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About us
PAYCO (called SAGSA prior to 2013) is an agribusiness working in rural Paraguay since 1974, owning more than 100,000 ha in different estates across the country.
Traditionally dedicated to agriculture and beef production, PAYCO ventured into forestry in 2002, with the sustainable management of 5,650 ha of natural forest in one of their rural estates in eastern Paraguay. In this context, PAYCO initiated its cooperation with UNIQUE, a forest asset manager and consultancy company.
In 2003, PAYCO and UNIQUE established the first FSC® certified sustainable forest management project in the country (FSC® C009811), steadily reaping the benefits for over 15 years by now. In 2011 PAYCO has decided to expand its forest operations by investing into forestry plantations.

About this report
This is the sixth edition of the PAYCO Forestry Sustainability Report. It informs our stakeholders about our plantation forestry project, particularly our E&S performance. The report covers the period from January to December 2018.
The report is aligned to PAYCO’s Sustainability Report, formulated according to the Global Reporting Initiative standards, which encompasses all of PAYCO’s activities.
In addition, we annually disclose our productive, environmental and social performance of both our plantation forestry and our natural forest management projects through the Public Summary of our Management Plans, available under www.payco.com.py.
Shareholders

Euroamerican Finance S.A. is a subsidiary of Rioforte Investments S.A. and is based in Luxemburg. Deutsche Investitions und Entwicklungsgesellschaft mbH is a subsidiary of the KfW Group, the German Development Bank. The DEG promotes business in developing and emerging economies by making long-term financing and advice available to private enterprises investing in these countries.

PAYCO

PAYCO’s (Paraguay Agricultural Corporation) origins can be traced back to Sociedad Agrícola Golondrina S.A. (SAGSA), established in Paraguay in 1974 by the Espírito Santo Group. The company was re-structured under the name of PAYCO in 2013. PAYCO began operations in January 2013 as a society made up of Euro American Finance and Deutsche Investitions und Entwicklungsgesellschaft mbH (DEG). PAYCO manages more than 100,000 ha in Paraguay, investing in grains (mainly soy, maize and rice), cattle and forestry.

Partners: The UNIQUE Group

UNIQUE forestry and land use GmbH is a forest investment project development and consultancy company based in Germany. Together with its Paraguayan subsidiary, UNIQUE Wood Paraguay, the company manages all of PAYCO’s forestry investments.
PAYCO is investing in plantation forestry since 2011. The ambitious plan is to establish 9,000 ha* of fast growing plantations, composed mostly of eucalypt varieties, by 2020. To date, we have established 7,697 ha, achieving 57% of the overall target.

Our strategy for project expansion is innovative in the Paraguayan landscape. We seek to cooperate with beef producers by establishing silvopastoral systems under a joint management scheme and a benefit-sharing agreement, through land leasing on traditional cattle farms. The cooperation increases the overall income for cattle ranchers, allowing a sustainable intensification and diversification of the beef sector. To date, we are cooperating with 9 local landholders dedicated to beef, establishing silvopastoral systems on their land through leasing agreements.

The implications of our cooperation with the beef sector are also environmental. In eastern Paraguay, traditional beef production is losing its competitiveness vis-a-vis agriculture. This is causing the sector to migrate to other regions, such as Western Paraguay (Chaco). Silvopastoral systems can contribute to increase the value addition of beef production through sustainable intensification. This allows our partners to increase their competitiveness in the region, with positive environmental and socio-economic impacts.

Our project encompasses the opportunity to generate impact. It is in this spirit that we strive to integrate environmental and social values into our business. To hold ourselves accountable to public scrutiny, and measure our environmental and social performance in terms of international best practices, we work according to FSC® standards, having attained certification in 2014 (FSC® C117138).

*In previous reports the target of 13,500 ha by 2020 is mentioned. This has been reduced to 9,000 ha according to a new version of the Business Plan.
Strengthening the forest sector
In Paraguay, indiscriminate deforestation has reduced the availability of local timber. The country is a net importer of wood products. The forest sector is generating low value despite its important (socio)economic potential. Our plantations provide around 25 full time positions per 1,000 hectares (without accounting for industry). In comparison, the beef sector employs around 1-3 full time positions per thousand hectares.

Reducing pressure on forests
Sourcing timber and wood products from fast growing plantations reduces pressure on remaining natural forests. This is particularly valid for woodfuel, which is derived largely from informal and unsustainable sources all over the country. Woodfuel is still the main component of energy biomass in Paraguay, which makes up for more than 40% of the national energy matrix.

Diversifying the economy
Paraguay’s rural landscape is dominated by vast areas of soy and beef production. When planting exotic species with appropriate safeguards, the integration of the tree component into the national economy offers a myriad of opportunities. This includes the diversification of the economy, carbon sequestration, and erosion control.

Impact

<table>
<thead>
<tr>
<th></th>
<th>Cumulative</th>
<th>Growth in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total workforce</strong></td>
<td>200 FTE</td>
<td>+ 53 FTE</td>
</tr>
<tr>
<td>Communities we work with</td>
<td>12 communities</td>
<td>+ 0 communities</td>
</tr>
<tr>
<td>Producers involved in outgrower schemes</td>
<td>51 producers</td>
<td>+2 producers</td>
</tr>
<tr>
<td><strong>Total planted area</strong></td>
<td>7,697 ha</td>
<td>+36 ha</td>
</tr>
<tr>
<td>Under silvopastoral systems</td>
<td>6,963 ha</td>
<td>+36 ha</td>
</tr>
<tr>
<td>Additional area under outgrower schemes</td>
<td>155 ha</td>
<td>+46 ha</td>
</tr>
<tr>
<td><strong>Conservation area</strong></td>
<td>1,848 ha</td>
<td>+0 ha</td>
</tr>
<tr>
<td>Of this, classified as High Conservation Value</td>
<td>415 ha</td>
<td>+0 ha</td>
</tr>
<tr>
<td><strong>Total investment volume</strong></td>
<td>USD 14.6 M</td>
<td>+ USD 2.9 M</td>
</tr>
<tr>
<td>Annual spending on E&amp;S management*</td>
<td>USD 1.3 M</td>
<td>+USD 329 k</td>
</tr>
</tbody>
</table>

*including operational costs of the Sustainability Department costs for FSC certification, social project, and environmental studies
Currently, our project encompasses 7,697 ha of net production area, distributed on 11 management units. Each tree on the map represents one management unit belonging to one landholder. One management unit comprises a net production area of around 500 to 2,000 hectares.
OUR PRODUCTION SYSTEM

Production targets

Our project is designed to supply the national market with timber and biomass coming from sustainable sources. We produce high quality timber where site conditions are favorable, and woodfuel on sites exhibiting limitations related to drainage and nutrients. On 75% of our production area (5,777 ha), we produce quality timber, while the remaining 25% is managed for biomass production (1,920 ha).

The production cycle for quality timber is around 12 years during which timely silvicultural interventions such as pruning and thinning are conducted. Woodfuel production is conducted on a 7-year cycle subject to coppice management after clear cut.

Growth and yield tables

In Paraguay, to date, little research has been conducted on eucalypt plantations. There is a lack of production tables providing reliable guidance on long-term timber production. To estimate growth and yield we use our own inventory data, locally available information on growth, and the eucalyptus growth simulator of EMBRAPA (Brazilian Agricultural Research Corporation).

According to our latest projections, average Mean Annual Increment (MAI) for quality timber reaches 37 m³/ha/yr and around 14 m³/ha/yr for woodfuel production on marginal production sites.

E&S Risks

Climate

During the last few planting seasons, unpredictable weather patterns have been common. Periods of droughts and heavy rains are increasing in frequency or length beyond the normal ranges. We have learned to be particularly careful on lower sites that may exhibit relatively good conditions for forestry, but are subject to flooding during rainy seasons. Therefore, we are investing in improving our silvicultural knowledge, to adjust our site-species matching approach.

Reputation

As a large agribusiness in Paraguay operating in areas with long-lasting social conflicts, we are subject to public scrutiny. Growing social inequality, the struggles for land by smallholders, poor governmental presence and the relative influence of organized crime are some of the issues that are more or less present in our production areas. In this context, we consider it crucial to contribute to socio-economic development, through the provision of jobs for local community members, active communication and long-term benefit-sharing strategies.

Fire

Fire represents a great risk for forest plantations. In Paraguay this risk is highest during the dry period between July and October, while also being important in December and January, the hottest months of the year. In 2018, many fire episodes were registered in the vicinity of the management units, and three fire episodes affected 26 ha of established plantations. To date, our most successful strategy to control fires has been concentrated in yearly capacity building with leading fire experts in the region.

Pests and diseases

Pests and diseases are a threat to our plantations. Most of the times, there is little knowledge on how to effectively combat them. We have had issues with the gall wasp Lectocybe invasa, the yellow beetle Costalimaita ferruginea vulgate, and the pycnidial fungus Coniothyrium zuluense. To date, these pests are under control, however a permanent state of alert is necessary. We are continuously looking for alternatives to increase the diversity of our plantations through the introduction of an increasing variety of species and clones.
Since 2013, we have integrated the Sustainability Department into our business structure. The Department has been entrusted to bring about changes into the way we manage and evaluate the performance of our operations, by introducing the environmental and social dimension.

The Department undertakes the management of PAYCO’s certification systems, encompassing FSC® for forestry, and RTRS (Round Table for Responsible Soy) and ISO 9001:2008 for seed production. Furthermore, the Department manages stakeholder engagement, environmental studies, social projects and aspects related to health and safety.

The temporal scale we are subject to requires us to pay particular attention to risks and proactively manage them. Our greatest risks involve fire, as well as social problems and a negative press and reputation. Beyond technical solutions, an effective risk management strategy is related to an authentic and meaningful effort to improve in terms of transparency, communication and social engagement.

In 2018 we have been successfully verified against FSC® standards, during our fifth annual audit since 2014. Audits give us the opportunity to measure ourselves against international best practice. Therefore, they provide the perspective that easily gets lost in daily operations, helping us to identify our weak points and improve our practices.
FSC Audit results 2018

FSC audits usually document non-compliances in two levels: Minor Corrective Action Measures (CAR), and Major CARs. Minor CARs are considered punctual deviations of the standard, and must be solved within one year after being identified. Major CARs, on the other hand, are considered fundamental flaws, and must be solved within three months to remain certified. In 2018, six minor CARs were raised during the audit. These are summarized in the four points below. All minor CARs were solved in due course.

Two minor CARs on Capacity building
Non-compliance: Evidence for trainings on endangered species was not found.
Measures taken: Trainings on endangered species were conducted across all management units. In addition, they were introduced in the standard capacity building program.

Two minor CARs on mapping of HCV
Non-compliance: High Conservation Values (HCV) were not identified on the maps used by operative staff on the ground. There is no evidence of negative impacts on HCVs, however the auditors identified a lack of awareness regarding HCVs on the ground.
Measures taken: Information on land use and HCVs were included in the maps used on the operational level.

Minor CAR on Health & Safety
Non-compliance: Tractor drivers were not using protective clothing, and tractors were not equipped with a fire extinguisher or first-aid kits.
Measures taken: Safety standards for machinery were developed and implemented.

Minor CAR on Housing
Non-compliance: The housing provided in one of the management units had 2 bathrooms. During planting season, when around 50 people were occupying the facilities, this is insufficient to guarantee appropriate sanitary conditions for the workforce.
Measures taken: Housing standards have been revised, and infrastructural improvements introduced accordingly.
Our management units are distributed in eastern Paraguay, located in the ecoregions Atlantic Forest, Humid Chaco, and transitioning environments in between. The Atlantic Forest ecoregion was once covered with a majestic, dense sub-tropical dry broadleaf forest, now reduced to less than 10% of its original area. The remaining natural forest is now distributed in fragmented patches in different stages of degradation in between large agricultural and beef production establishments. We are careful not to contribute to deforestation, by only planting on sites already used for agriculture or beef production. We do not cooperate with landowners who offer land for lease that has been recently converted.
Research & Development

The most important and damaging pest for our forest plantations are leaf cutting ants, which are common across all of our plantation units. For ant control we use products based on the active ingredient Fipronil. Although Fipronil is classified as moderately hazardous by the WHO (Class II), it has been banned in the EU for certain crops due to its high toxicity to bees.

PAYCO has joined an alliance with the National University of Asunción and other forestry organizations and companies (PAYCO, POMERA and Cooperativa Volendam), coordinated by UNIQUE. The goal is to support research to better understand leaf cutting ant populations and behaviors, and find ecological alternatives for ant control.

PAYCO has agreed to invest an amount of USD 3,600 for the first phase of the research program, which consists of studying ant populations in Rancho 068. By mid-2019, a follow-up proposal by the University is expected, according to which alternative ecological ant control solutions are going to be tested.

Inputs applied include insecticides against leaf-cutting ants, herbicides, fertilizer and lime. Ant and weed control are critical during the first years, as young eucalypts are highly vulnerable. Furthermore, the insecticide Bifenthrin, a pyrethroid, was introduced to combat the yellow beetle (Costalimaita Ferruginea) in punctual situations. Fertilizers are applied at an average dose of 100 gr/plant while planting, and lime is applied for correcting acidic soils before planting.
Environmental Impacts

Hazardous products and pesticide use
All inputs applied for forestry operations are controlled and quantified. The application is targeted and conducted following best practices. Procedures include the observation of health & safety measures.

Drinking water quality is regularly tested to rule out contamination of water sources. Pesticides are stored in appropriate facilities, and containers are recycled following national regulations. Storage and disposal of waste, particularly of pesticides and fuels, is monitored. To avoid leaking of fuel and oil, machinery is regularly maintained.

<table>
<thead>
<tr>
<th>Plantation age</th>
<th>Fipronil dilution powder (gr/ha)</th>
<th>Fipronil in baits (gr/ha)</th>
<th>Glyphosate (l/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>16.1</td>
<td>136.7</td>
<td>3.7</td>
</tr>
<tr>
<td>2 years</td>
<td>9.5</td>
<td>70.4</td>
<td>2.9</td>
</tr>
<tr>
<td>3 years</td>
<td>6.1</td>
<td>81.4</td>
<td>0.3</td>
</tr>
<tr>
<td>4 years</td>
<td>4.8</td>
<td>45.2</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Biodiversity and land use
We only plant on sites that were previously used for pastures or agriculture, and do not encroach on any remaining patches of natural forests.

When planting on leased sites, we require a valid environmental license, and do not cooperate with owners who have been involved with significant deforestation or conversion activities for the purpose of planting trees in cooperation with us. To make sure of this, we conduct a historical land use change analysis on all new sites to be incorporated to the project.
Labour relations and social security

Since we initiated this project, the formalization of labor has been one of the greatest challenges of our work. Professional service providers were unavailable in rural Paraguay, particularly in the forestry sector. Therefore, it is common practice for us to build up our contractors among the local people. While this may greatly increase our potential impact in the region, it also brings about a number of difficulties during daily operations. For instance, basic best practices in terms of human resources and formalization need to be strictly monitored. According to the domestic census conducted in 2017, informality affects 65% of the working population in Paraguay. Most affected are men living in rural areas, of which 80% are considered to be engaged in an informal labor situation.

According to our monitoring data in 2018, over 95% of our contractors’ workforce was formalized. Non-formal relations were single exceptions that were immediately addressed.

SOCIAL IMPACTS

Average workforce in 2018 in Full Time Equivalents 200

<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>Mai</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<tbody>
<tr>
<td>211</td>
<td>219</td>
<td>193</td>
<td>175</td>
<td>182</td>
<td>177</td>
<td>171</td>
<td>174</td>
<td>171</td>
<td>181</td>
<td>182</td>
<td>184</td>
</tr>
</tbody>
</table>

- Of these, PAYCO & UNIQUE employees 10
- Of these, women in management level 3
- Of these, contractors 5
- Of these, sub-contracted workers 185
Stakeholder engagement

When initiating activities in a new management unit, we identify our neighbors, which are either larger farms (so-called "estancias") or local communities. Neighboring communities are informed about project activities. The relationship with communities and workers is mainly organized through our 3 Community Liaison Officers (CLOs). Our CLOs responsibilities encompass information events, consultation for specific purposes, communication with community members and workers, and the implementation of projects with community members.

Community health and safety

Negative impacts are mostly related to increased heavy traffic once wood and timber is produced (after the first thinning). This may cause increased risks of accidents, noise and dust. In such cases, mitigation measures include the installation of hedgerows, regular road maintenance, road watering and procedures for responsible driving.

Because all the land we plant on is privately owned by large-scale farmers, local communities are normally not present in the actual managed area but in the surroundings. In Paraguay, conflictive relationships between smallholders and industrialized farms have driven land occupation in the past, spurred by unequal access to resources, and a lacking rural reform. This context accentuates the need of investments with social value.

| No of communities surrounding our project | 12 |
| Of these, indigenous communities | 3 |

| No of households we reach through stakeholder engagement | 1,219 |
| Of these, no of households directly benefitting from project activities | 222 |
Grievances

Communication and outreach efforts were ongoing in 2018, mainly through 3 Community Liaison Officers.

Grievances related to the contractors’ practice were concentrated in one management unit called “Ocampo Kue”, particularly related to the lack of a varied diet and the lack of transport or fuel provision by the contractor. PAYCO responded to these claims by introducing payments for fuel. Consequently, workers are traveling home every day, and cooking services have been partially discontinued.

Grievances from neighboring community members were clustered, and are presented as follows:

- Community members from Segunda Reconstrucción, a community located next to our management unit “Lomas” issued grievances regarding bad road conditions, attributed to heavy traffic associated to PAYCO’s activities. The company responded by assisting with road maintenance.

- Community members from Inmaculada, next to the unit “Cerroto”, requested more working opportunities. Dialogues were initiated to increase the absorption of labour from the community.

- Community members from San José, next to the unit “Ocampo Kue”, raised concerns about an infestation of leaf cutting ants, which was attributed to a residual effect coming from the ant control activities on our management unit. PAYCO responded by assisting the community with ant control.

Health and Safety

We ensure the health and safety of our workforce by setting up procedures and providing the tools for implementation. This includes trainings in aspects related to health and safety, the implementation and monitoring of procedures to ensure dangerous work is conducted in compliance with security measures, and the provision of security equipment. In 2018, 24 training units were recorded, mainly encompassing around one to two training units per management unit on the topics of fire prevention and firefighting, the correct use of protective equipment, and first aid.

Accidents

Three accidents were recorded in 2018, as follows.

<table>
<thead>
<tr>
<th>Description</th>
<th>Measure</th>
</tr>
</thead>
</table>
| Management unit: Rancho ZS  
During weeding, a worker cut his foot with the hoe. | Immediate assistance was provided until full recovery. |
| Management unit: Cerro Verde  
The pruning stick got entangled with the power line, causing an electric shock to one worker. | Immediate assistance was provided until full recovery. In addition, a larger buffer area along electricity lines is considered ever since. |
| Management unit: Cerro Verde  
A worker poked his eye with the hoe during high grass weeding. | Immediate assistance was provided until full recovery. |
Outgrower schemes

**Project beneficiaries:** 53 families

**Expected impact:** Improve income, economic resilience and social relations

Since 2014, we are establishing outgrower schemes in cooperation with members of our neighboring communities. Farmers who have land that they are willing to allocate to forestry receive inputs and technical assistance from our staff. The benefits are split between the company and the producers. Outgrower schemes are established in the surrounding communities of 4 of our management units, involving members of 5 communities. Our outgrower plantations initiated in 2014 with 7 ha, reaching 155 ha in 2018, and involving 51 producers. Since 2016, the expansion of our outgrower schemes is conducted through the financial support of the Tropical Forest Conservation Fund.
Community hedgerows

**Project beneficiaries:** 84 families

**Expected impact:** Improve health & safety and social relations

A community hedgerow was established in front of the houses of local community members in Segunda Reconstrucción and Kerambu, located along the access road of one of our management units. The project initiated in 2015 with the assistance of the Deutsche Investitions- und Entwicklungsgesellschaft (DEG), and involves 84 households.

The project is expected to contribute to improve the relationship with the communities since the traffic of heavy vehicles associated to PAYCO has been the main subject of grievances during recent years. The hedgerow should also contribute to health and safety of families, as well as to the family income by providing fruits, shadow and fodder. In 2018 growth monitoring and maintenance of the hedgerows established in 2015-2017 was ongoing.

Yerba mate production

**Project beneficiaries:** 85 indigenous families

**Expected impact:** Improve livelihoods of indigenous communities

With funds from the Fondo de Conservación de Bosques Tropicales (FCBT) and in cooperation with the ARP (Rural Association of Paraguay) and UNIQUE, PAYCO supports yerba mate production in the indigenous communities living in the natural forests adjacent to one of our management units. After planting took place in 2016, drying facilities and nurseries were established in 2017, in addition to the development of a management plan and technical assistance for implementation.

In 2018, indigenous communities produced 690 kg of yerba mate, of which 50 kg was commercialized outside of the community. In addition, a yerba mate nursery with a productive capacity of 20,000 plants was established.