

THE CLIMATE PATHWAY PROJECT

DELIVERING ON MID-CENTURY CLIMATE GOALS



National and Subnational Alignment of Decarbonization Pathways:

Case Study for Madre de Dios, Peru

April 2021



Introduction

The Climate Pathway Project is led by the Climate Group as the Secretariat of the Under2 Coalition, in coordination with the following consortium partners: Governors Group for Climate and Forests - GCF Task Force, in Peru through its Country Coordination, Mecanismos Desarrollo Alternos (MDA), Winrock International, The Climate Strategy Center (CCS) and Libélula.

The Climate Pathway Project aims to support state and regional governments in developing a transformational process or "pathway" to reduce emissions. The pathway approach gives state and regional governments choice so that they can make an informed decision on how best to reduce emissions while supporting economic and social development.

Our experts are working with the governments of Amazonas, Mato Grosso and São Paulo (Brazil), Quintana Roo and Querétaro (Mexico), and Madre de Dios (Peru) to reduce emissions from a range of sectors including Agriculture, Forestry and Other Land Use (AFOLU) and work to support forest conservation and soil restoration.

At the end of the project, states and regions, in collaboration with their communities and businesses, will have a clearly defined pathway to achieve effective, long-term emissions reductions. They will also have the necessary tools to monitor and evaluate progress to keep them on track.

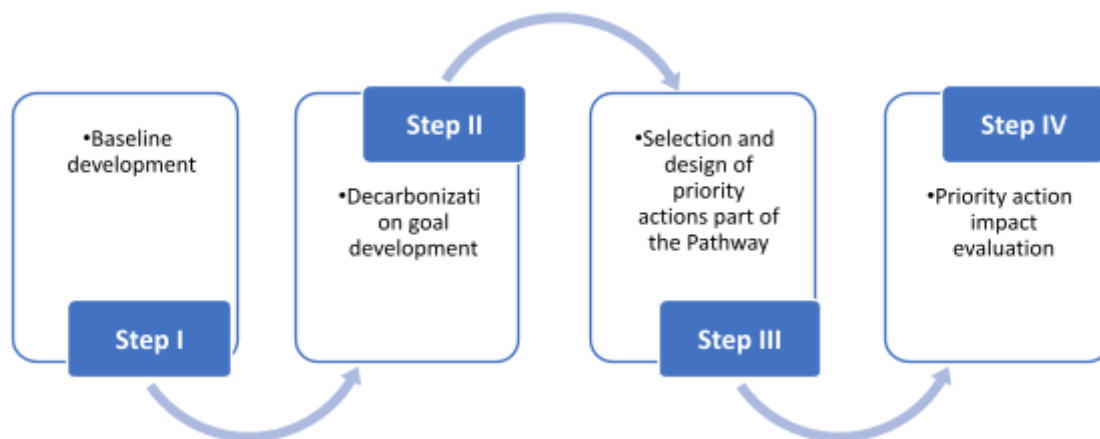
The process for the Madre de Dios region started during the last trimester of 2019. A baseline of the region's economy was established, and eleven actions of the Agriculture, Forestry and Other Land Use (AFOLU) sector were identified and prioritized. This gave way to a report of the analysis and development of the vision and objectives, linked to national commitments. Each action was designed at two levels: quantitative (GHG- impacts on the reductions of the greenhouses gases and the impact on costs) and qualitative (implementation activities, enabling conditions, and others).

The coordination between the national and subnational levels for the development of these project phases has been fundamental for fostering collaborative work with local and regional actors, leadership from the regional government, and feedback from national agencies. This task was run by the GCF Task Force Peru, which has managed to collect valuable information for designing actions as well as favoring its implementation.

Technical Results of Pathway Modeling

To define and evaluate the Pathway in Madre de Dios, a four-step process was needed, which allowed achieving the final results. This process was initiated in 2019 until March 2021 and is described in Graph 1. The Regional Government of Madre de Dios (GOREMAD) took the lead through its International Technical Cooperation Office (OCTI) and the Regional Management of Natural Resources and Environmental Management (GRRNy GA).

Graph 1, Pathway Development Process in Madre de Dios



Baseline

A first version was presented in January 2020, when observations and contributions were collected, to achieve a final version in April 2020. The baseline analysis was carried out considering the historical years from 2000 from which a 'Business As Usual' – BAU projection was drawn linked to population growth levels and financial activity, until 2050. The result of the baseline regarding net GHG emissions for all the regional economy is observed in Graph 2.

Graph No. 02. Net GHG emissions 2000-2050

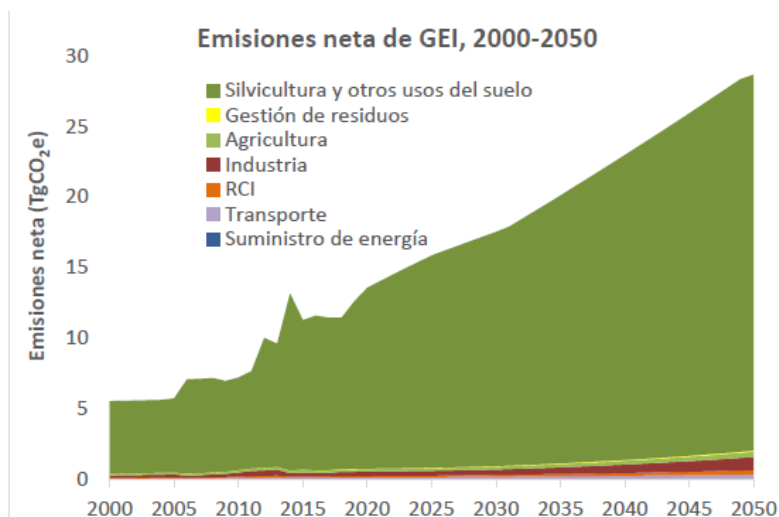


Table 1. Gross GHG emissions by sector, BAU scenario

Sector	Gross emissions (TgCO ₂ e)*						
	2000	2010	2015	2020	2030	2040	2050
Power supply	0.0023	0.0085	0.017	0.025	0.034	0.047	0.067
Transportation	0.038	0.10	0.10	0.12	0.15	0.20	0.27
RCI	0.054	0.085	0.082	0.091	0.13	0.20	0.31
Industry	0.18	0.30	0.28	0.31	0.39	0.60	0.93
Agriculture	0.12	0.16	0.17	0.17	0.19	0.27	0.37
FOLU	5.1	6.6	11	13	17	22	27
Waste management	0.010	0.019	0.027	0.034	0.050	0.070	0.097
Total gross emissions	5.6	7.2	11	14	18	23	29

* Emission units are teragrams (Tg) of carbon dioxide equivalent (CO₂e) and include all GHGs. One Tg is equivalent to one million metric tons.

Based on these results, it was concluded that the majority of the GHG emissions of the region originate from the forestry sector and other food and land uses (FOLU). With a special emphasis on deforestation given that from 2015 until 2030, it is projected to cover 345,800 hectares, which represents 82% of all the emissions in the region. In 2050, it would contribute to 84% of all emissions. This activity is followed by the GHG emissions originating from industry.

Net emissions in 2016 (base year) were 11.6 TgCO₂, with a projection within a BAU scenario of 18 TgCO₂ in 2030 and 28.9 TgCO₂e in 2050.

Decarbonization goals

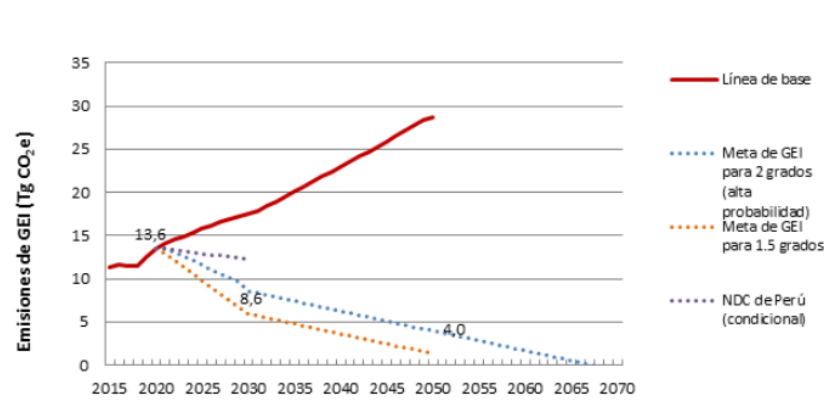
The goal was based on the emission reduction level required at a global level to limit warming by at least 2 degrees Celsius from a preindustrial level. Maintaining that level means reducing the frequency and incidence of extreme climatic events and fewer impacts in general. Hence the evaluation of emission reduction goals necessary to reach 2°C of warming. The region goals being:

For the year 2030: A 26% reduction of GHG emissions below 2016 emission levels ⁶.

For the year 2050: a 66% reduction of GHG emissions below 2016 emission levels.

This would mean that in the year 2030, instead of reaching 18 TgCO₂e GHG emissions, they would reach 8.6 TgCO₂e and in 2050, instead of reaching 29 TgCO₂e, emissions would be at 4.0 TgCO₂e. Assuming a linear projection, the region would reach net emissions equal to zero by 2068, as observed in Graph No. 03.

Graph No. 03. Madre de Dios emissions scenario projection



Selection of priority actions

Based on action catalogs, created starting from the baseline, these were presented to GOREMAD, so that actions from each sector could be chosen to be included in the Pathway. GOREMAD actors and other key actors were summoned to a workshop in November 2019 through a multiple-criteria survey for selecting these actions. Finally, eleven actions

belonging to the Agriculture, Farming, Forestry and other land uses (AFOLU) sector were chosen and have been named AFOLU actions. These are:

1. Conservation mechanisms in native community forests and community-based forestry management.

AFOLU2. Increase in productivity and efficiency of agricultural activities

AFOLU3. Increase in productivity and efficiency of farming activities

AFOLU4. Tree farms for protection and/or restoration purposes

AFOLU5. Commercial tree farms

AFOLU6. Encouraging the participation of actors in the management of local protected natural areas and forests

AFOLU7. Agroforestry systems for the recovery of degraded areas.

AFOLU8. Reduction of the risk of forest fires

AFOLU9. Reduction in the conversion of forest lands into mining areas.

AFOLU10. Program for the fight against illegal logging A

AFOLU11. Sustainable forest management in forest concessions (timber species)

Later, a design was requested for each one of the actions, based on criteria such as: description, level of effort or change level for the activity that the jurisdiction needs to achieve to carry out the action; and, the time of implementation to reach the level of effort identified.

Impact evaluations

An impact evaluation was carried out of the implementation for each one of the actions on GHG emissions, the magnitude of the costs and direct savings, as well as on the macroeconomy of the region. It is worth mentioning that this evaluation was done on nine of the eleven actions, because there was not enough information for two of these (AFOLU10 and AFOLU11)

- All of these results were analyzed jointly as accumulative impacts for the entire region's economy. Compared with the baseline, it is concluded that there will be a 48% reduction by 2030, and a reduction of 61% by 2050. In regard to the goals, there would be a level of emissions almost equal to the one necessary for the 2030 goal; and for 2050 the emissions level would be even higher than needed.

- Seven of the nine actions evaluated generate net costs over time of a small to moderate magnitude. Small savings are estimated only for the AFOLU 5.

Table 2. Expected GHG impacts on the entire Madre de Dios Economy

Action title		Non-adjusted reductions due to overlapping (TgCO ₂ e)		Reductions adjusted for overlapping (TgCO ₂ e)		Reduction of the baseline (%)	
		2030	2050	2030	2050	2030	2050
AFOLU-1	Conservation and sustainable forest management mechanisms in CCNN	0.044	0.31	0.044	0.31	0.25%	1.1%
AFOLU-2	Agricultural productivity	2.9	8.6	2.9	8.6	17%	30%
AFOLU-3	Livestock productivity	0.88	1.1	0.88	1.10	5.1%	3.8%
AFOLU-4	Forest ecosystems plantations	0.036	0.053	0.036	0.053	0.21%	0.19%
AFOLU-5	Commercial plantations	0.036	0.009	0.036	0.009	0.21%	0.032%
AFOLU-6	Protected natural areas	0.61	0.056	0.61	0.06	3.5%	0.19%
AFOLU-7	Agroforestry systems	0.015	0.058	0.01	0.06	0.08%	0.20%
AFOLU-8	Fire risk reduction	0.0015	0.0031	0.0015	0.0031	0.009%	0.011%
AFOLU-9	Mining expansion	3.8	7.4	3.8	7.4	22%	26%
	Total agriculture and forestry sector	8.4	18	8.4	18	48%	61%
GEI reduction in the whole the economy		8.4	18	8.4	18	48%	61%
Baseline				18	29		

Decarbonization targets compared to the baseline	9.0	25	51%	86%
Remaining emissions after implementation of priority actions	9.1	11		
Emissions remaining after achievement of decarbonization goals	8.6	4.0		

Aligning Regional Pathway Actions at a national level

Objective

As co-implementers of this initiative, the GCF Task Force has the objective of promoting subnational-national alignment for the design and implementation of the 2050 decarbonization plans in Madre de Dios.

Approaches by thematic area

Three thematic areas are considered as part of the approaches for the elaboration of this document:

1. Alignment with national climate change strategies. It evaluates how the Madre de Dios pathway contributes to and aligns with Peru's NDC. Also, it identifies how the pathway aligns with key national strategies.
2. Data exchange and MRV for the AFOLUsector. It identifies systems at a national level that can contribute to the AFOLUMRV of the pathway. As well as identifying data exchange and collaboration opportunities.
3. Financing. Map opportunities that allow for the mobilization of resources through their incidence in budget and national financing allocation processes that can support implementation of the pathway.
4. Action types

Two feedback and revision phases were considered for the design of prioritized actions of the pathway for Madre de Dios:

Technical meetings. This was carried out during action design. These include feedback meetings with specialists and personnel with knowledge and technical tools from competent national agencies. The contributions allowed obtaining feedback to adjust goals and enrich the rest of the data for the analysis carried out by the technical team. Besides obtaining

useful information about the alignment with national policies, implementation mechanisms, enabling conditions, and others.

Political meetings. These were carried out with the actions already designed, ready for validation. Meetings with the directors of the competent political authorities, such as the Ministry of Environment, Ministry of Agriculture, Ministry of Finance and Ceplan (National Center of strategic planning).

As a result of the sessions carried out at the national level, highly valuable information was collected for the alignment of Pathway actions for implementation in Madre de Dios. Below is a list of initiatives, programs, projects and other interventions that have been identified and will be analyzed to seek opportunities, ways to contribute to technical terms, and mobilization of resources for the Pathway's eleven actions.

Results by thematic area

Alignment with National Policies

The information on the coordination potential and points of convergence in the actions of the Pathway and the national initiatives/policies can be observed in a practical manner in Table No. 03. Every policy or initiative is presented in further detail below:

1. **Low-emission rural development regional strategy (ERDRBE):** This is a joint project between the Ministry of Environment, the Regional Governments, Earth Innovation Institute, WWF, and the Peruvian Society for Environmental Law. In the case of Madre de Dios, WWF is in charge of the elaboration of the document as part of the "Our Earth" Project and it is still underway. This strategy provides and synthesizes crucial information such as deforestation tendencies, the special location, deforestation processes in the region, bottleneck identification for sustainable production, among others. The document compiles results about the contribution that certain production chains in the region produce or could produce. Also, it seeks to align all the sectors around a shared agenda for an alternative model based on the Production-Protection and Inclusion focus to reduce deforestation and achieve sustainable jurisdictions. All of this up to 2030, the year which coincides with the first major milestone in the decarbonization trajectory.

The Strategy carries out an analysis of the causes for deforestation, the processes and actors involved, and within its methodology identifies socioeconomic units and its respective interventions. In this manner, commonalities for the AFOLU1, 2, 3, 6, 7, 9 and 11 actions are found. A valuable contribution of the pathways project to the ERDRBE will be the analysis of the impact on the reduction of emissions, social benefits and co-benefits of the interventions related to the AFOLU actions.

It is worth mentioning that ERDRBE, besides being a theory of change, develops governance, safeguards, communication, and monitoring plans for implementation. Finally, this document is complemented by an investment plan (costs, gap analysis and financing plan), that would allow positioning the Pathway actions as part of the regional budget with the opportunity to obtain resources through investment projects in order to achieve implementation.

2. **National Reforestation Plan - NRP**¹: Plan developed in 2005, valid until 2024. Establishes guidelines which promote the afforestation and/or reforestation activities in an effective and efficient manner within national territory. It is a planning and management document which directs the development of reforestation in all forms, for the formation and recovery of vegetation cover, for production and/or protection purposes. Its vision is to achieve the competitive positioning of Peru in the global market with forest plantations. This plan considers three priority programs to achieve the strategic objectives: Program 1: Forest plantations with commercial and/or industrial purposes; Program 2: Forest plantations with environmental protection purposes and management of basins (intervention in Andean farm communities); and Program 3: Strategic management for competitiveness. Within the region's Trajectory, the first action is also addressed by the AFOLU5 action. Commercial forest plantations. The third program is considered by this pathway across the board since it develops various support activities, introduced by way of enabling conditions and implementation mechanisms for the AFOLU5 action as well as the AFOLU4 action. Forest plantations with protection and restoration purposes and AFOLU8. Forest fires risk reduction.

Program 1 intervening in Madre de Dios, and the AFOLU5 action share coordination points mostly in regard to the specific objectives, which are aimed at more active participation from the private sector, the use of more advanced technologies, the development of forest plantations for a more competitive timber industry and to primarily benefit vulnerable

¹ <http://bvs.minsa.gob.pe/local/minsa/1426.pdf>

populations. Linking up with this program would mean taking advantage of a package of conditions and incentives being executed or in process, such as: Technological innovation program, development of forest associativity models, forest plantation investment fund, voluntary forest certification system, industrial plantation conglomerates and other incentive policies and financial mechanisms.

On the other hand, Program 3 seeks to "provide strategic management services of human and material resources, tangible and intangible, that ensure competitiveness and sustainability of forest plantations", that implies a set of institutional strengthening measures and the enabling of conditions to promote sustainable forest activity, such as: the development of an institution responsible for the NRP, with effective autonomy, competent, and stable, with inter and intra sector coordination capacity and decentralized; organization of lands and tree farms; promotion, training, technical assistance and information management, updating the legal base for the promotion of investments (Forestry Law); creation of the Center for International Forestry Research (CIFOR); prevention and control of forest fires and strategic guidance.

Since the execution period ends 6 years before the first goal, many of the initiatives intended to be developed by this plan could offer an interesting national or regional framework to initiate the implementation of the actions mentioned.

3. **Coalition for Sustainable Production:** This initiative is the consolidation of the private sector's commitment to reach the national goals in reducing emissions and fighting climate change. Nation with the Tarapoto Declaration, which proposed the formation of a public-private coalition for low-emission rural development to achieve sustainable jurisdictions in the Peruvian Amazon. It currently has 37 members from the private and public sector (including the Ministry of Environment (Minam) and the Ministry of Agricultural Development and Irrigation (Midagri), indigenous communities, and civil society, developing as a multi-actor space that promotes deforestation-free chains under a jurisdictional approach in Amazonia and the Northern Forests.

Therefore, the Coalition is a determinative space for coordination with the private sector, in which multi-actor alliances can be promoted to discuss and find proposals for prioritized value chains and, also, from where it is possible to propitiate favorable conditions for the success of sustainable businesses, such as the promotion of public policies, the

improvement of market processes (elimination of bottlenecks), consolidation of financial and monitoring instruments and the development of communication strategies.

Due to its nature, it has several action fronts: national, regional governments, private sector, civil society bodies, even greater possibilities to access the financial sector. At a regional level, the Coalition promotes coordination meetings with the regional technical groups by crop or the Regional Agricultural Management Committees (RAMC) where it pursues agreements that promote deforestation-free production. It is also participating actively in the elaboration of the Low-emission rural development regional strategies (ERDRBE) and the investment plans from the government members of the Governors' Climate & Forests (GCF) Task Force. The Madre de Dios region signed this Declaration and various leaders of the regional private sector are part of the work group. One of the last results from the joint project has been the elaboration of Sustainable farming guidelines, driven by the Coalition that contribute to the implementation of the AFOLU3 action. Increase in productivity and efficiency of farming activities. Just like with this action, the organizational and incidence power the coalition maintains is a determining tool for obtaining agreements and support from the different actors involved.

4. **Guidelines for sustainable farming development in the Madre de Dios region:** Within the framework of Law N° 30970, that approves budgetary provisions to contribute to the quality and execution of the public expense on behalf of national, regional, and local government entities; and as part of the strategies of the National Livestock Development Program (PNDG) 2017 – 2027, the Directorate-General for Farming prepared the guidelines for sustainable farming. These consider the proposals from the actors that intervene in the farming activity in the region, the experiences implemented and validated in the area, as well as the application of sustainable environmental practices.

This document establishes the standard for the sustainable management of farming within a productive and commercial competitive framework. The strategic guidelines were developed around objectives such as: improving territorial and natural resources management; increasing production through the efficient use of technology and innovation; increasing the added value of production; improving the services coverage for greater access to the market; and promoting and strengthening institutionalism and normativity. Also, the proposal developed in regard to implementation, that includes mapping out the responsible actors, necessary institutional agreements and details a budgetary framework and road

map. This is a strategic plan that would start a reinvention process for the farming in the region and, specifically for the pathway, it would be decisive for the implementation of the AFOLU3 action. Because of this, it is crucial to promote its approval and foster its appropriation on behalf of GOREMAD, the technical group and the other actors involved; as well as achieve its financing.

5. **Implementation of silvopastoral systems by Midagri in Madre de Dios:** Between 2019 and 2020, Midagri implemented 600 hectares of silvopastoral systems in the districts of Las Piedras, Tambopata and Laberinto in the Tambopata Province and in the districts of Iberia and Iñapari in the Tahuamanu Province (200 families benefited) in the Madre de Dios region. As a result of this intervention, useful information is available to replicate and implement these systems in the regional context such as:
 - **Baseline study of farming activity in the Tahuamanu and Tambopata provinces.** This information was collected and systematized during 2019, so the data is up to date. It develops the results of the baseline, through a set of socioeconomic, agricultural, and livestock indicators and the diagnosis on training and technical assistance. It also provides a productive and economic technical diagnosis that characterizes the agricultural population of the intervention area and allows providing a proposal on the livestock producers' typology according to their socioeconomic characteristics, mapping out their most important demands and it enumerates 11 intervention lines for pertinent public investment projects or programs to be offered from Midagri and/or the regional government.
 - **Agrology and soil fertility analysis and diagnosis.** This document provides an analysis of the physical-chemical properties of the soils of the study area by district (Iberia, Iñapari, Laberinto, Las Piedras y Tambopata) and an analysis of the microbiological properties of soils. This study allows learning about the general tendency of the soils, practices that have been carried out, their impact on the soils and due to the extension in farming production, it allows finding adequate solutions.
 - **Characterization of bovine meat in the Madre de Dios market.** This is a first study of the analysis of the potential market, mapping of critical points, analysis of service offers, prospects in the distribution and commercialization mechanisms, analysis of the current offer versus potential demand. All of this process ends with an Action Plan proposal, for

the short, medium and long term in the three links of the production chain (production, processing, and commercialization). This plan is a first effort with contextualized knowledge and an opportunity for improvement and replication for the rest of the region, in an attempt to guarantee a competitive market for a sustainable production.

- Serological diagnosis in reproductive and infectious illnesses in bovine animals. The study reveals the importance of the care of the sexual and reproductive health of livestock to prevent it from becoming a bottleneck in the achievement of productive improvements both in quantity and quality. It allows becoming familiar with the prevalent diseases in the intervention areas, the transmission mediums, the identification of vectors and/or practices that propitiate the spread of the most common diseases. In conclusion, it proposes real contextualized solutions.
- Technical sheets for the main native fodder shrubs in the area. This was a first identification and characterization exercise of the local plants to promote its exploitation encouraging local, cheaper consumption, and of better access. It describes the name of the species, their chemical and/or nutritional composition and determines their forage potential.
- Lessons learned on the organizational strengthening of farming associations. This report is the systemization of the strengthening activities and promotion of the associativity in the intervention area. It proposes a methodology with outreach activities, training, technical assistance, promotion and signing of agreements, among others. The lessons learned from this experience are relevant for replication in other areas with similar associative characteristics, that also propose institutional improvements from the national government (and possibly, that require support from a regional level).
- Support system for the decisions of the Directorate of farming (Sodega). Within this initiative, there is systematized information available that is related to the Reniec and provides details on the trainings (subject areas, who attends, among others). Which can be useful for designing programs and training strategies, technical assistance, communication, and others.

6. **Investment project “Improvement of competitive capacities of bovine livestock producers in the Tahuamanu Province, Madre de Dios”²**: With the boost from the Midagri experience in the region, it got the approval in 2020 and initiated operations in May 2020 with a duration of 3 years (until May 2023). It is the biggest project in the Tahuamanu area for a total updated value of S 6,707,587 (soles).

The project attempts to increase production and productivity of the farming activity through training and technical assistance about the use of the soil, the application of good productive technologies, empowering entrepreneurship, and management capabilities for market coordination. The activities of this project are aligned and contribute from its four components, considering the pathway goals in regard to AFOLU3 action, that seek to increase productive efficiency per hectare: 1. Efficient assistance and technical support. 2. Extensive knowledge in bovine production technology. 3. Adequate knowledge of environments and equipment for the transformation of livestock products. 4. Extensive knowledge in business management processes.

A critical point is that this project is already in execution with a considerable budget, that could lead to the extension or development of similar projects prioritized for the region.

7. **Peru's Natural heritage³**: Public and private initiative, led by Minam and Sernanp, with PROFONANPE, Gordon and Betty Moore Foundation, Andes Amazon Fund (AAF), the WWF, KfW, Amazon Sustainable Landscapes Program (ASL) of the Global Environment Facility (GEF) and SPDA. This initiative was declared of national interest through S.D. No. 003-2019-MINAM. Its objective is to achieve a Sustainable National System of Natural Areas Protected by the State (SERNANP), that conserves biodiversity and promotes development and improves the quality of life for the most vulnerable populations. This is why the goal is the consolidation of effective management and financial sustainability of 75 protected natural areas (PNA), corresponding to 19 million hectares of the country in the next 20 years. The first phase involves the intervention in Amazonia for a period of 11 years (until 2029) considering the PNA of Madre de Dios, specifically in:

- Tahuamanu: Alto Purús National Park, Purús Communal Reserve

² Invierte.pe: Project No. 2329539

³<https://www.sernanp.gob.pe/documents/10181/2224691/Documento+Trabajo+36+PdP.pdf/bd6155d5-5606-4966-81b1-9e09c57fbc9a>

- Manú: Manú National Park, Amarakaeri Communal Reserve

- Tambopata: Bahuaaja Sonene National Park, Tambopata National Reserve.

This initiative proposes 4 specific objectives that promote the improvement of effective management of the PNA through the implementation of the enabling conditions that ensure perpetual financial sustainability.

Coordinating this initiative with the implementation of AFOLU1 and AFOLU6 will be decisive in the first 9 years (until 2027), where it will seek to consolidate conservation, management, control, and monitoring mechanisms, to finally develop the sustainable use of the resources and the landscape. It is important to highlight that there is a budget assigned for the baseline and execution, there is also a financing plan (and mapped donors) that consider the development of economic mechanisms (at a national level and PNA level) that make the initiative sustainable.

8. **Promotional initiatives mapping for the Private Conservation Areas (PCA)**: From the Directorate of Strategic Development (DDE) of Sernanp, which is in charge of the recognition of the PCA, and the compliance of the commitment assumed voluntarily by the administrators, mapping of the initiatives, programs and funds available is being carried out from all the Ministries, with whom it is possible to coordinate and achieve:

- Promote the PCA administrators having access to these opportunities and connecting them so they can participate.

- Promote benefits/advantages for the PCA administrators to access these initiatives more easily.

9. **National Plan for the Development of Cocoa-Chocolate 2020-2030**⁴: Promoted by Grupo Impulsor and encouraged by the national technical group of the Agricultural chain of Cocoa and Chocolate, with the Technical Secretariat of the General Directorate of Agriculture from Midagri, with technical assistance from the Inter-American Institute for

⁴ <http://gestionparticipativa.pe.iica.int/Procesos/Plan-Cacao/Inicio.aspx>

Cooperation on Agriculture (MICA) and the Sustainable Productive Landscapes project (SPP-UNDP) administered by the UNDP and executed by the MINAM (Ministry of Environment) as part of its objective to support the implementation of the National Strategy on Forests & Climate Change (ENBCC) to reduce deforestation and recover forests in productive landscapes. This document is being developed, at this time the main objectives for sustainable development have been defined in this chain for the next 10 years:

- Strategies 1:
 - Mobilize all of the society through mechanisms of dialog and cooperation.
 - Activate and make use of existing platforms.
- Strategies 2:
 - Train to be able to achieve a culture of management, processes, and participatory methods.
 - Adopt organizational methods with formal, participatory, decentralized, and technically solid processes.
- Strategies 3:
 - Guide accountability, empowering the actors that will lead the implementation processes.

As part of the diagnosis phase, a Root Cause Analysis Study of the Cocoa-Chocolate Productive Chain has been carried out, that contains information collected in the Amazon regions, including Madre de Dios, about the market, production, alignment of policies, among others. Also a prospective study of the national cocoa-chocolate chain considering the productive, technological, and market aspects of opportunities of the underused resources or capacities for the development of the economy.

In the framework for this process, a governance model of the cocoa and chocolate value chain is sought to be developed, supported by public and private dialog. Considering that cocoa is the agricultural product with most potential for the implementation of agroforestry systems (AFOLU7), it is important in the case of Madre de Dios to coordinate with this

initiative since it is projected to be a management instrument that would serve as a guideline for the initiatives implemented in the three government levels.

10. **Multi-annual sector strategic plan of the agricultural sector (PESEM, 2015-2024)**: This is a strategic management tool that guides interventions in the agricultural sector for the period 2015-2021 expanded until 2024. This plan is boosted and executed by the agricultural sector and comprised of six documents: MIDAGRI and its five affiliated public bodies, the National Forestry and Forest Fauna Service (SERFOR), the National Water Authority (ANA), the National Service for Agricultural Health (SENASA), the National Institution for Agricultural Innovation (INIA) and Sierra y Selva Exportadora (Mountain and Jungle Exporting). The document exposes two strategic objectives. The first "to manage the natural resources and the biological diversity which competes with the agricultural sector in a sustainable manner". It proposes nine (09) strategic actions linked to the management of water resources for agricultural purposes, land-use purposes, sustainable management of forest and fauna resources, disaster risk management and adaptation and mitigation to fight climate change, among others, that are directly and indirectly linked to all the actions of the Madre de Dios pathway, since they establish the enabling conditions for its implementation. The second strategic objective, "Increase agricultural competitiveness and market insertion, with an emphasis on the small agricultural producer". Its thirteen (13) strategic actions revolve around the coordination, genetic improvement, access to agricultural technology, agricultural and irrigation infrastructure, agricultural sanitation, diversification, sanitation, access to financial services, associativity, and involvement of the private sector, among the most relevant. All the actions that establish the development sphere of the agricultural activity. Also, to date, the last evaluation of the execution of the plan until 2019⁵ is available, where the progress is registered, in some cases even by region.

11. **Implementation of strategic checkpoints at a national level**. Within the framework of Supreme Decree (S.D.) No. 009-2013-MINAGRI, National Forestry and Wildlife Policy No. 1319 Measures to promote the commercialization of forest and wildlife products of legal

⁵ <https://www.minagri.gob.pe/portal/download/pdf/pcm/2020/evaluacion2019-pesem-2015-2024.pdf>

origin⁶. In a context where going through a checkpoint is not mandatory and these are scarce and do not provide adequate service, checkpoints provide surveillance and control of the forests, mainly for transportation, traceability, and implementation of the national system of forest and wildlife information (SNIFFS), promoting fair competition, improving state intervention, among other aspects. The S.D. is currently in the process of being approved and will establish the general provisions, criteria for its establishment and identification of the subjects in need of mandatory control. They will be implemented when the S.D. is approved, approximately in 2022, and will be in charge of SERFOR, who will continue with supervision, while the jurisdiction of its administration will be the regional authority. This effort comprises:

- Protocol for forest timber control in land transportation: Document that establishes rules to standardize the execution of actions for controlling forest timber products and/or sub products by land transport, through checkpoints at a national level. Pre-published in 2020. During 2021, the contributions, observations have been rectified and a final version should be approved in the first trimester. It would allow all authorities that have jurisdiction in the matter of forest transportation control to develop control actions following this protocol at a national level.
- Control gap indicator design in the timber productive chain and control service levels. A gap indicator is in the process of being designed in relation to the number of offices dedicated to control and monitoring at a national level and how many are adequately implemented. Two control unit types were identified. 1) Checkpoints (operations in the forest, evaluation of management plans, satellite monitoring and others) and 2) Control sites in the forest and transformation (Revision of Forest transportation guides-GTF, verification of products, registration in SNIFFS control modules and others) and the service levels and quality standards for every service they provide. This indicator will allow the national and regional authority to be able to develop public investment projects (PIP) for the implementation of projects and control units to be able to ensure control throughout the timber production chain. The need for 107 checkpoints has been identified at a national level and in Madre de Dios the eight control units have been identified as non-compliant with the minimum service level.

6

<https://busquedas.elperuano.pe/normaslegales/decreto-legislativo-que-establece-medidas-para-promover-el-c-decreto-legislativo-n-1319-1470542-1/>

12. **SNIFFS control module**: Was previously prioritized through L.D. No. 1220, in the framework of the Supreme Decree (S.D.) No. 009-2013-MINAGRI, the National Forestry and Wildlife Policy and the Decree, later prioritized as part of the National System on Forest and Forest Fauna Information (SNIFFS) through the L.D. No.1319 Measures to promote the commercialization of forest and wildlife products of legal origin. Currently, SERFOR is carrying out a conceptual note of the SNIFFS Control Module with the scope, structure, and processes that guarantee its operation. The control module is part of the SNIFFS coordination network and interacts with the rest of the modules and components. It is a sustainable management tool that provides information and sanctions for forests and wildlife issues at a national level. This tool is basic for control and monitoring, and especially important for the success of the AFOLU1, 4, 5, 6, 7, 8, 9, 10 and 11 actions, since it is a traceability mechanism and provides access to timely information for decision-making, as well as offering transparency for users.

13. **Budgetary program 130 – Competitiveness and sustainable use of forest and wildlife resources (Redesign)**²: This budgetary program seeks to generate conditions that favor competitiveness and sustainability of activities to use forest and wildlife resources. This has been implemented considering 5 products that promote the following for forest producers and managers in regard to forest and wildlife resources: 1) Access to information about the sustainable management of resources, 2) Recovered forest areas that have proper forest and wildlife management 3) Access to efficient traceability, 4) Access to services for the connection to markets 5) Training and sensitization in the efficient management of these resources. Additionally, for the redesign and approved program, product 6, Forests with effective control and monitoring, has been added. The activities and services considered by this product seek to reduce illegal practices (mainly in the timber origin phase), promoting legality, competitiveness, and sustainability. It comprises activities such as: remote monitoring, satellite monitoring, fly overs, previous visual inspections, management plans, Osinfor supervision, operations, transportation control (through checkpoints and patrolling). These activities are already approved by the MEF and will allow the regional authorities to be able to develop budgets considering these services, they will also be able to identify their own gaps to propose additional demands. Madre de Dios is one of the regions where the control and

²<https://cdn.www.gob.pe/uploads/document/file/1534983/Programa%20Presupuestal%200130%3A%20Bosques%20con%20control%20y%20vigilancia%20efectivos.pdf>

monitoring services are prioritized because it possesses forest for the production of timber and vegetable charcoal. This is especially important for alignment with the AFOLU1, 4, 5, 6, 7, 8, 9, 10 and 11 actions.

14. **KFW Program – Program for the sustainable promotion and management of forestry**

production⁸: Executed with German cooperation. It has a viable investment cost and approved for S 38,791,531.00 for an execution time of 5 years, until 2025. It tackles the issue of forest promotion, competitiveness, and financing for forest activities, in plantations and in forests. Its main beneficiaries are the actors related to the management and use of natural forests and plantations (regional and local inhabitants, indigenous communities, small extractors, concessionaires, private sector, among others). It consists of three projects:

- Improvement and expansion of sustainable forest production in natural forests in 5 Departments. In Madre de Dios, it is carried out in the Tahuamanu and Tambopata provinces. Its intervention is specifically within forest concessions, with potential alignment with AFOLU11 action.
- Improvement in the promotion of commercial forest plantations for productive forest development in 7 departments. In Madre de Dios, in the Tahuamanu province, with potential alignment with AFOLU1, 5, 7 and 11 actions.
- Improvement and expansion of regulation of forest assets in 9 departments. In Madre de Dios, implemented in the Tambopota, Tahuamanu, and Manú provinces. Alignment potential with AFOLU1, 4, 5, 6, 7, 11 actions.

15. **PIP 03: Improvement of support services for the conservation of biodiversity in the**

forest landscape of the Puerto Maldonado – Iñapari corridor and the Amarakaeri communal reserve in the Madre de Dios department⁹. This project is part of the Forest Investment Program (FIP-Peru). Which is comprised of four (04) projects for a total of \$50 million, one at the national level and three are pilot interventions that address deforestation and degradation in the regions of Ucayali, San Martin, Loreto, and Madre de Dios (PIP 03).

⁸ Investment bank code: 2332872. Projects codes: 2455355, 2454392, 2452861.

⁹ https://drive.google.com/drive/folders/1ILPGIG_y91HarufVGyqbne6lrVvjkVE4

The project is located in two spheres of influence in Madre de Dios: 1) Puerto Maldonado – Iñapari corridor (districts of the Tahuamanu province and the district of Las Piedras in the Tambopata province); and 2) AmaraKaeri communal reserve (jurisdiction of the districts of Madre de Dios, Huepetuhe, Manú and Fitzcarrald in Manú province). This project directly benefits the native communities (CCNN) and small forest users and expects to cover 410,250 hectares with usage support services, a contribution of 0.72% to the current gap.

The project is comprised of two components, one for the institutional strengthening of conservation of the forest landscape which contains activities for improving the allocation of use rights and the improvement of managing tools in spaces with public participation, monitoring, and control systems. The other component promotes the use of the forest and ecosystem services, through a follow-up system of sustainable business ideas and business plans (timber, non-timber, agroforestry, ecotourism), providing capabilities and tools to get them started. This initiative is very important for the region because it involves a significant investment for the conservation of the forest. It also has an alignment potential with the action involving CCNN, AFOLU1, and AFOLU4, 5, 7 and 11 actions.

Main recommendations and key observations

- ✓ Fifteen national initiatives have been identified with the potential to coordinate and collaborate at a regional level. These come from MINAM, MIDAGRI, SERFOR, SERNANP and some others are interregional initiatives with support at a national level and cooperation as is the case of low-emission rural development regional strategies.
- ✓ The region has national initiatives that stand out due to their investment level and alignment potential with the majority of the pathway actions. This is the case of ERDRBE, PESEM Agrario, SERFOR checkpoints and monitoring points, SNIFFS control module, Budgetary program 0130, KfW program and PIP 03.
- ✓ In general, the level of emissions generated by the AFOLUsector is proven and part of public knowledge, being addressed from different fronts as the major deforestation driver at a national level. This is why many of the initiatives find common ground with the actions. Those that don't have many linked initiatives is

due to the fact that they have been mapped out but have not been prioritized or launched.

- ✓ Some of the initiatives or policies with great collaboration potential with the implementation of the pathway are in stand-by, such as the National reforestation plan, that due to the lack of certain modifications in its implementation, has been stalled, even though it has a very promising plan. This is an opportunity so that from a regional level, its activation can be driven to make use of the strategies and resources that this initiative implies.
- ✓ The national agencies are inclined to support the implementation of the pathway actions, even without initiatives that can be aligned now, but are interested in launching them because many activities are not of exclusive interest to the region but reflect the reality of other jurisdictions.
- ✓ There are advances at a national level, pilots that provide relevant information for some of the pathway actions, but the lack of effective communication with the regional government causes this information and experience to be lost

Table No. 02. Alignment matrix of the Pathway Actions with the National Policies/Initiatives

National Policies / Initiatives	Strategic actions of the AFOLU sector (2022 - 2050)											
	AFOLU1	AFOLU2	AFOLU3	AFOLU4	AFOLU5	AFOLU6	AFOLU7	AFOLU8	AFOLU9	AFOLU10	AFOLU11	
1 ERDRBE	<p>Native Community Territories</p> <p>*Titling and geo-referencing of 11 communities.</p> <p>*Technical assistance for agroforestry management.</p> <p>*Bio-businesses promotion</p> <p>*Strengthening of capabilities</p> <p>*Market opening.</p> <p>*Financial incentives and others.</p>	<p>Clean agricultural land.</p> <p>Private agricultural plots with fish farming.</p> <p>*Titling.</p> <p>*Technical assistance with a focus on emissions.</p> <p>*Management, recovery and conservation of degraded soil.</p> <p>*Financing</p> <p>*Fertigation and others.</p>	<p>Private lands for milk and meat farming</p> <p>*Granting of rights over the land.</p> <p>*Technical assistance</p> <p>*Management, recovery, and land conservation.</p> <p>* Sustainable associative models.</p> <p>* Genetic improvement and others.</p>				<p>Private conservation areas (PCA) Señor de la Cumbre Local forest .</p> <p>*Control and monitoring</p> <p>*Strengthening of the Regional System of Protected natural areas.</p> <p>*Promote conservation agreements</p> <p>*Prioritize land registry and rectification, among others.</p>	<p>Family agricultural plots</p> <p>*Allocation of titles</p> <p>*Promotion and development of seed suppliers.</p> <p>*Financing</p> <p>*Promotion and access to MERESE (Mechanisms of Retribution for Ecosystem Services)</p> <p>*Promotion of organic certifications, access to new markets.</p> <p>*Associativity and others.</p>		<p>* PCA- Strengthening of reaction capacities against forest fires due to land burning.</p> <p>*Clean agriculture - Restoration of areas due to mining activity.</p>		<p>Logging forest concessions.</p> <p>*Exclusion and compensation of concessions at the request of the concessionaire.</p> <p>*Financial incentives</p> <p>*Mechanisms for debt payment</p> <p>*Industrial park</p> <p>*Monitoring and control and others.</p>

2	National reforestation plan (2005-2024)					<ul style="list-style-type: none"> *Competitive positioning. *Private sector involvement - Use of advanced technologies - Associativity. - Investment fund - Voluntary forest certification and others. 			<ul style="list-style-type: none"> *Enabling conditions such as prevention and control of forest fires. 			
3	Coalition for Sustainable Production			Promoter of the elaboration of Sustainable farming guidelines.								
4	Guidelines for Sustainable Farming development - Madre de Dios			<ul style="list-style-type: none"> *Improvement in land and natural resources management *Increase production, efficient use of technology and innovation 								

5	Silvopastoral systems implemented by Midagri 2019 -2020			<ul style="list-style-type: none"> *Baseline in Tahuamanu and Tambopata *Agrology and soil fertility analysis and diagnosis *Characterization of the bovine meat market *Serological diagnosis of reproductive illnesses. 								
6	Investment project, enhancing capacities in bovine animals			<ul style="list-style-type: none"> *Trainings and Technical assistance concerning the soil use. *Technological support *Management and market capacities. 								
7	Peru's Natural heritage	*Enabling conditions for the conservation, management and control of parks and communal reserves.					*Implementation of enabling conditions for PNA (protected natural areas), which benefit the PCA (private					

	*Economic mechanisms for sustainable management.					conservation areas) and nearby local forests, as well as the strengthening of the SERNANP (Peruvian Service for Natural Protected Areas) tools. *Development of financially sustainable management models in the PNA, with a replication potential in the PCA and local forest.					
8	Mapping of promotional initiatives for PCA of the SERNANP (National Service of Natural Areas Protected					*Seeks to promote the cooperation of PCA administrators and the national opportunities. *Promote advantages for the PCA.					

by the State)											
9	National Plan for the development of Cocoa-Chocolate 2020-2030						*Actions for strengthening the governance of the chain for its sustainable development. *Supported by a promotional group with public and private actors.				
10	Multi-Annual Strategic Plan for the agricultural sector (PESEM 2015-2021)	*Water resource management *Land-use planning *Flora and fauna management *Native species management and conservation *Reevaluation of ancestral knowledge *Management of disasters and climate change. *Governance strengthening	*Irrigation systems and adequate practices. *Water rights formalization. *Agricultural sanitation *Certified surface of organic crops *Management of disasters and measures to fight climate change. *Governance strengthening. *Services, infrastructure, technology and	*Services and technology. *Financial services *Agricultural sanitation *Soil conservation *Water rights formalization. *Agrodiversity, forest ecosystems, genetic resources and intellectual property. *Management of disasters and measures to fight climate change. *Support for value chains *Better services, technology and promotion.	*Agrodiversity, forest ecosystems, genetic resources and intellectual property. *Management of disasters and measures to fight climate change. *Support for value chains *Better services, technology and promotion.	*Soil conservation and recovery *Sustainable management of forest resources *Protection of forest ecosystems *Management of disasters and measures to fight climate change.	*Soil conservation and recovery *Sustainable management of forest resources *Management and conservation of native species. *Protect forest ecosystems *Management of disasters and measures to fight climate change.	*Water resource management. *Soil conservation and recovery of degraded soils *Protection of agrodiversity and genetic resources. *Management of disasters and measures to fight climate change.	*Governance strengthening of biodiversity. *Sustainable forest management *Development of integrated information systems. *Disaster and adverse events risk management. *Adaptation and mitigation to risk	*Governance strengthening of biodiversity. *Development of integrated information systems. *Sustainable forest resources management. *Disaster and adverse events risk management. *Adaptation and mitigation	*Governance strengthening of biodiversity. *Development of integrated information systems. *Sustainable forest resources management. *Disaster and adverse events risk management. *Adaptation and mitigation to fight climate change.

		management *Efficient traceability *Connection to markets *Training and sensitization in efficient management *Control and monitoring			forest management *Efficient traceability *Connection to markets *Training and sensitization in efficient management *Control and monitoring	forest management *Efficient traceability *Connection to markets *Training and sensitization in efficient management *Control and monitoring	management *Efficient traceability *Connection to markets *Training and sensitization in efficient management *Control and monitoring	forest management *Efficient traceability *Connection to markets *Training and sensitization in efficient management *Control and monitoring	forest management *Efficient traceability *Connection to markets *Training and sensitization in efficient management *Control and monitoring	*Efficient traceability *Training and sensitization in efficient management *Control and monitoring	forest management *Efficient traceability *Connection to markets *Training and sensitization in efficient management *Control and monitoring	management *Efficient traceability *Connection to markets *Training and sensitization in efficient management *Control and monitoring
1 4	KFW Program	* Improvement of the surroundings for commercial plantations, optimization of production factors, technical capacities and management and access to financial resources. *Land-use planning			*Land-use planning	* Improvement of the surroundings for commercial plantations, optimization of production factors, technical capacities and management and access to financial resources. *Land-use planning	*Land-use planning	* Improvement of the surroundings for commercial plantations, optimization of production factors, technical capacities and management and access to financial resources. *Land-use planning				* Improvement of the surroundings for commercial plantations, optimization of production factors, technical capacities and management and access to financial resources. *Sustainable management and others.
1 5	PIP 03: Improvement of support	* Assignment of land use rights. * Conservation management tools			* Assignment of land use rights. * Conservation management	* Assignment of land use rights. * Conservation management		* Assignment of land use rights. * Conservation management				* Assignment of land use rights. * Conservation management tools

services for the conservation of biodiversity of the forest landscape in the Madre de Dios Department	(CAR, CAM, capabilities and monitoring of forests) * Strengthening of technical capabilities for sustainable businesses. * Promotion of sustainable businesses.			tools (CAR, CAM, capabilities and monitoring of forests) * Strengthening of technical capabilities for sustainable businesses. * Promotion of sustainable businesses.	tools (CAR, CAM, capabilities and monitoring of forests) * Strengthening of technical capabilities for sustainable businesses. * Promotion of sustainable businesses.		tools (CAR, CAM, capabilities and monitoring of forests) * Strengthening of technical capabilities for sustainable businesses. * Promotion of sustainable businesses.				(CAR, CAM, capabilities and monitoring of forests) * Strengthening of technical capabilities for sustainable businesses. * Promotion of sustainable businesses.
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MRV data exchange for the AFOLU sector

1. **GeoBosques:** Monitoring platform of the changes in forest coverage and early warnings of deforestation due to agricultural expansion, mining, and others, developed by the National Program for Forest Conservation and Climate Change Mitigation of the Ministry of Environment. The information is provided to the Monitoring module of forest coverage, under the coordination of the Ministry of Environment in collaboration with SERFOR, part of SNIFFS, and SINIA. This module is comprised of five submodules:
 - Deforestation (Forests and the loss of forests). Information on the number of remaining forests and the loss of forest coverage annually. This submodule feeds the remaining submodules.
 - Early warning. Indicates short term disturbances in the forests.
 - Degradation: daily data on degradation, commonly linked to selective logging.
 - Use and changes in soil use: Generates data every two years and contributes to the soil use sector, changes in the use of soil and silviculture (USCUSS) in GHG national inventories.
 - Reference levels: synchronizes the activity's historical data to measure performance of the country or jurisdiction, within the climate commitment framework.

GeoBosques technical team also offers training to public servants related to the issue. It is only necessary for GOREMAD to require it and offer openness for this kind of collaboration.

2. **Geoportal of SERFOR - GEOSERFOR spacial data infrastructure¹⁰:** This platform offers resources and services based on spatial forest and wildlife geographic information. The forest land registry mandates compliance for granting rights, it incorporates cartographic and documentary information from the forest zoning categories, forest management units, enabling titles and others.

¹⁰ <https://geo.serfor.gob.pe/geoserfor/>

3. **National environmental information systems – SINIA¹¹**. Public web portal that provides statistic environmental information, documentary bibliographic environmental information, legislative documentary environmental information and geospacial environmental information. This information can be found for each region, and contains indicators of general population, surface, population density, and populated centers. In addition to indicators for different environmental statistical categories: water, air and atmosphere, climate change, climate and natural events, responsible consumption and sustainable production, environmental economy and bio business, risk and disaster management, management and enforcement and public environmental participation, waste, environmental health, and soil and land.

Additionally, it is possible to access georeferenced interactive maps to obtain information about projects or land use processes or conditioning of the land (Ecological-economic zoning); as well as national and international data to obtain information about environmental indicators, seismic and volcano activities, precipitation, among others.

4. **GeoServer¹²**: Technological platform with specialized geospatial information derived from permanent monitoring and evaluation of the territory and its natural resources. Thus, information about the areas with potential for sustainable development, safe areas and those with a disaster risk, warning against illegal mining and changes in land use can be accessed quickly.
5. **National Forest and Wildlife Information System - SNIFFS**: This is an information system that provides resources and services based on forest and wildlife information and is managed by SERFOR. It is comprised of six modules and four transversal components: Control module (in the process of being implemented) which will provide relevant information to promote the legality of the timber chain (AFOLU10 y 11); Inventory module (under construction) for the evaluation of natural resources and ecosystems; Monitoring of the forest coverage modules (implemented) through GeoBosques; Monitoring of Forest assets module (under construction) which will provide information for detecting actions that endanger forest assets, focused on action and decision-making. Zoning and satellite monitoring of impacts submodules

¹¹ <https://sinia.minam.gob.pe/>

¹² <https://geoservidor.minam.gob.pe/>

map the changes in non-authorized use, heat maps, forest fire warnings, scar analysis, modeling and impact of fragile ecosystems; Promotion and competitiveness module (starting) for the promotion of forest products and businesses; knowledge management module (starting) with assessments and follow-ups from the National Forest and Wildlife Policies, integrating information from all the modules.

The transversal components are: Statistical component (under construction), that will provide information services from the analysis of information records from GORE and Forest and wildlife technical management – ATFFS; Forest land registry component (under construction), information on the public registry of a technical-administrative nature based on GEOSERFOR information and other existent land registry information for overlapping; Normativity component (starting), information about resolutions from the Executive Department, Guidelines, Forestry Law, regulations and others; and a Capabilities component, which provides resources to strengthen the capabilities of people or institutions.

6. **Integrated agricultural statistics system. - SIEA¹³**. This MIDAGRI platform collects and consolidates statistical agricultural information, that allows coordinating strategic activities with other public entities, establishing alliances with the private sector and optimizing joint interventions. Currently, the SIEA provides information that was not in the public domain before and that comes from the data collected by the Regional Departments of Agriculture, also the platform allows making various analyses with the data available such as creating competitive indexes to make comparisons between localities, exchanging demographic information, and other features. Three further tools are added to this information for the data analysis about the agro-industry, organic crops and fertilizer and agrochemical costs (linked to the influence of oil prices and the dollar).

In addition to the 7 satellite tools already there, a tool prototype for the monthly monitoring of planting and harvests¹⁴ per district is being created. It will work with images from Planet, which allows for more detail and will allow recognition of areas with transitory crops, permanent crops, and fallow land. This will help particularly in decision-making for planning harvests and avoiding low profitability overproduction.

All of the tools are or will be public. A way to collaborate in the framework of this project would be during the implementation of the actions, for information to be provided about

¹³ <https://siea.midagri.gob.pe/portal/>

¹⁴ <https://rabcpochito2019.users.earthengine.app/view/planetagricolav3>

the delimitation of agricultural borders that is updated to 2018, thus there would be a better map for the area. Also, in regard to crops that are hard to monitor, such as cocoa or livestock, it is possible to collaborate on a project that takes advantage of the availability of free data in Planet (until 2022) for the Madre de Dios province and build maps that detect primary forest, secondary forest, agroforestry 1 and 2, grassland 1 (high grass) and 2 (overgrazed, presence of livestock). With this, monthly maps can be drawn and to see when there is forest deforestation as soon as it starts, similarly to the way in which GeoBosques does this but with 36 times more detail.

Main recommendations and key observations:

- ✓ The most important monitoring and vigilance portals are promoted by MINAM and MIDAGRI. These agencies coordinate the information between their platforms. The data stemming from the regions used to be in written format and the creation of public platforms with systematized information is recent, so many of these tools are still being completed or continuously improved to optimize the delivery of services.
- ✓ There currently is an opportunity to make use of the good quality satellite data (Planet provides images with more detail than GeoBosques, available for free until 2018) for crops which are hard to monitor, through the creation of projects that join forces with MIDAGRI, SERFOR or another agency, in the context of the implementation of the pathway actions.
- ✓ Openness and good communication are necessary at all levels of GOREMAD to generate more opportunities to share knowledge and statistical, spatial, and other types of data.
- ✓ From the technical teams managing the platforms and web portals, the delivery of training and monitoring services should be provided in order to have better prepared personnel in the region that can take advantage of all the resources and establish a monitoring system for the pathway.

Financing opportunities

1. **Green Climate Fund (GCF)**: Madre de Dios participated in the development of the country program before the GCF. This fund allows for the development of adaptation and mitigation initiatives in the face of climate change for compliance of the NDC. The allotment of these funds is carried out through entities accredited by the UNFCCC, and PROFONANPE is the only accredited entity in Latin America. The GCF is a big opportunity particularly for the indigenous communities, since they currently have an important role as observers in the annual meetings. The Interethnic Association for the Development of of Peruvian Jungle (Aidesep) is currently recognized as an observer and representative of the indigenous peoples of the country.
2. **Directorate of Agricultural Insurance Financing - (DIFESA)**¹⁵: Organic unit dependent upon the General Agricultural Department of the Ministry of Agriculture and technical secretariat of the Board of Directors of the Guarantee Fund for rural areas and Agricultural Insurance - (FOGASA). Together with Serfor, they are working on funding for the management of agroforestry systems.
3. **Agrobanco**: Through joint work, Agrobanco and other national entities are designing financial products for specific activities, primarily those that have an impact on the environment. For example, together with MIDAGRI, they are designing a line of credit that promotes these systems. Until now, MIDAGRI has stated that the line would be S/ 10,000,000 (soles), with an 8% interest rate and lines of up to S/ 60,000. Following-up and supporting these kinds of financial products can be crucial for obtaining results for the action on sustainable livestock farming in the region¹⁶.
4. **Trusts for regional governments**. The trust has legislation in force and know-how already developed from the local public and private financial institutions. This is an alternative to obtain financing for investment projects, from public and private sources. This will allow addressing social and infrastructural needs in the short term. The Government of San Martín already has had a favorable experience.

Lessons learned and recommendations

¹⁵<https://www.midagri.gob.pe/portal/download/pdf/marcolegal/normaslegales/resolucionesministeriales/2017/junio/rm237-2017-minagri.pdf>

¹⁶ <https://www.agrobanco.com.pe/wp-content/uploads/2017/11/AGROBANCO-En-camino-hacia-un-banco-verde.pdf>

Lessons Learned

- ✓ There are various initiatives that involve the national, regional, and civil society levels, but that are not known to all the regional offices. Thus, opportunities to work together can be missed.
- ✓ The national level carries out interventions with important technical contributions and documents of relevant data and analysis for the implementation of sustainable models. However, this valuable information is lost when transferred to a regional level, due to the document load or deficiencies in communication between the national and regional levels.
- ✓ There are offices at a national level that, despite not having activities to support an action as part of their tasks, do have the initiative to work on them. This support can be formalized with due coordination and follow-up.
 - This is the case of the National Service for Protected Natural Areas for the State (Sernanp), whose responsibilities do not extend beyond the recognition and supervision of the Private Areas of Conservation but would also like to create better conditions for them.
- ✓ Much of the information on the impact of emissions from some prioritized actions is derived from the empirical knowledge of the actors but doesn't have the support of studies or data to back it up. This is the case with illegal logging, sustainable forest management, and forest concessions, even at a national level.
- ✓ Actions were identified (AFOLU10 and AFOLU11) that are very important for the Madre de Dios region, which must be approached as part of its pathway, but that to date do not have information that allows for an emission and cost impact analysis. This fact emphasizes the need in the region to direct efforts for obtaining relevant data that allows for quantifying the real impact of these actions.

Recommendations

The Climate Pathway Project has ended in terms of its current provision of technical support. However, the Regional Government of Madre de Dios (GOREMAD) still has as pending tasks the appropriation, transmission, resource mobilization, and implementation of the actions for the developed pathway. The following is recommended for this:

- Given that the projected GHG emissions for 2050 have not yet reached the level necessary to achieve the region's reductions goal, there is the opportunity to collect necessary data in regards to both un-evaluated actions in order to add them to the pathway projection. At the same time, it is possible to add further catalogue actions to the pathway and also to increase the proposed scale of various actions.
- Mastering the content of the technical reports from the project and developing communication materials in order to spread this information among key actors, institutions at a national level, potential financiers, and others.
- Encouraging the coordination of projects, plans, and programs that have been identified in this document and maintaining constant openness and mapping of incentives that add to the pathway's implementation.
- Creating sector groups to design the implementation of the main measures, with the help of an implementation schedule, making use of the initiatives that already have these spaces established, such as is the case for the livestock action.
- In view with the above, promote access to training and assistance available from a national level to obtain the abilities and capabilities necessary to implement the main actions according to the implementation schedule.
- Generate a training/mentoring program so that the GOREMAD technical teams can internalize these actions to incorporate them into public policy, searching for opportunities to drive them forward from their main work remits.



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