



# Today Peru, Tomorrow the World! A Pathway for Scaling of Payments for Agrobiodiversity Conservation Services

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## Background

The Payments for Agrobiodiversity Conservation Services (PACS) on-farm incentive mechanism, a subset of ABD-focused Payments for Ecosystem Services (PES), promotes conservation of valuable crop and livestock genetic resources. PACS is a mechanism for fulfilling commitments under, inter alia, the Convention on Biological Diversity, the International Treaty on Plant Genetic Resources for Food and Agriculture and national legislation. Piloted and rigorously tested over 14 years, PACS has a high degree of scaling-readiness. Using a competitive tender approach to generate and select community level conservation service offers in a cost-effective and socially-just manner, the approach has resulted in a multi-stakeholder research for development platform which has not only provided farmer incentives, but has required addressing fundamental conservation and use management issues along the way.

In this process, PACS has supported 2,740 poor farmers (43 % women) from 300 communities in four countries in LAC in the conservation of over 390 threatened varieties from 10 crops. Additional PACS projects have also taken place in Africa, Asia and Europe.

Peru has been a focus for PACS given its status as a megadiverse country, its many crop species/varieties considered seriously threatened, while being associated with important public good values, and, the existence of strong institutional commitment and interest in finding innovative solutions to address conservation of agrobiodiversity. The National Biodiversity Strategy of Peru<sup>i</sup> calls for incentive mechanisms to be developed so as to ensure agrobiodiversity conservation.

A number of small-scale PACS in situ on-farm conservation incentive mechanism interventions were undertaken in Peru between 2010–2018 by the Alliance of Bioversity International and CIAT, including with Ministry of Environment (MINAM) support starting in 2014. A significant mainstreaming and upscaling of PACS took place between 2019–2021 as part of a MINAM Global Environmental Facility (GEF) agrobiodiversity project.<sup>ii</sup>

Some of the conservation issues advanced while developing a scaling pathway have included goal setting and prioritization for genetic resource conservation, participatory baseline assessment, in situ/on farm conservation incentives, monitoring, agrobiodiversity Red Listing, and long-term funding.

The main PACS scaling pathway steps are illustrated in Figure 1, while a more detailed description of the PACS mechanism itself is described in Drucker and Ramirez, 2020.<sup>iii</sup> The main findings following completion of the PACS Peru 2019–2021 interventions are presented below and further details can be found in the GEF project reports and associated publications which should be available soon.

Future applications of PACS within Peru may be used to enhance the progress made under the GEF project, as well as support the recently established ABD Zones and their recognition as Other Effective Area-Based Conservation Measures (OECMs), thereby contributing to Peru's commitments under the Convention on Biological Diversity, as well as providing a template for global applications of PACS.

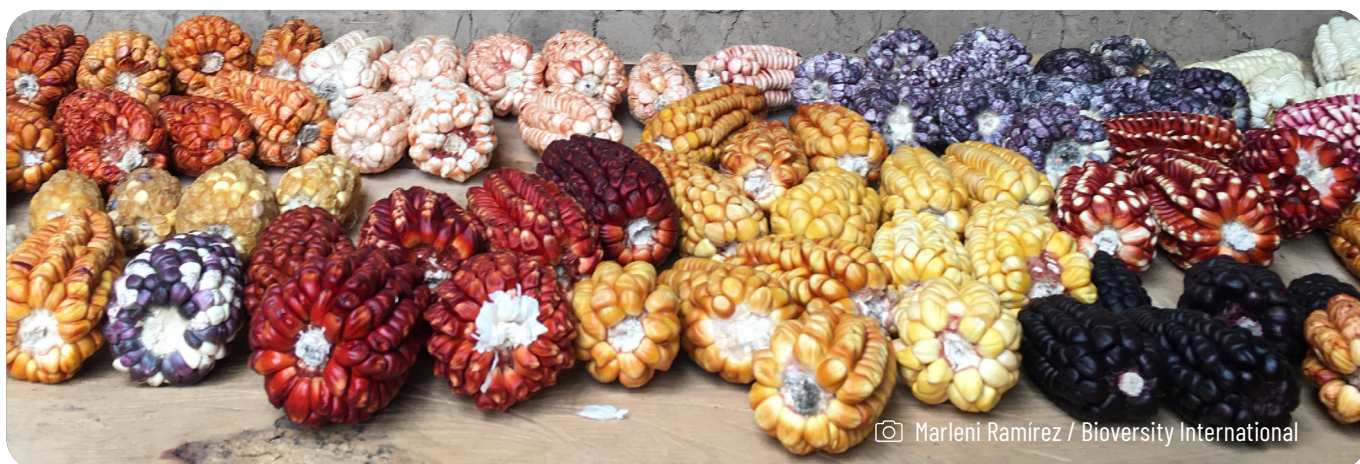
## PACS Highlights

### What should be boarded on Noah's Ark?

#### Status of Conservation, Baseline Survey, and Prioritization [Step 1].

To gather and validate information on crop diversity in local communities we used the Four Cell Method (FCM),<sup>iv&v</sup> a participatory method which supports the identification of common, unique, and rare local landraces, as well as developing conservation plans.

- Local-level FCM applications in 2019 and 2021 involved 40 communities and 108 farmers (38 % female) in four regions of Peru (Apurimac, Cuzco, Huancavelica and Puno)[See Table 1]. Over 700 crop varieties from seven crops important for food security were identified. These crops were (Maize [*Zaya mays*], Mashua [*Tropaeolum tuberosum*], Oca [*Oxalis tuberosa*], Olluco [*Ullucus tuberosus*], Potato [*Solanum tuberosum*], Quinoa [*Chenopodium quinoa*] and Tarwi [*Lupinus mutabilis*]. 140 of the varieties were found to be endangered (i.e. grown by few farmers on small areas) and thus a priority for subsequent PACS interventions.
- During Covid restrictions in 2020, a different prioritization and PACS community group selection method was used by the GEF project, resulting in a total of 262 varieties [see Table 2] from 10 crops (as above, plus Amaranth [*Amaranthus caudatus*], Cañihua [*Chenopodium pallidicaule*], and Maca [*Lepidium meyenii*] being targeted for PACS incentive mechanism interventions between 2019–2021. Varietal names and other additional details can be found in Drucker and Ramirez, 2020b & 2020c.<sup>vi & vii</sup>



**Table 1: Four Cell Method Farmer Community Workshop Results across Four Regions of Peru in 2019 and 2021**

	Total Varieties Identified	# of which Prioritized	# of Participating Communities	# of Participating Farmers (% Female)
Apurímac 2021	32 6 Oca 26 Potato	8 Potato	1	8 (25 %)
Apurímac 2019	>300	28 Potato	7	25 (12 %)
Cusco 2021	12 5 Quinoa 7 Tarwi	3 Tarwi	4	18 (33 %)
Cusco 2019	180 ≈80 Maize ≈100 Potato	8 Maize 32 Potato <sup>1</sup>	5	11 (9 %)
Huancavelica 2021	70 17 Maize 50 Potato 3 Tarwi	9 Maize 25 Potato 3 Tarwi	6	20 (55 %)
Huancavelica 2019	≈100 potato	12	6	37 (24 %)
Puno 2021	17 1 Mashua 5 Tarwi 6 Oca 5 Olluco	7 1 Mashua 2 Oca 2 Tarwi 2 Olluco	11	14 (64 %)
Puno 2019	N/A	5 Quinoa <sup>2</sup>	N/A	N/A
<b>Total</b>	<b>&gt;700</b>	<b>140</b> (2019= 85+5 2021 = 55)	<b>40</b>	<b>108 (38 %)</b>

Source: Drucker and Ramírez, 2022b. Informe Final 1a (Priorización). GEF-Bioversity International.

**Table 2: Summary of PACS Interventions 2019–2021 under the GEF Agrobiodiversity Project**

Region	# Crops	# Prioritized Varieties	# Community Group Offers Selected	Hectares	# Farmers (Total)	# of Women Farmers	Total Cost (USD)	Cost/ha (USD)	Cost/ Participating Farmer (USD)
Apurímac	7	78	29	12.0	161	45	25,808	2,146	160
Cusco	6	60	55	6.1	390	121	21,262	3,469	54
Huancavelica	8	73	56	3.1	370	151	20,275	6,478	55
Puno	6	51	51	58.1	708	365	34,591	595	49
<b>Total</b>	10 distinct crops	<b>262</b>	<b>191</b>	<b>79.38</b>	<b>1,629</b>	<b>682</b>	<b>101,936</b>	<b>1,284</b>	<b>63</b>

Source: Drucker and Ramírez, 2022c. Informe Final 3 (todas las ReSCAs 2019–2021). GEF-Bioversity International.

1 Identified during the 2019 FCM workshop, although only maize was selected by the project for PACS intervention that year.

2 Not included in the total varieties identified in the FCM workshops as priority quinoa varieties were selected in 2019 based on previous work which drew on the Weitzman method (see Kost, 2016; Weitzman, 1998), which seeks to address the question of “What to board on Noah’s Ark?”, by maximizing the total “distinctiveness” or “dissimilarity” (i.e., diversity) conserved for any given quantity of conservation funding available.

## How much should be boarded on Noah's Ark?

### Conservation goal setting [Step 2]

A lack of conservation goals and indicators constrains the potential for strategic planning and monitoring of in situ on farm conservation of agrobiodiversity. In turn this can negatively impact the funding of conservation interventions when genetic resources are at risk.

#### Box 1: Goals and Indicators for Crop Genetic Resources Conservation

##### Goal

It is an aim or "an end to which an effort is made".<sup>viii</sup>

In the context of establishing goals and indicators for genetic resources conservation it can be useful to identify a population size of a given threatened genetic resource that is considered a "safe" minimum population.<sup>ix</sup>

Such a population may be considered one that is of sufficient size so that it can be increased in case of need (e.g. to be deployed to combat a new pest or emerging disease), which implies that conservation goals based on such safe minimums should take into account biological-ecological indicators such as the ease of and time required for producing seed or reproduction more generally.

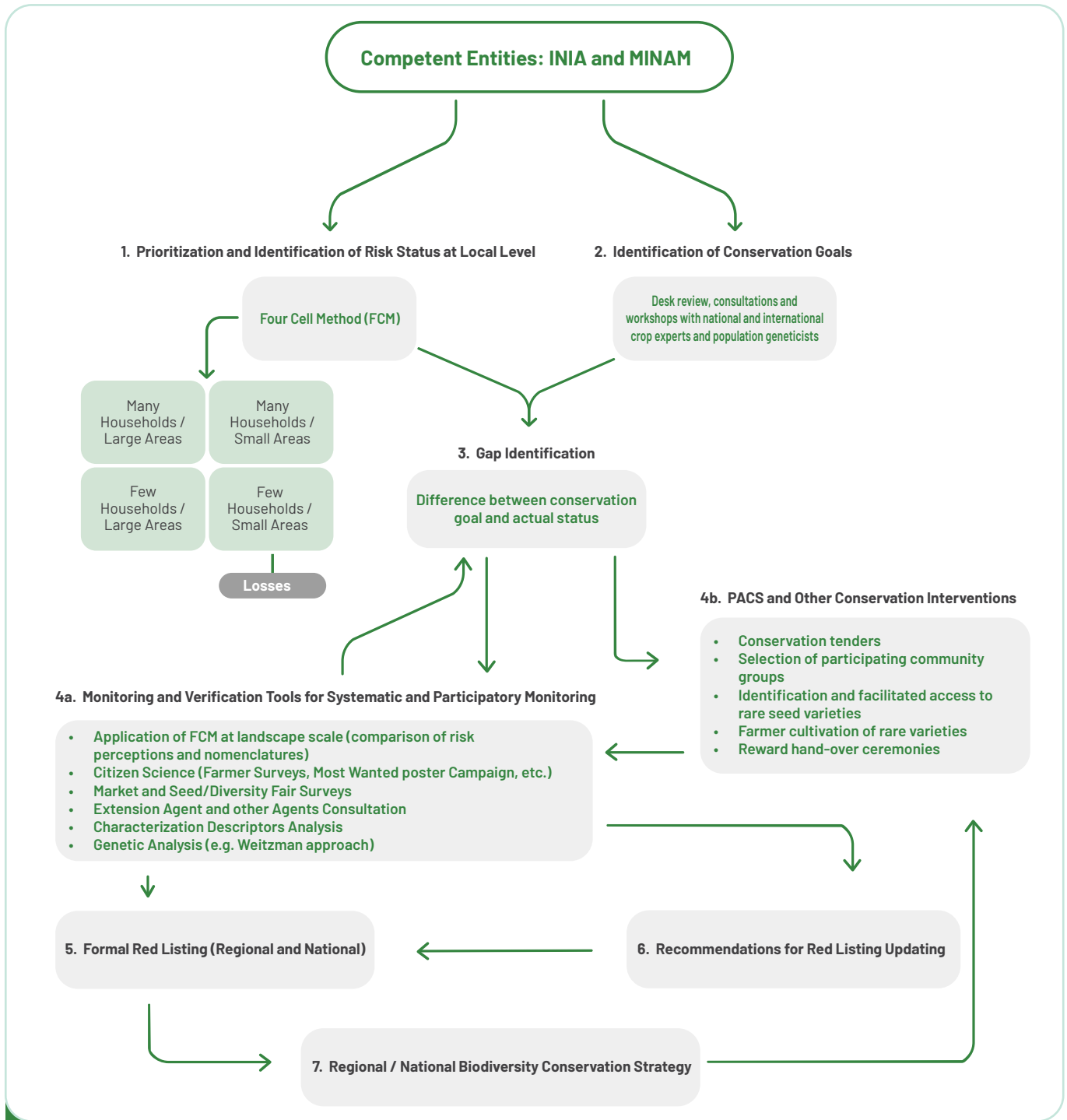
##### Indicator

It is a measure that shows what something is like or how it is changing.<sup>x</sup>

Seven main groups of potential indicators (area cultivated, number of producers, traditional knowledge, seed availability, degree of diversity, spatial distribution and ex situ provisions), relevant for monitoring the conservation status of agrobiodiversity may be considered [see Nguyen and Drucker, 2013<sup>xi</sup> for a review].

Unlike for animal genetic resources<sup>xii</sup>, however, no international consensus exists with regard to categories of risk and associated indicators for plant (i.e., crop) genetic resources and these remain to be developed. In 2017, an expert workshop entitled "Prioritization for conservation of native crops in Peru" took place to develop conservation goals. Participants included national and international experts, including from the competent Peruvian institutions responsible for the conservation and monitoring of agrobiodiversity (i.e., the Ministry of Environment [MINAM] and the National Institute of Agrarian Innovation [INIA] of the Ministry of Agrarian Development and Irrigation).<sup>xiii</sup> Agreed crop prioritization criteria included: the existence of high infra-specific-diversity and the existence of threatened varieties within any given crop; its importance for food/nutritional security, climate change adaptation and socio-cultural uses; vulnerabilities to biotic/abiotic factors; the existence of links to markets and the degree of varietal diversity found in markets. Follow-up expert workshops in 2020 and 2021 undertook in-depth analysis of the proposed conservation goals for potato and quinoa.<sup>xiv</sup>

- Conservation goals and associated indicators were articulated for 18 high-infraspecific diversity native crops, prioritized for their importance for livelihoods, food security and climate change adaptation. The main indicators of conservation status were identified as cultivated area, number of farmers and number of communities (spatial concept). Area cultivated and number of farmers can be considered particularly important since they might also be considered to impact on the indicators related to spatial distribution, traditional knowledge, diversity in terms of use, and seed produced. Indicators related to seed exchange and regeneration, as well as the existence of markets for rare varieties were also identified.
- Each of the three main indicators (area, farmer and community numbers) can be related to specific ecosystem services (such as gene flow, cultural aspects, landscape resilience, respectively).
- Specific varietal-level conservation goals varied by crop between 0.1–5.0 hectares cultivated in total by 50–500 farmers, with such variations between crops being associated with different regeneration times and amount of seed produced [see Drucker and Ramirez 2022<sup>xv</sup> for full details].



**Figure 1**

*Pathway for Agrobiodiversity Red Listing*

*Source: Drucker and Ramirez, 2022e<sup>xvi</sup>*

**Minding the Gap**

**Gap Identification [Step 3]**

The above steps related to determining actual conservation status and identifying conservation goals permit an assessment of the existence of any “gaps” between the two. The identification of such gaps within the Peruvian regulatory framework is indispensable for justifying long-term government support.<sup>xvii</sup>

- Two-hundred and fifty varieties (95 % approx.) of the 10 crops that were subject to a PACS intervention under the GEF project were shown to have a gap from a local

perspective [see Drucker and Ramirez, 2022d<sup>xviii</sup> for further details]. To validate such findings at a broader, landscape-scale before they can be used to inform higher-level policy and investment decisions, a number of monitoring and validation tools were tested. We applied FCM at the landscape level for quinoa in the Peruvian altiplano, additionally surveyed various-sized markets looking for presence of varieties at risk, and interviewed farmers and knowledgeable extension personnel regarding their opinion on the user-friendliness of the monitoring tools.

## You can't manage what you don't measure

### Monitoring, Validation and Conservation Status Updating Mechanism [Step 4a]

Although many plant genetic resources are widely recognized as threatened, there is limited information available on their actual conservation status. Not only is there a lack of data on the state of diversity and its threats, but also the methods to adequately monitor the impact of climate change and other erosive processes on crop diversity, so that informed decisions can be made regarding adaptation strategies. This situation limits the potential to prioritize, design and implement cost-efficient in-situ conservation measures that actively involve farmers, and prevents the establishment of an early warning system that could identify threatened resources before intervention is too late or the valuable traditional knowledge that accompanies it has been lost.

- A monitoring system and related tools for the communities of the GEF project were proposed, tested and community preferences regarding their implementation assessed. These tools include landscape-level applications of FCM; surveys at markets and fairs; and complementary validation consultations about status with extension workers, experts, and key informants (including farmers); as well as "Most Wanted" poster campaigns [see Appendix 1]. Detailed monitoring system implementation guidelines were also developed as part of management instruments for the Laria-Huancavelica Agrobiodiversity Zone site.<sup>xix</sup>
- To test the available monitoring methodologies in the field and their acceptance by potential users of the methodologies, eight FCM workshops and 25 market surveys were conducted, involving 258 farmers in 24 districts of Cusco and Puno. A selection of monitoring tools was also subject to an evaluation of their applicability by community members during two diagnostic workshops on monitoring tools in Cusco and Puno. Results revealed that the FCM and market surveys were positively viewed by community members and are complementary to the most common traditional sources of information that farmers use (first-hand observation, including at markets, fairs and through the opinion of others). Equally, a Most Wanted campaign to identify locally extinct or critically endangered varieties was viewed positively.
- To determine the extent to which varieties identified locally as rare/at risk of extinction are associated with gaps at broader scales, we conducted the FCM workshops including in locations up to 45 km and three hours away (by bus) from the PACS interventions of 2019 and 2021. With a few exceptions, these varieties were, in fact, shown to be less common, including though market surveys in both districts that had had a PACS intervention and others that had not.

- To facilitate the analysis of the results, we also extended the conceptual development of the FCM such that each cell in the FCM matrix is associated with a numerical degree of risk ranging from zero (not at risk) to six (extinct) [see Figure 2]. This nomenclature of the different degrees of risk is based on a combination of the FAO<sup>xx</sup> and IUCN<sup>xxi</sup> risk status classifications.
- The application of the FCM and the market surveys have generated important additional and complementary information related to the risk status at a broader scale of the varieties of quinoa (Puno), maize and tarwi (Cusco) that had been prioritized and subject to earlier PACS interventions.
- The FCM workshops identified 151 varieties, of which 88 (58.3 %) ranged from critically endangered to locally lost/extinct (4 tarwi, 26 maize and 58 quinoa). Ten of the PACS varieties were shown to have this status, while another three were shown to not be at risk and, therefore, could be removed from future PACS interventions. See Drucker and Ramírez, 2022g<sup>xxii</sup> for list of variety names. The market surveys have been particularly useful for identifying specific target communities. Future market surveys could support the identification of communities where seed of the 78 critically endangered to locally extinct non-PACS varieties that were identified through the FCM workshops could be found.
- Additionally, an in-depth gap analysis of PACS interventions on seven quinoa varieties across a number of sites in the region of Puno, Peru was carried out, using unique panel data from 2010–2021.<sup>xxiii</sup> The findings reveal the effective impact of such interventions, as well as the dynamic nature of the gap between years and thus the importance of having a systematic monitoring system in place.

### Payments for Agrobiodiversity Conservation Services (PACS) [Step 4b]

Payments for Agrobiodiversity Conservation Services (PACS) is an on-farm conservation incentive mechanism promoting the conservation of valuable genetic resources. Following identification and validation of gaps, it uses a competitive tender approach to generate and select community level conservation service offers for rare or indangered varieties in a cost-effective and socially-just manner.

- PACS interventions realized between 2019–2021 involved 191 communities in the four GEF project regions of Peru, 1,629 farmers (42 % female) and 262 varieties from 10 crops (Cañihua, Kiwicha, Maca, Maize, Mashua, Oca, Olluco, Potato, Quinoa, Tarwi).

- Farmer support payments totalled just under USD 102,000, with conservation costs per hectare (USD 1,284) and per participating farmer (≈USD 63), although somewhat higher, were broadly similar to previous experiences between 2010–2017 (USD 946 and USD 56, respectively).<sup>xxiv</sup>

### Red Listing [Steps 5 and 6]

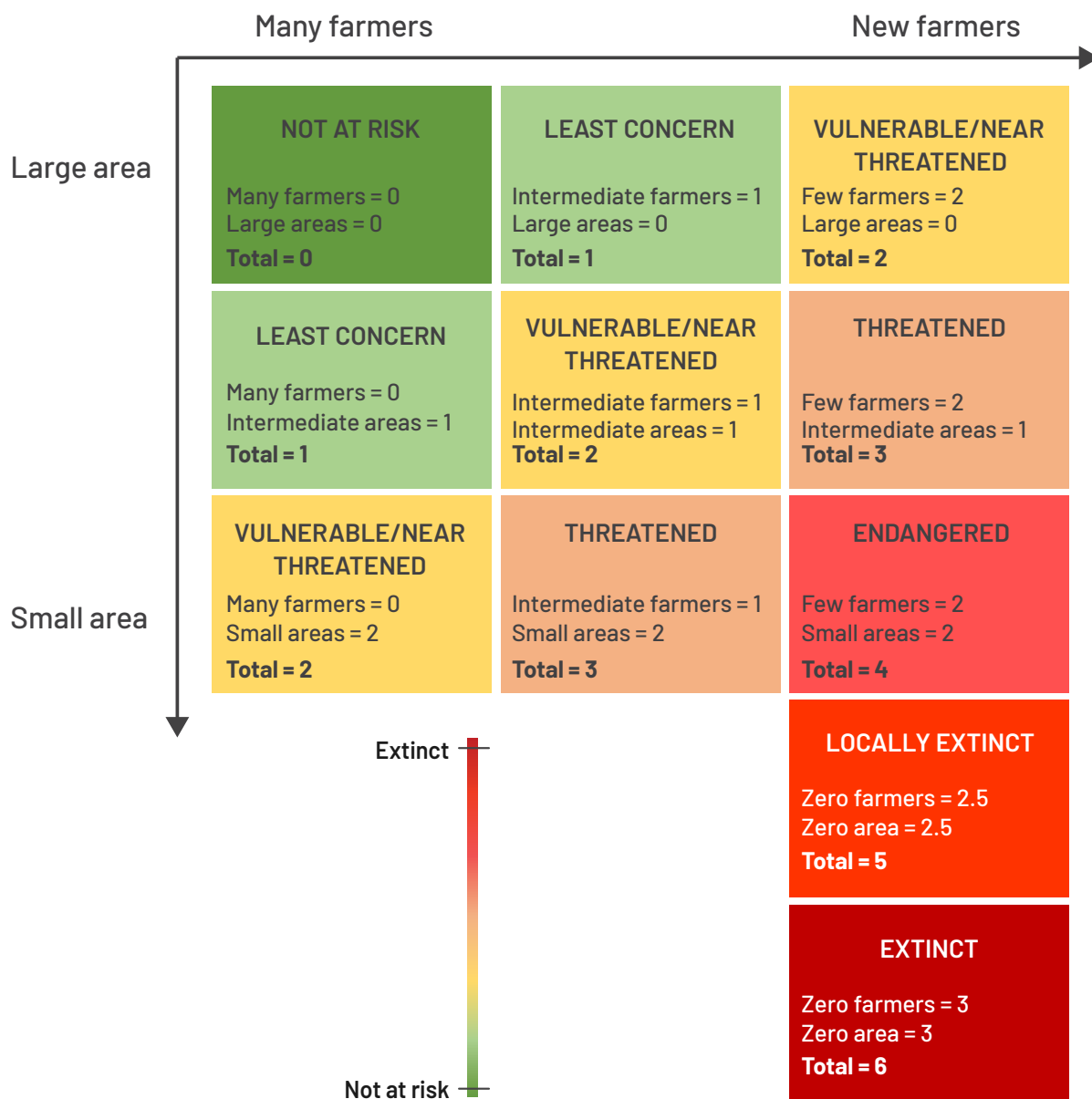
Red Lists are tools for monitoring biodiversity, as well as informing decision-makers and the public about conservation trends and priorities.<sup>xxv</sup> However, very little progress on a Red Lists for Agrobiodiversity has been made<sup>xxvi</sup>. There is no international list of crop varieties at risk and few countries have national threat lists or support programmes. For many countries such lists are essential in order to allocate public funding to conserve these resources.<sup>xxvii</sup>

- Two quinoa varieties, Janko Witulla and Chullpi Naranja, were shown to be both locally extinct and having zero presence in the markets. These two varieties can thus already be recommended for Red Listing and future PACS interventions once seed has been found.
- By contrast, with the exception of two tarwi varieties, sufficient seed was identified in markets to potentially meet conservation goals for all the other PACS varieties during the next agricultural season (even for varieties identified as locally extinct, such as Chili Sara maize).

- However, what is sold in the market is essentially for consumption rather than as seed. Consequently, the "seed quantity" reported as available in the market cannot be used as a reliable indicator of area to be cultivated during the next agricultural season and as justification for inclusion or not in a Red List. It remains necessary to confirm/validate the presence of these seeds and their quality. Such a monitoring/validation activity should also cover the 78 non-PACS varieties that were identified during the FCM workshops as having a threat status ranging from endangered to critically endangered or lost/locally extinct but were not a focus of the current PACS market survey.

- The overall validation process can thus be understood as part of the development of a multi-step monitoring system and Red List for Agrobiodiversity updating mechanism anchored in PACS interventions. Such a validation process based on the above identified varieties could also form part of the type of pilot project for Red Lists for Agrobiodiversity that has been discussed by MINAM and IUCN<sup>xxviii</sup>, that could later be expanded regionally and globally.
- Two pathways for formal ABD Red Listing recognition and updating, both involving the competent national authority (the Agrobiodiversity Working Group/GTA), were identified. These are via a Ministerial Resolution involving the Ministry of Agriculture or via a Supreme Decree involving the National Commission on Biological Diversity.





**Figure 2** Classification of risk status under the FCM

Source: Authors; Adapted from Sthapit et al., 2012

### Informing National and Regional Conservation and Funding Strategies [STEP 7]

In addition to generating monitoring data, including for Agrobiodiversity Red Listing, PACS implementation has sought to support national and regional conservation strategy development through the identification of post-GEF project funding sources including the following:

### Agrobiodiversity Knowledge and Conservation Program (PCCA)

With regard to mainstreaming the funding of PACS, MINAM initially contemplated its qualification under the Reward Mechanisms for Ecosystem Services (MERESE) law (# 30215). However, it ultimately considered that there were challenges in applying MERESE concepts of "service provider" and "beneficiary" in the context of genetic resources, particularly given the very diffuse nature of the beneficiaries. Instead MINAM has decided to include PACS as part of an Agrobiodiversity Knowledge and Conservation Program (PCCA) that is under development.

- The development of the PCCA requires an appropriate gap indicator typology for agrobiodiversity. An analysis of the current MINAM gap indicator “percentage of community land with potential to support sustainable biodiversity use without intervention”<sup>xxxix</sup> suggests it is challenging to apply. Drawing on the Conservation Goals workshop results, it has instead been recommended that the main indicators for measuring gaps with respect to agrobiodiversity should include the following: cultivated varietal area, farmer numbers and number of communities (spatially distributed across different agro-ecological zones).

### *Institutional Markets*

Public school-meal procurement programs are a powerful poverty reduction tool for enhancing food security and nutrition. Peru’s Qali Warma (“Healthy Child”) program has an annual budget of approximately USD 440 million and in 2017 served 3.7 million students/day across Peru.<sup>xxx</sup> Qali Warma distributes mostly non-perishable foods, including highly processed food items.<sup>xxxi</sup>

Generating a sustainable demand for threatened, highly nutritious crop varieties through their incorporation into public food procurement programs, would allow Peru to meet a number of national legislative commitments to support farming communities and improve public health and nutrition, while at the same time conserving agricultural biodiversity. Most recently this has involved Law #31071 which relates to “State Purchases of Food of Origin from Family Agriculture” and requires public sector entities to acquire at least 30 % of their total expected annual requirements of food from family agriculture production.<sup>xxxii</sup>

- A “Feed Me Sustainably” decision-support tool<sup>3</sup> was developed to evaluate and monitor the socio-economic and environmental impacts of different food procurement scenarios. See Drucker et al., 2022<sup>xxxiii</sup> for full details.
- Initial analysis has revealed that different types of Qali Warma meals have very different CO<sub>2</sub>e footprints, with some footprints such as those related to certain primary school lunches being over 6.5 times greater than others.
- There are also differences between product (requires preparation) and the ready-to-eat meals, with primary school breakfast ready-to-eat meals having a footprint of 1.45 times higher.
- It is therefore apparent that there is potential to reduce CO<sub>2</sub>e footprints by selecting different meal types and to a lesser extent by using products rather than ready-to-eat foods.

3 Developed independently of the GEF project

- Generating a sustainable demand for 100 varieties (each with a five hectare area conservation goal) was estimated to require just 0.68 % of meals served per day, suggesting Qali Warma’s ability to support nutritious threatened native crop varieties is indeed high. Further work should be carried out with regard to identifying and locally sourcing such threatened varieties, as well as monitoring the impact of such procurement on supporting conservation goals.
- In order to identify meals that contain equivalent caloric and nutritional profiles, as well as having similar costs, linear programming could be used to identify those with the lowest CO<sub>2</sub>e footprint.
- Additional environmental (including water, agrochemical and agrobiodiversity use) economic and social (including governance and labor) sustainability indicators should also be incorporated into the model and analysed.

### *Green Public Investment Projects*

With a view to formalising regional government budgetary allocations for PACS, which to-date has been ad-hoc and limited, two Green Public Investment Project proposals related to agrobiodiversity conservation and sustainable use were elaborated for the regional governments of Cusco and Huancavelica. MINAM is currently seeking to support the continuation of the proposal funding approval procedure with a view to facilitating implementation.

### *Private Sector (Corporate)*

- Efforts to engage with large companies through MINAM have helped secure funding from Ajé in the past and should be further expanded. Small companies, such as Muyu MilQ, responsible for the successful development of quinoa milk based on chulpi quinoa production,<sup>xxxiv</sup> now with an improved conservation status, also continue to have a role to play, especially if they can be encouraged to diversify the range of varieties and crops they use in their products.

### *Private Sector (General Public Crowdfunding)*

- A crowdfunding website is under development that will permit the general public to make donations to support PACS interventions. A quinoa diversity conservation case study has shown that the high public willingness to pay exists and results in a positive benefit-cost ratio associated with such interventions.<sup>xxxv</sup>

## Management tools for Agrobiodiversity Zones

The Agrobiodiversity Zones in Peru, center of origin and domestication of crops important for food and agriculture, where there are still farmers who maintain knowledge and practices that result in new variability, can play a transcendent role in showing the achievement of sustainable food systems. We reviewed the concepts and schemes that can help guide the construction of the management plan and monitoring system of the Laria Agrobiodiversity Zone (ZABD-Laria) in Huancavelica.

Four background considerations should be taken into account in the participatory construction of the Management Plan. The first is to keep in mind the commitment that the communities of the ZABD-Laria have acquired with the State, that is, the commitment to dedicate their territory to conserving the ABD. Although in the Life Plans only farmers and communities self-identify as those responsible for ABD conservation, they will need technical-scientific support to explore their options and fulfil this commitment. The second consideration is the importance of increasing awareness regarding the commitment (and also the favourable opportunities that may be developed and the broader participation of the State, from national to local, private sector, NGOs, etc. with all the inhabitants of the communities, to strengthen collective action. The third consideration is the need to carry out a process of Free, Prior and Informed Consent regarding the decisions to be made during the preparation of the Management Plan. The fourth consideration is to improve overall understanding regarding the governance that is exercised over agrobiodiversity informally through existing social and cultural norms (consuetudinary practices).

The development of the management plan is an inclusive process that requires the central participation of farmers with the facilitation of external actors such as INIA and the participation of others. Literature was reviewed on specific community biocultural protocols that can help communities ensure that their plans and priorities are self-defined. An example of the application of a framework to identify limitations to the conservation and use of traditional crop varieties was presented. References were included to tools, good practices, strategies and conceptual frameworks that have been applied around the world, including some used in the Parque del Maiz (Maize Park), which can serve as a reference during the development process of the ZABD-Laria Management Plan.

## Future Research and Development

- The lack of sufficient access to threatened variety seed and the lack of a mechanism to finance farmer rewards are the two main constraints to further scaling-up the implementation of PACS at the national level. On the other hand, the demand and interest in applying PACS expressed by farmers and government bodies from local to national confirm that this mechanism responds to a need.
- Despite the significant upscaling of PACS in Peru, the challenge remains with respect to how to upscale it further, given that approximately 95% of the 262 varieties that were the subject of a PACS intervention under the GEF project continue to be grown in total areas (79.38 hectares) and by number of farmers (1,629) well below their aggregate conservation goals (241 hectares and 4,545 farmers respectively). Thus, to close the gap, even just for these varieties, an intervention in future years is recommended 2.8–3.0 times greater than what has been done so far, which had a cost of approximately USD 102,000 in rewards [see Table 2].
- Although there are examples of successful threatened variety market development, they have relatively limited potential to support the conservation in-situ of a large and diverse portfolio of priority varieties for in situ/on-farm conservation for their value as a public good. It is in this context that we have identified lessons learned during the implementation of PACS 2019–2021 and roughly estimated the cost of closing the remaining gaps approximately USD 300,000 in rewards, as well as reviewing alternative potential financing mechanisms.
- Future scaling of PACS as part of more in-depth baselining/monitoring, including for ABD Red Listing purposes will take place as of 2024 as part of an [ABD Index](#) application, focusing on the relatively recently established ABD Zones. Such interventions also aim to support their recognition as OECMs and thus contribution to Peru's CBD commitments.

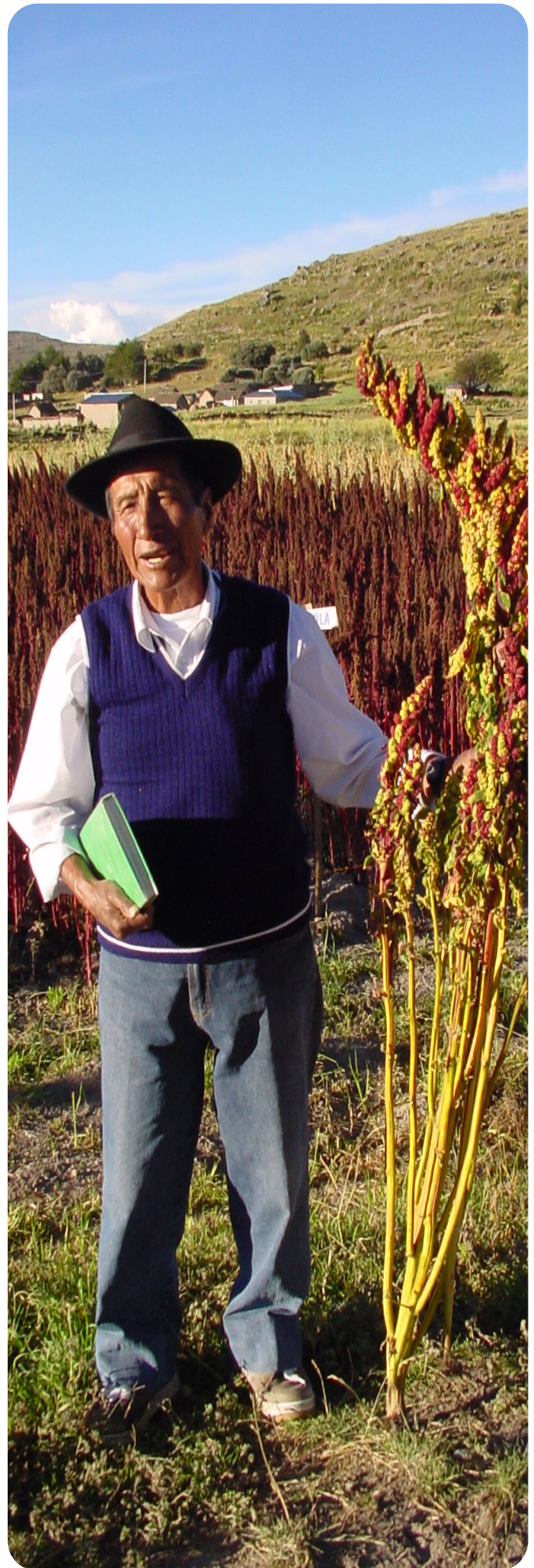
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## Notes

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## Appendices

Appendix 1: Example of a poster for a "Most Wanted" campaign.

The poster is titled "UNORCAC" and "Campana para la conservación de cultivos nativos". It features a central graphic that says "SE BUSCA" (Wanted) in a red, distressed font, with "Lista de los 18 cultivos más buscados" (List of the 18 most wanted crops) below it. The poster displays 18 different native crops in a grid, each with a small photograph and a label. The crops shown are: MISO, MASHUA, ZANAHORIA BLANCA DE HOJA NEGRA, OCA, ACHOGCHA, CAMOTE ZAPALLO, ATACO NEGRO, GRANADILLA NEGRA, CENTILINA - TRIGO NEGRO, CANGUIL, MAÍZ-YANA SARA, MAÍZ - CHULPI, MAÍZ - JULIN SARA, MAÍZ- YURA SARA, MAÍZ-MORCHÓ BLANCO, MAÍZ- PUCA GUANDANGO SARA, MAÍZ- YURA PINTADO, MAÍZ- CHULPI ROJO, and a final empty box with a question mark. At the bottom right, there is a call to action: "Si usted conoce quien siembra estos cultivos en las comunidades andinas de Cotacachi POR FAVOR INFORMAR en las oficinas de UNORCAC ubicada en Cotacachi, calle González Suárez 20-83 Teléfono 062 916012/ 062915602." Below this, it says "Si usted reporta al menos tres cultivos recibirá una recompensa." The poster also includes logos for UNORCAC, Bioversity International, and CONDESAN.

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