



# Annual Sustainability Report

2022



# Introduction letter

**Dear Stakeholders,**

We are pleased to provide you with the Arbaro Fund's Annual Sustainability Report for the year 2022. Finally, with the main challenges of Covid-19 behind us, Arbaro was able to fully commit the Fund to a total of seven investments, of which three had been already executed in prior years, three were fully executed during the year, and one was committed, but only executed in early 2023. These seven projects make the final composition of the Arbaro Fund, and now the focus is on developing these projects.

During 2022, significant effort went into analysis and assessment of the environmental and social impacts of the projects. An action plan was developed for each project in order to identify, manage, and where necessary, mitigate the environmental and social risks. Through stakeholder engagement we continue to seek to enhance our positive impact in areas most relevant to our stakeholders. We made good progress on developing gender action plans across the portfolio, and will now focus on establishing improved methodologies for biodiversity and water monitoring with an aim to implement these across the portfolio.

We are excited to move to the next phase of the Arbaro Fund, and to work on developing and strengthening the seven portfolio companies. We look forward to a successful year 2023!

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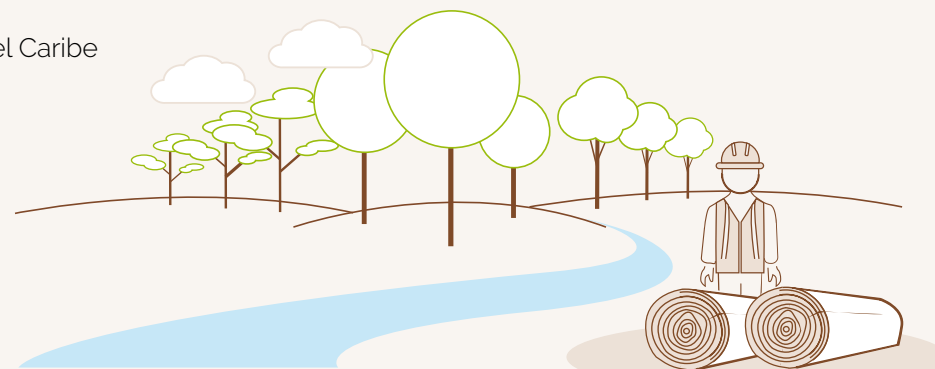
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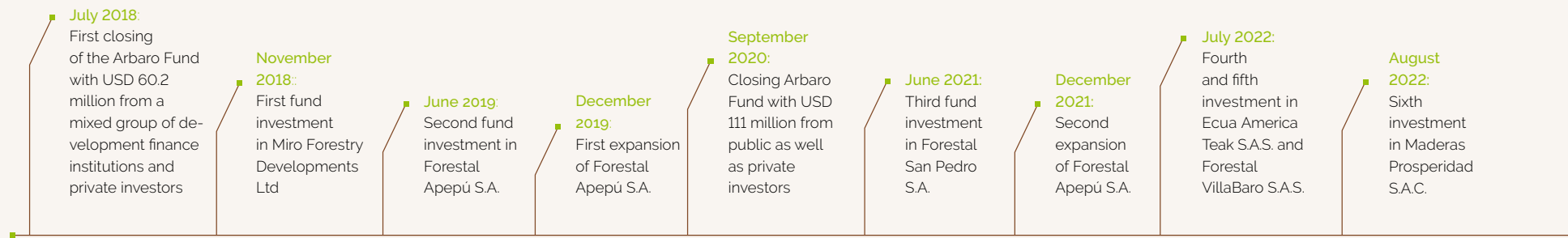
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## Fund update

We are very pleased to have been able to finalise the investment programme during the investment period despite the challenges that the pandemic caused. We now have a diversified portfolio of seven companies each in different stages of development and with variety of tree species and end products.

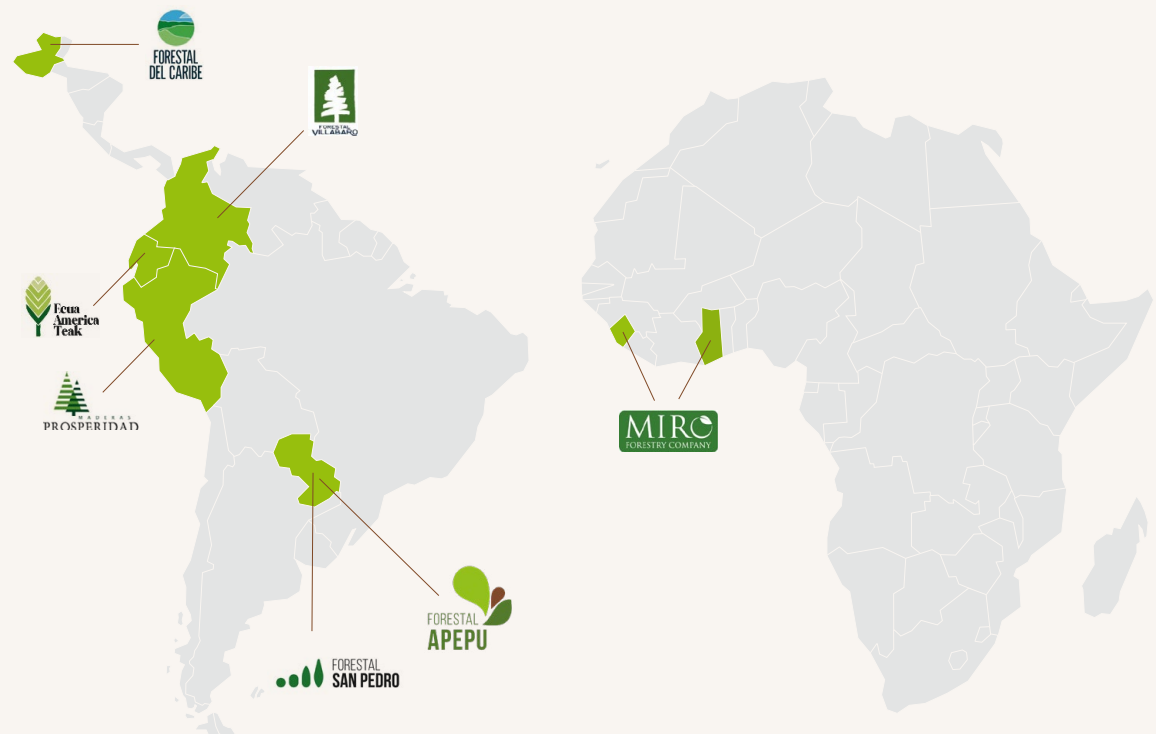


# Investment countries


We aim to achieve a balanced diversification of project types, geographies and species to minimise risks, provide a steady timber flow to different markets, and to generate a solid financial return.

When building our pipeline, our team focused on selected countries where the natural conditions for plantation forestry are ideal, where there is a pressing need for sustainably produced wood, and where we have prior track record and networks. This approach led to the final composition of the Arbaro Fund.

Our portfolio includes two countries in Sub-Saharan Africa and five countries in Latin America, where the demand for wood products will increase considerably in the coming decades, and where the current timber supply is restricted to either wood from natural forests through an informal forestry sector, or imports.

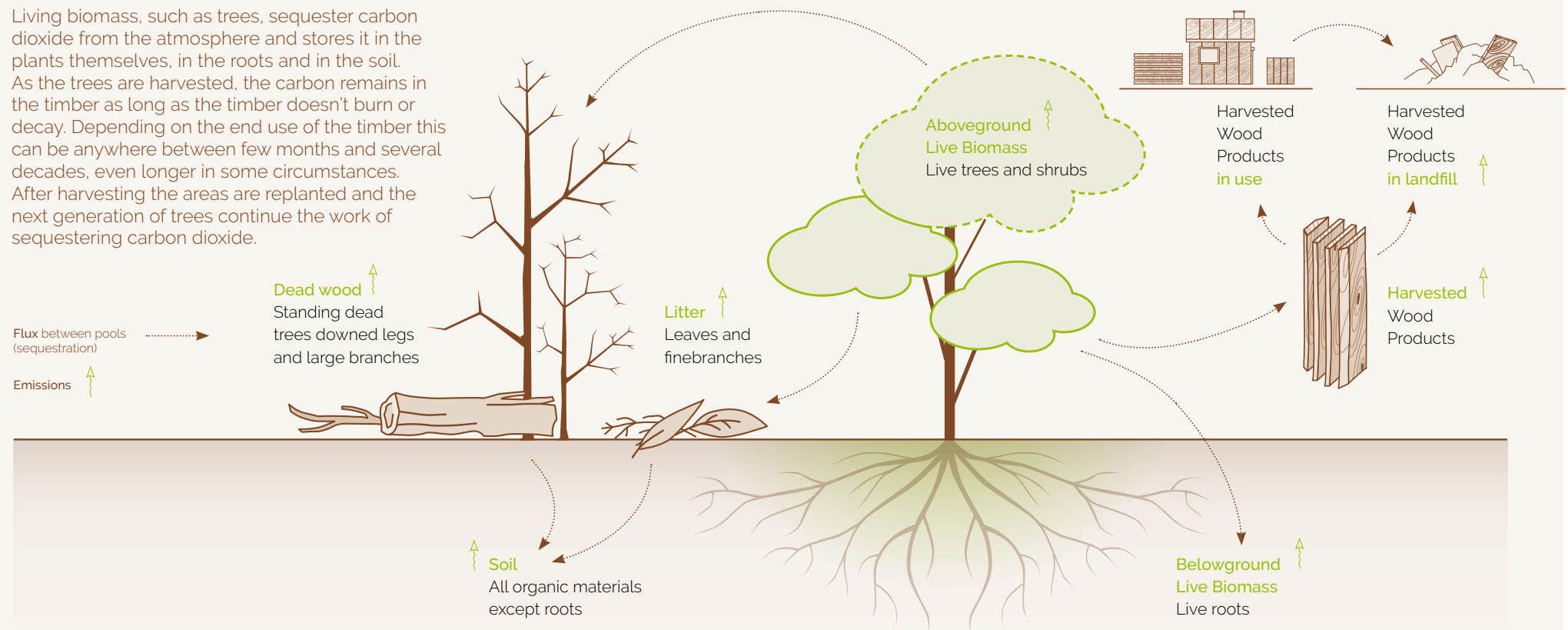


Forestal del Caribe was executed in early 2023

 Arbaro Fund investments

# Fund impact – Carbon cycle

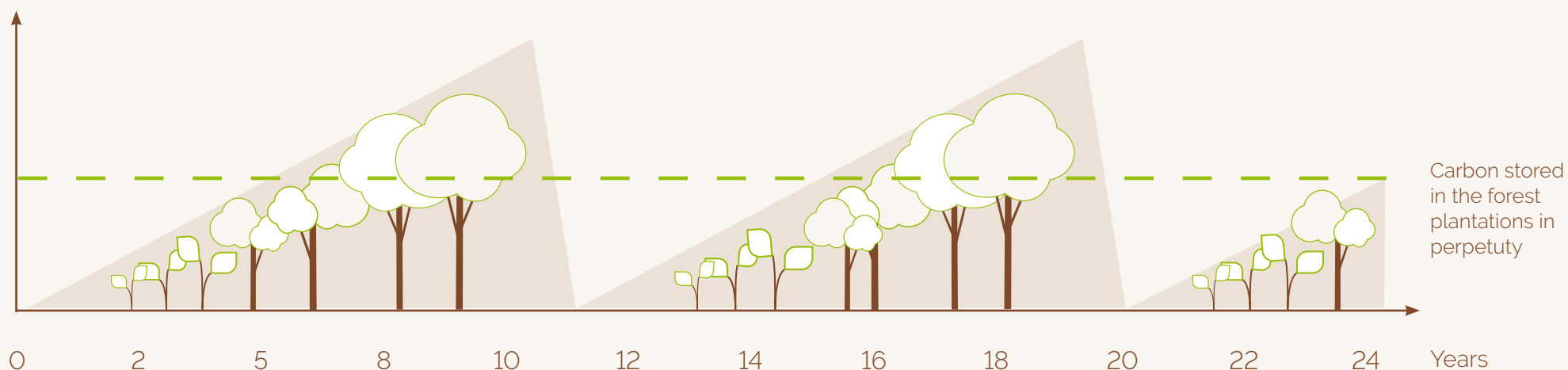
Living biomass, such as trees, sequester carbon dioxide from the atmosphere and stores it in the plants themselves, in the roots and in the soil. As the trees are harvested, the carbon remains in the timber as long as the timber doesn't burn or decay. Depending on the end use of the timber this can be anywhere between few months and several decades, even longer in some circumstances. After harvesting the areas are replanted and the next generation of trees continue the work of sequestering carbon dioxide.



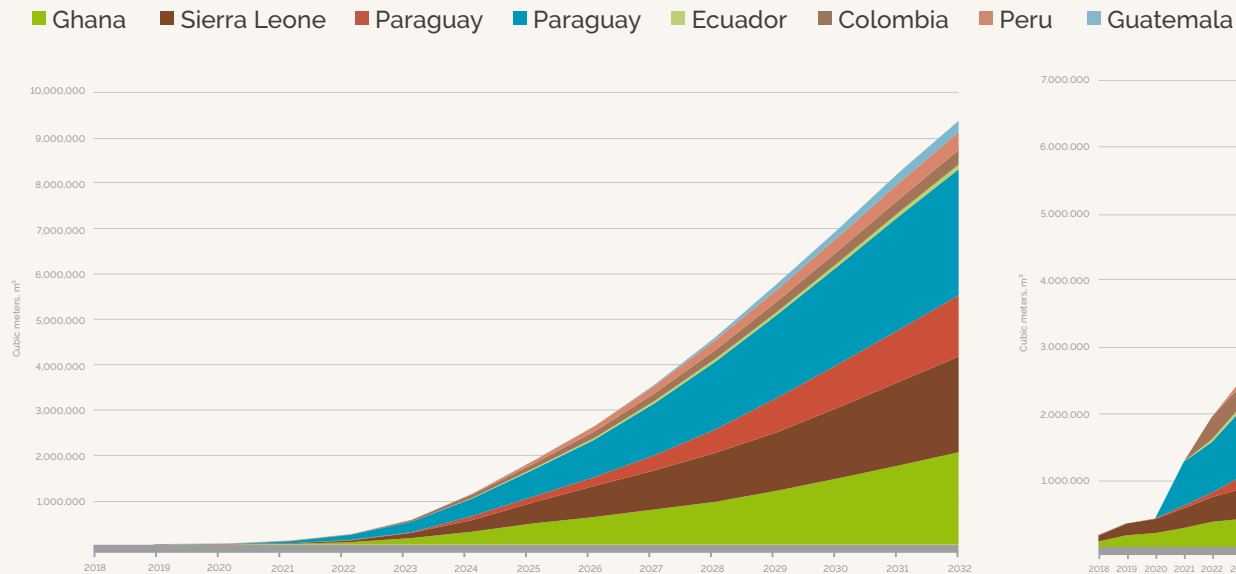
## Fund impact – Concept of long-term average (LTA)

Each year one area provides full harvesting income and some other age class areas thinning income. At the same time carbon is sequestered in the plantations and the long term average is stored in perpetuity. While one area is temporarily cut down, the full plantation area keeps a constant carbon stock due to the balanced age class of the whole forest.

Carbon stored  
in the plantation

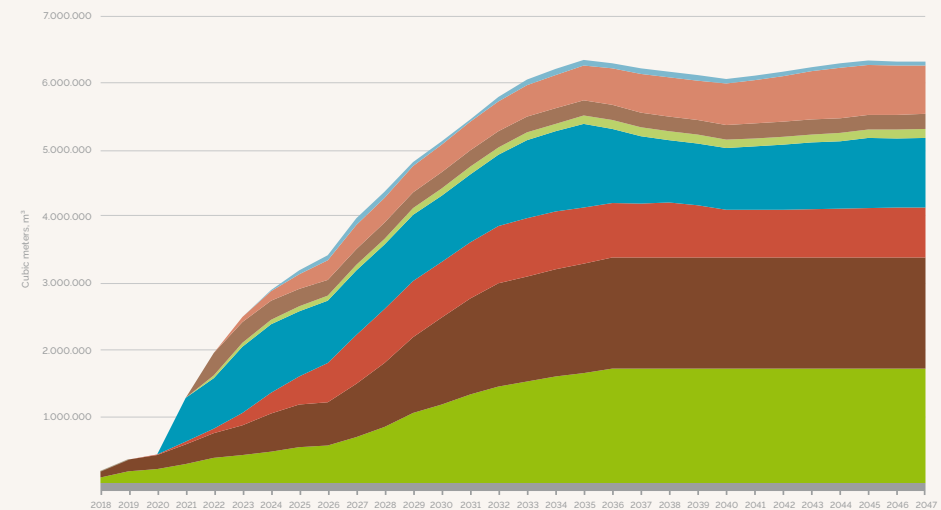


# Fund impact – Arbaro woodflows



## Cumulative woodflow

The Arbaro portfolio is projected to produce more than 9 million m<sup>3</sup> of sustainably produced timber during Arbaro Fund's lifetime, which offers renewable material to replace for example other construction materials and unsustainably or illegally harvested timber from natural forest.

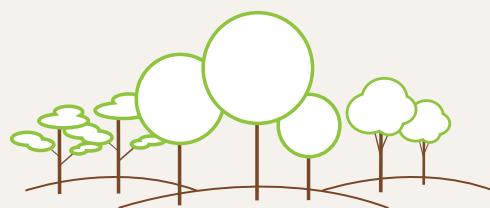


## Standing timber

In addition to the harvested volume, an estimated standing timber balance of more than 6 million m<sup>3</sup> and annual production of ca. 1.4 million m<sup>3</sup> is foreseen for the Arbaro Fund portfolio once the companies reach a mature stage.



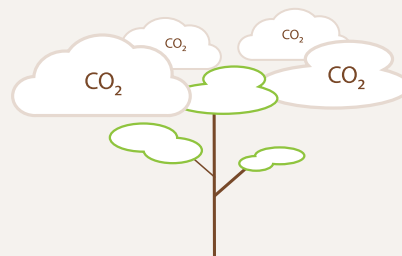
# Fund impact – Environmental



## Plantations

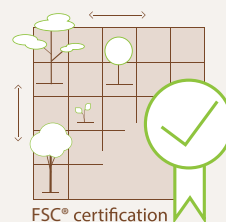
32,965 ha

of timber plantations



1.6 million tons

CO<sub>2</sub> sequestration in timber plantations  
since Arbaro investment



45,253 ha

of land managed under FSC® certification<sup>1</sup>



## Conservation

of over 11,000 ha

of conservation areas including native forest,  
riparian zones, buffer areas and  
other sensitive habitats

Forestal Apepú: FSC® C157449, Forestal San Pedro: FSC® C169494; FSC® C184280,  
Miro Forestry Developments Ltd: FSC® C135138, FSC® C158218, FSC® C133731, FSC® C136035, Forestal Villabaro: FSC® C016607  
To check the companies' certification status, please access [this link](#).

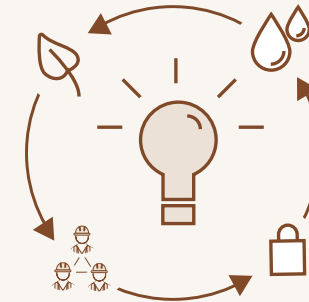
## Fund impact – Social



3,112 people employed  
FTE in 2022



4,260 people  
trained during the year to develop  
technical skills, strengthen health  
and safety, create wellbeing  
and improve the environmental  
and social performance



Close to USD 200,000  
in contribution to social programmes  
focused on food security, access  
to water and education, and raising  
environmental awareness

## Portfolio overview

Project	Country	USDm invested/committed	Scope of business	Planted area, ha	Employment, FTE	CO <sub>2</sub> sequestration since Arbaro investment, tons
Miro Forestry Development (Miro)	Ghana, Sierra Leone	15.0/15.0	Forestry, sawmilling, plywood, poles	20,862	2,753	1,271,443
Forestal Apepú (Apepu)	Paraguay	10.7/16.65	Forestry	3,452	106	85,732
Forestal San Pedro	Paraguay	14.0/16.5	Forestry	6,028	123	238,387
Forestal VillaBaro	Colombia	4.3/4.3	Forestry	1,732	32	-
Ecu America Teak	Ecuador	15.5/16.65	Forestry, sawmilling	891	54	8,283
Maderas Prosperidad	Peru	5.0/12.5	Forestry, sawmilling, pallet production	-	44	-
Forestal del Caribe	Guatemala	0.0/9.5	Forestry	-	-	-
<b>Total</b>		<b>75.9/91.1</b>		<b>32,965</b>	<b>3,112</b>	<b>1,603,845</b>

Arbaro has created a well diversified portfolio of companies with different species, geographical locations, scopes of business and maturity. Some investments are established and fully owned by Arbaro, while others are more of expansion capital for existing businesses.

# Miro Forestry Developments Ltd



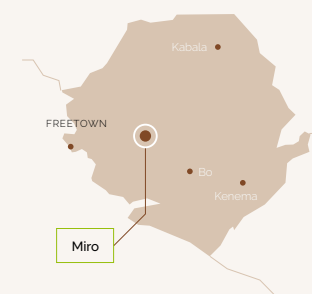
## Miro Forestry Development in Ghana and Sierra Leone

Miro is a sustainable forestry and timber products business with plantations in Ghana and Sierra Leone. The company started operations in 2010 and had established ca. 10,000 ha of plantation at the time of Arbaro's investment. During 2018 and 2019, Arbaro invested USD 15 million into the project.

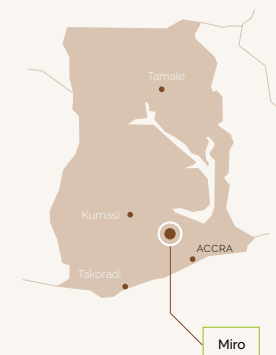
Currently, Miro manages more than 31,000 ha, of which ca. 21,000 ha are planted. The planted species have been selected for their adaptability to the local climate and their productivity, with a variety of species such as eucalypts, acacia, gmelina, corymbia and teak.

Miro has a diversification of products to improve timber use efficiency, such as finger jointed wood, wood chips, plywood, sawdust, wood shavings, solid wood boards, planks, veneer, and biofuel.

### Sierra Leone



### Ghana





# Miro Forestry Developments Ltd



## 2022 Highlights

In their goal to supply national and international markets, Miro continues to explore industrial options to become vertically integrated. In 2022, the company started construction of a plymill factory in Sierra Leone, while a plymill operation in Ghana continues.

Over the year, the company employed 2,753 FTE, and there was an increment in the number of women, reaching 30% of the total workforce.

number of women, reaching 30 %  
of the total workforce

# Miro Forestry Developments Ltd



## Impact

The safety culture of Miro was further strengthened during last year, through workshops and trainings. In both Ghana and Sierra Leone there are monthly OHS awards granted to the employees with outstanding health and safety performance. Additionally, the company actively implements risk management procedures for road safety, accompanied with training and monitoring measures to increase safety and minimise risks.

Miro developed gender assessments and gender action plans in each country. As a result, the company started women's groups in eight communities, with the aim to discuss development opportunities for women, including how to increase working opportunities as well as community development and leadership.

With over 1,500 meetings held with local communities in 2022, Miro has frequent stakeholder engagement and supports several social development projects targeting access to water and education, road maintenance, food security and environmental awareness.

One of the key environmental achievements is the completion of a solar power plant in Sierra Leone, with capacity of 236 kWp. The plant is expected to partially supply the electricity required at the industry and replaces fossil fuel based electricity production.



# Forestal Apepú S.A.



## Forestal Apepu in Eastern Paraguay

Forestal Apepú was established by Arbaro in 2019. Initially the company managed 1,400 hectares of greenfield plantations, with a small expansion of 500 hectares in 2020. In 2021 the company undertook a major expansion increasing the total plantable area by an additional 3,700 hectares. At the end of 2022 Arbaro has invested USD 10.7 million into the project.

The company intends to plant more than 5,500 hectares mainly with eucalypt and corymbia species and has designated 1,800 hectares for conservation, corresponding to remnants of natural forests and other sensitive areas within the project area.

As of end of 2022 the total planted area was ca. 3,500 hectares. The remaining plantable area of ca. 2,000 hectares is foreseen to be planted in the next two years.



## Forestal Apepú S.A.



### 2022 Highlights

During 2022 the expansion assets were integrated under the management of Apepú, and the first ca. 1,000 hectares was planted during the year. The integration of the assets was conducted not only on the forestry operations, but also when it comes to community engagement, as the expansion brought with it new neighbouring communities.

The total employment provided by Apepú increased to more than 100 full time equivalents, as the area increased and thinning operations kicked off.

New areas  
planted in 2022  
1,000 hectares





## Forestal Apepú S.A.



### Impact

Apepú currently operates two community support programs, one being a vegetable garden program which was expanded during 2022 to two community schools, and the second one being an outgrower scheme that Apepú currently trials with four beneficiaries and an area of nine hectares.

The company's earlier commitment to native species research continues as Apepú signed a contract to produce 50,000 native seedlings for expanding the mixed native species plantation, which was initially established in 2020.

A biodiversity study kicked off during 2021 and continued during 2022. While the study is still ongoing, the preliminary results indicate higher biodiversity index in a planted forest compared to pasture or cropland, which were the previous land uses of the area.

Following the gender assessment conducted in 2021, a Gender Action Plan was developed during 2022. This is currently being implemented, but already in 2022 when the implementation of the plan started, the share of women in the workforce increased from 4% to 12%.

### Vegetable garden program





# Forestal San Pedro S.A.



## Forestal San Pedro in Eastern Paraguay

Forestal San Pedro was founded and is fully owned by Arbaro. The project is a combination of semi-mature brownfield eucalyptus plantations, which the company bought, and a greenfield expansion. Arbaro has invested USD 14 million in Forestal San Pedro so far.

The project operates on land that is leased from local private landowners, and that was previously used mainly for commercial agriculture and cattle production. The total project area is ca. 6,050 hectares, of which ca. 5,700 hectares is brownfield, and the remaining is greenfield expansion planted during 2022. Further greenfield expansion is under analysis.

The San Pedro department in eastern Paraguay, where the project is located, has suffered from heavy deforestation over the past decades. Arbaro's investment into the brownfield ensures that the land remains in forestry use, while the greenfield expansion will likely be on land that is used for commercial agriculture and cattle production, each of which are the main drivers of deforestation in the area.



## Forestal San Pedro S.A.

### 2022 Highlights

Forestal San Pedro executed its first greenfield expansion of ca. 350 hectares during 2022. The company is currently looking for potential further expansion properties.

The company also produced the first carbon credits during 2022 following a successful carbon audit.

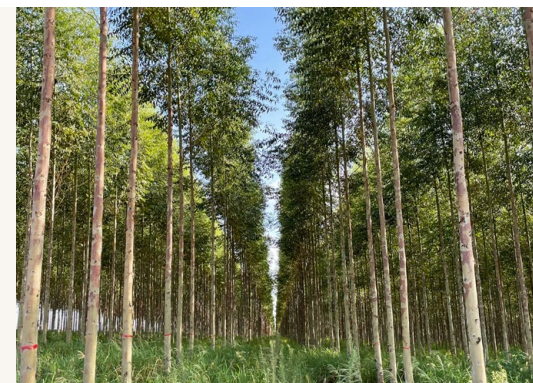


### Impact

Forestal San Pedro kicked off a few collaboration projects with the University of Asuncion on ant control methods, fungal disease, and soil monitoring protocols. These project will not only benefit Forestal San Pedro, but also the local industry and academia in general.

The previous owner of the assets had an outgrower scheme in place which was continued by Forestal San Pedro. The scheme includes 23 beneficiaries and an area of 36 hectares.

The company also employed further community liaison officers who started working on developing further community support programs in cooperations with the local stakeholders.





# Ecua America Teak S.A.S.



## Ecua America Teak in Western Ecuador

Arbaro established Ecua America Teak and its sister company Serfor, which are fully owned by Arbaro. These companies acquired the assets from an Ecuadorian teak group. Ecua America currently has ca. 900 hectares of high-quality teak plantations with an average age of seven years and an industrial facility to process smaller teak logs.

Arbaro has so far invested USD 15.5 million in equity and helped the company to obtain a loan from a European DFI. The loan allows the company to expand its plantations.



# Forestal VillaBaro S.A.S.



## Forestal VillaBaro in Casanare Province

VillaBaro was established in July 2022 for the purpose of acquiring standing pine plantations. The company is fully owned by Arbaro. VillaBaro purchased ca. 1,800 hectares of brownfield pine in the province of Casanare.

The plantations are managed by the local timber processing company Reforestadora de la Costa which also offtakes the produced wood under a long-term agreement. Arbaro has invested USD 4.3 million into the project.

## Colombia





# Maderas Prosperidad S.A.C.



## Maderas Prosperidad in Cajamarca Department

Maderas Prosperidad Peru was established by a Chilean family company some years ago. The company initially produced pallets from externally sourced timber but wanted to integrate raw material supply and expand across the value chain. Arbaro became the majority owner of the company in 2022 and has so far invested USD 5 million in equity, with a total commitment of USD 12.5 million.

Prosperidad plans to develop a pine plantation asset that can feed a sawmill. The estimated area needed to feed the sawmill is ca. 4,000 hectares, part of which is to be acquired as semi-mature and mature, from existing, poorly managed brownfield, and part in greenfield areas. The company will replant and apply state-of-the-art management techniques to all areas. Land will most likely be leased from local landowners.



# Forestal del Caribe S.A.



## Forestal del Caribe in the province of Izabal

Forestal del Caribe project is located in the province of Izabal. Arbaro purchased a land property of 2,300 hectares, which has previously been used mainly for rubber plantations. Out of the 2,300 hectares, 600 hectares of natural forest are located in a conservation area. These natural forest areas will be separated and sold to a well-known local environmental NGO. The remaining area of 1,700 hectares consists of 1,000 hectares for the establishment of gmelina plantations, 600 hectares of natural forest that will be put under conservation and 100 hectares of other land (rivers, lowlands, infrastructure). Another property of 50 hectares which is located nearby, has been purchased to become a future sawmill site.

The project will cooperate with an experienced saw miller and pallet manufacturer, who has produced wooden pallets for decades. The goal of the pallet manufacturer and seller of the pallets is to secure a steady and sustainably produced local supply of raw material for the production of the pallets.

## Guatemala





## The Team

The Arbaro Fund relies on a fully dedicated team of nine with extensive experience in forest operations, forest investments and impact finance, and benefits from full back office support through its two founding companies.

More information: [www.arbaro-advisors.com](http://www.arbaro-advisors.com)



**Marco Kaiser**  
Managing director



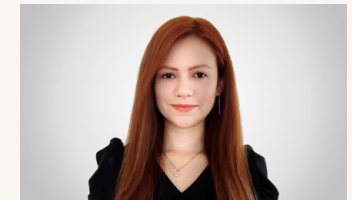
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# Impact contribution and approach

## Employment: 3,112 FTE

We continuously monitor the performance of our investees. Once a year we collect a set of predefined indicators and consolidate them to estimate the performance at fund level.

In particular, for the two specific impact indicators, employment and carbon sequestration, we apply a defined methodological approach that can be summarized as follows:

### Employment creation

For the estimation of employment supported by an investee we include only direct employment defined as:

**Direct employment** means employment generated by forest management or forest industry activities. It includes workers directly engaged by the company (direct workers) as well as workers engaged through third parties (contracted workers). Direct employment is reported by the companies to the fund.

Employment is expressed in terms of **full time equivalent (FTE)** units, where one FTE is equal to one employee working full time. The use of FTE units allows the generation of comparable values across different contexts, regardless of the share of permanent employees working full time, seasonal and temporary workers.

## Carbon sequestration: 1.6 million tons CO<sub>2</sub> total sequestration by portfolio companies since Arbaro investment

### Carbon sequestration

Carbon sequestration corresponds to **net carbon sequestered** in timber plantations: we only include aboveground and belowground biomass in planted trees, which are the carbon pools that change the most with plantation operations, and baseline and leakage are considered and deducted.

Sequestration is expressed in **tons of carbon dioxide (CO<sub>2</sub>)**. Calculations are based on standing wood volumes reported by our investees, measured in annual forest inventories. Volume data are then converted to tons CO<sub>2</sub> units in line with provisions from the IPCC and approved methodologies.

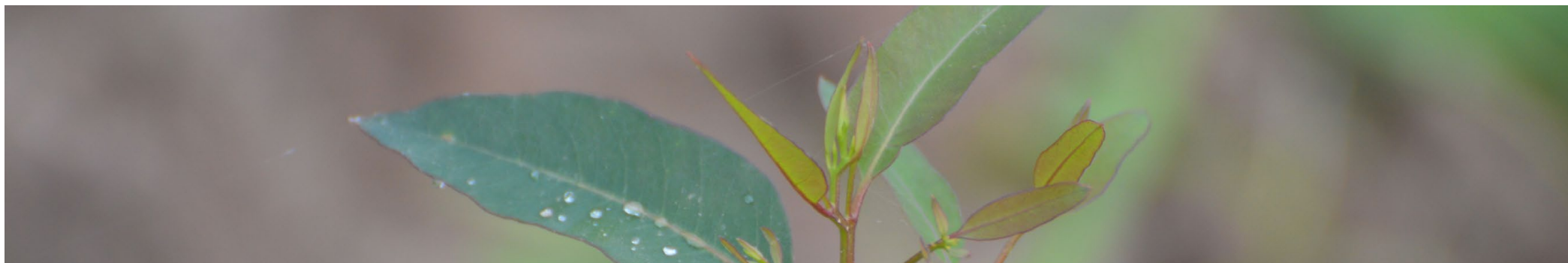
To account for losses over time due to harvest operations, we limit our maximum sequestration to the long term average, an approach applied by the main voluntary carbon certification schemes.

Additional carbon benefits that may be achieved with carbon stored in litter and soils, in protected forests, and in wood products are not accounted for.

### Reporting of sequestration

- Expressed as contributions, since we account for the full achievements of our investees, even when other investors are also involved in the investee company.
- Only additional contributions, meaning that any achievements of years prior to our investment are deducted, while our investment may also be important to maintain and further support prior achievements.

For additional details on our methodological approach, please contact our team.



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Designed by Hilger Boie Waldschütz

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