An introduction to carbon credits in Peru 2024

By Melina Kouyialis

Introduction:

By signing the Paris Agreement in 2016, Peru has committed to reducing greenhouse gas emissions by 31% below business-as-usual levels by 2030 with a vast proportion of this to be met by changes to land use and improvements to the forestry sector, including improved agricultural efficiency and afforestation (Gallice, Larrea-Gallegos, & Vázquez-Rowe, 2017).

Despite this, rapid deforestation in Madre de Dios, Peru, continues to be a pressing environmental issue due to illegal gold mining, logging, and agricultural expansion. The loss of these forests contributes to global climate change, threatens unique ecosystems and wildlife, and jeopardizes the livelihoods of indigenous communities who depend on these forests for their sustenance. Urgent action is required to address this crisis and protect the invaluable natural heritage of Madre de Dios.

Since 2017, the Alliance for Sustainable Amazon (ASA) at Fincas Las Piedras in the Madre de Dios region has been working to restore forests to land degraded by agriculture, further protect land from deforestation risk and facilitate the more sustainable extraction of Brazil nuts by local farming communities through education.

Carbon credits have the potential to significantly bolster conservation and reforestation efforts in the Peruvian Amazon by providing financial incentives for landowners to protect and restore forest ecosystems. These credits offer a means for companies and individuals to offset their carbon emissions by investing in projects that sequester carbon through forest conservation and reforestation activities. However, navigating the complex regulatory framework surrounding carbon credits can pose challenges for stakeholders, particularly small-scale landowners and indigenous communities, who may lack the resources or expertise to fully understand and comply with the requirements.

Aim: The aim of this research will be to support ASA's intent to secure carbon credits to further reforestation and conservation efforts. This research creates a more solid basis of knowledge that ASA can use to more confidently embark on the process of gaining carbon credits, both for Finca las Piedras and for a larger forward-looking conservation strategy.

Process: The process followed was progress-led, scope was defined depending on information found during desk-based research.

However, some central topics I focussed on were:

- Understanding REDD+ projects and any link to ASA's intentions for conservation
- Peruvian carbon credit regulatory market (specifically REDD+)
- The practicalities of calculating carbon credits (e.g., calculation methodologies)

Main takeaways

Peruvian governance

- The Peruvian government is making strides to create a nested REDD+ governance approach that allows private actors to invest in emissions reduction projects that align with government frameworks and contribute to jurisdictional deforestation figures
- The Peruvian market is complex - regulations are still being ironed out and ongoing - an example of this is PROFONANPE's role in results-based payments
- The government's Forest Reference Emissions Level (FREL) is still being agreed but when it has been agreed REDD+ projects will need to use this to be registered in RENAMI so that the government can keep better track of REDD+ efforts
- The carbon rights of castanero concessionaires over their concessions has been widely accepted despite a lack of clarity in government regulation

Project types

- From Verra projects in Peru, it appears projects predominantly fall into three types of credits: REDD, ARR and IFM (only 2 IFM projects neither of which have reached the registered phase yet)
- Nested REDD+ projects that follow jurisdictional regulations (e.g., using jurisdictional FREL to nest themselves in government figures) are more respected and in demand; the new Verra methodology recommends this nested approach
- Comparable small scale projects in Peru and specifically the Madre de Dios region appear to be predominantly ARR projects as reforestation projects can be smaller and sequester more carbon per ha (due to more easily provable additionality) than REDD+ projects, making them more profitable at small scales
- There are multiple models for monetizing carbon, going through a registry is just one, there are also direct to corporation deals (B2B) or business models such as Arbio or Tree Nation (B2B and B2C)

Glossary:

What is a carbon market?

Carbon markets are trading schemes that provide financial incentives for climate change mitigation through the sale of carbon credits. Companies or individuals can use carbon markets to compensate for their greenhouse gas emissions by purchasing carbon credits from entities that remove or reduce greenhouse gas emissions (United Nations Development Programme, 2022).

What is a carbon credit?

Carbon credits are a generic term for any tradable certificate or permit representing the right to emit one tonne of carbon dioxide or the mass of another greenhouse gas with a carbon dioxide equivalent (tCO_2e) reduced, avoided, or sequestered from the atmosphere. Carbon credits are typically traded on financial markets and are used as an economic incentive to reduce greenhouse gas emissions (International Emissions Trading Association [IETA], 2023).

What is a carbon offset?

When a carbon credit is used to reduce, sequester, or avoid emissions, it becomes an offset and is no longer tradable (United Nations Development Programme, 2022).

What is deforestation?

The direct human-induced conversion of forest land to non-forest land (Seifert-Granzin, 2011, p. 7).

What is degradation?

The persistent reduction of canopy cover and/or carbon stocks in a forest due to human activities such as animal grazing, fuel wood extraction, timber removal or other such activities, but that does not result in the conversion of forest to non-forest land, and falls under the IPCC 2003 Good Practice Guidance land category of forest remaining forest (Seifert-Granzin, 2011, p. 7).

What is additionality?

A requirement to demonstrate that projects funded by carbon credits must result in emissions reductions that would not have occurred under business-as-usual scenarios or without the financial incentives provided by carbon markets.

What is Reduced Emissions from Deforestation and Degradation (REDD)?

Activities that reduce GHG emissions by slowing or stopping conversion of forests to non-forest land and/or reduce the degradation of forest land where forest biomass is lost (Verified Carbon Standard, 2024).

What is REDD+?

'REDD' represents activities that reduce GHG emissions from deforestation and/or degradation by slowing or stopping conversion of forests to non-forest land and/or reducing the degradation of forest land where forest biomass is lost; The '+' stands for activities that enhance carbon stocks through improved forest management and/or afforestation, reforestation or revegetation. *(United Nations Framework Convention on Climate Change, n.d., " REDD+ resources?)* (Verified Carbon Standard, 2024).

What is REDD+ framework?

REDD+ framework is governed under the UNFCCC framework, with decisions made through international negotiations involving all member countries. It is part of the broader international climate change agenda. Countries established the 'REDD+' framework to protect forests as part of the Paris Agreement as a way to meet nationally determined contribution targets. This term typically refers to the set of guidelines, principles, and methodologies established under international agreements (such as UNFCCC) or national policies to implement REDD+ activities. It includes frameworks for measuring, reporting, and verifying emissions reductions, safeguards for biodiversity and indigenous rights, financial mechanisms, and governance structures. The reduction of emissions through REDD+ can generate carbon credits which can be traded on either jurisdictional or voluntary financial markets. Each credit represents one tonne of CO_2 not released due to forest preservation (Seifert-Granzin, 2011, p. 4).

What is the UNFCCC?

The United Nations Framework Convention on Climate Change (UNFCCC), which entered into force in 1994, aims to prevent dangerous human interference with the climate system and involves nearly 200 Parties committed to stabilizing greenhouse gas concentrations while supporting developing countries through funding and technology transfer. It emphasizes the responsibility of developed countries to lead emission reductions and establishes mechanisms for adaptation, reporting, and cooperation among nations *(United Nations Framework Convention on Climate Change, n.d., " What is the United Nations Framework Convention on Climate Change?)*

What is UN-REDD?

The UN-REDD Programme is a collaborative initiative that receives funding from a variety of sources, including voluntary contributions from donor countries, development agencies, and international organizations. These funds are dedicated to providing technical assistance, capacity building, and other activities to support countries in their REDD+ efforts. Unlike the broader REDD+ framework under the UNFCCC, which addresses deforestation and forest degradation as part of international climate change mitigation, UN-REDD is specifically designed to assist countries in the implementation of their REDD+ strategies. It offers both technical and financial support and facilitates the exchange of knowledge and best practices among participating nations (UN-REDD Programme, n.d.).

What is Afforestation, Reforestation, and Revegetation (ARR)?

Activities that increase carbon stocks in woody biomass (and in some cases soils) by establishing, increasing, and/or restoring vegetative cover through planting, sowing, and/or the human-assisted natural regeneration of woody vegetation (Verified Carbon Standard, 2024).

What is Improved Forest Management (IFM)?

Activities that change forest management practices and increase carbon stock on forest lands managed for wood products such as saw timber, pulpwood, and fuelwood (Verified Carbon Standard, 2024).

What is Agricultural Land Management (ALM)?

Activities that increase carbon stocks in soils and woody biomass and/or decrease CO2, N2O, and/or CH4 emissions from soils on croplands and/or grasslands (Verified Carbon Standard, 2024).

What is Agriculture, Forestry, and Other Land Use (AFOLU)?

The sectoral scope that covers GHG emissions and emission reductions and/or removals from project or program activities in the agriculture, forestry, and other land use/land use change sectors and for which the VCS Program has established rules and requirements with respect to specific project categories (Verified Carbon Standard, 2024).

What is Agroforestry?

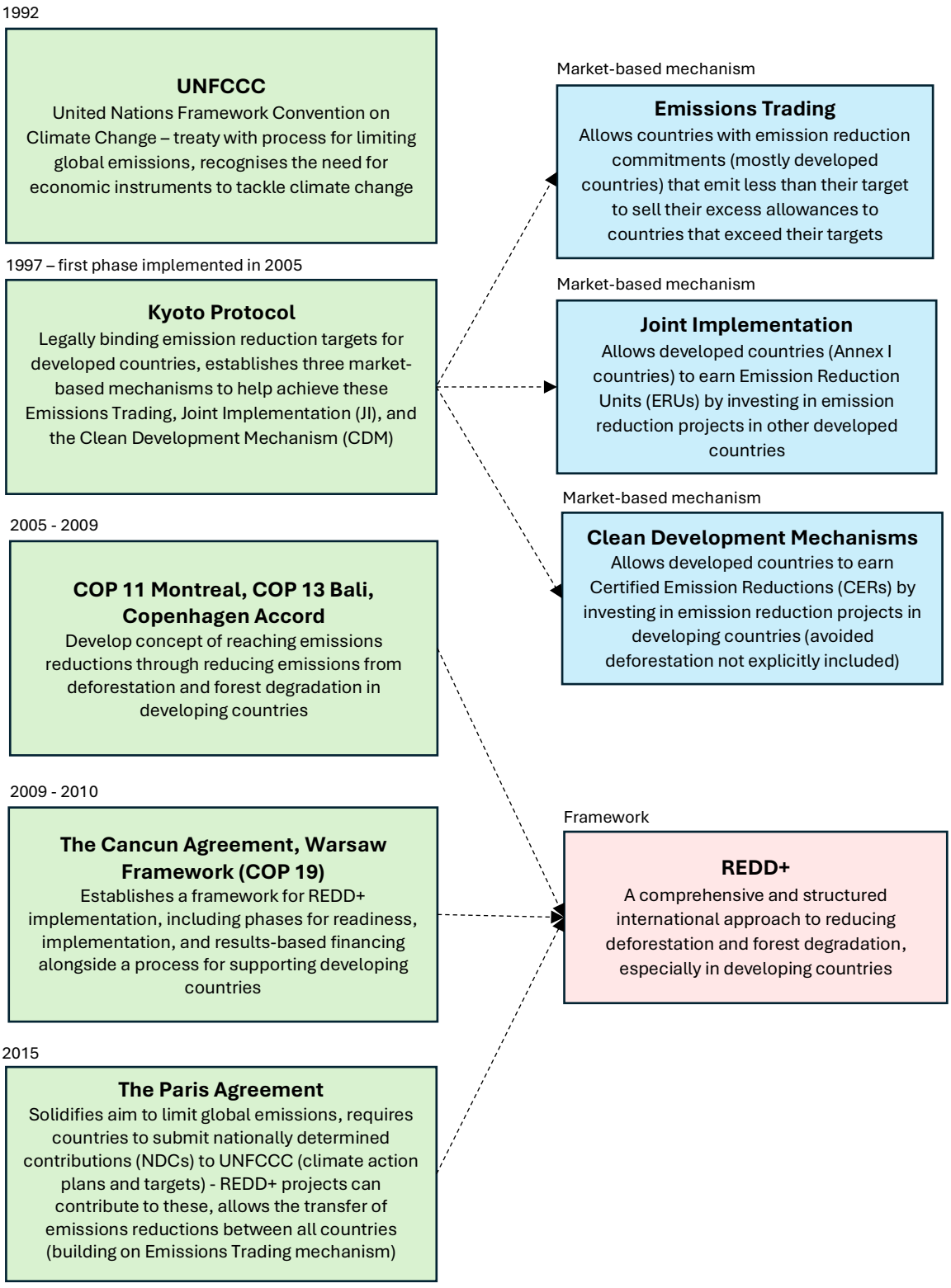
An ecologically-based natural resource management system in which trees are integrated into farmland and rangeland (Verified Carbon Standard, 2024).

What are Nationally Determined Contributions?

Nationally Determined Contributions (NDCs) are commitments made by each country under the Paris Agreement to reduce national emissions and adapt to climate change impacts, with the aim of achieving long-term climate goals, submitted every five years to reflect increasing ambition and equity considerations *(United Nations Framework Convention on Climate Change, n.d., "Nationally Determined Contributions)*

High level history of carbon credits and REDD+ creation

The carbon market is a complex network of treaties, frameworks, governments and NGO actors. Carbon markets originated at an international scale with the Kyoto Protocol which allowed countries to earn emissions reductions by investing in emission reduction projects either in other countries (like a carbon credit). Through iterative international conferences, further agreements built on this concept, creating a jurisdictional carbon market and paving the way for voluntary carbon markets. REDD+ emerged as a method for generating carbon credits through forest preservation.

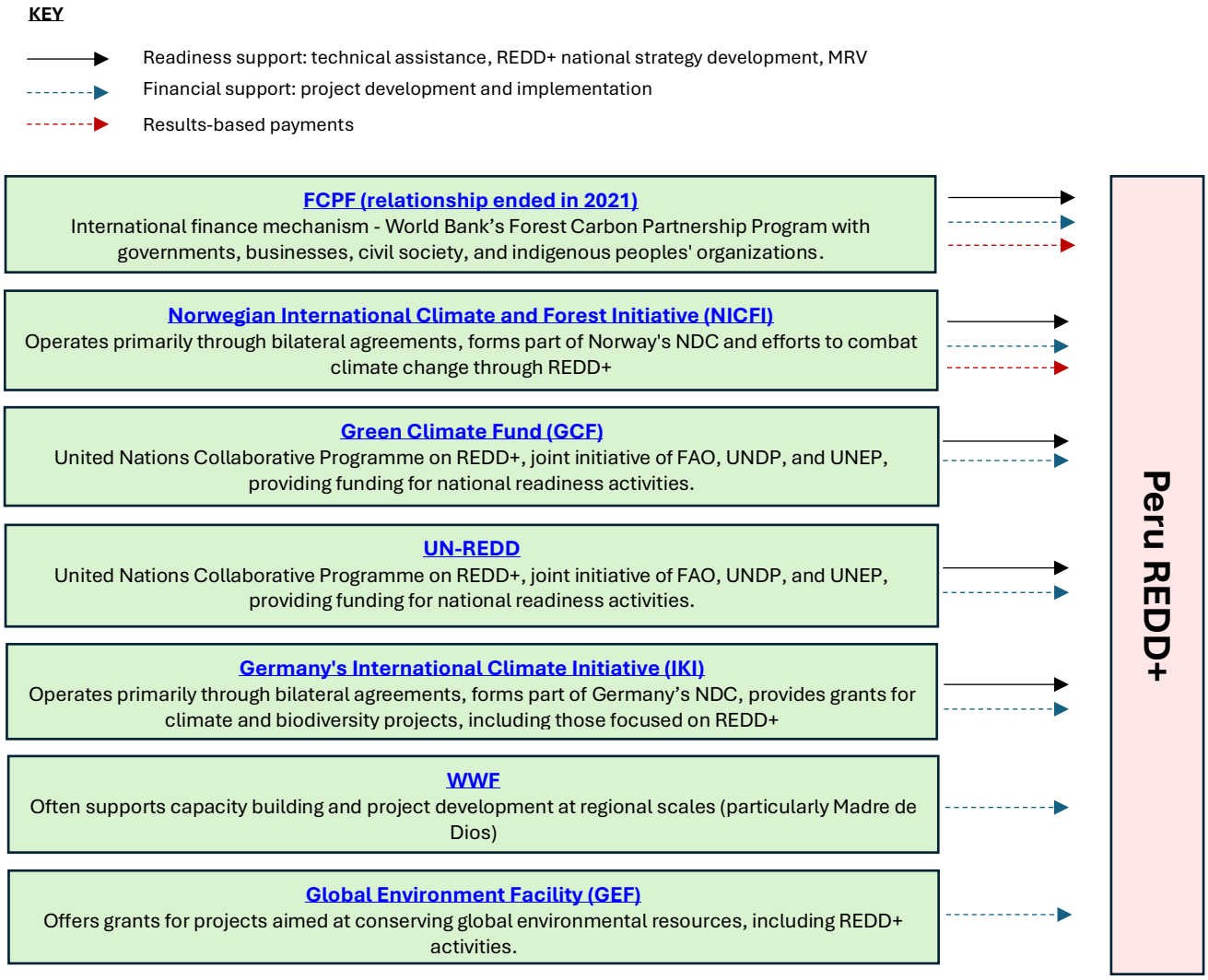


International Support for carbon markets and REDD+ market

As REDD+ has developed so too have national and non-governmental mechanisms for financing the progress of countries in developing their REDD+ governance. Historically, funding for carbon reduction projects in developing countries originated predominantly through bilateral agreements (as a result of the CDM) via countries such as Norway and Germany. This still persists today, with developed countries using their funding of developing countries' as a way to meet Nationally Determined Contributions (NDC) targets. However, as the REDD+ framework developed, international funds were set up to facilitate capacity building and accreditation of projects. To participate in funding from international sources, countries must demonstrate an ability to develop robust governance structures, manage financing efficiently and show progress. In exchange for project development, countries receive results-based payments.

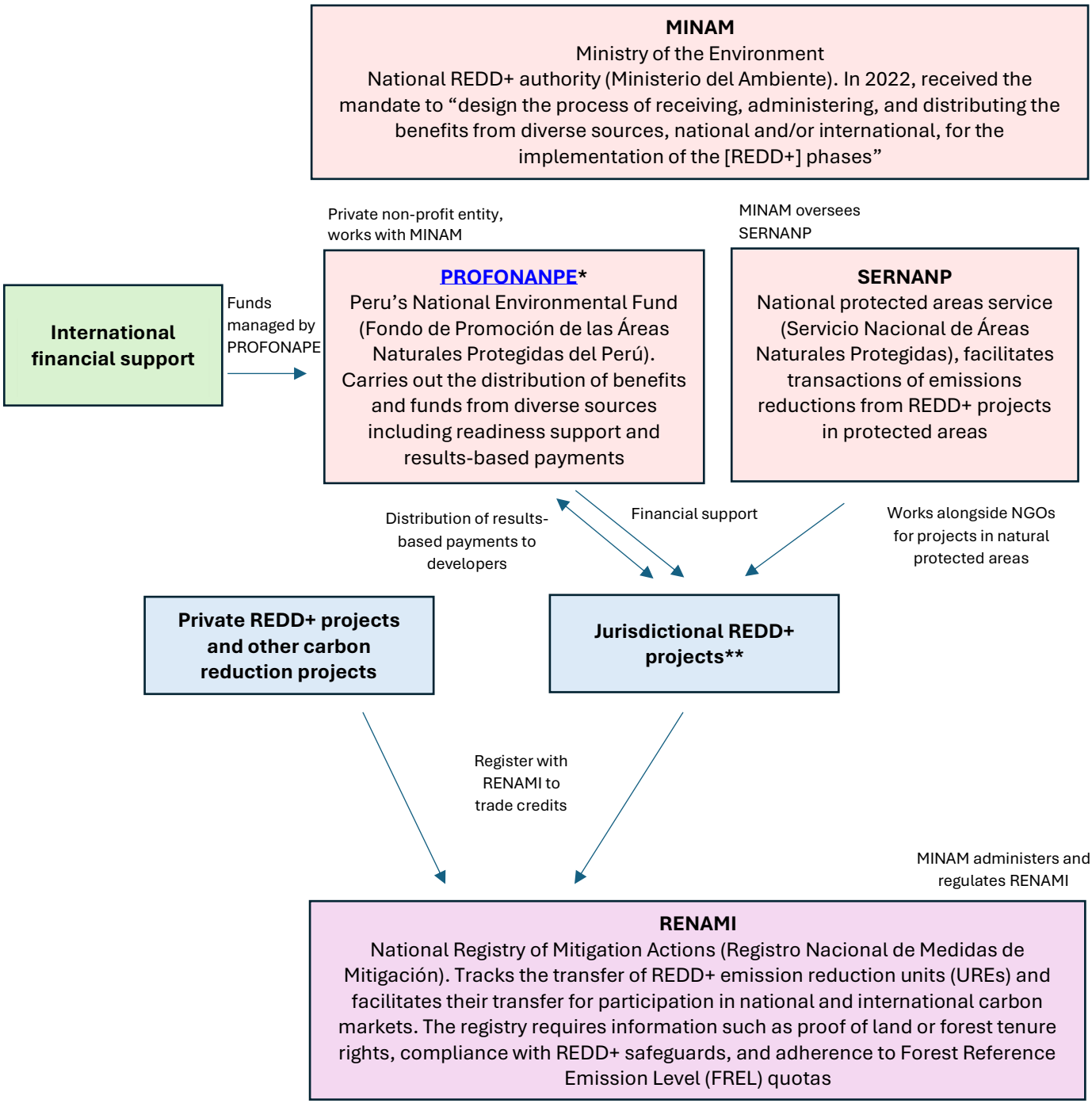
Peru has historically participated in international market mechanisms as an early adopter of the CDM. Additionally, with respect to its NDCs it expressed willingness to engage in international carbon markets, stating that it considered "selling emission reductions provided this is not an obstacle for the compliance with the national commitment." Peru has made significant progress in establishing governance structures for carbon markets, with MINAM (Ministerio del Ambiente) leading efforts to develop regulatory frameworks for REDD+ governance, administer carbon credits, and implement robust monitoring, reporting, and verification processes. Despite these efforts, Peru still faces significant regulatory uncertainty regarding carbon and land rights. Recently, it was dropped from the World Bank's Forest Carbon Partnership Facility (FCPF), where it had committed to reducing 6M tCO_2e in emissions but failed to finalize the Emissions Reductions Purchase Agreement (ERPA) due to incomplete key documents and unresolved legal issues, including unclear authority of MINAM to conduct international carbon credit transactions on behalf of the Peruvian government.

Below are some examples of REDD+ support Peru receives:



Peru's REDD+ governance

Peru is working towards a nested approach to foster REDD+ projects whilst also keeping track of countrywide deforestation levels. MINAM (Ministerio del Ambiente) leads the country's climate change policies, including developing regulatory frameworks for REDD+ governance, administering carbon credits, and implementing robust monitoring, reporting, and verification processes (such as RENAMI).



Notes:
* The current regulations remain unclear as to whether PROFONANPE will manage the distribution of all REDD+ results-based payments from projects registered in RENAMI or just those from jurisdictional initiatives, however, in public meetings MINAM has clarified that this mandate should be understood as applying to government mitigation measures only (i.e., excluding private REDD+ projects) with more guidance likely on the way.
**The Peruvian government has been involved in facilitating or co-developing REDD+ initiatives aimed at carbon markets. For example, the National Protected Areas Service (SERNANP, Servicio Nacional de Áreas Naturales Protegidas por el Estado) participates in three REDD+ initiatives in protected areas that have traded carbon credits and are under co-management agreements with NGOs (the Alto Mayo Protection Forest, the Cordillera Azul National Park and the Tambopata National Reserve and Bahuaja Sonene National Park (both mainly in Madre de Dios region) using methodologies including VERRA and CCB models

REDD+ projects in Madre de dios: A case study of BAM's REDD Project in Brazil Nut Concessions

BAM is a private, for-profit, company established in 2004 and dedicated to the conservation, protection, restoration and sustainable management of tropical forests. The company believes that private capital can play a key role in developing a sustainable world.

Introduction

The REDD Project in Brazil Nut Concessions in Madre de Dios, Peru, aims to enhance livelihood strategies for Brazil nut producers while promoting forest conservation. Initiated by Bosques Amazonicos SAC (BAM) in 2009, this project leverages carbon offset sales to incentivize sustainable forest management among Brazil nut concessionaires.

Parties Involved

- **Bosques Amazonicos SAC (BAM)**: A private company specializing in tropical forest conservation and sustainable management.
- **Federation of Brazil Nut Producers of Madre de Dios (FEPROCAMD)**: Represents Brazil nut collectors in the region and partners with BAM to implement the project.
- **CAMDE (Conservación Ambiental y Desarrollo en el Perú)**: A local NGO collaborating with BAM to enhance project credibility and compliance with international standards.
- **SERNANP (National Service of Natural Areas Protected by the State) and SERFOR (Servicio Nacional Forestal y de Fauna Silvestre):** Ensured alignment with national forestry regulations
- **Madre de Dios REDD+ consortium, AIDER (Asociación para la Investigación y Desarrollo Integral) ad Carbon Decision International:** Supported establishment of deforestation reference levels over the entire initiative zone based on deforestation data from 2000 to 2008.

The nature of the deal

The partnership contract signed in 2009 between BAM and FEPROCAM.

Negotiations: Centered around BAM's commitment to invest in Brazil nut commercialization infrastructure in exchange for access to carbon credits generated from avoided deforestation and sustainable land management practices.

Financial Arrangements: BAM agreed to invest at least USD 1 million in Brazil nut commercialization activities, primarily through the construction of a Brazil nut processing plant. The revenue distribution from the sale of carbon credits is set at 70% to BAM and 30% to the signed concessionaires.

Farmers' Commitments: Participating farmers agreed not to engage in activities that would lead to deforestation, such as illegal timber logging or expanding agricultural frontiers beyond allowable limits (1-2 hectares for farming on secondary regrowth, not primary forests). Additionally, BAM required brazil nut concessionaires to abide by FSC certification requirements to continue logging.

Carbon registry

Certified under Verified Carbon Standard (VCS) and Climate, Community & Biodiversity Alliance (CCBA) standards.

Expected monitoring of the project

Includes the use of satellite imagery to monitor forest cover, on-the-ground assessments, and regular audits to verify compliance with forest management practices and carbon credit requirements.

Complications

Land Tenure Issues: Significant challenges arose around unclear land tenure rights and overlapping land claims among concessionaires, leading to occasional conflicts during negotiations.

Timber Extraction Concerns: Despite restrictions, a substantial portion of households engage in timber extraction within Brazil nut concessions, averaging 666 m^3 per concessionaire annually, which poses a challenge to sustainable forest management goals and could undermine the project efficacy.

Unclear benefits to concessionaires: The exact mechanism for concessionaires to benefit from the nut processing plant—whether through reinvestment or dividends—is still under consideration.

For more information on the above see reference for Garrish, Perales, Duchelle, & Cronkleton, n.d..

Methodologies for AFOLU projects in the Peruvian Amazon:

The Verra registry currently lists 40 projects in Peru consisting of 23 REDD+, 9 ARR (afforestation, reforestation, revegetation) and 2 improved forest management (IFM) (neither of the IFMs have passed to the registered phase yet).

REDD+ projects are significantly larger (300,000 - 1,000,000 ha range) than other project types. IFM projects are the second largest (under 300 000 ha) whilst ARR projects are the smallest by far (ranging from 25 - 1000 ha though can be larger). This is because the carbon saving resulting per hectare from REDD+ and IFM projects is lower compared to ARR projects. REDD+ and IFM projects have an average saving per ha per annum) of under 3 tCO2e compared to ARR projects which average at around 3 tCO2e per hectare per annum.

Whilst REDD+ projects can be hugely impactful, proving additionality is challenging due to difficulties in demonstrating that carbon reductions wouldn't have occurred without project funding, projects are conservatively assumed to save less carbon per hectare. For IFM project, as they are not necessarily preventing deforestation (e.g., controlled timber logging is allowed) they are not as impactful as either REDD+ or IFM. ARR projects have the highest carbon saving per hectare due to much easier additionality demonstration (where there was no forest, a forest will be planted).

This means that ARR projects can be financially viable on smaller areas of land.

REDD	**ARR**	**IFM**
Description	Description	Description
Reducing greenhouse gas emissions by preserving forests sustainably and enhancing carbon storage in protected natural areas	Afforestation, reforestation and revegetation, increase carbon stocks by planting or assisting the natural regeneration of woody biomass	Designed to enhance the carbon sequestration capacity of forests by modifying existing forest management practices, e.g., extend rotation lengths to increase forests' average age
Pre-requisite	Pre-requisite	Pre-requisite
The project must be **located in a forested area** where **deforestation and/or degradation is occurring** or is **at risk** of occurring **Land classified as forest for at least 10 years prior** Calculation of emissions saved **in comparison to the baseline** (jurisdictional baseline such as **country-level FREL**)	**Must increase vegetation cover** **Site preparation cannot involve mechanical removal offsite** or burning of significant stocks of pre-existing dead wood. If chipping, mastication or machine piling present, all material must remain onsite within the project boundary	Land **demonstrably at risk of becoming non-forest use (e.g., agriculture or development)** or experiencing unsustainable harvesting practices (e.g., logging that exceeds sustainable yields). **Forest management plan:** describes the silvicultural prescriptions that will be implemented to achieve higher carbon stocks compared to baseline
Carbon saving per hectare per annum	Carbon saving per hectare per annum	Carbon saving per hectare per annum
2 tCO_2e	17 tCO_2e	3 tCO_2e
Market Price Range (January 2024)	Market Price Range (January 2024)	Market Price Range (January 2024)
< $16 per metric ton of Carbon	< $24 per metric ton of Carbon	Not found

Notes:
Carbon saving per hectare per annum has been based on an average of 2 registered projects of each project type listed on the Verra registry.
For more information on market price range see reference (CarbonCredits.com, 2024)

References:

CarbonCredits.com. (2024, January 26). *January 2024 Reveals Voluntary Carbon Credit Market Surprises*. Retrieved from https://carboncredits.com/january-2024-sees-surging-voluntary-carbon-credit-market-retirements/

Garrish, V., Perales, E., Duchelle, A. E., & Cronkleton, P. (n.d.). REDD project in Brazil nut concessions, Madre de Dios, Peru. Center for International Forestry Research. Retrieved from https://www2.cifor.org/redd-case-book/case-reports/peru/redd-project-brazil-nut-concessions-madre-de-dios-peru/

Gallice, G. R., Larrea-Gallegos, G., & Vázquez-Rowe, I. (2017). The threat of road expansion in the Peruvian Amazon. Oryx, pp. 4 of 9. doi:10.1017/S0030605317000412.

Granziera, B., Hamrick, K., & Comstock, M. (2021). Eligibility Requirements for REDD+ Standards. The Nature Conservancy and Conservation International. Retrieved from https://www.nature.org/content/dam/tnc/nature/en/documents/EligibilityRequirementsforREDDPlus_Financing_2021.pdf

International Emissions Trading Association (IETA). (2023, September). Carbon Credits 101. Retrieved from https://ieta.b-cdn.net/wp-content/uploads/2023/09/IETA_101_CarbonCredits_Sept2023.pdf

Seifert-Granzin, J. (2011). REDD guidance: Technical project design. In J. Ebeling & J. Olander (Eds.), Building forest carbon projects. Washington, DC: Forest Trends. Retrieved from https://www.forest-trends.org/publications/redd-guidance/

United Nations Development Programme. (2022, May 18). What are carbon markets and why are they important. Retrieved from https://climatepromise.undp.org/news-and-stories/what-are-carbon-markets-and-why-are-they-important

United Nations Framework Convention on Climate Change. (n.d.). Nationally determined contributions (NDCs). Retrieved from https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs

United Nations Framework Convention on Climate Change. (n.d.). REDD+ resources. Retrieved from https://unfccc.int/topics/land-use/workstreams/redd/redd-resources#Warsaw-Framework-for-REDD

United Nations Framework Convention on Climate Change (UNFCCC). (n.d.). What is REDD+? Retrieved from https://unfccc.int/topics/land-use/workstreams/redd/what-is-redd

United Nations Framework Convention on Climate Change. (n.d.). What is the United Nations Framework Convention on Climate Change? UNFCCC. Retrieved from https://unfccc.int/process-and-meetings/what-is-the-united-nations-framework-convention-on-climate-change

Verified Carbon Standard. (2024). VCS program definitions (v4.5). Verra. Retrieved from https://verra.org/wp-content/uploads/2024/04/VCS-Program-Definitions-v4.5-FINAL-4.15.24.pdf

UN-REDD Programme. (n.d.). Our strategy. UN-REDD. Retrieved from https://www.un-redd.org/about/our-strategy