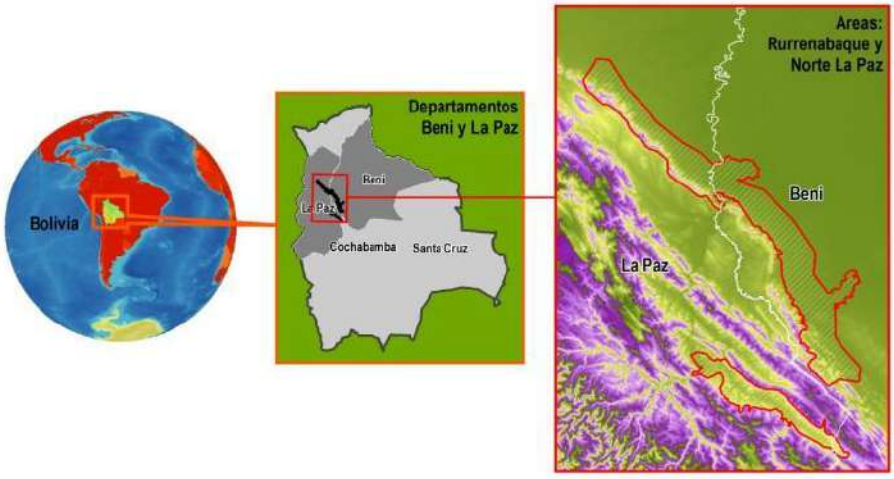


Figure 1.2: Location of the Cochabamba Tropics area, dpt. Cochabamba

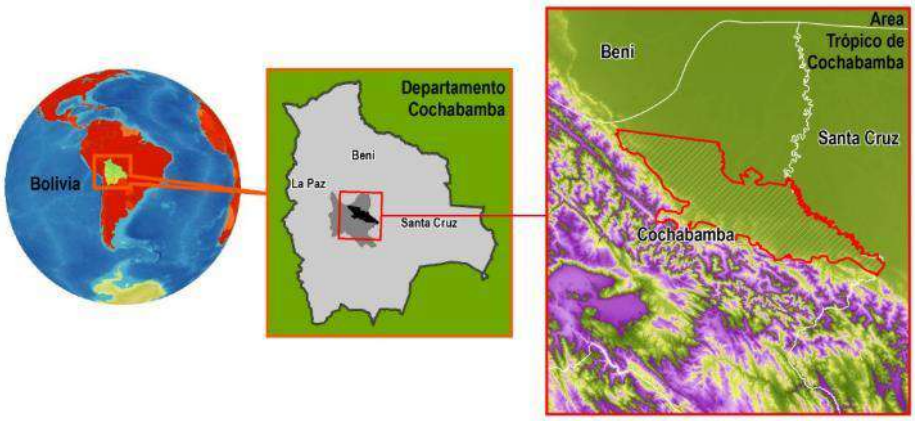
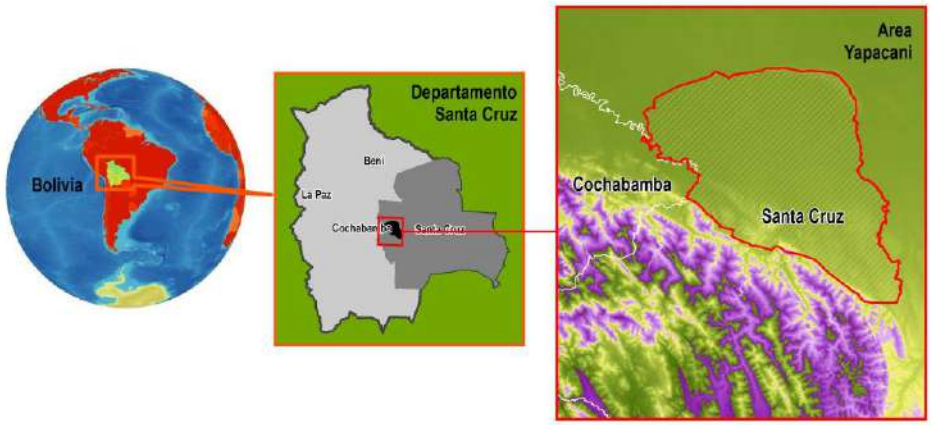


Figure 1.3: Location of the province Ichilo, Santa Cruz



A2 Successes and challenges

During 2022, 339.2 has of new woodlots have been established. 171,245 coffee plants, 21,848 cocoa plants and 7,620 citrus plants have also been distributed and planted, partly under existing trees and partly together with new plantations.

4 new nurseries have been set up together with smallholders and 2 private nurseries have been contracted. Seedlings are produced in these nurseries under the supervision of Sicirec Bolivia ltda.

As a result of financial support from Ecosia over 15tn green coffee produced by ArBolvia-farmers has been exported and sold to the company *Brute Bonen* in The Netherlands. With the same shipment 160kg of cocoa from ArBolivia farmers was also sold and will be traded in Europe as “Forest Grown Coffee” and “Forest Grown Cocoa”. If everything goes according to plan, 2 containers with coffee and cocoa will be exported during 2023. As a result of this initiative farmers have received on an average 20% higher price for the coffee

and cocoa compared to selling it to the local intermediary traders. With the purpose of improving the "climate smart agroforestry production" farmers with coffee and cocoa production received de-pulpers and other equipment for processing coffee and cocoa.

Apart from the existing portable saw mill, the harvesting and processing unit of Sicirec Bolivia ltda. Is equipped now with drying kilns and more chain saws. The processing of wood from second thinnings has continued on a pilot basis and this has been successfully sold among carpenters in Santa Cruz and Cochabamba. However, net revenues are low due to the low prices for the relatively small dimensions of the timber products coming from the second thinnings. Unfortunately the market for wood with these characteristics is saturated in Bolivia. The saturation of this market is caused by the huge amounts of wood from companies exporting the bigger dimensions on the international market, whilst timber products with smaller dimensions are dumped on the domestic markets, causing low prices.

A3 Project developments

- The verification report, which describes the findings of the 2018 verification (see the 2018 annual report for more information) listed 2 minor Forward Action Requests (FARs) due by 2023. Due to the COVID restrictions, not all corrective actions have been made during this reporting period. The outstanding corrective actions are listed and the progress made against these during the current reporting period in Table 2.

Table 2: Progress against corrective actions

Document	Corrective action	Activity against this
Verification Report (1 April 2019)	*CUC-FAR-01(Minor) deadline for closure 23rd of October 2023 – waste management procedures and policies, as well training and education for project members in order to reduce waste production and how to deal with those considered toxic or hazardous for people and environment. The region where the project is established does not count with licensed companies to manage hazardous waste properly, being a challenge for the Project Developer to correctly treat and dispose this kind of material.*	• The search for alternative and more environmentally friendly seedling production will be continued. We will focus on the pots, which can be re-used instead of disposable pots and as far we still use disposable pots on the implementation of an improved protocol on waste reduction. • Training of project staff on waste management was rescheduled for February2023, an expert will be hired in the course of 2023 to give advice on proper waste management.
Verification Report (1 April 2019)	*CUC-FAR-02 (Minor) deadline for closure 23rd of October 2023- Project developer did not review the documents such as "manuales de campos socioeconomico y biodiversidad", "Sistema de monitoreo y evaluación del proyecto ArBolivia" and did not*	• Field work for impact monitoring has been done by 1 national and 2 international students, on top of that they also reviewed the current monitoring methodologies on: o Use of instruments like calliper etc to improve the monitoring protocols o Further extension and improvement of methodology on biodiversity monitoring

Document	Corrective action	Activity against this
	update information that is being implemented at field level, such as like calliper use for measurements, buffer zones protocol, health and safety at thinning, waste management and species growth model for example.	○ Species growth models • Results have been promising but rather basic so further research needs to be carried out • For the review of safety protocols for thinnings and harvesting in the woodlots an expert will be hired early 2023

A4 Future Developments

- The ambition for 2023 is to further expand pre-financing and loan facilities for the ongoing tree planting activities in combination with annual crops, coffee and cocoa.
- Apart from a first container which is ready for transport, a second container with coffee and cocoa will be sent to Europe, by June'23 and, a third one is programmed for October 2023. This will contribute significantly to the improvement of the livelihoods of participating farmers. Though sales price, and thus farmers revenues, are already higher than market prices in Bolivia, farmers will receive a share of the net profits from the buyer, if sales prices in The Netherlands result to be higher than expected.
- After the successful promotion of wood (though with low prices) from the pilot run in 2021 Sicirec Bolivia ltda, a second pilot has started, this will result in an operational plan for wood production to be implemented in the second half of 2023.
- Though prices for wood from second thinings are relatively low, it is necessary to proceed with this, since bit proceeding with is means a lower quality of timber on the long run. It is considered basically a silvicultural measure, farmers will have income out of these thinnings, but less than initially is expected.
- According to our strategic plan to meet farmers' demand and optimize our current capacity, a projection has been made for the annual extension of the program between 2023 and 2030 by 650 hectares of woodlots and 200 hectares of agroforestry systems. Due to an increase in costs in Bolivia and the ambition of Sicirec Bolivia ltda to invest more in chain development in order to improve farmer's income and people's livelihood, the unit costs per hectare, and this PVC, will increase.

Part B: Project activities

B1 Project activities generating Plan Vivo Certificates

- Table 3 below lists the technical specifications being used in the project, the area covered and the number of participants using them.

Table 3: Project activity summary

Name of technical specification	Area (Ha)	No smallholder households	No Community Groups
Mixed species Forest Plantation	*1,051.6*	*676*	*226*

- 289 families have established new woodlots during 2022. 64 of these 289 families have been planting as well in previous years and now extended their woodlots or agroforestry system. 225 of the 289 families participated for the first time in the tree planting activities. In previous years 451[3] smallholder families participated, this makes the total number of small holder families 676.
- Part of the 225 "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 68 new communities have been included in 2022.
- The same conditions apply for all new farmers as for the existing PV-families.

B2 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 on an area equal to 20% of the eligible planting area.
- Monitoring & evaluation together with onsite training is done during the site visits.

[3] *in the previous report 455 families have been mentioned, but 4 families where double counted since they planted in 2 different communities*

Part C: Plan Vivo Certificate issuance submission

C1 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.

C2 Issuance request

- During 2022, another 339.2 hectares have been brought under Plan Vivo. These hectares generate a total of 96,744 tCO2e. The issuance request for new areas is specified in Table 4 below.

Table 4: 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	*289*	*339.2*	*285,2**	96,744	*10+10%*	*9,674*	9,674	77,396
TOTAL	*289*	*339.2*	*285.2*	*96,744*	*20%*	*9,674*	*9,674*	*77,396*

**This is an average across all species and all sites planted, specific data per species and sites is shown in annex 2*

Total ER over this period in tCO2/ha amounts to 96,744tCO2, considering 10% allocation to the PV-buffer and 10% to the internal buffer this makes 77,396 tCO2e. However, to be able to comply with contractual commitments with Zero Mission and Trees for All, a request is made to use 19,060 tCO2e from the internal buffer, making a total request of 96,456tCO2e.

C3 Allocation of issuance request

Table 5 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	*45,940*		*MSFP*
Trees for All	*19,060*		*MSFP*
Zero Mission	*31,456*		*MSFP*
TOTAL	***96,456***		

C4 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-December 2022 per municipality

Department	Municipality	Surface (Ha)	Total GHG (t CO2e)	**PVC (tCO2e)**
BENI	Rurrenabaque	98.5	27,698	**22,158**
	San Borja	7.7	2,080	**1,664**
	Chimoré	39.9	11,502	**9,202**
COCHABAMBA	Entre Ríos	19.4	5,632	**4,506**
	Puerto Villarroel	8.5	2,479	**1,983**
	Shinahota	7.9	2,251	**1,801**
	Villa Tunari	4.0	1,063	**850**
LA PAZ	Ixiamas	6.3	1,747	**1,398**
	San Buenaventura	45.4	12,707	**10,166**
SANTA CRUZ	Buena Vista	16.6	4,926	**3,941**
	San Carlos	25.2	7,395	**5,916**
	San Juan	12.2	3,517	**2,813**
	Yapacaní	47.7	13,747	**10,998**
Total		**339.2**	**96,744**	**77,396**

- *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

- The implementing agency Sicirec Bolivia ltda has transferred all Plan Vivo certificates to the UK-based society "The Cochabamba Project Ltd". In keeping with ArBolivia's philosophy of reciprocity, farmers are not subsequently subjected to the volatility of the voluntary carbon market and The Cochabamba Project Ltd commits to funding all project activities, based on the actual costs of implementing and maintaining the woodlots.

- The woodlots are providing different environmental functions, like biodiversity and the capture of CO2e. On an average, 285.2 (228.8 without the buffer) tonnes 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 the 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 7 provides details of all the transfers of Plan Vivo Certificates to date.

Table 7: 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 ($)*	Support to participating farmers in first year ($)*	% financial support received by participants
Previously received							
2011 – 2021	Various (see previous annual reports)	163,438					77,1%
Transfers 2022							
2022	Trees for All	*45,940*					74.4%
2022	Trees for All	*19,060*					74,4%
2022	Zero Mission	*12,396*					81.5%
2022	Zero Mission	*19,060*					0%**
Subtotal		*96,456*					75.75%
Total		*259,894*		2,562,329		1,806,221	70,5%

**This is a nominal value, since the payments to farmer are hectare and activity based*
*** USD from this sale is reserved for 2023 planting, which makes an average financial support to the farmers of 76,5%*

19,060 PVC have been extracted from the own project reserve. This reserve will be replaced in the next reporting period with new plantings. A reservation of 163,113 USD is made to cover the direct support to farmers.

It's important to mention that the support to the farmers during the fist year has an average value 8.56 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 3.78 USD, between direct payments and in-kind support, so totalling an equivalent of 12.34 USD per PVC 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: Ecosystem services monitoring

- During 2022, 339.2 hectares were established with 9 different tree species. In Table 8, species distribution is shown together with the Average Net GHG Emission Reduction per species.

Table 8: Species distribution of new planted areas

Species	Common name	Surface (has)	Total GHG ER
Buchenavia oxicarpa	Verdolago negro de pepa	2.8	662
Calophyllum brasiliense	Palo maría	103.2	29,587
Centrolobium tomentosum	Tejeyeque	119.5	36,005
Dipteryx odorata	Almendrillo	15.8	4,365
Stryphnodendron purpureum	Palo yugo	78.9	21,136
Swietenia macrophylla	Mara	2.1	617
Tapirira guianensis	Palo román	4.9	1,375
Tectona grandis	Teca	11.0	2,718
Terminalia mazonia	Verdolago negro de ala	1.0	278
Total		339.2	96,744

- 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 77,396 tCO2e. This issuance request is supported by the detailed monitoring results shown in Annex 1.

Total issuances of credits is shown in Table 9.

Table 9: 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 2021)	*451**	*712.4*	*285.7*	*203,564*	*164,300*	*20,356*	*18,907*
2	2022 Jan-Dec recruitment	*226*	*339.2*	*285.2*	96,744	*77,396*	*9,674*	*9,674*
3	Additional request from project witholdings					*19,060****		*-19,060*
	TOTAL	*677*	*1051.6*	*285.6*[4]	*300,308*	*260,756*	*30,030*	*9,521*
	Percentage split					*86.8%*	*10%*	*3.2%*

**in the previous report 455 families have been mentioned, but 4 families where double counted since they planted in 2 different communities*

***values have been rounded to 1 decimal place*

****Voluntary reserve has been used to secure project commitments*

- PV-buffer increased to 30,030 tCO2, this is 10% of the total ERR and Arbolivia's.

[4] *Due to rounding, the result of the multiplication of average carbon potential by total allocated hectares is slight different*

- The voluntary reserve is now 9,521. Parts of the own reserve has been used to comply with commitments to project supporters. Project is aiming on restoring the own reserve towards 10% in the next reporting period.
- Total consolidated area is 1,051.6 hectares,
- During 2022, 6.5 hectares panted in 2020 and 2021, have been subject to failure in 2022 and have been replanted during the same reporting period.

Table 10: replanting of failed plantations

Department	Municipality	Community	Farmer	Common name	Species	Surface (ha) Planting year 2020	Surface (ha) Planting year 2020	Total Surface (ha)	Cause of mortality
BENI	Rurrenabaque	Los Tigres	Delfin Machaca Zoto	Palo maría	Calophyllum brasiliense		0,1	0,1	Drought
			Rafael Ramon Luna Limachi	Tejeyeque	Centrolobium tomentosum	0,2		0,2	Drought
		Río Hondo	Edgar Vie Tayo	Palo yugo	Stryphnodendron purpureum		0,3	0,3	Drought
			Efrain Cuata Cuata	Tejeyeque	Centrolobium tomentosum		0,3	0,3	Drought
			Lucio Cuata Cuata	Palo maría	Calophyllum brasiliense	0,2		0,2	Failure in weeding
LA PAZ	San Buenaventura	Everest	Florencio Montes Lucas	Tejeyeque	Centrolobium tomentosum		0,4	0,4	Drought
SANTA CRUZ	Buena Vista	Espejitos	Tomas Mamani Alvarado	Tejeyeque	Centrolobium tomentosum	0,3		0,3	Temperature drop (surazo) followed by drought after planting
		Izama 1 Miraflores	Jose Cahuasiri Garcia	Tejeyeque	Centrolobium tomentosum	0,2		0,2	Drought
		Izama 2	Feliciana Flores Quispe	Tejeyeque	Centrolobium tomentosum		0,3	0,3	Drought
			Mario Puma	Tejeyeque	Centrolobium tomentosum		0,1	0,1	Drought
		Villa Amboró	Julia Vino Turco	Tejeyeque	Centrolobium tomentosum		1,6	1,6	Cattle
	Porongo	Martillo	Rene Ortuño Aguilar	Tejeyeque	Centrolobium tomentosum		0,4	0,4	Drought
	San Juan	Raul Menacho	Genoveva Condori Ormilia	Palo maría	Calophyllum brasiliense	1,5		1,5	Drought + Insects
			Maria Eugenia Camacho Orozco	Palo maría	Calophyllum brasiliense		0,3	0,3	Drought
	Yapacaní	Bañados del Ichilo	Alberta Rengipo Ibarra	Tejeyeque	Centrolobium tomentosum		0,1	0,1	Drought
		Coop. San Salvador	Luciano Mamani Contreras	Palo maría	Calophyllum brasiliense		0,2	0,2	Drought
Total						2,4	4,1	6,5	

- The mortality rate for woodlots established during the months May to July 2022 was relatively high at around 10%. All have been replanted during the year and this is therefor not reported here.
- Mortality in the areas shown in table 10 has been caused mainly by drought, these plantations have been established in relatively sandy soils which are more vulnerable for drought, other causes have been invasion of cattle (from a neighbour) and failure in weeding.
- Plots from Monitoring results for all participants and respective areas are summarized in Annex 2.

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.

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.

E3: Socioeconomic monitoring

- The project is registered under the 2008 version of the Standard and as such it is not required to carry out socio-economic monitoring every year.

E4: Environmental and biodiversity monitoring

- Fieldwork for an environmental impact evaluation has been done during 2021 by student research (Ottens, 2022). The main findings of this report were:
    - The reforestation activities do have a positive effect on the biodiversity over time. The diversity of macro-fauna showed a significant increase, when comparing the woodlots and agroforestry plots with traditional land use.
    - Biodiversity of flora is closely related to the management of the weeding within the plots. However higher levels of diversity were evident, compared to previous land use.

During 2023, additional and more profound research is planned on evaluating the biodiversity benefits of the plantations compared to the status quo.

Part F: Impacts

F1: Evidence of outcomes

Part G: Payments

G1: Summary of payments by year

- In contrast to a market-based approach, The Cochabamba Project Ltd 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 10 show the payments made to farmers in 2022 for the new established woodlots. Cash payments amounting to the equivalent of 56,681.05 USD has been made to the farmers.

Table 10: Direct performance payments to farmers between 1st January and 31st December 2022, new plantations

No Verif	Moment of Payment	Number of farmers	Surface (ha)	Total Amount (USD)*
V-01	Establishment	289	339.2	31,482
V-02	Maintenance 1 (after 3 months)	200	253.3	15,412
V-03	Maintenance 2 (after > 6 months)	137	136.2	8,285
V-04	Maintenance 3 (after > 10 months)	28	24.7	1,502
				56,681

- Payments to the farmers with woodlots established during the previous years are shown in table 11:

Table 11:Direct performance payments to farmers in 2022, of previous planted woodlots

No Verif	Moment of Payment	Number of farmers	Surface (ha)	Total Amount (USD)*
V-01	Establishment	-	0	-
V-02	Maintenance 1 (after 3 months)	78	112	6,815
V-03	Maintenance 2 (after > 6 months)	63	82	4,967
V-04	Maintenance 3 (after > 10 months)	14	150	9,148
V-05	Maintenance 4 (after > 14 months)	58	151	9,183
V-06	Maintenance 5 (after > 20 months)	59	41	2,478
V-07	Maintenance 6 (after > 26 months)	70	70	3,315
V-08	Maintenance 7 (after > 36 months)	55	55	2,853
V-09	Maintenance 8 (after > 48 months)	32	47	2,506
V-10	Maintenance 9 (after > 60 months)	21	84	5,089
V-11	Maintenance 10 (after > 72 months)	42	22	1,362
V-12	Maintenance 11 (after > 84 months)	24	79	4,631
V-13	Maintenance 12 (after > 96 months)	53	185	11,338
V-14	Maintenance 13 (after > 108 months)	33	97	5,907
V-15	Maintenance 14 (after > 120 months)	33	56	3,383
V-16	Maintenance 15 (after > 132 months)	11	30	1,813
V-17	Maintenance 16 (after > 144 months)	4	4	243
				75,031

- Table 12 shows the direct payments made to farmers from the start of the project.

Table 12: Total direct performance payments to farmers since the start of the project

No Verif	Moment of Payment	Number of farmers	Surface (ha)	Total Amount (USD)*
V-01	Establishment	681	1,067	98,479
V-02	Maintenance 1 (after 3 months)	625	967	56,206
V-03	Maintenance 2 (after > 6 months)	559	813	47,736
V-04	Maintenance 3 (after > 10 months)	422	655	39,398
V-05	Maintenance 4 (after > 14 months)	373	571	33,658
V-06	Maintenance 5 (after > 20 months)	342	409	24,064
V-07	Maintenance 6 (after > 26 months)	321	405	23,928
V-08	Maintenance 7 (after > 36 months)	286	351	20,945
V-09	Maintenance 8 (after > 48 months)	243	308	18,565
V-10	Maintenance 9 (after > 60 months)	214	302	18,382
V-11	Maintenance 10 (after > 72 months)	201	232	14,094
V-12	Maintenance 11 (after > 84 months)	176	265	16,131
V-13	Maintenance 12 (after > 96 months)	123	271	16,496
V-14	Maintenance 13 (after > 108 months)	81	142	8,625
V-15	Maintenance 14 (after > 120 months)	48	75	4,532
V-16	Maintenance 15 (after > 132 months)	15	34	2,056
V-17	Maintenance 16 (after > 144 months)	4	4	243
				443,539

**includes tax according Bolivian tax-regulations*

Table 13 shows the distribution of these payments according to 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.

Table 13: Summary of payments made to farmers and direct payments budgeted for the later years

1. Reporting year	2. Total previous payments (previous reporting periods)	3. Total on-going payments (in this reporting period-2022)	4. Total payments made (2+3)	5. Total payments in budget subsequent years
PV1 (<2013)	54,888	6,831	61,719	272,003
PV2 (2014)	84,878	5,907	90,785	
PV3 (2015/2016)	35,774	11,338	47,112	
PV4 (2017)	16,878	4,631	21,509	
PV5 (2018)	25,910	1,362	27,272	
PV6 (2019)	22,424	2,862	25,286	
PV 2020	37,693	19,521	57,214	
PV2021a	22,957	11,433	34,390	7,444
PV2021b	10,431	11,146	21,577	26,290
PV 2022		56,674	56,674	87,754
TOTAL	**311,833**	131,705	443,538	393,491

In addition, during this period, farmers have received citrus, coffee and cocoa plants as well as tools and equipment, which makes the total value of the direct support, over 2022, to the farmer 662,346 USD.

In due course these citrus trees, coffee, and cocoa plants will also generate further Plan Vivo certificates. Technical Specification for agroforestry crops and fruit orchards are under elaboration.

Part H: Ongoing participation

H1: Recruitment

- An additional 58.6 ha of coffee and 45,9 ha of cocoa have been planted within woodlots, as well as 18.6 ha of fruit trees. (resp. 171,245, 21,848, 7,620 seedlings). The Technical Specifications are still in the process of development to be able to demonstrate the extra biomass generated by the cocoa, coffee and fruit trees. The main purpose of these trees is to generate stable revenues for the smallholders over the long term, providing an alternative to slash and burn agriculture. Sicirec Bolivia ltda is developing the production chain for these products, creating a sustainable business model for the farmers as well as the project itself. By doing so it will be able to provide continuous support to the farmers to improve their livelihoods.

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 should have been organized in 2020, 2021 and 2022, in which ArBolivia would be presenting the financial and a technical report to each of the forestry committees. However, due to COVID19, this has not been possible. In 2022 we started again with meetings with the board members of the committee, but no annual meetings have yet been held with all participating farmers in a committee. It is expected that in 2023 these general meetings will be held again.

- During the board meetings with the farmers, the board members raised the need for support in the harvesting, post-harvesting and marketing activities of coffee and cocoa. It was agreed with the committees that instead of giving payments in cash for the maintenance of the plantations, this could be covered as well with in kind payments, like tools and equipment. At the other hand, Sicirec Bolivia committed to support the sale of coffee and make prepayments to the farmers, so post-harvest equipment can be acquired by the farmers, which will improve the quality of their products.

Part I: Project operating costs

Project expenditures over 2022 has been as shown in table 14

Table 14: Project expenditures 2022 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	25,775	
Trees to nursery gate	Seed collection. seedling production in nursery	238,706	238,706
Land preparation, establishment: Transport + Training	Sites species matching. plantation design and capacity building for farmers	86,222	86,222
Land preparation, establishment	This are direct payments made to farmers upon establishment of the woodlots	31,482	31,482
Plantation maintenance: Training	Training of all PV farmers in plantation management. weeding. replanting. pruning. thinning	188,667	188,667
Equipment for farmers	Brush cutters, pruning tools	17,044	17,044
Plantation maintenance	Direct payments to farmers once woodlot is well maintained	100,226	100,226
Monitoring	Quality control of plantations. measurements in permanent sample plots and research	31,958	
Carbon costs	Payments to PV + certification costs	45,139	
Management + Technical advice	Management, chain development, technical advice (consultancies)	33,338	
Overhead	Includes financial audits. office rents. depreciation of vehicles	39,438	
Total		**837,995**	**662,347**

As can be noticed expenditures are exceeding the revenues from carbon. The difference is covered by the Cochabamba project and Sicirec Bolivia ltda, but considering increasing price levels in Bolivia it means that a significant higher support will be asked over the next few year from the different project supporters.

Annexes