Systematization of the Project:

Sustainable Management of Agrobiodiversity and Recovery of Vulnerable Ecosystems in the Andean Region of Peru through the Globally Important Agricultural Heritage Systems – GIAHS Approach

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Contents

Acronyms

ABD	Agrobiodiversity
ATFFS	Technical Forestry and Wildlife Administrations
ASPEC	Peruvian Association of Consumers and Users
LCC	Local Coordination Council
FS	Field Schools
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GORE	Regional Government
INIA	National Institute of Agricultural Innovation
PESM	Payments for Ecosystem Services Mechanisms
MIDAGRI	Ministry of Agrarian Development and Irrigation of Peru
MINAM	Ministry of Environment of Peru
MSE	Micro and Small Enterprises
LEDO	Local Economic Development Offices
CLDP	Concerted Local Development Plan
PRODOC	Ex-ante Project Appraisal Document
PROFONANPE	Fund for the Promotion of Protected Areas in Peru
PACS	Payments for Agrobiodiversity Conservation Services
SERFOR	National Forestry and Wildlife Service
REIS	Regional Environmental Information System
NEIS	National Environmental Information System
GIAHS	Globally Important Agricultural Heritage Systems
ZABD	Agrobiodiversity Zones

Introduction

The project "Sustainable Management of Agrobiodiversity and Recovery of Vulnerable Ecosystems in the Andean Region of Peru through the Globally Important Agricultural Heritage Systems (GIAHS) Approach", funded by the Global Environment Facility (GEF), executed by the Ministry of Environment of Peru (MINAM) and the Ministry of Agrarian Development and Irrigation of Peru (MIDAGRI), administered by FAO (implementing agency) began its activities in January 2019. In this framework, Profonanpe's role is as an operational partner that manages the funds and is also an executor.

The project aims to conserve in-situ and sustainably use globally important agrobiodiversity (ABD) through the preservation of traditional farming systems, integrated management of forests, land resources and maintenance of ecosystem services.

The project is in its final phase; therefore, it was deemed appropriate to develop a process of systematization of the experience, with the objective of rescuing the main lessons learned from the project's practice. To this end, a participatory process was carried out to gather the points of view of the various stakeholders involved: project staff, producers, consultants and representatives of the executing agencies, through interviews and field visits. The information gathered was complemented with secondary sources provided by the project.

The document is organized as follows. Firstly, an overview of the importance of agrobiodiversity (ABD) and the GIAHS approach and agrobiodiversity zones (ZABD). The second and third chapters provide details about the project, its objectives, intervention area and the components into which it is divided for its implementation in the field.

Chapter five describes the systematization of nine selected cases from the project, three for each component. Each case contains a descriptive part and an analytical part: first there is a brief description of the activities carried out, the main quantitative and qualitative achievements. As a result of the analysis, some lessons and recommendations are put forward to be considered in future designs and when carrying out practices of this type. Finally, some general conclusions are presented.

It should be noted that the objective of systematization is to analytically reconstruct an experience in order to learn from it. This document seeks mainly to rescue the lessons learned from these years of intervention, from the point of view of those directly involved. Unlike an assessment, rather than focusing on whether or not the proposed results have been achieved, we pay attention to the factors that have influenced those results, with the aim of improving our practices in the future.

1. Overview

1.1. Importance of agrobiodiversity

Agrobiodiversity plays a fundamental role in the Peruvian context due to its rich diversity of ecosystems, climates and agricultural cultures. Its importance lies in several aspects that contribute to the well-being of local communities, food security, conservation of genetic resources and environmental sustainability.

One of the highlights of agrobiodiversity in Peru is the wide variety of native and traditional crops (tubers, cereals, legumes, vegetables and fruits) that have been developed over centuries and represent an important source of food and nutrition for local communities. The genetic diversity of these crops allows them to adapt to different climatic and environmental conditions, which helps mitigate the impacts of climate change and ensure food security in the country.

In addition, agrobiodiversity provides significant economic and social benefits. Agricultural products, both traditional and niche crops, have an important commercial value at national and international levels. Recognizing and valuing this agricultural diversity can generate economic opportunities for rural communities, promoting local development and the conservation of their ancestral knowledge.

For all these reasons, Peru is recognized as one of the ten most mega-diverse countries in the world1, with the Peruvian Andean region comprising 84 of the 103 life zones existing on the planet. The biophysical conditions of the Andes Mountains have created the conditions for a wide climatic variability that has led to different landscapes and ecosystems of high biodiversity and endemism. Peru is home to some 184 native domesticated plant species with hundreds of varieties and cultivated species.

In terms of crops, the potato is the main representative of agrobiodiversity in the Peruvian Andes, with Peru being its center of origin. There are more than 4,000 native potato varieties adapted to specific altitude, temperature and soil conditions. Potato is the fourth most important food security crop in the world (after rice, wheat and corn) and in Peru, it is the main crop in terms of cultivated area, with approximately 600,000 small farmers involved in its production, representing 25% of the agricultural GDP.

In addition to the potato, corn is the other crop of global importance, cultivated for thousands of years and adapted to the altitude and climate conditions of the mountains. Andean corn is a key nutritional source in the diet of local communities, providing essential carbohydrates, proteins and vitamins. It is also a cultural symbol and is used in rituals and traditional celebrations. Its genetic diversity also contributes to resilience in the face of climate change and to the food security of Andean communities.

Other products, such as quinoa, kiwicha, oca, tarwi, mashua, añu, olluco and maca are also fundamental to the region's agrobiodiversity. These crops are rich in nutrients, resistant to adverse conditions and play a crucial role in the diet of the Andean population.

1.2. GIAHS Approach

The GIAHS (Globally Important Agricultural Heritage System) approach is an FAO initiative that seeks to identify, protect and promote unique traditional and local agricultural systems that are rich in biocultural diversity and play a key role in food security and sustainability. These agricultural systems, often developed by indigenous and local communities, have been preserved and passed on from generation to generation, and are characterized by their adaptation to specific environmental and cultural conditions.

The GIAHS approach aims to recognize the value of these farming systems in the conservation of agrobiodiversity, resilience to climate change, protection of genetic resources and promotion of sustainable development. By identifying and documenting these systems, the aim is to promote the conservation of crop genetic diversity, traditional agricultural practices, knowledge and techniques, as well as to strengthen the resilience of local communities and their food security.

The GIAHS site identification process involves the participation of local communities, experts, organizations and governments, who work together to select and recognize the most representative and valuable agricultural

[1] https://sinia.minam.gob.pe/documentos/peru-pais-megadiverso

systems in each region or country. These systems are included in a list of GIAHS sites and their conservation and sustainable use is promoted through safeguarding measures, technical support, knowledge sharing and best practices.

The GIAHS approach is an important tool for the conservation of agrobiodiversity and the promotion of sustainable and culturally appropriate agricultural systems worldwide. It helps to highlight the importance of traditional knowledge and practices of local communities, as well as to raise awareness of the need to protect and value agricultural diversity for a more resilient and sustainable agriculture.

The GIAHS approach has several experiences worldwide that demonstrate its contribution to the conservation of agrobiodiversity, the promotion of traditional and sustainable agricultural practices, and the improvement of the livelihoods of local communities. In Peru, the Sacred Valley of the Incas stands out, where the traditional agricultural system of the Andean terraces, which local communities have preserved and used ancestral techniques of water management and terraced crops, has been recognized. This experience has led to the promotion of community-based rural tourism and the valuation of local agrobiodiversity.

In Peru, the recognition initiated by INIA and MIDAGRI of Agrobiodiversity Zones for the Conservation and Sustainable Use of Native Species cultivated by Indigenous Peoples is noteworthy. Agrobiodiversity zones are defined as geographic spaces determined by virtue of their richness in native, cultural and ecological agrobiodiversity, in which indigenous peoples, through their cultural traditions and in confluence with biological, environmental and socioeconomic elements, develop, manage and conserve the genetic resources of agrobiodiversity in their fields and contiguous ecosystems. Among the incentives for the conservation and sustainable use of these agrobiodiversity zones is the use of a distinctive mark or sign for products and goods produced in Agrobiodiversity Zones and the promotion of Payments for Ecosystem Services Mechanisms, in accordance with Law No. 30215.

2. About the project

The project “Sustainable Management of Agrobiodiversity and Recovery of Vulnerable Ecosystems in the Andean Region of Peru through the Globally Important Agricultural Heritage Systems (GIAHS) Approach”, funded by the Global Environment Facility (GEF), executed by the Ministry of Environment of Peru (MINAM) and the Ministry of Agrarian Development and Irrigation of Peru (MIDAGRI), administered by FAO (implementing agency) began its activities in January 2019. In this framework, Profonanpe's role is as an operational partner that manages the funds and is also an executor.

The overall objective of the project is to conserve in-situ and sustainably use globally important agrobiodiversity through the preservation of traditional farming systems, the integrated management of forest, water and land resources, and the maintenance of Ecosystem services.

The project is being developed directly in 5 target locations, covering 13 districts, most of which are part of watersheds where priority was given to crops and native species, organized in production systems and ancestral knowledge (Table 1):

Table 1: Project Target Locations

Target Locations	Basin	Province	Region	District	Prioritized Native Crops/Species	Prioritized Production Systems
Acora	Blanco – Ilave	Puno	Puno	Acora	Cañihua, quinoa, native potato (*S. tuberosum*), bitter potat (*S. andigenum*), kiwicha, tarwi	*Aynoca* (a land rotation system similar to *laymes*); *waru-waru* – Suka kollos, cultivation of potatoes, quinoa and cañihua using a water-saving system; platforms or terraces.
Huayana	Chicha River Basin: Ocharan-Pauche-Soras	Andahuaylas	Apurímac	Huayana Chiara San Miguel de Chacrampa Tomay Huaracca	Quinoa, kiwicha, corn, olluco, mashua, native potato, native fruit trees such as prickly pear (*Opuntia ficus indica*)	Rotation systems (*laymes*), platforms or terraces combined with agroforestry, combinations of monocultures and polycultures.
Lares	Lares - Yanatile	Calca	Cusco	Lares Yanatile	Native potato, corn, quinoa, wild tarwi, muña	
Laria	Alauma - Mantaro	Huancavelica	Huancavelica	Laria Conaya Izcuchaca Nuevo Occoro Huando	native potato, quinoa, maca, mashua, olluco, oca	
Atiquipa		Caraveli	Arequipa	Atiquipa	Tara *(Caesalpinia spinosa)* myrtle (*Myrcianthes ferreyrae)*	Capture of sea mist and recharge of aquifers by threatened hill forests, benefiting downstream irrigated agriculture.

Source: ProDoc. 2018

The main stakeholders of the project are small and medium-sized farmers who manage threatened and globally important agrobiodiversity in the 5 target locations.

About 80-90% of the stakeholders are small producers with plots of less than one hectare, 90-95% of their production is used for food security purposes (consumption, barter and seeds) and 5-10% is for sale. The remaining 5-10% are medium-sized farmers, who make up typology 1 of the classification of the National Strategy for Family Farming (ENAF, for its initials in Spanish).

Members of the target communities, including participating farmers, are almost exclusively indigenous, from the Quechua and Aymara ethnic groups. Other stakeholders at the local level include members of other upstream communities, who carry out agriculture, shepherding, forest management and extraction, and other activities that affect the generation of ecosystem service benefits for the target agrobiodiversity systems.

3. Project Components

Component 1: Integrated landscape management and agrobiodiversity conservation in the Andean regions of Peru

The activities of this component focus on strengthening capacities, knowledge and the necessary conditions at the field work level for the active in situ conservation of Agrobiodiversity in a context of resource management systems at the landscape scale, in accordance with the concept of "Agrobiodiversity Zones" foreseen in the Peruvian Legislation, and following the principles of the GIAHS and GIAHS approach in the Peruvian case. The component generates two outputs:

- Outcome 1.1 focused on ABD production systems, while
- Outcome 1.2 focused on the management and restoration of ecosystems in the landscape as a whole, on which the diversity and sustainability of Agrobiodiversity production systems depend.

Component 2: Development of markets for agrobiodiversity products to support conservation and sustainable use and local rural livelihoods

The project contributes to ensuring better market access for Andean family farmers with their agrobiodiversity products by: i) improving market connections, ii) supporting labeling strategies, iii) strengthening multisectoral networks and alliances for these market strategies, and iv) increasing access to guidance tools.

The development objective is to link family / agroecological / traditional farmers to appropriate markets through differentiated market approaches. The main Andean biodiversity products identified to benefit from this strategy are: potato, corn, quinoa, mashua, oca, maca, tarwi, muña, cañihua, kiwicha, olluco, prickly pear, tara, myrtle, medicinal plants and essential oils. Also, alpaca, vicuna fiber and guinea pig meat.

The component leads to Outcome 2.1: Marketing of ABD-based products is improved to support sustainable use of ABD and rural livelihoods.

Component 3: Institutional and policy strengthening for incorporating agrobiodiversity conservation and sustainable use into operational frameworks

Five regions are proposed to develop an enabling environment for the sustainable use of agrobiodiversity, including access to information for decision-makers, policies, planning instruments and regulations that contemplate agrobiodiversity conservation, inter-institutional coordination and institutional capacities for territorial planning and agrobiodiversity sustainability.

The Component leads to Outcome 3.1 Enabling environment strengthened for the sustainable use of agrobiodiversity.

Component 4: Monitoring, evaluation and dissemination of project information

This is a cross-cutting component that leads to Outcome 4.1: Project implementation applies results-based management, and lessons learned/good practices are documented and disseminated.

To this end, the project implements during its development a monitoring system that provides systematic information on progress in achieving the expected results and objectives, also prioritizes the construction of tools that enhance the participation of stakeholders in project management, and finally extracts best practices and lessons learned systematized and published for a variety of audiences and stakeholder groups.

4. About practices

Nine identified cases are presented below, 3 per component. For each of them, a brief description of activities, their main achievements, lessons learned and recommendations resulting from the practice have been elaborated.

The practices presented in the document are some of those developed during the intervention. They have been selected considering the degree of progress up to the date of preparation of the document, so as to present tangible results, both qualitative and quantitative, as well as to allow analysis considering their replicability in future interventions.

COMPONENT 1

CASE 1: Mechanisms for seed recovery and conservation payments for ABD.

The project has taken as a reference the mechanism of Payments for Agrobiodiversity Conservation Services (PACS), to renew the motivation for the conservation of agrobiodiversity in a state of vulnerability, through agreements with farming communities and families involved. After three agricultural campaigns between 2019 and 2022, the project has recovered more than 200 native varieties at risk and managed about 500 ancestral knowledge having as one of the strategies for renewing motivations: PACS. Payments have been granted to 1925

families and 6,368 ha have been implemented for crop conservation in 72 communities in the project's intervention area[2].

The intervention strategy contemplates, first of all, working with each community on their Life Plans[3], which include a participatory diagnosis and planning of the community, considering the integral vision of the territory. This activity goes hand in hand with the recovery of ancestral knowledge and traditions associated with the production, adaptation, regeneration, consumption and sustainable use of agrobiodiversity products. Products that can be appreciated by the market are also considered.

With this information, it is proposed to work complementarily with the PACS mechanism, determining with the community the agrobiodiversity (ABD) at risk to be recovered. The participants specify the area that they will allocate for the recovery of the cultivars and determine with them the compensation mechanism they will have access to for their work during the agricultural campaigns. These may be tools, equipment, materials, agricultural inputs, among others.

The communities, in coordination with the project, collect seed varieties in the community or in nearby communities. Interested producers are identified and organized into PACS groups of 10 to 5 people, with at least one adult conservationist and young people. As a result, the adults share their knowledge with the young people, recovering crops and knowledge. The participation of women is always promoted, a special case being that of Acora in Puno, where almost all the participants are women, many of them leaders and with significant knowledge.

The next step is the delivery of seeds, accompanied by monitoring of the planting process, technical assistance and Field Schools (FS), where inter-learning is used. They can plant in groups or individually, each one in their own plot. In Huancavelica they have planted on communal land. A supervisor is in charge of the monitoring; an FS specialist and the support of a staff of the National Institute of Agricultural Innovation (INIA) and the *yachachiq* of the community are also involved.

At the end of the campaign, in a ceremony with the authorities, the seeds they have produced are presented. Payment is made according to the incentives that they themselves requested at the beginning. In turn, there is a commitment to redistribute the seeds at the time of harvest, thus increasing the conservation areas. In addition, each participant commits to plant according to their customs and practices in the following agricultural campaigns and redistribute the harvested seeds to the other 5 families in their community. These people should continue planting, not expecting payment this time. These groups have not been followed up, so there is no exact data on the percentage of people who continue the conservation work.

Main achievements

- This mechanism has made significant progress in the recovery and conservation of vulnerable species and varieties. During the 2022 campaign, 43 varieties of potato, corn, olluco, tarwi, oca, kiwicha, cañihua, maca and añu have been recovered. This brings to more than 223 varieties of 10 crops that have begun their recovery process in 3 agricultural campaigns.

- 1,925 families have been directly involved with seeds and payments, and indirectly through the redistribution of seeds, 9,625 families from 72 farming communities have been reached during 3 agricultural campaigns.

- The valuation of the payment to conservationists amounts to S/73,500 (as of December 2022).

[2] GEF Agrobiodiversity GIAHS Project. 2022. Management Report 2022, Project: "Sustainable Management of Agrobiodiversity and Recovery of Vulnerable Ecosystems in the Andean Region of Peru through the Globally Important Agricultural Heritage Systems - GIAHS Approach".

[3] "The Life Plan is a collective, differential and comprehensive strategic planning tool of a community, people or indigenous or native organization, which starts from a reflection on their worldview and history to determine what is the vision of the future they wish to achieve, their conception of development and good living, and define strategies and actions to achieve it" (Kuiru, 2014; Espinosa, 2014), taken from: *Plan de vida Guía para la planificación colectiva* (Life Plan - A Guide for Collective Planning), from the Ministry of Culture.

- Thanks to the intervention, the coverage of conservationist families has been extended to other families interested in multiplying the varieties that have been rescued.

- Traditional knowledge, such as climatic signs and indicators and crop rotation, has been recovered and shared through knowledge booklets that have helped to remember how people used to live in the past. This has motivated new young conservationists and has strengthened the communities' pride and identity thanks to this knowledge.

- Lost varieties that were part of the diet have been recovered, revaluing the food supply and the customs associated with it.

Lessons learned

1. It has been learned that, although payment is an incentive to renew the motivation for conservation of the ABD, there are other priorities such as food, cultural values, rituals and nutritional potential of these varieties. The intercultural technical assistance provided by the project helps this ancestral knowledge to spread through the current conservation leaders.

In addition to payment, the main innovation of the Project is the incorporation of technical assistance, which is absent in small-scale agriculture from the State. Although conservationists work by applying ancestral knowledge, the Project's contribution is the incorporation of new techniques through technical assistance, providing solutions to their production problems (through FS, *yachachiqs*).

2. The community should be responsible for identifying their crops at risk and its causes, proposing the best recovery mechanism. In ABD, the population must decide what, how and for what purpose recovery should be carried out. In this sense, it is emphasized that the Project intervenes under a demand approach. The project does not propose, its role is to listen and to accompany the initiatives of the population.

It has been learned that the criteria for recovery must come from the community, associated with ancestral knowledge, production, adaptation, regeneration, consumption and sustainable use. The population must identify the seeds that have been lost and that they consider important, they must identify where to get them and what would be the best organization for their sowing. In these communal decisions there is no single procedure; the project must adhere to providing the best conditions and giving the freedom to decide. This learning strengthens the PACS practice, which goes beyond providing retribution.

Along with the freedom to decide, it is important to adapt the project to its context. When it came to making the payment, there have been problems in obtaining the tools requested as payment. Since most of the tools are handmade (e.g., *Chaquitacllas*), obstacles were identified in the administrative process, such as requirements for quotations, invoices, among others, which have finally forced the company to default, changing for other hardware tools. In addition to the understandable annoyance of not complying with an agreement, this failure has to do with an issue of cultural relevance, which does not allow the project to adapt to its context; on the contrary, the community is asked to adapt to external administrative formalities.

3. Conservation actions require a system of recognition for conservationists, from the State or the consuming public, to make them sustainable. In this sense, public policy advocacy is required for this purpose.

It is not enough for local governments to commit resources to activities such as PACS. Conservation must be recognized as a state policy. Although there are conservationists out of conviction, it must be recognized that without initial incentives it is difficult to maintain these practices.

On the other hand, for PACS to be sustainable, it has to be approached from the community as a whole. Through the Life Plans, we reflect on the various reasons why ABD is lost. The life plan helps to identify the integrality of the problems and to recover the understanding that nothing is isolated. Likewise, understanding that planning is long term and includes the need for continuous recovery since it is not possible to recover ABD in a single campaign.

Although the Life Plan does not focus solely on the ABD, it is a starting point as a comprehensive intervention model that strengthens community planning. After its approval, it should be a tool that articulates with the Local Development Plans (LDP) and promotes public investments from local, regional or ministerial governments, which motivate the recovery of customs, festivities, and promote the recovery of the ABD as a whole and contemplate retribution for it.

These tools should make it possible to have a more integrated management of the territory in the future. Future institutions that intervene in a community should know its life plan, and contribute from their functions and scope. However, it is ultimately in the hands of the community to enforce its plan.

Finally, it should be noted that the interventions of the different state bodies related to agriculture that intervene in a territory do so from different orientations, which may in some cases overlap activities and even threaten the ABD with the promotion of commercial crops and monoculture. These interventions can set back the work of the project.

Recommendations

- Although the community is free to define the scope and procedure of the practice (organization of groups, areas, retributions, etc.), the scope should be socialized, especially the payment in order to avoid misunderstandings. Make it clear that the payment is only for one time, although the commitment is to continue sowing, both for the participants and for those who receive seed redistribution at the end of the campaign.

- In that sense, payment with tools is the most requested, especially those of traditional use (such as *chaquitaclla*) are the most appreciated.

- After three campaigns, follow up on where and how it is being conserved. Although the climatic factor influences the survival of the seeds, it is important to continue recovering every two or three years so that all that has been achieved in seed recovery is not lost.

- Explore the possibility of communal payments, according to the conservation context of each territory. Although this may make the work of accompanying and monitoring more difficult, it is important to respect the decisions of the communities that consider this to be the case.

- Include and keep local authorities informed of the progress and results of each PACS process.

- There is still a challenge: to incorporate the Ministry of Agrarian Development and Irrigation (MIDAGRI) in the development of this practice, since by the nature of its functions it must incorporate ABD in its actions.

CASE 2: Seed Bank

Since 2021, conservationist families have implemented family and group seed banks in the regions of Apurimac, Cusco, Huancavelica and Puno, where 204 cultivars of 8 crops[4] (potato, oca, olluco, añu, corn, quinoa, kiwicha, beans) are conserved at the family and group level (ayni group[5]) for seed custody, recovery and regeneration purposes. Seed banks are an important tool in the conservation and management of agrobiodiversity (ABD), and it is expected to strengthen their coordination with INIA and other NGOs to improve their long-term sustainability and conservation.

[4] GEF Agrobiodiversity GIAHS Project. 2022. Management Report 2022, Project: "Sustainable Management of Agrobiodiversity and Recovery of Vulnerable Ecosystems in the Andean Region of Peru through the Globally Important Agricultural Heritage Systems - GIAHS Approach)".

[5] "The ayni group is a group of families (5 to 8) that each year share -among other activities- agricultural work in their plots of land, mainly in the work that requires the greatest effort, such as planting and harvesting This ayni group is an instance of access, provision and exchange of seed. At harvest time, each family takes a small number of seed for the next season. In this way, all the families are left with part of the seeds during the harvest, and this is complemented with the loan of seeds or seed exchange between families for planting." (2022, GEF Agrobiodiversity GIAHS Project).

The selection of the families in charge of the banks is made with the information that the yachachiqs have about conservationist families, which are always present in a community. They are visited in their farms at harvest time and it is verified who really have the greatest variety of seeds. For the group banks, the PACS groups formed that have worked and fulfilled their commitment are used as a basis.

For the installation of the seed bank, these families and the group must provide a roofed and safe space inside their homes. The project provides three-story pallets and plastic containers to hold the seeds. The delivery is made at a community assembly, and the conservationists commit to ensure that they take care of them and do not give any other use to the facilities and materials provided. The community also oversees this delivery and can decide the consequences of not complying with the commitment made.

Some difficulties that have arisen are related to humidity, which can affect the conservation of seeds. Grains such as corn require proper drying to avoid fungal infestation, so great care must be taken before packaging. A further difficulty is associated with the management of the communal banks, since they involve more complex processes that require communal management agreements, infrastructure maintenance, provision of materials and responsibilities for permanent care. These aspects are considered as conditioning and limiting factors in their sustainability.

The benefit of the banks is to have seed in case of shortages and adverse weather events: a farmer can "borrow" a quantity of seed and return the same quantity, or an ear of corn in the case of corn. In this way, the bank is not depleted. It is important to refresh seed every two seasons, replacing what has not been used.

Main achievements:

- Seed varieties have been rescued with the implementation of seed banks in Lares, Apurimac, Huancavelica and Puno: 40 family seed banks of corn, native potatoes, oca, olluco, beans, kiwicha, quinoa and 02 community seed banks of native potatoes in Lares and Apurimac (data as of December 2022).

- The families in charge of the seed banks carry out a technical management of the seed bank, and adequately maintain the equipment provided by the Project.

- Seed banks have shown that they can be an additional source of income. The banks have motivated young people to conserve, for the purpose of participating in fairs to show their seeds. They receive recognition and subsequent visits, achieving an additional income from tourism. Thus, an additional benefit to conservation is perceived, in addition to the sale and consumption of the seeds.

- A key point is the contribution to productive and food sovereignty based on the management of native seeds.

- In addition to this, there is the recognition, self-esteem and pride in being a conservationist of a significant number of varieties.

Lessons learned

1. During the development of the Project, it has become evident that the most efficient form of organization for the management of seed banks is the family. Most of the community seed banks have been disarticulated.

The lack of organization and responsibility has led to the disarticulation and lack of functioning of the community seed banks. It is necessary to establish a clear organizational structure and assign responsibilities to ensure that they are maintained over time and fulfill their function within the community. Active community participation in workshops and activities related to seed banks is essential. Lack of participation can lead to loss of interest and disarticulation.

2. Seed banks play a crucial role in the conservation and protection of local seed varieties. During droughts or other agricultural crises, seed banks can save crops and help recover agricultural production.

This learning has been more evident at the present time, where the drought has caused the loss of cultivars. As indicated by the producers, the seeds that have been preserved will save many in the next season, considering that the current season will mainly supply family consumption, *"... I have lost three quarters of the corn... thanks to the seed bank it will be recovered"* (Workshop with producers in Ccachin, Lares).

3. The formation of conservation committees in the community to oversee the seed banks can ensure the proper functioning of the seed banks and promote the active participation of community members in their conservation.

When the project staff leaves the Project, the conservation committee is called upon to follow up on the activities. Leaving a control and follow-up structure in charge of the community is a way to empower them and keep them as participants and responsible for the ABD, for the control of the seed banks, conservation and recovery activities, among others.[6]

Recommendations

- Once the family responsible for managing the banks has been assigned, train all members of the family, not only the project participants. In this way, children are also involved in simple activities according to their age.

- It is important to provide adequate resources and materials for the operation of seed banks, such as pallets, shelves and containers. These elements facilitate the storage and conservation of seeds.

- The communal authorities should have the power to collect the containers and transfer them to other seed savers in case they do not comply with their commitments. This measure and others that they propose, promote equitable distribution and community control.

CASE 3: Ecosystem restoration: recovery of pastureland and protection of wetlands and springs

The communal zoning of the ABD and degraded areas, based on ancestral knowledge, has allowed the spatial distribution of the communal territory, emphasizing land use. Based on two tools, the life plan[7] and community mapping, zoning maps have been prepared in 39 communities, which have been a fundamental input for the technical process of forest microzoning in the 13 districts of influence of the Project, as well as to identify the areas of closure for the recovery of pastures and areas for the protection of wetlands and springs.

[6] The Conservation Committees have been formed and have management tools based on the work of C3, which, in compliance with the enabling conditions, is leaving these organizations in the communities within the scope of the Project.

[7] "The Life Plan is a collective, differential and comprehensive strategic planning tool of a community, people or indigenous or native organization, which starts from a reflection on their worldview and history to determine what is the vision of the future they wish to achieve, their conception of development and good living, and define strategies and actions to achieve it." (Kuiru, 2014; Espinosa, 2014). Taken from Ministry of Culture. 2016. *Plan de vida Guía para la planificación colectiva* (Life Plan - A Guide for Collective Planning).

The first step was to recognize that constructing maps and theoretical compendiums in the office would not be comprehensible or useful for the communities, so a practical and participatory approach was chosen, starting in the first stage with a process of information and sensitization and then involving the communities and local governments. The resulting micro-zoning was based on important variables, such as traditional knowledge of farming and local wisdom. The focus was on the identification of priority conservation areas and the recovery of degraded areas, establishing a safety zone in which to carry out recovery. This allowed conservation efforts to be optimized and resources to be used efficiently.

Next, the Project focused on the implementation of community conservation agreements, proposing the formulation of public investment projects to finance the necessary conservation and restoration actions. To guarantee the technical support and viability of the agreements, the project sought to establish close coordination with the National Forestry and Wildlife Service (SERFOR) and the local government.

The microzoning not only served to determine the ABD zones, but also to determine where to:

- Carry out afforestation and reforestation activities using native forest and shrub species in coordination with the Local Government and the Technical Forestry and Wildlife Administrations (ATFFS).
- Install agroforestry systems to reduce soil erosion in coordination with the Local Government and the ATFFS.
- Conserve grasslands through measures to prevent their degradation, such as temporary closure to promote their natural recovery.
- Reduce the erosive effects of soil erosion with gully control works and silvopasture.
- Promote the adequate management of grasslands and wetlands as a measure for conservation, recovery and sustainable use of the sources of ecosystem services.

Apurimac Experience

In Apurímac, an important activity has been carried out to protect aquifer recharge areas in order to address various problems such as artisanal mining, climate change and the reduction of lagoons due to lack of water. The recovery of grasslands and the planting of queñuas have been proposed to improve filtration and ensure water storage.

These zones are considered the headwaters of water recharge, that is, they are the highest parts where water infiltrates and is stored. However, if the terrain is bare or without vegetation, there is a risk of landslides and the consequent loss of water. It is therefore necessary to protect these areas and avoid grazing, allowing water to adequately penetrate the soil.

The protection of water recharge areas in Apurimac began in 2021 with the prior identification of potential zones in collaboration with municipal and community authorities. The areas were prioritized according to available resources, focusing on the highest headwaters. Once the proposal was approved, it was ratified in a community assembly and support for the project was requested in the form of materials.

The community, aware of the importance of this project, provided the land to carry out the protection actions. Local day laborers were hired to carry out tasks such as building fences, planting grasses and queñuas, closing pastures, and digging infiltration ditches. This temporary employment was considered a social program of benefit to the families of the community.

The implementation of the activities began in January 2022 with three days of communal work and a subsequent payment of wages. During the communal work, the women participated in planting and food preparation. In total, the whole process took about three months. In terms of participation, the project provided tangible support through the provision of materials and resources such as posts and netting. The municipality provided transportation for the materials. Although some families were opposed because the protected areas were used for grazing their animals, the community's decision was prioritized.

During implementation there was a drought that caused 60% of the queñuas to die, making it necessary to thinning or replant.

As a result, 405 ha of high Andean grasslands and wetlands have been protected with 25,621 m of cattle fences and traditional stone fences. Agroforestry systems have been installed with more than 234,269,000 queñua saplings in 351,269 m of live fences.

The active participation of the community was essential in making decisions on these actions, considering technical criteria together with the community's knowledge and preferences. A differentiated approach in each district made it possible to adapt the actions to the specific needs and characteristics of each community.

Achievements

- 41 rural communities in Huancavelica, Apurimac, Cusco and Puno have a participatory community mapping and zoning system.
- 21 rural communities have their own life plans, which have been articulated with the Concerted Development Plans (CDP) of 10 districts.
- Using the microzoning tool and the communal conservation agreements, it has been possible to estimate the agrobiodiversity management areas, as well as the areas to be reforested, areas to be closed for pastureland recovery, and areas to protect wetlands and springs.

Lessons learned

1. Initiate actions with prior information to the community, continue with a process of sensitization and valorization of collective knowledge, based on local knowledge as an input for decision making, allowing a more effective and sustainable management of conservation areas for the management of the ABD.

This “bottom-up” approach implies that decisions and actions related to conservation should be taken by the community itself, who best knows its territory, its needs and its direct relationship with natural resources. Therefore, an external intervention should be able to listen and accompany, thus promoting community participation in the management of conservation areas.

A particularity in the implementation of decommissioning areas is their strategic location in places considered important for the conservation of water resources and thus be recognized by the population. It is crucial that the inhabitants know, recognize and commit themselves to the fact that these areas are strategic, as they are the source of the water they use in their plots. It is necessary to consider the technical aspects of microzoning in order to properly identify these strategic sites and carry out restoration activities that comply with the legal requirements established by entities such as SERFOR, MINAM and MIDAGRI.

By combining the collective knowledge of the communities with the technical and legal aspects, an adequate management and a more effective and sustainable management of the conservation areas is achieved. This implies establishing close collaboration between the communities, the governing body and the competent entities, guaranteeing that conservation actions comply with the established standards.

2. In order to maintain in time the actions for the conservation of the ABD implemented by communities, it is required the establishment of collective agreements that guarantee the participation, commitment of the stakeholders in the management and administration of the areas and a state or private support.

Once the restoration activities have been carried out, it is important to create collective agreements on the management of the conservation actions, defining who will be responsible for the administration and maintenance of the measures implemented. This involves the formation of teams and the assignment of roles and responsibilities in the community and local government, backed by an ordinance that formalizes the agreements. In addition, the participation of entities such as SERFOR ensures that the community has the assistance required for conservation.

In collaboration with the local government and SERFOR, public investment projects should be formulated to finance strategic activities in the conservation area. In this way, it is possible to secure the necessary resources to maintain and improve the protected area and to carry out conservation actions in other areas. It is important to recognize that without government and/or private support, protected areas are at risk of deterioration and loss, as local communities may lack the financial capacity and resources to maintain them.

Regarding the maintenance of enclosed areas, it has been shown that live fences made of queñuas or stone pirqas are economical and durable for fencing purposes because, once established, they do not require constant replacement, unlike livestock fences and wooden posts that wear out over time.

3. Before undertaking conservation projects, it is crucial to ensure that accurate information on the delimitation and cadastre of the communities involved is available. This is one of the aspects that avoids unnecessary territorial and legal conflicts, optimizes the use of resources and is one of the pillars for collaboration and the success of conservation initiatives.

It has been learned that working with all available communities without first verifying their cadastral status can lead to unforeseen problems. The first step is to consult with the General Directorate of Agrarian Property Sanitation and Rural Cadastre (DIGESPAR) for those communities that are duly registered and have defined boundaries. Therefore, conflicts over land ownership are avoided, thus avoiding the use of resources and time to resolve unnecessary land disputes.

Undefined boundaries and territorial lawsuits limit the options for creating a conservation area, no matter how much potential the area has. If one relies solely on the word of the community and begins decommissioning and conservation activities, it is possible that another community will claim the territory as their own, which usually includes legal challenges, even compromising the collaboration of donors.

To prevent this type of situation, it is necessary to ensure the legal physical sanitation that defines the boundaries of the communities. Sanitized territories allow for secure agreements with the communities and peace of mind when delimiting the territories.

Recommendations:

- Make the participation of women and the elderly visible in conservation activities and in activity reports and work schedules. Ensure that their contributions and efforts are recognized.

- Incorporate learning about ancestral knowledge and conservation of the ABD in schools. It is recommended to continue creating educational spaces where children and teachers can learn about the importance of conservation of natural areas and sustainable resource management. Therefore, it is recommended to organize visits to the conservation areas and carry out practical learning activities, creating spaces where children can meet with the elders and wise men of the community, as a way of valuing ancestral knowledge.

- Allocate a specific budget to pay for the labor involved in the conservation of large areas. Although the projects consider the community's contribution, the physical demands and logistical challenges involved in this type of work must be taken into account.

- Since it is common not to find information on land titling at the regional level, when entering the territory, the first step should be to gather updated information from the community on the area where the action is to be carried out.

COMPONENT 2

CASE 1: Trade articulation of agrobiodiversity products (ABD)

The GIAHS project developed a marketing program aimed at linking producers committed to the protection of agrobiodiversity (ABD) with consumers in the capital through short marketing chains. The commercial mechanism was a digital application (Kusikuy), through which consumers selected and purchased products from a basket of ABD products from Lares in Cusco, Huayana in Apurímac, Acora in Puno and Laria in Huancavelica, and received them directly at their homes by delivery.

The commercialization of ABD products under this mechanism was preceded by the ApachiKuy practice, which resurfaced during the period of the Covid 19 health emergency and the consequent quarantine period that the population experienced. Apachikuy is an ancestral practice that consists of sending products from the agricultural communities to family and friends living in the capital or other areas of the country. The project contributed with the organization for the collection, shipment and reception of Apachicuy parcels, and co-financed the transportation together with local governments, for the transfer of parcels in critical times of COVID 19 pandemic, between May and July 2020[8]. During the same period of the pandemic and as a support to the

[8] Prada, R. 2020.

producer families who were isolated by the successive quarantines, we participated in fairs *De la chacra a la olla* (From the farm to the pot).

ABD products aroused the interest of migrants in Lima and Cusco. Thus, in 2021, the commercial pilot of ABD products began, demonstrating the advantages of reaching buyers willing to pay for differentiated products. The project undertook the organization of supply, storage, delivery of orders, collection and subsequent payment to producers. This commercial pilot was promoted through social networks by creating a Facebook and Instagram page and communication via WhatsApp. The strong participation of the Lares Local Government through its LEDO should be highlighted in this experience.

Having identified this market and recognizing the opportunity to work with short chains by linking producers under the delivery modality, the first step was to consolidate supply by working with producer associations and organizations to control quality and reduce collection and transportation costs. Some associations that were no longer in operation were reactivated; new ones were also formed, and support was provided for their formalization and registration in public registries. There were also some PACS[9] groups that developed into associations. All of them were trained in associativity, cost structure, commercialization techniques and marketing for ABD products. The associations had a team of specialists to advise and train them: in each region there was a commercial advisor, a commercial yachahiq and a commercial articulator representing each association.

The products were marketed under the Agrobio brand. This brand was introduced seeking not only customers, but also ABD's allies: people committed to healthy eating, to native products, grown by guardians of this wealth. The market niches identified were, in the first place, the migrants or “nostalgia market”. Secondly, the fairs organized by Agrorural and local governments. Then, in agreement with ASPEC (Peruvian Association of Consumers and Users), the fairs of ancestral foods from our biodiversity: the Kusikuy fairs, which sought to create spaces to raise awareness among consumers and connect them with these farmers, as well as to create marketing networks that keep alive ancestral knowledge and practices.

The Kusikuy fairs had two sections: the first was the tunnel of knowledge, with informative, educational and interactive spaces; and the second, the exhibition and sale of ancestral products from different regions of Peru. Finally, a sales channel was created through the Kusikuy application, which provided information on the supply of products and information on production zones. ASPEC (together with MINAM, Profonanpe and FAO) maintains the intellectual property of Kusikuy and is in charge of all the logistics surrounding this commercial channel.

Agrobio has obtained income from sales by the associations at specialized fairs, from the Kusicuy app, and from the sale of potatoes to Qali Warma. The latter was a pilot experience, which obtained good results but did not continue due to state requirements that could not be met, such as having adequate infrastructure for storage and processing.

Main achievements:

By 2022:

- Number of producer associations that have improved their income: 36 associations, of which 28 use the Kusikuy application[10].
- Annual sales value: S/238 420.00 soles, of which 36.8% comes from sales via Kusikuy app, the balance is direct participation in fairs and through other short chains via Whatsapp.
- Average income from sales/association: S/6 622.80 per year[11].
- The greatest income from sales was through participation in fairs promoted directly by the project and Kusikuy fairs, where, in addition to sales, it was possible to inform consumers in the regions and Lima about the importance of agrobiodiversity and the work carried out by conservationist producers.
- The market strategy has generated interest and new producers have been incorporated. Agrobiodiversity baskets have been marketed and different sales channels and market types have been

[9] Payment for Agrobiodiversity Conservation Service. Read about this practice on page 10 of the document.
[10] Romero, F. 2023.
[11] The data “number of associations” has been used as there is variable data on the number of members per association.

reached. In addition, sustainable agroecological production practices are maintained, without the use of agrochemicals.

- The project has improved the commercialization chain, since previously raw materials were sold to intermediaries, and now processed and diversified products are sold directly to the client, which increases the profitability margin.

Lessons learned

1. A market strategy that generates income from the sale of ABD products can curb the trend towards monoculture and maintain diversification.

From the conception of the commercial component, the idea is to offer a basket of agrobiodiversity products, highlighting their characteristics, volumes, seasonality, agroecology and ancestral knowledge. This linkage with the market has prioritized feeding the population before sales. In this sense, it has been important to work from Component 1 with associations and producers, so that they are aware of their role as "guardians of agrobiodiversity" as the basis of their food security.

The market strategy has generated interest and has incorporated new producers. Agrobiodiversity baskets have been marketed through different sales channels. In addition, the practices remain sustainable due to the improvement of the farms and the control of agroecological production, without the use of agrochemicals. Thus, it has been proven that the commercialization of agrobiodiversity baskets can achieve a balance between seed recovery and the market, bring supply and demand for agrobiodiversity products closer together, and safeguard family food.

Producers' commercial expectations were encouraged by the Kusikuy platform, which promoted the commercialization of higher volumes of agrobiodiversity products at more competitive prices, compared to the usual local markets. As a result, the producers have enhanced the value of their varieties of potatoes, maize, beans, wheat, barley, etc., which has contributed to maintaining agrobiodiversity in their regions. It has been demonstrated that it is possible to supply a certain market niche and generate income for producers, without neglecting the recovery of seeds and, at the same time, promote ABD.

2. The commercialization of agrobiodiversity products targets a particular market niche of consumers interested in the origin of the products, with special volumes and characteristics and willing to pay a fair price. These characteristics make it necessary to identify and enter different marketing channels for this consumer profile.

The project has promoted the Agrobio commercial brand mainly through Kusikuy,[12] in agreement with ASPEC. Kusikuy, by the very nature of its products, which are not massive and are aimed at a specialized market niche, has captured almost 40% of the commercial offer of the producers.

The application has allowed producers to sell their primary, semi-processed and diversified products directly to the customer, instead of selling the raw material to intermediaries, which has resulted in better prices and income for producers.

However, critical aspects have been identified that could affect the sustainability of this commercial channel. First, the high operating costs, so far subsidized by the project; second, delays in payments to producers, which generate distrust and lack of motivation to continue working with the application and demonstrate the urgency of defining an efficient payment procedure. In addition to this, ASPEC lacks information on Kusikuy's operations and does not provide feedback to producers to improve processes and generate customer loyalty under the commercialization chain approach.

If the platform's operating costs are not covered, it will remain a good pilot experience with no capacity for continuity. Kusikuy's operability at the end of the project depends on its ability to generate greater volumes of products to cover its operating costs, which implies a higher participation than that of the small producers involved. This experience should serve as an input for future project designs that consider the articulation of markets to support conservationist producers in the ABD.

[12] The Agrobio brand has been used and is used by producers beyond the application, because it was born before, rather when the application was launched, it slowed down the use by producers at local fairs.

It has become evident that the application has a limited placement capacity compared to the monthly supply that producers achieve. Aware of this situation, they have not abandoned other commercial channels, such as local and regional markets because they are accessible and where they can generate direct sales with a lower risk of perishability of primary products. In this regard, it is important to work on the promotion and positioning of the Agrobio brand, which should be more prominent than Kusikuy. This is the emblematic brand that should be positioned through different media, such as social networks, fairs, specialized stores, among others.

Recommendations

- Compare markets: It is necessary to take stock of the advantages and disadvantages of the different markets and make informed decisions on how to strengthen according to each case. This balance should include an analysis of the costs incurred by the associations and assumed by the project, such as technical assistance, quality control and logistics to the different markets (local, regional and national). This will make it possible to choose the most profitable, accessible and in line with the level of specialization of the associations. This analysis should include the analysis of income per producer/month, on average. It has not been possible to determine this data.
- Do not rely solely on the Kusikuy application. Although the application has helped to visualize agrobiodiversity in the Lima market, it is necessary to explore other sales and promotion channels, such as restaurants, hotels, organic stores, agro fairs, among others.
- Along these lines, it is recommended to diversify the sales channels for ABD products. Consider that regional markets are easy to access, direct sales, less risky because they are a perishable product, in high demand and less demanding in terms of specialization. Regional points of sale can be included in physical spaces or by application that can be managed by the youngest members of the associations.
- In addition, social programs such as Qali Warma, with whom positive experiences have been developed, should be considered as potential buyers. In this sense, the implementation of business plans to finance collection and primary processing centers would open new opportunities for the commercialization of products under better conditions of food handling and safety.
- It is also suggested to generate other lines of business, such as community tourism (which unfortunately was restricted for two consecutive years due to the pandemic). Now that conditions are back to normal, it is recommended that an "agrobiodiversity route" be developed to promote and position their products. In this way, the value of agrobiodiversity would be transmitted and the work of the producers, as well as their wisdom and ancestral knowledge, would be recognized.

CASE 2: Methodology for the identification of value chains for agrobiodiversity products (ABD)

The agroecosystems in the project intervention area grow a wide variety of products that are valued for their diversity, their agroecological production and the role of women and young people in their production. In addition to ecosystem services, the families take advantage of the wild species, fruits, wood and medicinal plants offered by the natural ecosystems.

The value chain approach makes it possible to analyze how this important variety of products is produced and distributed, from their origin to their consumption. The project brings an innovation to this approach, proposing an analysis methodology for ABD products, including an additional link that considers ecosystems and agroecosystems as providers of environmental services and resources for production. This innovation, its applicability and adaptation to local contexts, make it a valuable tool for promoting conservation and sustainable use of the ABD, with a market approach that defines 06 links:

Figure 1: Stages in the ABD value chain

Source: Prada, 2021.

The "Identification, analysis and prioritization of agrobiodiversity product value chains in the areas of intervention of the GEF Agrobiodiversity project" [13] proposes a participatory methodology in which stakeholders evaluate the ABD product baskets from a systemic value chain approach, based on four dimensions: economic, cultural, institutional and environmental. These dimensions include 15 criteria that allow a technical evaluation of the value chain[14]. The methodology for the development of each stage: (1) the characterization of the scope of analysis, (2) the identification of the value chain, (3) its prioritization, (4) the mapping of the chain and (5) the proposed action plan for the competitiveness of the value chain includes the activities in the field, the objectives expected at each stage and the information gathering tools.

The result of the application of this methodology is the valuation of a basket of products with greater possibilities of being integrated into a value chain, according to their context, with technical criteria that are at the same time simple to apply, incorporating ABD and the sustainable use of resources. The proposal also explores the articulation with small processing companies or MSEs (micro and small enterprises) whose demand volumes can be supplied by producer associations that, due to their scale, have a horizontal relationship with producers.

In the development of this methodology, five trade agreements were reached, two of which came to fruition: the dairy chain in the Puno area and the agrobiodiversity product basket chain in the Cusco area.

To ensure the functioning of the value chains, the improvement needs of both the producer associations and the participating MSEs were identified. This information was used to identify possible business plans for implementing the improvements identified. During this stage, the yachachiqs and commercial advisors of the Project provided support and technical assistance to ensure efficient compliance with the commercial agreements signed between the organizations and the MSEs.

Main achievements

- The methodology has been adapted to the area of intervention, actors and ecosystems specific to agrobiodiversity, making it an integral and reference tool. This makes it valid and replicable in other similar contexts, such as the mountainous areas of the Andes in countries like Peru, Bolivia, Colombia and Brazil. Moreover, it is not limited to being a copy of other existing methodologies, but has been contextualized and adapted specifically to address the challenges, high complexity and particularities of agrobiodiversity.
- The criteria established in the methodology make it possible to evaluate and assess different aspects of agrobiodiversity value chains. In this way, it takes into account the diversity of products and the importance of aspects such as socio-cultural practices, agroecological products, the role of women and youth, and natural resources, thus ensuring a more complete and sustainable vision of the value chains.
- The methodology is easy to replicate, highlighting its simplicity and ease of understanding. It does not require mathematical formulas or complicated percentages. The criteria are simple and based on local logic, which allows their replication in different contexts and their application by various actors involved in agrobiodiversity.

Lessons learned

1. The ABD's value chain analysis methodology for products is an important contribution to identify and select opportunities for linkages with companies within the scope of the project. Participants in the process should be clear that this analysis does not automatically guarantee better commercial

[13] 2021. Prada, Richard. Identification, analysis and prioritization of agrobiodiversity product value chains in the areas of intervention of the GEF Agrobiodiversity project.

[14] The criteria are the following: (1) Experience and interest of families in the production of Agrobiodiversity baskets, (2) Contribution to the food security of families in the area (cultural and legacy value), (3) Possibilities of generating trust among the stakeholders in the value chain, (4) Contribution to the conservation of Agrobiodiversity, (5) Contribution to ecosystems and ecological maintenance of agroecosystems (6) Number of producers and organizations involved in the Agrobiodiversity good and/or service (7) Current market demand and growth potential (8) Possibilities of inter-institutional support (9) Possibilities of access to production factors (land, labor and capital) (10) Availability of quantity and quality of market information (11) Possibilities of developing complementary activities such as community tourism, crafts, among others. (12) Possibility of including women, youth and entrepreneurs (13) Potential for certification as a differentiation strategy in the market (14) Integration of commercial operators and level of interdependence (15) Management of the level of perishability and possibility of value added.

conditions, but it provides a valuable diagnosis and a basis for identifying the challenges to be overcome.

The relationship with an identified market can be established and maintained, provided that the necessary efforts are made to close the gaps identified between the supply and demand of Agrobiodiversity baskets. In the context of the Project's work, it has been learned that this is a medium and long-term process, which involves close support to organized groups of producers. If this is not done, the trade agreements to be reached may not be sustainable and may go against the expectations created during the process.

Although a detailed analysis of the value chain is not sufficient in itself to achieve an advantageous linkage, its greatest contribution lies in the ability to identify the critical points and limitations of the chain, and to work on overcoming them. In this regard, it is worth considering whether a trade agreement should be part of this analysis.

From a market perspective, the chain analysis should make it possible to analyze the real motivations of buyers, their commitment to agrobiodiversity and their understanding of the volumes and seasonality involved, or whether, on the contrary, their interest in commercial agreements prioritizes an image strategy.

2. Providing information, raising awareness and educating consumers are fundamental tasks for valuing agrobiodiversity products. Constant efforts must be made to promote these products and raise awareness of their importance and the benefits of their consumption.

Consumers also play an important role in the success of agrobiodiversity value chains. Information, education and permanent awareness-raising efforts are needed from the government, ministries, economic development and natural resources departments, among others, to ensure that consumers value and appreciate agrobiodiversity products. This can have a positive impact on buying companies that seek to improve their image and social responsibility, and can engage in coordinated work with producer associations.

Recommendations:

- The methodology should be presented in the form of a manual or practical guide. This document should be attractively formatted and designed to be easy to use and understand. It should include clear and structured sections with step-by-step instructions for conducting the analysis.
- It is important that the manual or guide contains a social approach, which implies highlighting the importance of agrobiodiversity in terms of food security, livelihoods of rural communities and environmental conservation.
- Adapt the content for different audiences: a version aimed at academics, technicians and subject matter experts, including more in-depth technical and methodological details, and a more accessible and visually attractive version aimed at direct value chain actors, facilitating the understanding of complex concepts.
- The manual or guide should be promoted and shared with the sectors interested in the analysis of agrobiodiversity product chains. This includes the Ministry of Agriculture and Irrigation (MIDAGRI) and its support agencies, donors, biotrade programs, non-governmental organizations, universities, research institutes, local government, and others.

CASE 3: Value chain governance

Chain governance is defined as inter-institutional participation and articulation in value chain development. This contribution has two potential routes: (1) promotion, support and capacity building services (as a classic indirect actor in the value chain), and (2) generation of local development policies, such as ordinances related to promoting the product and providing better conditions for producers.

It is clear that the chains require a great deal of support; numerous support services as more needs develop. For this reason, at the sectoral level (MIDAGRI, for example), there is AGRORURAL, AGROIDEAS; NGOs and private service providers of goods or raw materials are also involved. Local Governments constitute channeling platforms at the subnational level to all service providers, also joining as one of them, as part of the fulfillment of their role in local development.

In the Project, chain governance has focused on alliances with local governments (district and provincial), encouraging the participation of Local Economic Development Offices (LEDO) to support the promotion and commercial articulation of agrobiodiversity baskets.

Their participation has always been aimed at facilitating the commercialization process in their territory, approaching existing channels. Thus, they have participated in activities of coordination, convening, accompaniment, and even in the transfer of funds in the purchase, sale and subsequent assistance in the accountability of the sales generated.

Regarding the transfer of funds, in some cases LEDO supported the transfer of funds from the buyer to the producers-sellers present, or to the commercial advisors of the project, with the knowledge of the producers.

Another topic of specific participation has been the temporary use of food collection and handling centers in free spaces of the municipal infrastructure, all managed by the LEDO technical teams.

In several cases, the Local Government has found ways to provide technical assistance (which the producer usually cannot afford) or to implement national policies (such as PROCOMPITE[15]) that have strengthened and financed producer organizations.

Main achievements

- The project has promoted the active participation of local governments as a support service for the chains and a generator of local development policies. Participation has varied, depending on the circumstances and characteristics of each territory.
- To demonstrate to local governments the importance of having a first link in the ecosystem, which generates a long-term vision of brand and identity in a territory that is already rich in diverse ecosystems.

Lessons learned

1. Incident is not enough for Local Governments to become involved in value chains in their territory. Strengthening the management capacities of local governments is part of strengthening the governance of a value chain.

Political will is not enough. There are limitations in their technical areas in terms of capacity and equipment. Likewise, the LEDOs are understaffed with limited economic incentives.

2. Often a Local Government cannot do it alone. What is essential in value chain governance is the role it plays as an inter-institutional articulator, especially in its area of local economic development.

This is why it is so important for local government to welcome any public or private actor that can provide a service to the value chains, especially to the production link.

3. The governance of value chains is a medium/long-term process because capacities are still limited, connectivity is still under development, organizations are incipient and, above all, because local governments address numerous challenges of the territory they lead in short terms of four years.

Recommendations

- Influence Local Governments, their role as generators of policies to promote the product and the value chain. Often, trying to be a service provider is too much effort compared to their real management capabilities. In this context, implementing programs to support producer organizations could be a recommendable role.
- Contribute as a Project with concrete elements such as collective brands, business plans, collection and primary processing centers, organizational systems in the associations. This means that, despite the

[15] PROCOMPITE is a priority strategy of the State that constitutes a Competitive Fund to co-finance productive proposals (business plans). Its objective is to improve the competitiveness of production chains through the development, adaptation, improvement or transfer of technology. It may consider the transfer of equipment, machinery, infrastructure, inputs, materials and services for organized economic agents, exclusively in areas where private investment is insufficient to achieve the competitive and sustainable development of the production chain (https://procompite.produce.gob.pe).

change of local authorities, there are always elements close by so that local governments can support the chain and promote new opportunities such as community tourism.

- Find public or private mechanisms to strengthen the management capacity of local governments, especially the LEDOs, with an agro-biodiversity approach. There are incentive programs and training programs that can support not only the delivery of better services, but also promote greater investment capacity related to agrobiodiversity value chains through access to competitive funds and technical cooperation sources.
- Continue implementing strategies to strengthen local identity, such as fairs, events, museums, etc. It is key that a territory and its respective local governments can value agro-biodiversity and the impact it has on development. This also implies promoting greater local consumption of products, valuation of biocultural heritage, and the promotion of local products.

COMPONENT 3

CASE 1: Strengthening of the Regional Environmental Information System (REIS)

In order to facilitate access to information on ABD in a systematized way for decision-making, monitoring and evaluation of agrobiodiversity conservation programs, the project proposed strengthening the Regional Environmental Information Systems (REIS)[16] and linking it to the GENES[17] platform of the Ministry of the Environment (MINAM). Through the REIS, the general population has access to information consisting of environmental indicators, thematic maps, complete documents, reports on the state of the environment, environmental legislation, among others.

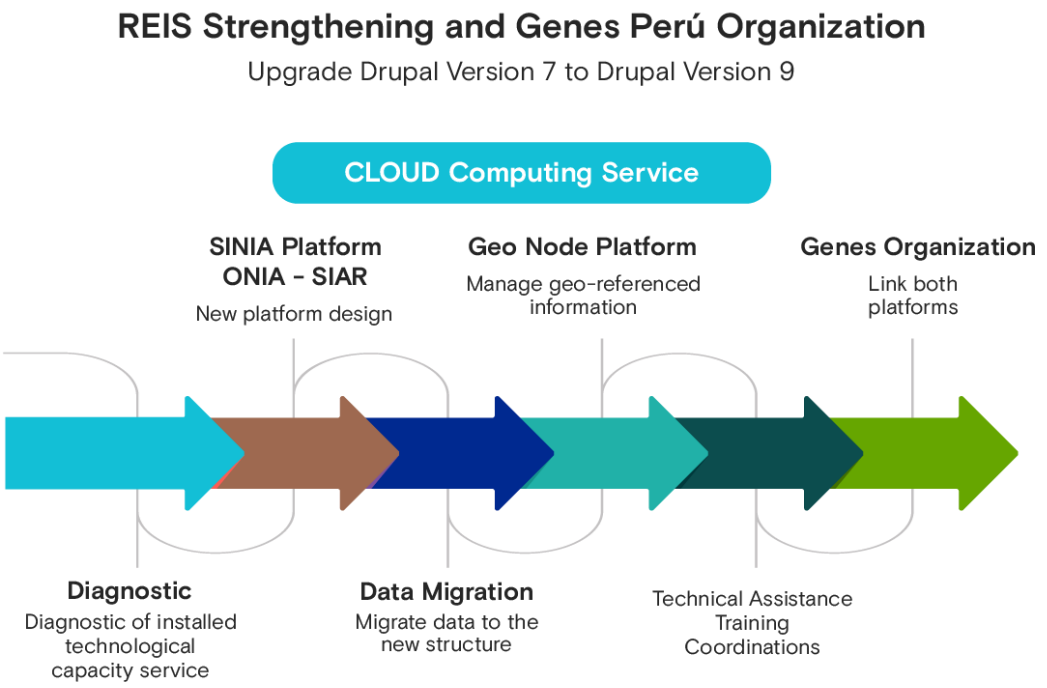
The project included prior activities such as presentations to the authorities involved in the Ministry of the Environment (MINAM), the Ministry of Agrarian Development and Irrigation (MIDAGRI), among others, as well as meetings with regional authorities. These initial events allowed a general knowledge of the project, with the objective of achieving a deeper understanding and a greater commitment of the authorities to the proposal.

The following diagram summarizes the stages developed for the strengthening of the REIS.

[16] The Regional Environmental Information System - REIS is a technological, institutional and human integration network that facilitates the systematization, access and distribution of environmental information in the region's territory, as well as the use and exchange of this information to support decision-making processes and environmental management.
The REIS is part of the National Environmental Information System - NEIS and was developed to serve as a support tool for the implementation of the National Environmental Management System (NEMS). (http://siar.regioncusco.gob.pe/contenido/que-siar)

[17] GENES PERU is the Information Platform on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits derived from their utilization (ABS) of the country, administered by the Ministry of Environment (MINAM) whose objective is to provide key information, as well as to make known the ABS processes in a transparent manner as a result of the articulation of efforts and initiatives of the State to conserve and sustainably use its genetic resources and the protection of associated traditional knowledge. (https://genesperu.minam.gob.pe/)

Figure 2: Stages of the process[18]



Source: Component 3 GIAHS Project

The first stage of the Diagnosis included information on the information needs of the Regional Governments (GORE), the existing supply of information and the status of the technological capacity installed in each GORE. As a result, it was identified that the REIS in five prioritized regions lacked equipment (or were obsolete), insufficiently trained personnel and partial access to information. Thus, the project faced a major challenge, which included upgrading equipment, updating licenses for the use of technological tools such as ArcGis and Power BI, as well as training personnel in charge of their use.

In coordination with the team of the Directorate of Environmental Information, Research and Innovation (DIIIA), a work plan was drawn up to identify the interventions needed to strengthen the REIS.

A new environmental information management architecture was designed in accordance with the recently approved regulatory framework for the NEIS[19], which was translated into a new platform for the REIS, but problems arose in the process of migrating the information to the new REIS platform, making it necessary to contract a virtual hosting service using cloud services to transfer and modify the information before incorporating it into the National Environmental Information System (NEIS). This process was finally carried out with the GOREs, which took a long period of time due to unforeseen situations that delayed the approval process by MINAM. On the other hand, it should be noted that this process coincided with the restructuring of the NEIS according to its guidelines approved in February 2023 by Ministerial Resolution No. 031-2023-MINAM, which meant making some adjustments after the deadline to adapt the REIS to the new structure of the NEIS.

In addition to these technical setbacks, there are other unexpected issues, such as:

- High personnel turnover in the regional governments in charge of supporting the REIS. In addition to this, not in all cases personnel with a technical-computer profile are appointed, which hinders the proper use of the digital tools implemented.
- The regional environmental and natural resources managers or submanagers of the regional governments lack IT support and adequate financial resources for optimal operation of the REIS.

[18] Detailed information on this process, its activities and results can be found in the document Product Summary Sheet 3.1.1.
[19] Supreme Decree No. 034-2021-MINAM

- Personnel changes in MINAM's information technology offices during the development of the project, with the consequent impact on their continuity and participation.

In general terms, the pace of progress of this component of the Project has been limited by the speed at which MINAM and the GOREs have responded to the requirements, over which the Project has no control. It was necessary to establish channels of permanent dialogue, since the project cannot make decisions unilaterally; the information requirements and other aspects related to the project had to pass through authorizations at different levels within the state apparatus, with their respective flows and times.

Achievements

- Design and successful development of the new NEIS platform (National Environmental Information System and REIS) for five (05) Regional Governments: Puno, Cusco, Huancavelica, Junín and Apurímac, thus facilitating timely and quality environmental information in support of decision making and promoting citizen participation in environmental management.
- Safeguarding and integration of around twelve thousand (12,000) environmental information contents compiled by the GOREs (including publications, regulations, maps and statistics), under the new NEIS standards, ensuring their access and availability over time, as this information is part of the new NEIS data architecture supported by MINAM.
- Construction and design of one (01) digital platform for the cataloguing and dissemination of geographic information produced by the GORES. This platform was developed based on the GEONODE content manager, which is a tool that does not require the payment of licenses or subscriptions for its operation, which guarantees its use post-project.
- The contribution and its impact are not limited to the regional sphere; the impact is national, with agile systems with validated and accessible information for all types of users, both for public management and the private sector.
- Integration of the REIS platform with the GENES Perú platform, as well as its alignment with the new NEIS guidelines approved by MINAM, which will have a positive impact on environmental management and decision making at the national level.

Lessons learned

1. When executing processes whose progress depends on the decision of a superior control body, over which we have no influence, it is necessary to engage from the outset the key stakeholders with decision-making powers. This commitment may be based on actions to raise awareness of the importance and impact of the proposal and/or a formal written commitment at the management level, where responsibilities, attributions, etc. are clearly established.

In our case, the initial presentation of the Project was insufficient to achieve a more direct approach with the actors involved in Component 3, and we did not work closely enough with the entity with which we were to collaborate directly. This may have affected the understanding and commitment of the stakeholders to the work entrusted to them. It should also be noted that the commitment to achieving results on the part of the partner entities must be backed up by high-level decisions.

During the development of the project, it was identified that the sensitization stages, which include information, motivation and the achievement of commitments, were not adequately completed. One aspect that may have played a role was the lack of supporting dissemination material. This limited the flow of communication and subsequent collaboration, especially in the case of a technical issue that required extra support to be communicated clearly. Although the Project prepared an informative diptych, it was never disseminated due to the strict publication rules of MINAM and FAO.

In this sense, it has been learned that it is necessary to:

- Make a specific presentation for the stakeholders that we seek to engage with the actions of component 3. This interaction should be continuous until a closer relationship is established and active participation of the stakeholders in the development of the project is encouraged. This initial interaction facilitates communication channels.

- Stakeholders should participate with their opinion about the contribution they expect from the Project (in this case component 3) and the commitments they assume.

2. For projects of this type, it is advisable to have a specialist who knows his or her area well and who also has knowledge of information technologies. If this is not the case, it is necessary to rely on external support resources with the necessary profile to provide support and make timely decisions.

The lack of recognition and valuation of the information technology area in many government entities is a wear and tear factor and a bottleneck. This area is still seen as a minor support instead of being considered key in all processes. It is necessary to have adequate resources, trained specialists and the capacity to respond quickly to changes and project requirements. In the present case, an external professional resource with the necessary experience was available to expedite the process despite different contingencies such as time and procedures at MINAM, staff turnover and the lack of support from the GORES to the REIS.

3. It has been learned that before executing a service, it is necessary to have a clear understanding of: i) the objectives and scope ii) identify key people and iii) assess the internal conditions of the entity or users involved. This contributes to greater effectiveness and increases the chances of achieving the expected results.

This learning involves defining precisely what is expected to be achieved and how far the responsibility for the project extends. Without this clarity, it is difficult to ensure that the work is carried out effectively. In addition, the importance of identifying the key people involved in the service to be executed has been recognized: those who have the capacity to make decisions, provide relevant information and actively collaborate in the implementation of the project. Working closely with these key people leads to better communication and greater commitment to the process.

In the case of collaborating with another government entity, we learned the importance of assessing internal conditions before starting the work. For example, if there is a need to strengthen systems and develop a portal, it is necessary to verify whether the entity has the resources, capabilities and adequate conditions to carry out the implementation of the project. It is not enough to have technology specialists; the internal conditions of the entity receiving the service must also be evaluated. Even if an expert technology consultant is available, if the internal conditions are not favorable, it is unlikely that the desired results will be achieved. Therefore, it is crucial to conduct a pre-mapping to identify the internal conditions and determine whether there is a solid basis for successfully carrying out the service.

4. Training throughout the process, as well as at project closure, contributes to leaving a set of professionals and technicians capable of continuing to manage systems beyond the life of the project. However, this does not guarantee that this capacity will be maintained over time due to high staff turnover in the GORES.

Once the project is completed, there should be a legacy of people prepared and trained in the use and maintenance of the equipment and the handling of the programs. This implies providing them with the necessary training and promoting their participation in the process. However, it is not enough to have trained collaborators; it is equally important that the heads understand the usefulness and magnitude of what is being left behind.

Recommendations

- Make presentations aimed at stakeholders related to the component, maintaining continuous interaction until they can internalize the benefits of the actions for their territory. It is also essential to establish a dissemination and awareness-raising plan before the start of the project, as this paves the way for more effective interaction with stakeholders.
- To have a professional with knowledge of information technologies and who is part of the team responsible for the project, in the event that it was not foreseen in the design to contract support services for the necessary time. This person must have the necessary level of knowledge and experience to understand the technological implications and provide advice on decision making, in addition to complementing the technical and managerial aspects.

CASE 2: CLDP: incorporation of conservation and ABD into the management systems of regional and local governments

Concerted Local Development Plans[20] do not usually include Agrobiodiversity (ABD) present in their territories in their formulation. Instead, preference is given to the construction of infrastructure with a greater possibility of allocating public resources, immediate recognition by the population and favorable political positioning for the authorities, and prioritizing urban problems to the detriment of an integral vision that includes the rural sector. Ecosystem management and governance are often put on the back burner because they do not provide short-term results. In this context, the Project seeks to generate conditions for authorities and leaders of a territory to recognize that ABD is part of their natural capital and should be considered as part of the investments in their territory.[21]

A first condition is to encourage the interest and commitment of local governments in the formulation of the CLDP, since without their leadership the drafting process cannot begin and the project cannot move forward. This implies awareness-raising and training actions. On the other hand, it is important that the Local Coordination Committees (LCC) are active and play the role of accompanying the CLDP formulation process.

The participation of the different territorial stakeholders in the process is crucial, which is why it is necessary to inform and engage them in advance about the CLDP, its importance for the territory, as well as the activities that will be carried out for its formulation and subsequent approval. In this sense, it is important to organize a public launching ceremony and encourage their participation.

The formulation of the CLDP begins with the characterization of the territory, using primary and secondary sources of information. Secondary information is not always up to date, so it must be complemented with visits to the territory and consultations with different local authorities. Once the characterization has been completed, the desired future scenario is constructed and the objectives, indicators and strategic actions that will enable it to be achieved are identified. These processes are carried out in workshops with the various stakeholders of the territory and in accordance with the guidelines approved by CEPLAN.[22] Once the CLDP has been finalized, it is validated and presented to the public to obtain the agreement of the parties involved.

It is important to highlight that, for this process, the Project has sought consultants with experience in participatory planning and, at the same time, has hired a consultant to formulate a methodological guide based on the ongoing processes and thus contribute with a tool to be used in other territories for the formulation of CLDPs with a focus on ABD and the recovery of vulnerable ecosystems.

However, during the participatory construction process, it has been found that ABD is not necessarily present in the priorities of the stakeholders of the territory and the communities where the project has intervened. Despite the awareness-raising activities on the importance of ABD developed as the formulation of the CLDP progressed, in some cases, the plans have incorporated ABD as an option, in a secondary place in the hierarchy of priorities or have not addressed the issue at all. However, there have been experiences where ABD has had a more visible presence. It is important to bear in mind that, at this early stage in the formulation of the CLDPs, the inclusion of ABD depends on the existing agendas and priorities in each territory.

It should be noted that, as part of the first formulation stage, in many cases, the consultants have contributed to activate the Local Coordination Councils (LCC), even if it was not stipulated in their terms of reference, by managing and obtaining an approval document from the local government to initiate the plan.

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[20] "The Concerted Development Plans constitute the document prepared by the Local Governments for their respective territorial areas and must contribute to the achievement of the objectives established in the Concerted Regional Development Plan, as appropriate" (https://www.ceplan.gob.pe/planes-territoriales/)

[21] GEF Agrobiodiversity GIAHS Project. 2022. Management Report 2022, Project: "Sustainable Management of Agrobiodiversity and Recovery of Vulnerable Ecosystems in the Andean Region of Peru through the Globally Important Agricultural Heritage Systems - GIAHS Approach".

[22] The National Center for Strategic Planning (CEPLAN) is a specialized technical agency that acts as the governing, guiding and coordinating body of the National Strategic Planning System, conducting it in a participatory, transparent and concerted manner, thus contributing to the improvement of the quality of life of the population and the sustainable development of the country. (https://www.gob.pe/institucion/ceplan/institucional)

Main achievements:

- Twelve Concerted Local Development Plans have been completed for the following districts: Lares, Ácora, Atiquipa, Laria, Laria, Huayana, Tumayhuaraca, Nuevo Occoro, Conayca, Chiara, Izcuchaca, San Miguel de Chacrampa and Yanatile. The CLDPs should be the reference for the prioritization of projects in the municipality's participatory budget.
- In the context of change of local government authorities, the project has seen the need to involve the new authorities by providing them with the document (which was not always considered in the transfer process of both administrations) in order to motivate their appropriation. In this sense, in those cases in which the current authorities proposed some modifications and/or additions, these have been addressed in a timely manner.
- The project has developed a guide for incorporating ABD in the formulation of concerted local development plans. This guide has been validated in the field during the process of formulating the plans.
- It has provided the municipalities with the opportunity to have instruments to manage projects that they would not have been able to access due to lack of capacity and resources. One example is the municipality of Lares, which has been able to manage a basic sanitation project that, although it does not focus directly on the ABD, has a substantial impact.
- The project has managed to take an important first step by trying to ground the concept of agrobiodiversity (ABD) and include it in the management instruments of local governments. This progress has been fundamental and should be continued.
- It has been recognized that ABD is an integral and priority issue that not only covers environmental aspects, but also has a cross-cutting influence on economic, social and risk management issues, among others. This recognition is a significant achievement, because by incorporating ABD into planning instruments, it is given greater recognition and the opportunity to influence the local agenda. This implies considering ABD not only as a cultural knowledge, but also as an integral approach that can make a difference in the way territories are planned and developed.

Lessons learned

1. The formulation of the CLDPs at the project level has provided important lessons learned. Initially, the understanding that formulating and approving (the CLDP) is only one part of a complex process that requires prior and subsequent work to ensure the delivery of useful management tools for local governments. Likewise, to allow ABD-related indicators to be executed in spite of possible unfavorable environments.

Three important steps have been identified:

i. *Awareness-raising:* consists of information and training activities on the concept, importance and fundamentals of ABD. During this stage, guidelines are provided and the process for elaborating a development plan with an ABD approach is explained. These awareness-raising activities should especially target local authorities and decision-makers.

ii. *Preparation of the CLDP*: Once the authorities and stakeholders are aware of and sensitized on the ABD, the aspects related to the ABD are integrated during the development of the CLDP, taking into account the established goals and objectives, as well as the strategic actions necessary to promote the conservation and sustainable use of agrobiodiversity.

    In this phase, the greatest challenge is to achieve the participation of the population, which is very skeptical with respect to the concertation spaces due to the lack of compliance with what has been agreed upon; this is evident, for example, in the participatory budget. On the other hand, it is essential to recognize that, although local governments play a key role in this process, they do not assume their role and do not get involved in the process. This further weakens the convening of the different social organizations and relevant stakeholders in the decision-making process. For this reason, communication with local government officials continues to be important at this stage: keeping them abreast of the step-by-step progress of the process.

iii. Implementation and follow-up: Once the CLDP has been formulated, it is essential to have a space for monitoring its implementation. Monitoring should be ensured for at least one year to guarantee the measurement and monitoring of the indicators related to the ABD. At this stage, the Local Coordination Council (LCC) has an important role in monitoring actions and indicators related to the ABD. They are key actors and should be considered as allies.

The Municipal Environmental Commissions (CAM) and the Oversight Committees (COVI) are bodies that can contribute to the process, but they are not directly responsible for monitoring the plans.

2. Regarding the consultants in charge of the CLDP formulation processes: in addition to having experience in the methodology proposed by CEPLAN, experience in issues related to the ABD must be considered. If they do not have such experience, they must necessarily undergo a training process to ensure the visibility of the ABD during the process of formulating the CLDP.

In this sense, from the beginning the consultants should be clear about what is expected of them, and that it is explicit in their terms of reference. In the case of the project, the consultants were expected to be part of a constructive process, where concepts such as ABD are conceptualized as input for the guide being prepared. This may have prevented some consultants from feeling uneasy because they perceived a lack of clarity in the concept that, for their work, was essential for the determination of common indicators to evaluate the progress of the CLDPs.

3. During the formulation of the CLDPs, one must be aware of the importance of balancing the inclusion of OBA in the content of the document. This should be measured to avoid the plan being observed or rejected by CEPLAN.

In this sense, it has been learned that "it is not possible to put in all" the contents of the document since it is a territorial management tool. The most appropriate thing to do is to include in the Diagnosis chapter information that serves to educate about ABD: the use of communal calendars, the importance of bilingual education, conservation of native varieties, etc. In this way, the writing of the document will give meaning to ABD, educating about its importance and not just presenting statistics.

4. Finally, it is important to go beyond the formulation of the CLDP. It has been learned that it is essential to complement the process with two other key documents for local government management: the Institutional Strategic Plan (ISP) and the Institutional Operational Plan (IOP).

The ISP is the document that establishes the direction and general objectives of the development plan from the municipal management. It provides a clear vision and guides the actions to be taken to achieve the expected results. Without the ISP the planning process is incomplete and actions may lack a coherent and effective approach. Subsequently, the IOP is responsible for implementing and concretizing the projects identified in the CLDP at the municipal management level. This plan establishes the specific actions to be developed, the people in charge, the deadlines and the resources required for their implementation. It is through the IOP that the operability and budgetary programming of activities is achieved, which is essential to meet the expectations of the population and guarantee the viability of the proposed projects.

In addition, as indicated above, the importance of strengthening participatory spaces has been identified, such as the Local Coordination Council (LCC), which plays a strategic role in the monitoring and follow-up of planning documents. The LCC, being accredited and having the responsibility of supervising the implementation of the plan, increases the chances that the goals and actions established will be effectively achieved.

5. The transfer of information and documents, such as the concerted local development plans (CLDP), to the new authorities (elected for the period 2023 - 2026) is crucial. It has been learned that delivery in virtual format is preferable, as it avoids the loss of physical documentation and facilitates access to detailed geographic information.

This learning is associated with the importance of ensuring an adequate transfer to the new authorities to guarantee continuity in the implementation of the plans. The outgoing authorities have a deep knowledge of local development plans that is difficult to transfer and share, which is an additional challenge. Specific actions are required with the new authorities to ensure that they take responsibility for the CLDP and understand its purpose. In this sense, the project has implemented a new training course that includes the topic of the CLDP, with the objective of closing the knowledge gap and training the current authorities.

Recommendations

- Implement a mandatory course on agrobiodiversity-based management tools (ABD) before starting the process of elaboration of the concerted local development plans (CLDP). This course should be aimed at local government officials and address both technical and conceptual aspects of local management with a focus on ABD. Workshops and practical activities should be included, with sufficient time to develop the necessary skills and competencies. In addition, a holistic approach that encompasses both ABD and the restoration of local ecosystems should be ensured.
- Ensure the timely incorporation of the products generated by the project, such as maps and studies. It is important that these elements are available and can be used in the territory before finalizing the CLDP document. Considering that component and product times are not always performed simultaneously, it is necessary to estimate an average time in order to ensure feedback between actions and results of different components.

CASE 3: Contribution of the Yachachiqs or rural talents

The rural talents known as Yachachiqs (Quechua) or Yatichiris (Aymara), are "peasants, recognized and acknowledged by their peers in their community, for having outstanding knowledge or skills in topics of their daily work, mainly based on their experience and that they are willing to transmit or share with their peers, through technical assistance services in activities such as lectures, guided visits or field days, providing practical solutions"[23].

The promotion of the yachachiqs and yatichiris took place within the framework of the national strategy of rural talents that aims to contribute to expand and strengthen extension services, technical assistance and rural training, appropriate to the needs and demand of producers and producers of family agriculture, provided by Rural Talents, within the framework of the National Agrarian Innovation System (NAIS) and the National Agrarian Policy.

The election of the yachachiq begins with a call for applications where each community chooses an applicant. They go through a selection process, where their leadership potential, proactivity, basic market knowledge, among others, are valued. Another requirement is to have completed high school. It should be noted that, although yachachiqs by definition are wise men or "experts" of the community, administratively the Project was not prepared to admit people with non-formal training. As this is an indispensable requirement for hiring, it was decided to select young people from the community, who would be trained during their work with the Project. To date, a total of 32 yachachiqs have been hired.

The rural talents began their work in the field in July 2020, and played a decisive role during the context of the COVID 19 pandemic, being, together with the facilitators, the only Project personnel present in the territory. Thus, they allowed a continuous interaction with the different actors, in addition to providing rapid and timely communication on the development of the activities.

The yachachiqs have covered different functions. They have played an important role in the consolidation of the associations and in the participation of their members in the commercial processes: they have been part of the team in charge of training in sales, product selection and quality, translating into Quechua the messages of the consultants who, during the pandemic, provided virtual training to the organizations. The ABD yachachiqs have performed various tasks, such as conducting natural resource inventories, locating and drawing native plants and pastures, among others. They have also been trained in compost preparation and sanitation of crops such as corn and potato.

Another noteworthy aspect is the role that many have assumed in their communities after concluding their relationship with the project, whether as mayors of towns, councilors, among other important positions; being part of the board of directors of producer associations or assuming a role of conservation of the ABD, putting into practice everything they have learned with the project and being an example in their community: "*Before*

[23] GEF Agrobiodiversity GIAHS Project. 2022. Management Report 2022, Project: "Sustainable Management of Agrobiodiversity and Recovery of Vulnerable Ecosystems in the Andean Region of Peru through the Globally Important Agricultural Heritage Systems - GIAHS Approach".

working in the Project I was a driver. Because of the pandemic I returned to the community and started to work... I am currently conserving 36 varieties of potatoes, I have two children, I no longer buy from the market, now I have enough to eat and sell. Before I used chemical fertilizers, now it is natural. I am thinking of keeping more potatoes to sell, so that the custom is not lost…".

On the other hand, the Yachachiqs who have finished a university degree and are not going to stay in the community, have internalized the lessons learned from the Project and have integrated them into their different professions. In Lares (Cusco) there is the case of a Yachachiq with a degree in nutrition, who thanks to her participation in the Project highlights and includes native species and clean crops in the diets of the people; a sociologist who is now part of the staff of the local government and is aware of the importance of preserving the ABD. These are some examples of yachachiqs who, from their profession, become allies of conservation, even after the end of the project, and are part of the human capital that the Project is leaving in the territories: professionals, authorities, conservationist leaders, among others.

It is worth mentioning that five regional networks of young promoters of the GIAHS approach have been formed. There are about 90 young people who have been trained in: Food systems, sustainable production, marketing and markets, etc. The young people were also trained in the use of ICTs, facilitating communication between young people from the same territory and from other areas. This youth network, still in the process of consolidation, is projected together with the yachachiqs as promoters of agrobiodiversity conservation in their territory.

Main Achievements:

- At the end of the project, 32 young people have been trained within the scope of the Project, who constitute the most important asset that remains in the territory, showing willingness to work, knowledge linked to the ABD through various training processes and in other aspects such as: technical aspects of agriculture, marketing and conservation of the ABD, who apply this new knowledge and share their learning with the community.
- Maintaining a permanent presence in the intervention areas, despite the health emergency and subsequent political crisis in the country. The yachachiqs have been the vehicle that has allowed the project activities not to be interrupted and not to lose the connection with the population and local governments.

Lessons learned:

1. The training of local leaders or committed professionals, are the support for the continuity of the project actions even after its completion.

The trained yachachiqs who remain in their area are the ones who can contribute directly to the sustainability of the Project's actions, in commercial management, conservation of the ABD, landscape recovery, among others. The yachachiqs take with them a wealth of knowledge and practices that directly feed the human capital of the territories.

Some are authorities or are being hired by other institutions. As we have seen in the document, they are a group of young people who from different positions (as directors of an association, holding a decision-making position in the local government or the community, as conservationist farmers, etc.) are leading processes in accordance with the Project's principles, which they have managed to learn and internalize.

2. The Yachachiqs have demonstrated the importance of the permanent presence of people legitimized by the community, who speak the language and who are the link with the facilitators in training processes.

The yachachiq have played a key role in energizing the activities in their communities. The project facilitator assigned to a large territory could not have developed all the activities without their support.

On the other hand, the Yachachiqs have been able to transmit knowledge in a friendly manner and in their language, especially in the context of COVID 19, where the relationship with the project staff was through virtual means. If they had not been present, it would not have been possible to reach the community, nor

would it have been possible to take advantage of the lessons learned. Communicating in the local language is an expression of cultural identity; therefore, their permanent presence in the training process allows establishing an effective bridge between the external facilitators and the community, ensuring that the messages and teachings are better understood.

Recommendations:

- The budget should include providing uniforms or other distinctive elements to the yachachiqs (hats, vests, etc.). This will help to identify them in a distinctive way, recognize their role and legitimize them in the community, strengthening their participation and leadership. Another form of recognition is to provide them with logistical support, such as mobility or fuel, in agreement with the municipalities.
- Provide internships and growth opportunities for yachachiqs. These internships can be an opportunity to exchange experiences with their peers and strengthen their role as leaders and facilitators.
- In addition, their participation in key positions within local organizations or in related projects, such as board members or commercial representatives, can be promoted.
- Since the national rural talent strategy is in force, the possibility of articulating the yachachiqs trained by the project with State institutions, such as INIA, Midis, etc., can be explored so that they can continue their training and their skills can be recognized.

Conclusions

Regarding the cases presented, it is important to keep in mind that the interventions require different periods of time to show results in their implementation.

In this sense, in Component 1 we have observed tangible results in the PACS campaigns, in the seed banks and a good part of the conservation goals have been met. This would not have been possible without considerations such as prior consultation and participation of the communities, continuous technical assistance, constant presence of field personnel, yachachiqs, trainers, and the implementation of field schools, among others. These elements play a fundamental role in systematized practices, as they support implementation.

Two conditions have been identified for the continuity of these processes. First, political will and the enactment of laws and ordinances at the state level that encourage and motivate producers to take care of agrobiodiversity are required. These governmental measures are crucial to create an enabling environment that encourages the adoption and maintenance of sustainable practices. Secondly, at the local level, it is imperative that the community organizes itself to support and monitor the practices implemented. This involves ensuring that those in charge of seed banks and PACS distribution follow through on the commitments they have made. In addition, it is essential to maintain and protect ecosystem restoration activities, ensuring compliance with agreements. The combination of political will supported by legal frameworks and active community participation contributes to the continuity of ABD conservation efforts.

Another condition for the sustainability of conservation practices based on traditional knowledge is to support intergenerational transmission through rural schools, in this regard the project started this practice with promising results, but for lack of organizational flexibility could not have continuity, however, it is recommended to incorporate in future designs.

In the case of Component 2, although commercial activity has increased producers' income, it is clear that they are still in the process of strengthening the commercial capacities acquired, which are still in the process of consolidation. In addition, it is important to analyze not only the volumes or total income from sales of the different commercial channels. It may be interesting to calculate the ratio of the increase in income per producer/month, thanks to the commercial activity promoted by the project, but also to calculate and value the increase in the family diet by recovery and increase in production due to the effects of the best practices received and put into practice. In this way, it is possible to analyze how significant this increase is, and compare it with the costs incurred to reach these channels. It should be clear that, at the end of the project, these costs should be borne by the producers.

Regarding the analysis of the value chain of ABD products and the importance of chain governance, we consider these to be interesting contributions of the project. They are useful reflections that should be shared (with the publication of a manual, for example), and provide a framework for future related interventions.

Regarding Component 3, although the practices presented are still in process or are about to be completed, it should be understood that these are long processes that require political will for their progress. In addition, the political situation and the change of local and regional authorities have slowed down and, in some cases, reversed progress. However, they have left us valuable lessons to consider in interventions that seek an enabling framework for their processes.

A transversal aspect highlighted throughout the interviews deserves a final reflection. We refer to the importance of considering in projects of this type, where the target group is rural people in rural contexts, the need to be flexible and adapt to the conditions of this context.

In this sense, among the limitations for the development of activities, there are administrative procedures that are far from the characteristics of our territory (issuance of receipts, invoices, proformas for the acquisition of handicraft tools, among others). Along these lines, administrative procedures, which are important for maintaining order and monitoring actions, also play a limiting role if they cannot keep pace with, for example, the community's calendar of activities, which cannot be dissociated from the weather and the seasons. The credibility of our proposals and of our staff, especially when we work with populations that have suffered attrition due to unfulfilled promises (by the state and other development institutions), must be considered one of our most precious values. If the length of the procedures undermines this credibility, the necessary adjustments must be made.

Finally, also related to flexibility, cooperating entities should consider that, although there is a results framework that must be met, it should be able to adapt to the needs and initiatives of the population. In this sense, a project that seeks to rescue ABD and revalue ancestral practices around it, should listen to and accompany the population. This does not imply moving away from the project's goals, but rather seeking methodological strategies appropriate to this cultural relevance.

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