



Pachama

Vendor: Pachama

Developers: Bosques Amazonicos SAC; Ecológica Assessoria; NIHT, Inc.

Location: Madre De Dios, Brazil; Papua New Guinea

Type: Forestry

Project Profiles: [Brazil Nut Concessions](#), [Agrocortex](#), [NIHT Topaiyo](#)

Date Evaluated: Mar-Apr 2021, Sept-Oct 2021

About

Pachama uses satellite imagery and artificial intelligence to accurately measure carbon captured in forests, a process that has traditionally been labor-intensive and inconsistent. Pachama's technology remotely monitors and verifies forests, providing increased accuracy and transparency for purchasers.

Established in 2010, the Brazil Nut Concessions project prevents deforestation and protects biodiversity on 500,000 acres in the Peruvian Amazon. The project is a collaboration between the project developer and a conglomeration of over 300 small concessioner landowners across 143 parcels of land aimed at refocusing the local economy towards the passive harvest of Brazil Nuts – a valuable commodity that can only be found in old-growth rainforest such as that protected in the project – and providing community members with sustainable income through carbon finance. It is estimated to prevent 14.5M tons of CO₂ emissions.

The Agrocortex project of Brazil both preserves and lightly harvests an area of untouched rainforest in Brazil's most biodiverse region. The project protects an area larger than the city of San Francisco. It is verified and registered as an avoided deforestation project, but harvesting does occur on site. The project area is owned by a Brazilian timber company that is committed to sustainable timber harvesting on the project's area. These efforts include harvesting at a reduced rate, replanting native species, and protecting rare species (such as Mahogany).

NIHT has partnered with traditional landowners of New Ireland and East New Britain in Papua New Guinea to repurpose land originally scheduled for commercial timber harvesting into a forest carbon project. Since 2014, Papua New Guinea has been the world's largest exporter of tropical timber wood, making the island nation a key area for intervention. Carbon finance provides landowners and communities with a valuable source of alternative income instead of cutting down these critical rainforests.

Do you consider this project to be avoided emissions or emissions removed? Why? What can you tell us about the carbon life cycle of the average tCO₂e that your solution removes or reduces?

The projects selected all represent "Avoided Unplanned Deforestation" projects. This results in both avoided emissions (resulting from cutting down trees) and emissions removed (resulting from increased growth of trees).

Do you offer a direct-to-consumer purchasing option for this offset project?

No.

What is your minimum order quantity for carbon credit purchases, if any?

None.

Are there additional benefits that your company offers?

Pachama uses satellite imagery and remote sensing to track the progress of its projects and provide an additional layer of verification for its projects.

Integrity

First, projects must cross the hurdle of actually reducing or removing the carbon they claim to. To evaluate a provider's integrity, Joro considers verifiability, enforceability, additionality, permanence, and transparency.

Verifiability

What third party verifiers or other evaluators have evaluated this offset project? What verification standard or evaluation process did they use? If none, what plans do you have in place to get verified or evaluated?

The three projects Joro supports through Pachama are verified by the Verified Carbon Standard (Verra). Pachama then uses its remote sensing analysis to calculate the additional carbon benefit of the project (by measuring biomass) and compares the results of their analysis to the volume of carbon credits being offered by the project.

Each project has been verified by third party verification organizations to adhere to the Verified Carbon Standard (VCS) for "Avoided Unplanned Deforestation". Project carbon and baselines estimates and further measured and scored via satellite by Pachama.

All Pachama projects must be properly documented and verified by a third-party verification organization. Pachama then uses its remote sensing analysis to calculate for themselves the additional carbon benefit of the project (by measuring biomass), and they compare the results of their analysis to the volume of carbon credits being offered by the project. If the project overestimates carbon benefits, then it is not included in Pachama's platform.

Enforceability

Do you provide proof of retirement upon purchase of a carbon credit?

Yes. Pachama retires the credits on Joro's behalf and issues a unique certificate with a registration ID to demonstrate sole ownership.

Additionality

Did the project require financial capital from offsets to make the project a reality? How will the project result in carbon reduction or removal that would not have otherwise happened without our purchase?

To ensure carbon credits would not have been achieved in a business as usual scenario, Pachama uses historical remote sensing data to compare the forest stock within a project's boundaries to that of forests in the surrounding area, and follows third-party verification standards.

Vintages: Joro has selected the most recent vintages of each project available to demonstrate a higher case for additionality. This is 2015-16 for Brazil Nuts, 2019 for Agrocortex, and 2017-19 for NIHT Topaiyo.

Third Party Standard: Each project has used the VCS Tool for the Demonstration of Additionality in VCS AFOLU Project Activities (VT0001) version 3.0 to assess the additionality of the project and to select the most likely baseline scenario. The methodology also requires an investment or barriers analysis proving that the offset project in question was not the most economical option.

Pachama Technology: Pachama evaluates the additionality of a project by comparing the forest stock within a project's boundaries to that of forests in the surrounding area by using historical remote sensing data. The assumption here is that surrounding forests serve as a baseline "counterfactual" scenario against which to compare the project's performance. A carbon benefit is

considered additional if the forest within the project boundary trends better than nearby unprotected forests. This data is also contextualized by the specific details of a project. For example, does the project invest in additional security or monitoring to ensure that no illegal logging occurs?

Specifically for avoided deforestation projects, additionality is determined by determining whether or not the forest in the project boundaries is being deforested at a similar rate to the surrounding areas. Other factors that would impact likelihood of deforestation, such as proximity to roads or other deforested areas, are also taken into consideration.

Permanence

What is the duration in years over which the carbon storage or reduction represented by this project's offsets can be reasonably assured? What supporting research would you point to?

The Brazil Nuts Concessions project is granted through a 40-year contract with the Peruvian Government. The Agrocortex project will be managed over a minimal 30-years cutting cycle, ensuring the presence in the area, the natural regeneration of the forest, and the permanence of GHG emission reductions. The total number of crediting years for the NIHT Topaiyo project is 30 years.

Pachama uses satellite imaging and geographic analysis to determine the risk of forest damage from natural causes, such as forest fires and pests, and works with project developers to engage in risk reduction to increase the durability of projects.

Transparency

Pachama publicly shares detailed information about all projects on their website, including photos, descriptions, project developers, and key project files, including regular VCS verification reports. They also share the results of their independent monitoring on a regular basis on their website.

Transformative Potential

Creating a just and sustainable future will require fundamentally transforming our society. We prioritize carbon removal projects that contribute to a world for all life to thrive, considering efficiency, scalability, catalytic potential, ecosystem benefits, and community benefits.

Efficiency

What is the cost per carbon credit (tCO2e) for this project? Tell us more about your fee structure. Specifically, what percentage of an offset purchase goes towards your company, the project owner, and any other parties involved in the offset project?

Pachama adds a 20% margin to cover their selection, verification, and administration costs. As in most forestry projects, other partners, including project verifiers and developers, also take a portion of profits, in addition to the community owners.

Brazil Nuts Concessions project is priced at \$6.00/tCO2e (credit). Agrocortex is priced at \$10.80/credit. NIHT Topaiyo is priced at \$6.72/credit. Pachama takes a 20% margin on all projects.

Scalability

Does this offset project represent a solution from Project Drawdown? If so, which one(s)?

Yes, "Forest Protection". As a climate solution, Forest Protection is estimated to reduce/sequester 6-9 gigatons of carbon between now and 2050.

Risks: What are the primary risks to the success of this offset project?

Deforestation: Regional deforestation is lower than anticipated, but rising. The project takes extreme precautions to avoid illicit deforestation (including cameras, checkpoints, and patrols).

They note approximately 0.9% deforestation in the ten years since the project's inception, a very low value.

Natural disaster: The region is not known for fires or large-scale natural disturbance. We know of no pests or invasive species that pose an imminent threat to the project.

To mitigate against natural risks to forest stocks, Joro has selected three separate projects in three different geographies.

Catalytic Potential

Does this project use a novel approach or a well-tested solution? Does this project help demonstrate replicability and inspire similar future projects? How does your project lead to greater innovation in the broader carbon removal field?

Pachama's technology makes use of satellite and machine learning technologies to verify and monitor the projects on its platform. While many platforms sell forestry project offsets, Pachama's approach is novel in the use of technology to monitor challenges relating to additionality or verifiability frequently associated with forest projects. Further adoption of Pachama's technology has the potential to greatly improve monitoring and verification of forest projects, leading to eventual improvements in the quality of forestry offset projects.

Ecosystem Benefits

Does this offset project address any [Sustainable Development Goals](#) beyond Climate Action? If so, which three is your solution most closely aligned with? Are these co-benefits tracked and/or measured? If so, how?

Avoiding deforestation has significant ecosystem benefits, including biodiversity protection, pollination, and other ecosystem services. Specifically, this project is aligned with the following SDGs: No Poverty; Zero Hunger; Gender Equality; Clean Water and Sanitation; Decent Work and Economic Growth; Innovation and Infrastructure; Reduced Inequalities; Sustainable Cities and Communities; Life on Land.

The Brazil Nuts Concessions project protects old-growth rainforests rich in biodiversity. In addition to being a vital resource to local communities, is also a precious habitat to countless threatened and endangered species.

The Agrocortex project offers a great deal in terms of biodiversity. A detailed wildlife assessment was done during the project's inception, and the project is known to be host to eight endangered mammal species and numerous endangered birds and plant species. A total of 158 tree species

were surveyed in the project's bounds. The project also makes a major effort to regrow and protect Mahogany trees (although harvesting of these trees is allowed in some cases).

NIHT Topaiyo conserves one of the most biologically diverse tropical areas on earth. Without this project, this valuable rainforest would have been high-graded. NIHT is committed to preserving the land ecology and is currently financing a comprehensive biodiversity study. To expedite the lengthy verification process, the project chose not to apply to VCS's Climate, Community & Biodiversity Standard (CCB) for their pilot issuance; however, the project was built to adhere to CCB's rigorous standards. The project proponents anticipate CCB verification for the 2021 issuance.

Community Benefits

What non-carbon benefits from this project accrue to local communities? How are local communities involved or consulted in this project? What potential risks do these communities face directly or indirectly related to your work? What are the land use implications on local communities as a result of your projects?

The Brazil Nut Concessions project works directly with concessioner communities who are highly dependent on local ecosystems but who, historically, have had few resources to protect the rich primary rainforest they call home. This carbon project seeks to create more economic opportunities for local communities thus enabling the community to safeguard against illicit deforestation. In addition to generating community income through carbon credit sales, the project has built a new brazil nut processing facility to increase the value of harvested nuts, a valuable commodity only found in old-growth rainforest, expanding what was formally a subsistence activity into a viable income source.

In the Agrocortex project, an estimated total of 200 direct and 100 indirect jobs were created from this project to support implementation of the management plan, monitoring plan, and the administration of FSC certification. Agrocortex is Manoel Urbano's largest employer and one of the largest in the State of Acre. Agrocortex Madeiras do Acre Agroflorestal Ltda. is a for-profit company established according to Brazilian law. However, its major shareholder is Aprovechamientos Dasocráticos Sostenibles, S.L., which is mainly composed by Fundación María Cristina Masaveu Peterson, a non-profit organization based in Madrid, Spain. The Foundation is dedicated to cultural projects, focused on the diffusion, conservation and recovery of historical heritage, professional training of young workers and scientific research. More information on the Foundation can be found [here](#). Furthermore, Agrocortex supports the local Artisans association, by donating wood residues to stimulate the production of handcrafts. This program supports 40 artisans and indirectly benefits 250 families.

While Agrocortex has the legal title of land, some communities have been living in the area for many years and hold a land ownership document that has no legal value under Brazilian law. It is important to note that this land tenure conflict area is not part of the Agrocortex REDD Project area. In order to solve this conflict due to land tenure, Agrocortex decided to donate the land where each family lives including 80% more forested areas, which will be the legal reserve of each property. In 2017, the company started to map the communities and to demarcate the land for each family. 25 owners already have their territory mapped. Furthermore, Agrocortex will conduct all the procedures to legalize the land of each family.

Furthermore, Agrocortex offers a young apprentice initiative ("Jovem Aprendiz") that creates job opportunities for at-risk youth and young adults in vulnerable situations. The program offers jobs inside the company and opportunities to learn and practice sustainable management, FSC certification, and forest conservation. During the 2017 - 2019 monitoring period, the following trainings and lectures were held (verified by a 3rd party under the SOCIALCARBON report):

- Planning and construction techniques for yards, roads, and forest management infrastructure
- Special tree cutting techniques and safe forestry handling
- Planning and dragging techniques in forestry handling
- Training in the use of GPS equipment
- First aid training
- Formation of a fire brigade
- Clarification lecture on labor legislation
- Lecture to clarify forest management and the legislation related to the management
- Lecture on the importance of conservation of threatened species of fauna and flora
- Lecture on Agrocortex's High Conservation Values
- CIPA training on workplace security

The Agrocortex project was developed in line with the SOCIALCARBON Standard, which is a voluntary standard created by the project developer, Ecologia. This project targets additional social, economic, and environmental benefits alongside greenhouse gas reduction objectives. These additional co-benefits are quantified and monitored under the SOCIALCARBON standard. In particular, the project highlights inclusion of women in its capacity building and economic benefits programs. The most recent SOCIALCARBON [certification report is here](#).

In the case of NIHT Topaiyo, NIHT is committed to the equitable participation of all stakeholders in the project's development and is working in partnership with local, provincial, and national level government. The project plans to reinvest 81% of net revenue into local communities. In addition to distributing funds directly to individuals, the project's funds are used developing access to online schools, expanding healthcare in the region, and introducing solar-powered electricity. Specifically, they are distributing over 50% of net proceeds directly to individuals. NIHT requires women's representation in the management of stakeholder funds, use of proceeds, and community development.

Images

Additional photos, shared by the provider

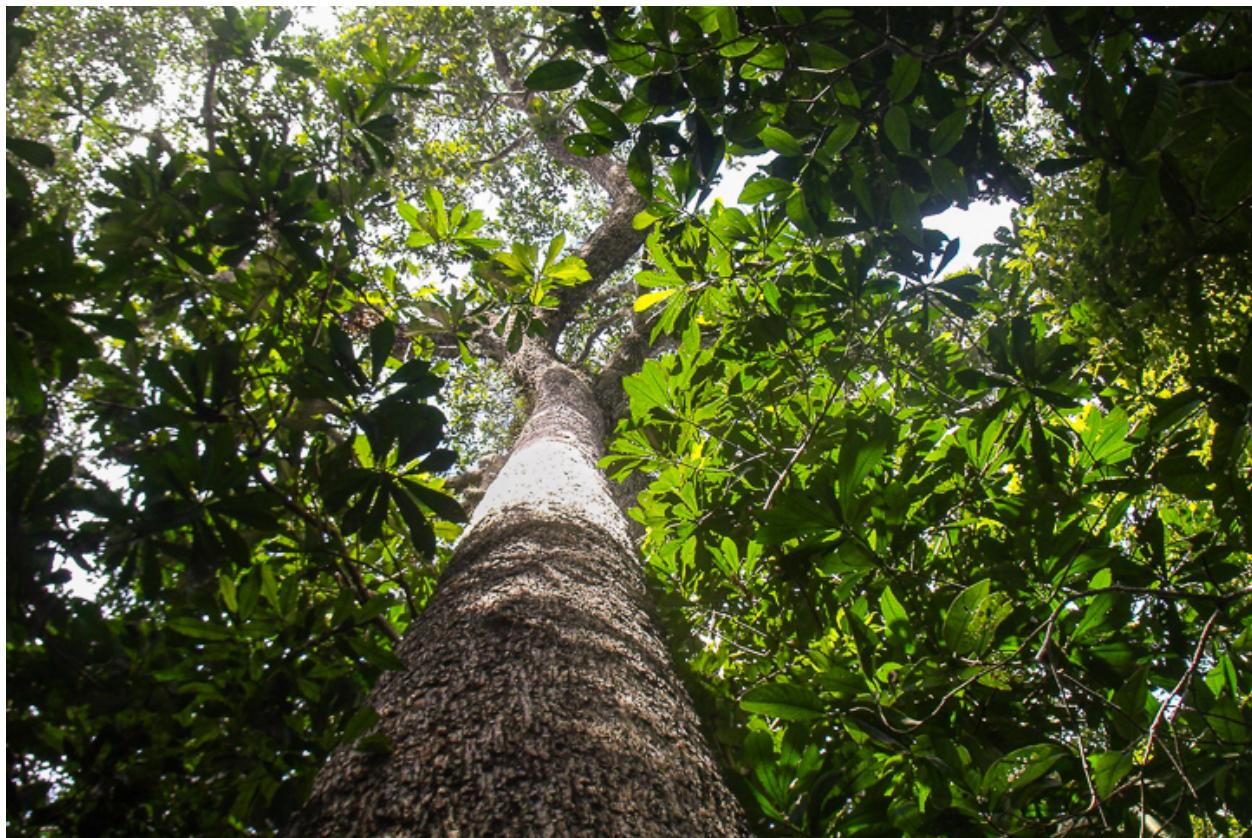
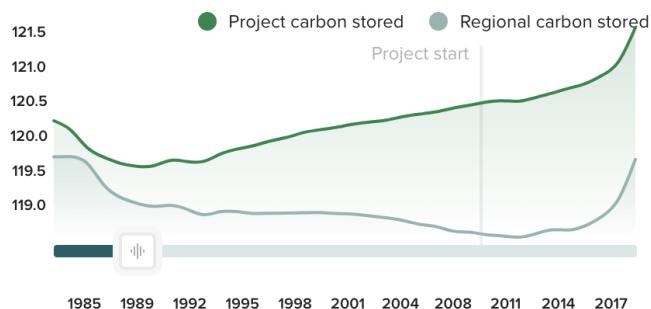
Brazil Nuts Concession

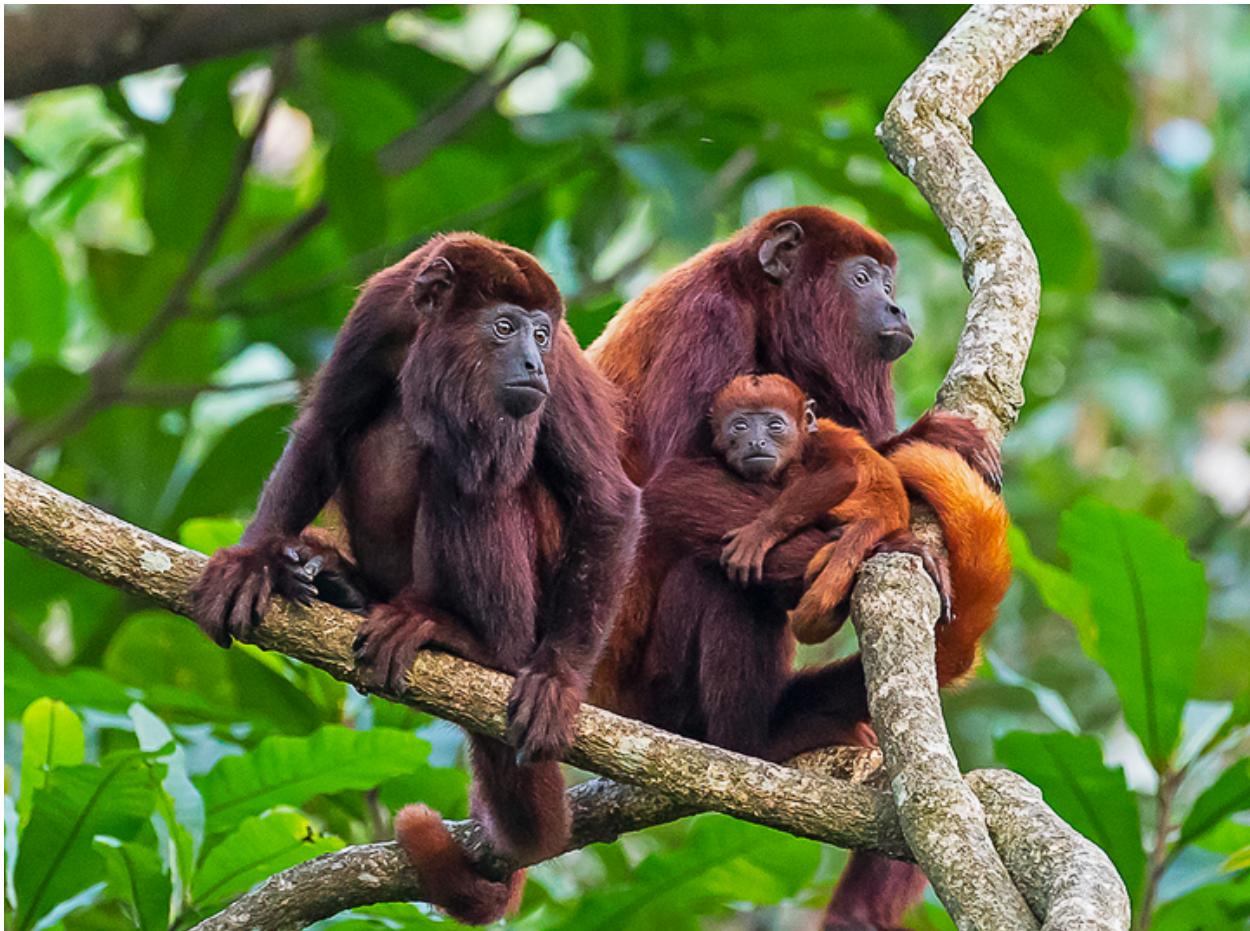
HISTORICAL CARBON

Carbon stored ⓘ

120 t/ha

as at 1988





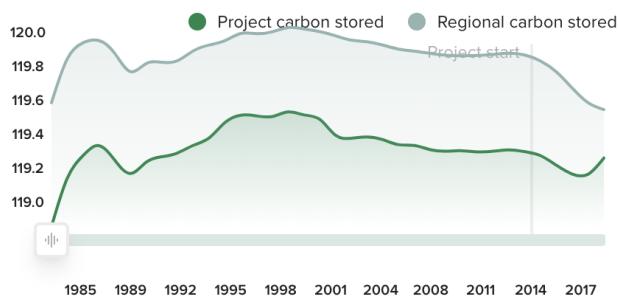
Agrocortex

HISTORICAL CARBON

Carbon stored ⓘ

119 t/ha

as at 1983







NIHT Topaiyo





