



AGROFORESTRY MONITORING, REPORTING AND VERIFICATION (MRV) PROPOSAL: ITS CONTRIBUTION TO COMMUNAL FOREST MANAGEMENT (CFM)

PROJECT:

Mitigation of climate change with inclusive agroforestry sustainable businesses that contribute to the development of "Good Living" of indigenous communities in the Peruvian Amazon

Presentation

One of the results of the project “Climate change mitigation with agroforestry inclusive sustainable businesses that contribute to the development of indigenous peoples "Buen Vivir" in the Peruvian Amazon, is to have an indigenous agroforestry monitoring, reporting and verification (MRV) system, implemented in Ucayali, to promote good agroforestry practices and sustainable land management, with the purpose of integrating the traceability of agroforestry products with the monitoring of communal forests, under a holistic approach directly related to the Amazonian indigenous cosmivision. This tool, which allows quantifying the positive impacts on climate, biodiversity and land restoration, contributes to achieve sustainable and low-carbon agroforestry production, so that native communities have higher incomes, generating evidence of the positive impacts of agroforestry, access to more attractive markets and ensuring their livelihoods, under the concept of "Buen Vivir", which means coexistence in harmony with nature and people.

This result, which is a start for the permanent application of agroforestry MRV, has been achieved thanks to the support of the United Kingdom, through the UK PACT, which financed the project, and the participation of the native communities of Curiaca, Pueblo Nuevo, Roya, Flor de Ucayali and Sinchi Roca with whom we worked and who have been carrying out agroforestry businesses. These communities are also participating in the Forestry Alliance Project, also executed by AIDER, with financing from USAID and the company Althelia Mirova.

This MRV system also contributes to the implementation of the Communal Forest Management (CFM) proposal that has been co-created by native communities of the Ucayali region and AIDER, based on their experience in implementing Communal Forest Management since the year 2000.

This publication is intended to make known AIDER's progress in the design and implementation of the agroforestry MRV system developed by the project, within the framework of Communal Forest Management (CFM); it also serves as a resource for training and spreading information on the subject, aimed mainly at authorities and members of the forest monitoring and control committees and business organizations of native communities that carry out agroforestry businesses to implement the activities of the MRV system and integrate them into their community governance mechanisms, promoting that native communities adopt good practices in agroforestry and sustainable land management, which will contribute to the reduction of emissions.

Agroforestry Monitoring, Reporting and Verification (MRV) Proposal: its contribution to Communal Forest Management (CFM)

Editing and photography: AIDER

Legal Deposit made at the National Library of Peru N° 2023-00751

December 2022

Design, Layout and Printing

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Contents

Executive Overview	9
Introduction	11
I. Conceptual description of MRV	13
II. Agroforestry MRV proposal	16
2.1 Agroforestry MRV approach	17
2.2 Methodological design of agroforestry MRV	18
2.2.1 Agroforestry MRV elements	18
2.2.2 Description of the elements of agroforestry MRV	19
2.2.2.1 Monitoring	19
2.2.2.2 Reporting	20
2.2.2.3 Verification	26
III. Application for remote monitoring of land use change with the deforestation early warning system	27
IV. Responsibilities for the implementation of agroforestry MRV	30
V. Process followed by AIDER for the implementation of agroforestry MRV in the CFM in five native communities	31
Annex: Monitoring, Reporting and Verification Tool (MRV)	35

Index of Charts

Chart 1.	Variable, monitoring and reporting of the community component	21
Chart 2.	Variable, monitoring and reporting of the sustainability certifications component	22
Chart 3.	Variable, monitoring and reporting of the carbon component	23
Chart 4.	Variable, monitoring and reporting of the land component	23
Chart 5.	Variable, monitoring and reporting of the water component	24
Chart 6.	Variable, monitoring and reporting of the biodiversity component	24
Chart 7.	Variable, monitoring and reporting of the productive system component	25
Chart 8.	Variable, monitoring and reporting of the products component	25

Index of figures

Figure 1.	Location of the native communities participating in the process of elaboration of the agroforestry MRV proposal	15
Figure 2.	Outline of the elements of indigenous agroforestry MRV	18
Figure 3.	Identification ring of monitoring elements in the MRV	20
Figure 4.	MRV's land use change reporting process	20
Figure 5.	Deforestation early warning system implementation process	28
Figure 6.	KoBo manual	29
Figure 7.	Monitoring roles and responsibilities	30
Figure 8.	MRV implementation in five native communities	31
Figure 9.	Photographic images showing the implementation of MRV in the Roya Native Community and mobile with the application	32
Figure 10.	Photographic images showing the implementation of MRV in the native communities of Pueblo Nuevo (left) and Sinchi Roca (right)	33
Figure 11.	Photographic images showing the implementation of MRV in the native communities of Curiaca (left) and Flor de Ucayali (right)	33

List of acronyms and abbreviations

AFOLU	:	Agriculture, Forestry, and Other Land Use
AIDER	:	Association for Research and integral Development (for its acronym in ESP)
RFWA	:	Regional Forest and Wildlife Authority
BAM	:	Bosques Amazónicos S.A.C. (for its acronym in ESP)
CCIPP	:	Chamber of Commerce of Indigenous Peoples of Peru
CCS	:	Community control and surveillance
FSC	:	Forest Stewardship Council
GHG	:	Greenhouse gases
IPCC	:	Intergovernmental Panel on Climate Change
CFM	:	Communal Forest Management
MRV	:	Monitoring, reporting and verification
NDC	:	Nationally determined contributions
PMP	:	Permanent monitoring plot
FP	:	Forest plantation
AFS	:	Agroforestry system
DEWS	:	Deforestation early warning system
UK	:	United Kingdom
UK PACT	:	Partnering for Accelerated Climate Transitions (Green Recovery Challenge Fund) Funded by the United Kingdom

Executive Overview

» AIDER signed an agreement with the United Kingdom (UK), through the Green Recovery Challenge Fund (PACT), for the execution of the project "Climate change mitigation with agroforestry inclusive sustainable businesses that contribute to the development of indigenous peoples "Buen Vivir" in the Peruvian Amazon", in alliance with the Chamber of Commerce of Indigenous Peoples of Peru (CCIPP) and the company Bosques Amazónicos S.A.C. (BAM), in the period of January - December 2022.

The project has developed a proposal for an indigenous agroforestry monitoring, reporting and verification (MRV) system with the purpose of integrating the traceability of timber, non-timber and agroforestry forest products with the monitoring of communal forests, under a holistic approach directly related to the Amazonian indigenous cosmovision, in order to effectively demonstrate the climate contributions of native communities, contributing to the national MRV, among other benefits; it also promotes good practices in agroforestry and sustainable land management, as well as in the quantification of positive impacts on climate, biodiversity and land restoration, making visible the "Good Indigenous Living" model, through a certification proposal; contributing to achieve a sustainable and lowcarbon agroforestry production.

This proposal considers aspects related to greenhouse gas (GHG) emissions, in addition to other elements related to good practices, traceability and certifications and has been designed for direct application by native communities. It is based on the participation, gender and interculturality approach, as well as on the traceability of timber and non-timber forest products, in compliance with forest certification under the Forest Stewardship Council (FSC) standard, the requirement of "Good Indigenous Living", the demands of low carbon emission activities and the generating of positive impacts on the conservation of communal forests.

The agroforestry MRV proposal, developed by AIDER as part of the project, is a set of guidelines, procedures, tools and actions that are coordinated with each other to monitor, report and verify the productive processes and impacts of agroforestry in native communities and is connected to the integrated management of land and communal forests. Pueblo Nuevo, Curiaca, Roya, Flor de Ucayali and Sinchi Roca are the native communities that participated in the elaboration.

The monitoring has eight components, whose relationship, with their respective measurement variables, are as follows:

- **Community:** Analysis of deforestation and economic benefits of MBC
- **Sustainability certifications:** FSC, " Good Indigenous Living" seal
- **Carbon** (in agroforestry systems and forestry plantations): Biomass
- **Land:** Use of land conservation practices
- **Water:** Use of water conservation practices
- **Biodiversity:** Biodiversity conservation
- **Productive System:** Yields, through permanent monitoring plots (PMP).
- **Agricultural and Forestry Products:** Harvest Products

Reporting is carried out according to the timeline established in the MRV; and in a systematized and orderly manner, depending on the subject matter to which it corresponds. The information generated is consolidated in a platform, allowing communities to have reports or evidence on the impacts of each component and improve their procedures to access markets that prioritize traceable products.

The verification, which is the process of independently verifying the accuracy and reliability of the information communicated through the reporting procedures used for its generation. Each component has its own means of verification.

The MRV prioritized the community and biodiversity components, having developed, for the monitoring of land use change (AFOLU) and the monitoring of conservation targets, the application for cell phones, using the early warning system for deforestation (DWS). The application is a digital tool that integrates remote monitoring, using satellite images, with community monitoring in the field.

To carry out the agroforestry MRV of a carbon sequestration project, the roles and responsibilities of each actor, such as MINAM, AIDER, community and community members (partners), are outlined.

The process followed by AIDER for the implementation of the agroforestry MRV, which was carried out with five native communities, includes theoretical and practical training for community leaders, members of the community control and surveillance committee (CCS) and agroforestry community producers, identifying monitoring activities and their respective reports, as well as training in the use of the KoBo application for deforestation monitoring through the patrols carried out by the community control and surveillance committee.

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MRV prioritized the community and biodiversity components, having developed, for land use change monitoring (AFOLU) and conservation target monitoring.

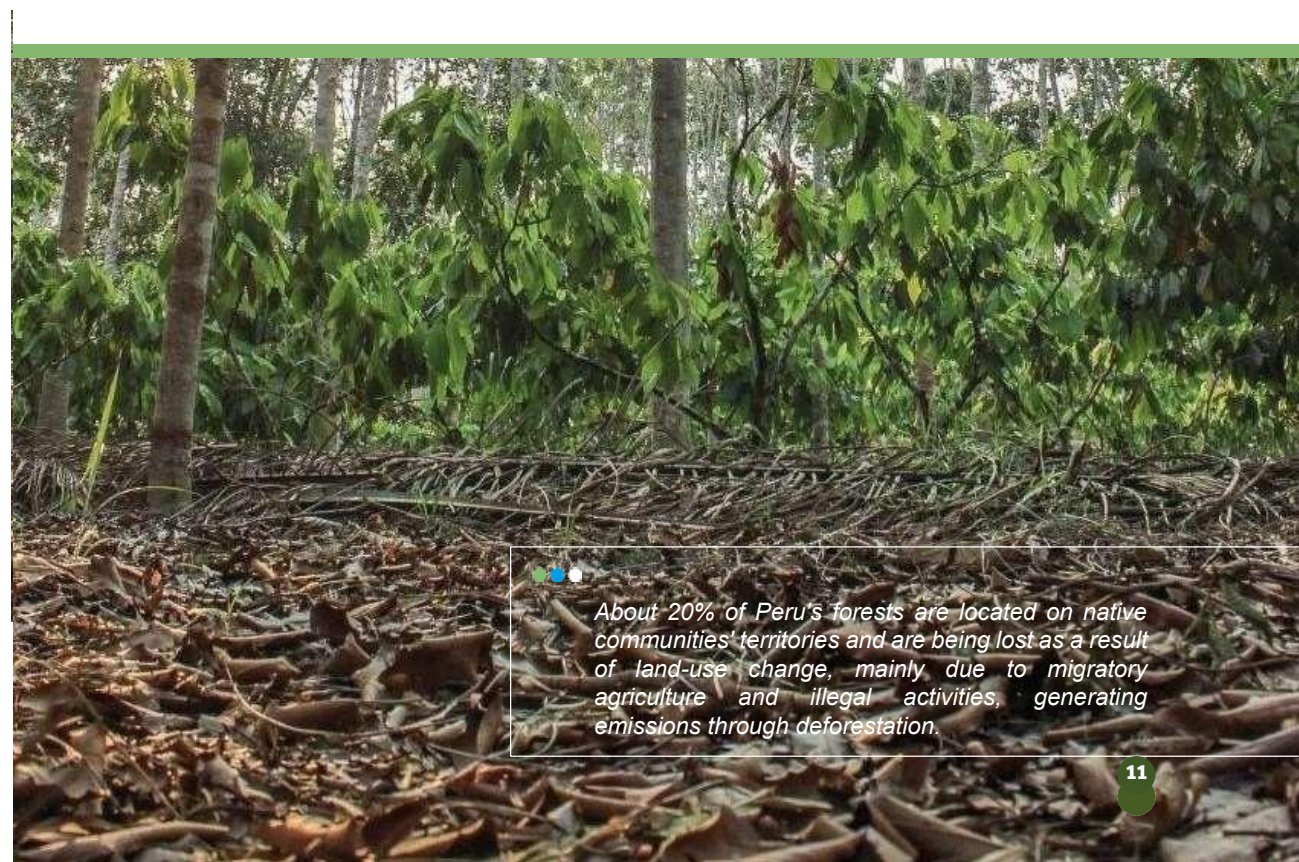
Introduction

» In Peru, the settlements of amazonian indigenous peoples are legally recognized under the name of native communities, being the owners of the lands they occupy and with exclusive use of the forests located in their territories.

About 20% of Peru's forests are located on native communities' territories and are being lost as a result of land-use change, mainly due to migratory agriculture and illegal activities, generating emissions through deforestation.

In this scenario, the indigenous communities that carry out agroforestry activities require a tool to help the sustainable management of their territory and communal forests, which will allow them to make better decisions to avoid deforestation.

AIDER signed an agreement with the United Kingdom (UK), through the Green Recovery Challenge Fund (PACT), for the execution of the project " Climate change mitigation with agroforestry inclusive sustainable businesses that contribute to the development of indigenous peoples "Buen Vivir"



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About 20% of Peru's forests are located on native communities' territories and are being lost as a result of land-use change, mainly due to migratory agriculture and illegal activities, generating emissions through deforestation.

in the Peruvian Amazon", in alliance with the Chamber of Commerce of Indigenous Peoples of Peru (CCIPP) and the company Bosques Amazónicos S.A.C. (BAM), for the period of January-December 2022. The project contributes to the implementation of the communal forest management (CFM) proposal promoted by AIDER.

Within the framework of the project, a proposal has been developed for an indigenous agroforestry monitoring, reporting and verification (MRV) system, with the purpose of integrating the traceability of timber, non-timber and agroforestry forest products with the monitoring of communal forests, under a holistic approach directly related to the Amazonian indigenous cosmovision, to effectively demonstrate the climate contributions of native communities, contributing to the national MRV, among other benefits. It also promotes good practices in agroforestry and sustainable land management, as well as the quantification of positive impacts on climate, biodiversity and land restoration, making visible the "Good Indigenous Living" model, through a certification proposal; contributing to achieve a sustainable and low-carbon agroforestry production.

The indigenous agroforestry MRV proposal has been designed for direct application by native communities, as part of the management practices of their communal territories, recognizing that the Ministry of Environment and regional governments are in the process of implementing MRV mechanisms as part of climate change management at the national and regional levels. **Although the indigenous agroforestry MRV not only considers aspects related to greenhouse gas (GHG) emissions, but also other elements related to good practices, traceability and certifications,** it is expected that this system will be aligned with the national MRV and that it can be fed back from its implementation process.

This document contextualizes the concept of MRV, describes the agroforestry MRV proposal, its methodological design, responsibilities and the process followed by AIDER for the implementation of this system in five native communities that have been developing Communal Forest Management (CFM).



AIDER signed an agreement with the United Kingdom (UK), through the Green Recovery Challenge Fund (PACT), for the execution of the project "Climate change mitigation with agroforestry inclusive sustainable businesses that contribute to the development of indigenous peoples "Buen Vivir"

I. Conceptual Description of MRV

- » MRV stands for monitoring, reporting and verification. It is a system that collects information from the field on the activities that are being performed to "be able to determine the changes in carbon stocks that exist in a given area and to follow up according to the established goals or objectives" (USAID, 2014).

Hereafter, the terms monitoring, measuring, reporting and verification are defined.

Monitoring

Continuous and systematic process by which the efficiency and effectiveness of a project is verified by identifying its achievements and weaknesses; and, in consequence, corrective measures are recommended to optimize the expected results of a project (Garcia, 2012). All monitoring requires measuring.

Measuring

Refers to the numerical value assigned to the elements being monitored. This measurement can be direct or indirect. Direct measurement can include both field and remote sensing measurements and can be complemented by the use of models that allow data comparison. Indirect measurement, as in the case of carbon, consists of estimating emission reductions, using equations based on data collected from monitoring (USAID, 2014).

Reporting

It is the presentation of information in a transparent, clear, disaggregated, comparable and periodic manner on the variables being monitored (Sanchez, 2014). According to UN-REDD (2013), reporting is the presentation of information in a transparent manner and in a standardized way. The information reported includes inputs related to forests, estimates of GHG emissions and removals, methodologies used to obtain this material, quality assurance and quality control, and uncertainty estimation, among others.

Verification

Evaluation procedure of data collection and allows determining the trustworthiness of the information obtained from the activities reported (Sanchez, 2014). Verification is the validation that the information presented is correct and truthful.

The Peruvian Framework Law on Climate Change, through its Regulation, makes reference to MRV related to greenhouse gas emissions, within the framework of climate change management, at the national level (MINAM, 2018). It defines measurement, reporting and verification (MRV) as the set of actions oriented to perform periodic monitoring, subject to technical verification, of information regarding: i) GHG emissions and removals; and, ii) reduction of emissions and increase of GHG removals; with the objective of strengthening national, regional and local action for compliance with the NDCs, accessing payments for results and other types of mechanisms under the cooperative approaches established in the Paris Agreement. The following definitions are considered:

- **Measurement:** consists of carrying out the periodic and systematic quantification of GHG management in the country, through the collection, analysis and estimation of GHG emissions and removals, as well as emission reductions and increases in GHG removals.
- **Reporting:** consists of systematizing, documenting and communicating to the corresponding authorities the information on measurements regarding the level of progress in the implementation of mitigation measures, through the mechanisms established by the national authority on Climate Change.
- **Verification:** consists of externally and independently evaluating the methodological consistency and veracity of the sources of information used in the elaboration of the reports, in accordance with the methodologies and protocols established by the United Nations Framework Convention on Climate Change and the procedures established by the national authority on climate change.

Article 37 outlines seven principles of MRV, in accordance with the guidelines established by the IPCC and the Paris Agreement:

- **Transparency:** the use of information and methodologies related to GHG management are communicated with clarity and relevance for decision making, ensuring a reasonable level of confidence.
- **Accuracy:** bias and uncertainty should be reduced to the extent possible and progressively.
- **Completeness:** all relevant source, sink and GHG categories should be considered.
- **Comparability:** GHG-related information is comparable at the national level and contributes to the international collective assessment.
- **Coherence:** The information reported is consistent with one another over time. To the extent possible, the same methodologies and sources of information should be used to calculate GHG emissions and removals.
- **Avoid Double Counting:** GHG emission reduction units, for net emissions balance purposes, can only be considered once.
- **Relevance:** sources, sinks, GHG reservoirs, data and methodologies should be selected appropriate to the needs of the intended user.

Article 49 of the Regulation states that the measurement, reporting and verification of GHG emissions, removals, reductions and increases in removals, at regional and local levels,

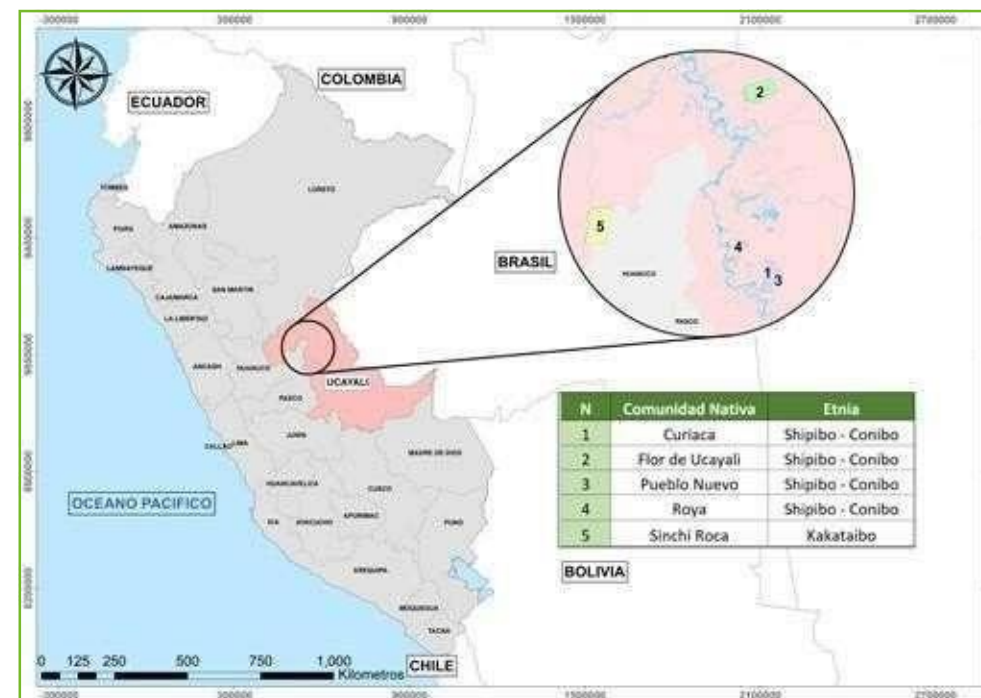
can be done on a voluntary manner, according to regional and local capacities and circumstances, and in accordance with the guidelines established by the IPCC and the guidelines approved by the national authority on climate change.

The agroforestry MRV proposal, developed by AIDER within the framework of the

project, is a set of guidelines, procedures, tools and actions, associated with each other, to monitor, report and verify the production processes and impacts of agroforestry in native communities that have been carrying out agroforestry businesses, whose location is shown in Figure 1. It is linked to the integrated management of land and communal forests.

Figure 1.

Location of the native communities participating in the process of elaboration of the agroforestry MRV proposal.



The agroforestry MRV proposal, developed by AIDER within the framework of the project, is a set of guidelines, procedures, tools and actions, associated with each other, to monitor, report and verify the production processes and impacts of agroforestry in native communities.

II. Agroforestry MRV proposal

» Due to the particular geographic, environmental and socio-cultural characteristics in which agroforestry systems are developed in native communities, as well as their direct relationship with communal forests, AIDER has developed a proposal for indigenous agroforestry MRV, with the purpose that, with the implementation of this set of actions, the communities are able to demonstrate the sustainable origin and traceability of their products, as well as quantify and value the contribution of this activity to carbon sequestration and climate change mitigation.



Indigenous agroforestry MRV is defined as a set of actions to demonstrate the sustainable origin and traceability of agricultural and forestry products from native communities, as well as to quantify and value the contribution of agroforestry to carbon sequestration and climate change mitigation.



Agroforestry plot, sector 27, Federico Basadre road (cocoa producers' internship, June, 2022).

2.1 Agroforestry MRV Approaches

The agroforestry MRV proposal is based on three approaches: participatory, gender and intercultural, which are described below:

a) Participatory approach

In order to achieve a full and effective participation of community members in the implementation of indigenous agroforestry MRV activities, it is necessary to carry out the following actions:

- **Training.** A capacity strengthening process is developed for the authorities, control and surveillance committee and productive committees of the native communities to implement the activities of the agroforestry MRV system and integrate them into their community governance mechanisms.
- **Dialogue facilitation.** Good communication between social actors (partners of the production committees, leaders and population) is promoted to improve transparency and foster greater trust and collaboration.
- **Sense of ownership by interested parties.** Through technical procedures, such as involving interested parties in the entire agroforestry MRV implementation process; or through increased engagement and empowerment of key stakeholders.

b) Gender approach

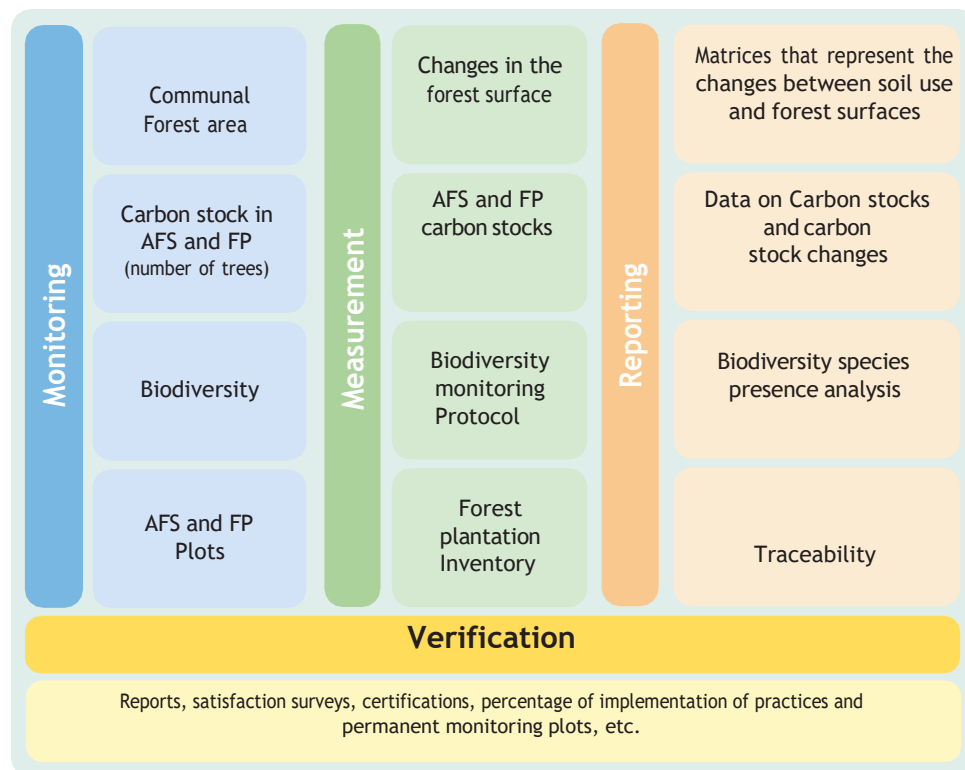
In terms of gender equity, in order to ensure that no negative impacts are generated in the training and organization activities for the MRV, there will be no segregation of men and women, but rather a joint call to reinforce gender equality and encourage the commitment of men and women to the activities in an equitable manner.

c) Interculturality approach

The indigenous agroforestry MRV has an approach of respect for the knowledge and rights of indigenous peoples.

Interculturality, in the practice of MRV and its contribution to Communal Forest Management, is a dynamic and permanent process of relationship, communication and learning between cultures. In this process, the exchange that is built between people is based on intercultural dialogue, which allows the recognition of different identities in a constructive and democratic manner, without prejudice or stereotypes and without paternalism nor victimhood.

Figure 2.
 Diagram of the elements of indigenous agroforestry MRV



2.2 Methodological design of agroforestry MRV

The indigenous agroforestry MRV proposal is based on the traceability of timber and non-timber forest products, compliance with forest certification under the Forest Stewardship Council (FSC) standard; requirement of "Good Indigenous Living"; requirements of low carbon emission activities and generating positive impacts on the conservation of communal forests.

2.2.1 Agroforestry MRV elements

The elements of the indigenous agroforestry MRV are presented in Figure 2.



Community farmers learning about the method of renewing cocoa plants in the agroforestry plot.

2.2.2 Description of the MRV elements

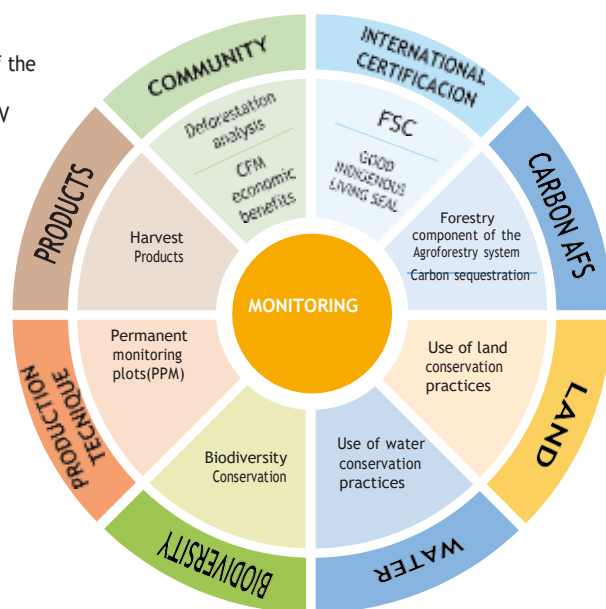
2.2.2.1 Monitoring

There are eight components to monitoring:

1. Community
2. Sustainability certifications
3. Carbon in agroforestry systems (AFS) and forest plantations (FP)
4. Land
5. Water
6. Biodiversity
7. Productive system
8. Agricultural and forestry products

The monitoring areas for each component can be visualized in the identification ring shown in Figure 3.

Figure 3.
 Identification ring of the elements to be monitored in the MRV



Each of the monitoring elements contains procedures and instruments to collect information to support the changes occurring in the community, which is why report formats are established, depending on the interventions carried out at the community level.

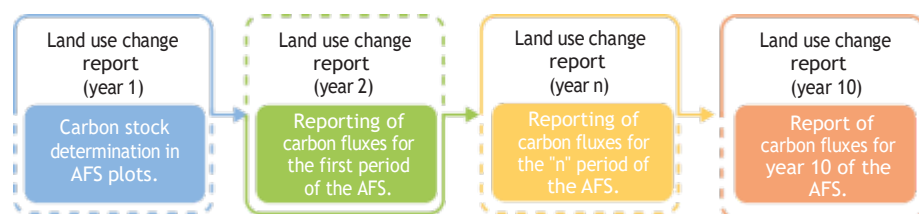
2.2.2.2 Reporting

The report is made according to the timeline established in the MRV, and in a systematized and organized manner, depending on the subject to which it corresponds.

To mention an example, as presented in Figure 4, the monitoring element is "land use change", the report is obtained from year 1 and, in turn, from the "AFS carbon" component which is reported through stock measurements, for each hectare of AFS, from year 1 to year 10.

The information generated is consolidated in a platform, allowing the communities to have reports or evidence on the impacts of each component and improve their processes to access markets that prioritize traceable products.

Figure 4.
 MRV's land use change reporting process



Reporting MRV components

» The MRV components are: community, sustainability certifications, carbon, soil, water, biodiversity, production system and products. Below is a description of each of these components with the respective monitoring and reporting elements that provide evidence of the activity being carried out.

a) Community

At the community component level, MRV is applied on two variables:

- Deforestation analysis
- Economic benefits of agroforestry

The deforestation analysis variable considers the monitoring of the reduction of emissions from deforestation using satellite images from the Early Deforestation Warning System (DEWS). The

expected result is the stabilization of the agricultural frontier and the greater availability of resources for community control and surveillance of indigenous lands.

The economic impact variable of the CFM is based on the agricultural and forestry product value chains to generate a source of green economic growth in their own communities. Table 1 presents the variable, monitoring and reporting of the community component.

Table 1.

Variable, monitoring and reporting of the community component

Variable	Monitoring	Reporting
Deforestation analysis	Change in land Use AFOLU	DEWS – AIDER: <ul style="list-style-type: none"> • Collection of information in near-real time (Satellite Image) • Deforestation alert generation • Recording of the quantification of the risk area • Maps with quantitative data of the affected area of the community • Land use change analysis
		Community - Implementation of the community vigilance committee: <ul style="list-style-type: none"> • Capacity strengthening • Monitoring Committee Formation Act • Community surveillance and monitoring plan • Deforestation occurrence assessment form • Patrol reports • Community agreements to prevent illegal anthropogenic activities in the community • Follow up of illegal settlement complaints
Economic benefits of CFM	Economic impact of the CFM in the native community	<ul style="list-style-type: none"> • Agroforestry management, forest plantations and natural forests plans • Record of agroforestry product sales, forest plantations

b) Sustainability certifications

MRV is linked to integrated land and Communal Forest Management, therefore it is necessary to demonstrate the traceability of agricultural and forestry products under the Forest Stewardship Council (FSC) standard and the criteria of the " Good Indigenous Living" seal, so that products

from native communities that conserve Amazonian forests are recognized under environmental and social standards. The variable, the monitoring elements and the reports considered for this component are presented in table 2.

Table 2.
 Variable, monitoring and reporting of sustainability certifications component

Variable	Monitoring	Reporting
Compliance with the recognized FSC standard: Forestry component of the agroforestry system	<ul style="list-style-type: none"> • Agroforestry, forestry plantations and natural forest management plans • Number of trees planted in AFS and FP 	<ul style="list-style-type: none"> • Clearly defined objectives of the agroforestry system, including conservation and restoration of the area • Communal act to grant land use permission for agroforestry, forest plantations and natural forests • Easement agreements for right-of-way for community members • Occupational health and safety training plan
"Good Indigenous Living" Seal	<ul style="list-style-type: none"> • Product traceability • Product legality • Use of the " Good Indigenous Living" seal on AFS products 	<ul style="list-style-type: none"> • Environmental impact assessment grid by community • "Good Indigenous Living" certification process: application, registration, payment, traceability system, etc. • Sales guide for products with the " Good Indigenous Living" / FSC seal

MRV is linked to integrated land and Communal Forest Management, therefore it is necessary to demonstrate the traceability of agricultural and forestry products.

c) Carbon

Forests, plantations and crops absorb carbon in their biomass and soils, helping to mitigate climate change.

communities, as well as through the participatory identification of activities to value carbon units. The variable, monitoring element and reports considered for this component are shown in Table 3.

This component allows estimating the carbon sequestration potential of agroforestry plots by collecting field information together with native

Table 3.
 Variable, monitoring and reporting of the carbon component

Variable	Monitoring	Reporting
Mitigation: Carbon sequestration	Carbon stock per hectare of production system	<ul style="list-style-type: none"> • Carbon stock calculation (t/ha) and change in carbon stock, using the FSC forest carbon calculation program for forest plantations • Other procedures for carbon calculation in REDD+ projects

d) Land

Objective knowledge of the evolution of soil structure, nutritional status and the biomass of soil macrofauna allows measuring the recovery of the degraded forest and to anticipate the management of

the various crops in the agroforestry system. The variable, the monitoring element and the reports considered for this component are shown in Table 4.

Table 4.
 Variable, monitoring and reporting of the soil component

Variable	Monitoring	Reporting
Management: Use of land conservation practices	Soil structure, fertility and biological activity	<ul style="list-style-type: none"> • Records of cultural work (pruning and mechanical cultivation) • Macrofauna records: insects, arthropods, earthworms, etc. • Training in good agricultural practices for soil conservation and handling of FSC-permissible products

e) Water

Agroforestry practices improve the quality and regulation of water in the soil. MRV implements the use of water conservation practices to achieve sustainable, low-

carbon agroforestry production. The variable, monitoring element and reporting considered for this component are shown in Table 5.

Table 5.
Variable, monitoring and reporting of the water component

Variable	Monitoring	Reporting
Management: Use of water conservation practices	Water Conservation	Inspection of the use of wells for organic and inorganic wastes and honey waters

f) Biodiversity

Agroforestry helps to create and enhance habitats to connect with the forest, improving ecological conditions for flora and fauna species, generating positive impacts on biodiversity and land

restoration. The variable, monitoring element and reports considered for this component are presented in Table 6.

Table 6.
Variable, monitoring and reporting of the biodiversity component

Variable	Monitoring	Reporting
Conservation: Biodiversity conservation	Flora and fauna conservation objects	<ul style="list-style-type: none"> Biodiversity monitoring protocol: data sheets, application, etc. Forest management plans

●●●
Agroforestry helps to create and enhance habitats to connect with the forest, improving ecological conditions for flora and fauna species.

g) Productive System

The permanent monitoring plots provide valuable quantitative and qualitative information during the establishment and management of agroforestry systems, generating indispensable information to evaluate and carry out more effective

strategies for the recovery of degraded lands that contribute sustainability to the CFM. The variable, monitoring elements and reports considered for this component are shown in Table 7.

Table 7.
Variable, monitoring and reporting of production system component

Variable	Monitoring	Reporting
Tree growth in AFS, FP and natural forests: Permanent Monitoring Plots (PMP)	<ul style="list-style-type: none"> Increased tree growth Biodiversity of production systems Capabilities development 	<ul style="list-style-type: none"> Growth record of production systems: AFS, FP and natural forests: in diameter, basal area and height Design of forest plantation, agroforestry and management plan for natural forests Growth evaluation of production systems Training record on agroforestry management, forest protection, etc.

h) Products

Through agroforestry, degraded lands can increase production, productivity and product diversity, contributing to improve the economy, health and nutrition of the population and, at the same time, providing a wide variety of environmental

services, such as forest recovery, soil fertility and conservation of local flora and fauna. The variable, monitoring element and reports considered for this component are shown in Table 8.

Table 8.
Variable, monitoring and reporting of the products component

Variable	Monitoring	Reporting
Production: Harvest products	<ul style="list-style-type: none"> Production of cocoa and other agricultural crops, and timber and non-timber products 	<ul style="list-style-type: none"> Automated record and database for control of agricultural and forestry crop production Volume of harvested products per period

2.2.2.3 Verification

Refers to the process of independently verifying the accuracy and reliability of the information reported through the reporting procedures used to generate the information.

Each component has its own means of verification. To mention an example, in the

verification of the community component, in its deforestation analysis variable for the monitoring of land use change, the report is made through satellite images and patrol cards realized by the community control and vigilance committee. The information reported in the deforestation alert maps is verified with the findings of the community patrols.

III. Application for remote monitoring of land use change with the deforestation early warning system

- » The application is a digital tool for the management of indigenous agroforestry MRV that integrates remote monitoring, through satellite images, and community monitoring in the field.

A mobile application was developed of the community component for monitoring deforestation, using the deforestation early warning system as an input for monitoring land use change (AFOLU) and monitoring conservation targets.



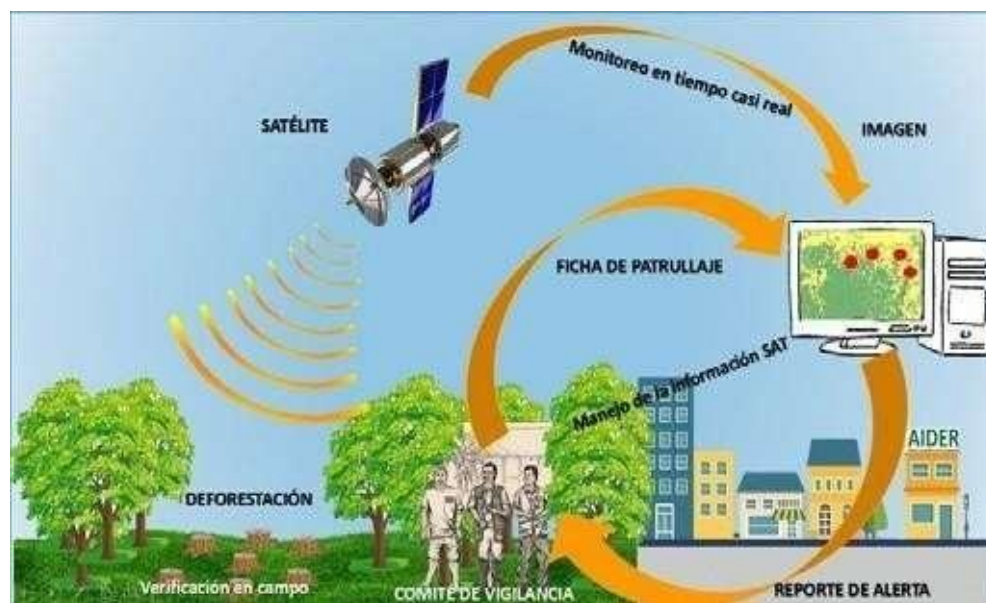
The early warning system for deforestation (DEWS) aims to reduce the time it takes to prepare the warning maps and generate reports with a greater approximation of deforested areas in native communities.

The operating cycle of remote monitoring of land use change with the Early Warning System for Deforestation (DEWS) is explained below.

The system uses information from the Sentinel 1 satellite, which captures the image every 12 days and after 6 days it is available on the Google Earth Engine platform. On the platform, conversions are made to obtain desirable values, radar

images are used to classify forest, non-forest and water bodies; in addition, it is compared with data from previous alerts, obtaining an alert map with the deforested areas (in hectares) and their respective coordinates. The information (maps) is delivered to AIDER's technical field team, who then provides this material to the surveillance committee coordinator and the community chief, according to the patrolling plan, whether ordinary or extraordinary, the community members organize themselves to carry out the field verification of the deforestation alerts. Figure 5 shows the DEWS implementation process.

Figure 5.
 Deforestation early warning system implementation process



The deforestation early warning system (DEWS) aims to reduce the time it takes to prepare the warning maps and generate reports with a greater approximation of deforested areas in native communities.

Once these processes have been completed, the surveillance committee informs its authorities and the population of the findings, and makes decisions on the matter in a community assembly.

With the purpose of creating an integrated MRV system, the Kobocollet application is used for monitoring and spacial reporting of control and surveillance activities in the communal forests. In its pilot phase, the Kobocollet platform generates records of patrol actions and the mapping of each of the routes, thus speeding up the analysis of deforestation and the measurement of

land use change, favoring quick and timely decision-making in order to prevent the threat of deforestation in the communal territory. Figure 6 shows the cover page of the Kobocollet application user manual. AIDER is recently launching a new application called Mergin Maps, which has advantages over Kobocollet in terms of real-time reporting of alerts, allowing information to be shared online and updated whenever required.

Figure 6.
 Kobo user manual

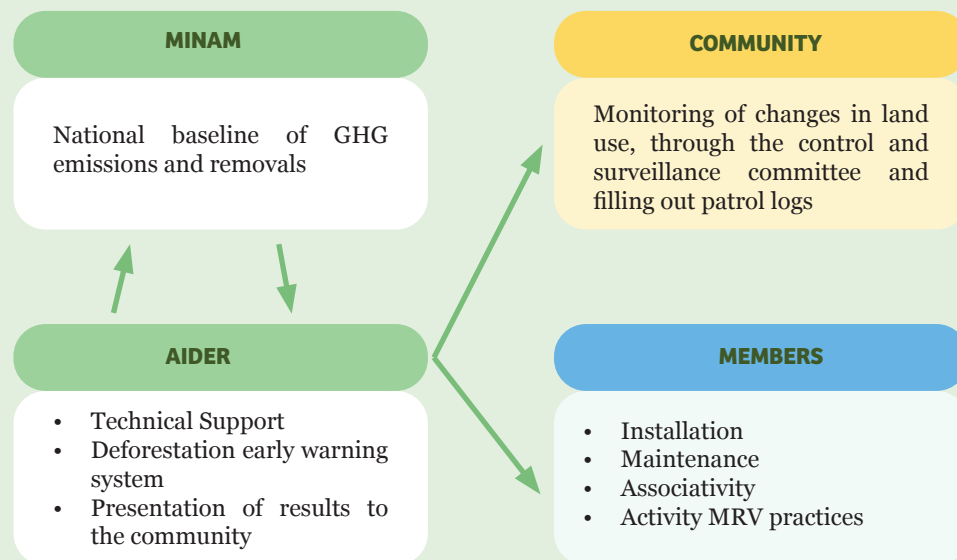


IV. Responsibilities for the implementation of agroforestry MRV

- » The implementation of the indigenous agroforestry MRV requires the consolidation of a team at the community level: members of the control and surveillance committee, members of the production committees of agroforestry systems and forest plantations.

Figure 7 shows the roles and responsibilities for monitoring a carbon sequestration project.

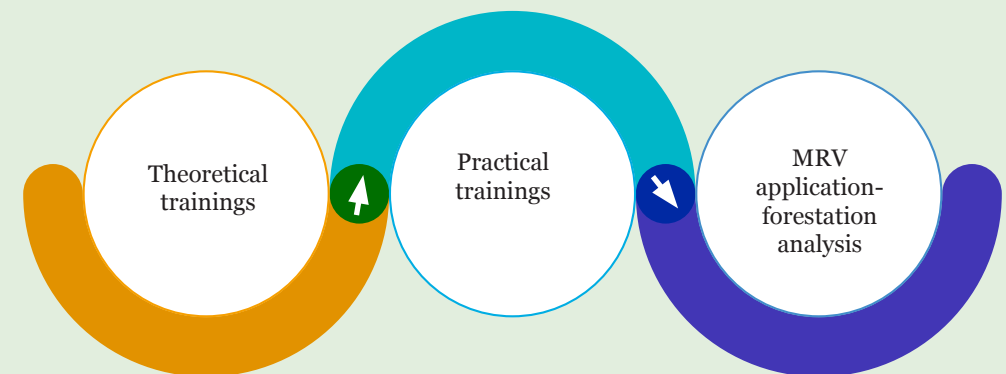
Figure 7.
Monitoring roles and responsibilities



V. Process followed by AIDER for the implementation of MRV in the CFM in five native communities

- » Through the participatory approach, the proposal for the indigenous agroforestry MRV guidelines was designed, which consists of three procedures, as shown in Figure 8.

Figure 8.
MRV implementation in five native communities



- **Theoretical trainings:** developed in the communities Flor de Ucayali, Roya, Curiaca, Pueblo Nuevo and Sinchi Roca, on the proposal and components of agroforestry MRV and its importance in the management of community activities.
- **Practical trainings:** aimed at community leaders, members of the committee and community surveillance and agroforestry community producers, identifying monitoring activities and their respective reports.

- **MRV Application:** training in the use of the Kobocollet application for deforestation monitoring, through community patrols carried out by the community control and surveillance committee.

Figures 9, 10 and 11 show photographic images of the trainings on MRV and the use of the application on the mobile device, carried out in the five native communities.



Figure 9.

Photographic images showing the implementation of MRV in the Roya Native Community and the mobile with the application



Figure 10.

Photographic images showing the implementation of MRV in the native communities of Pueblo Nuevo (left) and Sinchi Roca (right)



Figure 11.

Photographic images showing the implementation of MRV in the native communities of Curiaca (left) and Flor de Ucayali (right)



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Appendix: Monitoring, Reporting and Verification Tool (MRV)

Component	Variable	Monitoring Element	Reporting	Participants	Verification
Community	Deforestation Analysis	Change in land use -AFOLU	<p>DEWS - AIDER:</p> <ul style="list-style-type: none"> ● Almost real time data collection (satellite image) ● Deforestation alert generation ● Recording of the quantification of the risk area ● Maps with quantitative data of the affected area of the community ● Land use change analysis <p>Community - implementation of the community forest surveillance and control committee:</p> <ul style="list-style-type: none"> ● Strengthening of capabilities ● Monitoring Committee Formation Act ● Community surveillance and monitoring plan ● Deforestation occurrence assessment sheet ● Patrol reports ● Communal agreements to prevent illegal anthropic activities in the community - follow up on allegations of illegal occupancy 	<ul style="list-style-type: none"> ● CFM-AIDER ● Native Community ● CCS committee 	<ul style="list-style-type: none"> ● Satellite images and field sampling points to validate the information recorded, and reliability of the maps ● Quarterly reports of deforestation increments
			Economic benefits of CFM	Economic impact of CFM in the native community	<ul style="list-style-type: none"> ● Agroforestry management plans, forest plantations and natural forests ● Record of agroforestry products sales, and forestry plantations

Sustainability certifications	Compliance with the recognized FSC standard: Forestry component of the agroforestry system	<ul style="list-style-type: none"> ● Agroforestry management plans, forestry plantations and natural forest ● Number of trees planted in the AFS and FP 	<ul style="list-style-type: none"> ● Clearly defined objectives of the agroforestry system, including area conservation and restoration ● Communal act to grant land use permit for agroforestry, forestry plantations and natural forests ● Easement agreements for the right-of-way for the community members ● Occupational health and safety training plan 	<ul style="list-style-type: none"> ● Committee members ● AIDER Technical Team ● RFWA 	<p>Regent's Report:</p> <ul style="list-style-type: none"> ● AIDER ● Pre assessment of compliance with the FSC standard by AIDER ● National registry of plantations, Pre-certification FSC ● FSC Certification
	"Good Indigenous Living" Seal	<ul style="list-style-type: none"> ● Product traceability ● Product legality ● Use of the "Good Indigenous Living" seal on AFS products 	<ul style="list-style-type: none"> ● Matrix of environmental impact assessment by community ● The "Good Indigenous Living" certification process: application, registration, payment, traceability system, etc. ● Guide to the sale of products with the "Good Indigenous Living" / FSC seal. 	<ul style="list-style-type: none"> ● Community (CCIPP) 	<p>Certification, carried out by an independent body recognized by CCIPP</p>
Carbon	Mitigation: Carbon sequestration	Carbon stock per hectare of production system	<ul style="list-style-type: none"> ● Calculation of carbon stocks (t/ha) and the change in these stocks using the FSC forest carbon calculation program for forestry plantations ● Other procedures for carbon calculation in REDD+ projects 	<ul style="list-style-type: none"> ● AIDER technical team 	<p>Periodic carbon stock inventory</p>
Land	Management: Use of land conservation practices	Soil structure, fertility and biological activity	<ul style="list-style-type: none"> ● Record of cultural work (pruning and mechanical cultivation) ● Record of macrofauna: insects, arthropods, earthworms, etc. ● Training in good agricultural practices for soil conservation and handling of permitted FSC products 	<ul style="list-style-type: none"> ● Committee members ● AIDER technical team 	<ul style="list-style-type: none"> ● Land analysis ● % of ground coverage (annual verification) ● Macrofauna data collection

Water	Management: Use of water conservation practices	<ul style="list-style-type: none"> Water conservation 	<ul style="list-style-type: none"> Inspection of the use of wells for organic and inorganic wastes and honey waters 	<ul style="list-style-type: none"> Associates AIDER technical team 	<ul style="list-style-type: none"> % of associates performing good waste management practices to avoid impacting on water
Biodiversity	Conservation: Biodiversity conservation	<ul style="list-style-type: none"> Flora and fauna conservation objects 	<ul style="list-style-type: none"> Biodiversity monitoring protocol: data sheets, application, etc. Forest management plans 	<ul style="list-style-type: none"> CCS Committee AIDER technical team 	<ul style="list-style-type: none"> Periodic biodiversity monitoring feedback
Production system	Tree growth in SAFS, FP and natural forests: Permanent Monitoring Plots (PMP)	<ul style="list-style-type: none"> Increased tree growth Biodiversity of the production systems Development of skills 	<ul style="list-style-type: none"> Growth record of the production systems: AFS, FP and natural forests: in diameter, basal area and height Forest plantation, agroforestry and management plan designs for natural forests Growth evaluation of production systems Record of training in agroforestry management, forest protection, etc. 	<ul style="list-style-type: none"> Native Community AIDER technical team 	<ul style="list-style-type: none"> Plot plans Growth status of the components of agroforestry systems, forest plantations and natural forests Training materials
Products	Production: Harvest products	<ul style="list-style-type: none"> Production of cocoa and other agricultural crops and non-timber products 	<ul style="list-style-type: none"> Automated registry and database for the registration of agricultural and forestry crop and forest production Volume of harvested products per period 	<ul style="list-style-type: none"> Committee partners AIDER technical team 	<ul style="list-style-type: none"> Closing report per production campaign

**AGROFORESTRY MONITORING,
REPORTING AND VERIFICATION (MRV)
PROPOSAL::
ITS CONTRIBUTION TO COMMUNAL
FOREST MANAGEMENT(CFM)**



That the forest is still a forest

Pucallpa, Perú - 2022