

## Response to the Initial Technical Review of the Concept Note – Peru

<b>Evaluation question</b>	8. Is there duplication of project / programme with other funding sources?
<b>Initial comments</b>	<p>No</p> <p>As outlined on pages 21-22. Four projects are listed with possible areas of overlap or complementarity. The planned Project Steering Committee, of which SERNANP and PROFONANPE are part, will serve as a coordination mechanism to avoid duplication with the aforementioned projects and to ensure communication and exchange of information to promote synergies or complementarity of activities. Additionally, the proposal cites projects in Colombia, Ecuador, Peru, and Bolivia that aim to contribute to the adaptation of high Andean ecosystems. As per the implementation arrangements, the project plans to establish a coordination network with other projects dedicated to Andean ecosystems. It would be useful to understand the coordination mechanism's relationship with the planned Project Steering Committee.</p> <p><i>CR1: Please consolidate all the initiatives cited throughout to the document into one list to better illustrate complementarity or lack of overlap.</i></p> <p><i>CR2: Please provide more details regarding the planned coordination mechanism, including how information will be exchanged to avoid overlap, take advantage of lessons learned, and of possible synergies between other initiatives.</i></p>

From the consultations carried out with SERNANP and MINAM, there is only one project currently under implementation that overlaps territorially with the concept note: the "Natural Heritage of Peru - Amazon" project, and as described below, this project does not plan to incorporate or develop actions on climate change adaptation. Additionally, there are two (2) initiatives in the design stage, which are expected to be completed in 2023 or 2024. In both cases, SERNANP or PROFONANPE are involved, and considering that both will be part of the project steering committee, it is ensured that duplication of actions among all projects is avoided: all interventions in natural protected areas must be reported to SERNANP, which ensures that the projects duplicate activities, and contribute in a complementary manner to cover the protected area's management gaps. The projects or initiatives identified in the intervention zone of this proposal are listed below.

Project	Geographical Overlap	Status	Implications
Project "Patrimonio Natural del Perú – Amazonía" <sup>1</sup>	Tabaconas Namballe National Sanctuary	In execution: finances the update of the Tabaconas Namballe SN Master Plan. The intervention of this initiative in this protected area does not consider promoting actions to	This initiative aims to consolidate the effective management of protected areas in the Amazon biome by generating enabling conditions for such management (2019-2029) and ensuring their financial sustainability in perpetuity. Component 2 seeks to extend this initiative to the protected areas of the Andean ecosystems of the western slopes of the Andes. The

<sup>1</sup> <https://profonanpe.org.pe/proyectos/fondo-de-transicion-de-la-iniciativa-patrimonio-del-peru-para-las-areas-naturales-protegidas-del-bioma-amazonico-2/>

Project	Geographical Overlap	Status	Implications
		adapt to climate change.	initiative is led by SERNANP and promoted by PROFONANPE, thus ensuring the synergy and complementarity of the activities foreseen by output 2.1.2 of the project.
Project "Improvement of the Biodiversity Conservation Service of Huascarán National Park" (Unique code N° 2323856 - Public Investment Project) <sup>2</sup>	Huascarán National Park	According to the records of the Peruvian National Public Investment System, this project is only at the profile level, requiring public or private investment for the elaboration of the complete project. The financing commitment was transferred from the national level to the Regional Government of Ancash. To date, the GORE has not committed funding for the elaboration of the complete project and there is no established date for this.	During the formulation of the technical dossier, communication and exchange of information will be ensured to promote complementarity of activities. Considering that the project will be implemented within a natural protected area, SERNANP will be consulted for its elaboration and will participate in its execution. In this context, synergy and complementarity between the activities of the two projects is ensured, as long as the full proposal of the public investment project is elaborated.
Project "Resilient Puna: Ecosystem-based Adaptation for Sustainable High Andean Communities and Landscapes in Peru" <sup>3</sup>	Protected areas of the Mosaico Sur	Concept Note approved by the Green Climate Fund (2021) and full proposal under development (2022-2023).	The objective of the project is to design and implement a financial mechanism to implement nature-based solutions and strengthen productive chains in high Andean ecosystems in Apurimac, Cusco, Puno and Arequipa.

There are projects in Colombia, Ecuador, Peru and Bolivia that aim to contribute to the adaptation of high Andean ecosystems, the populations living in them and their livelihoods. Among these projects we can mention the "Andean Forests Regional Programme" (2014-2021), the "Andes Resilient to Climate Change" project (Phase 1: 2020-2024), the Adaptation to Climate Change Impacts on Andean Water Resources - AICCA (2017 - to date) and "The Mountain Ecosystems-based Adaptation -EbA" program, being the basis of this proposal, the lessons learned, results and pending challenges of the "Andean Forests Regional Programme".

<sup>2</sup> <https://ofi5.mef.gob.pe/invierte/consultapublica/consultainversiones>

<sup>3</sup> <https://www.greenclimate.fund/document/resilient-puna-nature-based-climate-solutions-sustainable-high-andean-communities-and>

These projects are implemented by Helvetas Swiss Intercooperation, CONDESAN and the Mountain Institute, and there is a relationship of collaboration and coordination between HELVETAS and CONDESAN in the framework of these projects, and between the three organisations in the framework of the Technical Group on Mountains of the National Commission on Biological Diversity (CONADIB), led by the National Institute for Research on Glaciers and Mountain Ecosystems (INAIGEM). In this context, meetings for the exchange of lessons learned and experiences will be promoted as a basis for the final design of the proposal and its implementation. This type of exchange has been foreseen by the project, within the knowledge management elements and activities to be developed in each of its components.

This concept note is based directly on the experience of the Andean Forests Regional Programme (ANFOR) and utilizes as references several projects that have been developed in the Andean ecosystems of Peru, which are described below.

Project Title	Period of execution	Implementing Entity (in Perú)	Intervention site	overlapping or complementarity
Multiplying environmental and carbon benefits in high Andean ecosystems (ECOANDES)	2013-2018	CONDESAN	Ayabaca, Piura	Not overlapping Thematic Complementarity
Andean Forests Regional Programme (ANFOR / Bosques Andinos)	2014-2021	HELVETAS Swiss Intercooperation	Abancay, Apurímac	Partial overlapping Thematic Complementarity
Scaling Up Mountain Ecosystem-based Adaptation: Building Evidence, Replicating Success, and Informing Policy (Mountain EBA Perú)	2017-2020	The Mountain Institute – IUCN	Cañete, Lima	Not overlapping Thematic Complementarity
Natural Infrastructure for Water Security in Peru (NIWS)	2017-2022	Forest Trends, CONDESAN, SPDA	Piura, Lima, Arequipa, Cusco	Not overlapping Thematic Complementarity
Adaptation to Climate Change Impacts on Andean Water Resources (AICCA)	2017-2022	CONDESAN	Piura, Ancash, Cajamarca	Not overlapping Thematic Complementarity
Adaptation at Altitude: taking action in the mountains	2020-2023	CONDESAN	Support the iMHEA Network (Lima)	Not overlapping Thematic Complementarity
Andes Resilient to Climate Change (Andes Resilientes)	2020-2024	HELVETAS Swiss Intercooperation	Cusco, Puno	Not overlapping Thematic Complementarity

It is important to mention that for the design of the complete proposal and its implementation, the lessons learned and the best practices promoted by these projects will be taken into account. In this context, during the design phase, SERNANP will lead interviews with the coordinators and/or specialists of these projects. During the implementation phase, exchanges of experiences will be promoted within the framework of the knowledge management activities to be developed in each component, and a digital repository will be promoted on the SERNANP website with the documents generated by these projects, and as a reference for future actions.

In addition, this project has considered establishing a Steering Committee made up of SERNANP, PROFONANPE, MINAM and Helvetas Swiss Intercooperation (as executing entity, it periodically reports the progress of the project). The main function of this committee is to learn about the progress of project implementation. Based on this information, SERNANP and PROFONANPE can identify overlap or complementarity with other initiatives or public investment projects to be developed in any of the three prioritized mosaics.



## CONCEPT NOTE PROPOSAL FOR SINGLE COUNTRY

### PART I: PROJECT INFORMATION

**Title of Project:** Building a program for adaptation and resilience to climate change of Andean local communities and ecosystems in Peru

**Country:** Perú

**Thematic Focal Area:** Adaptation to climate change

**Type of Implementing Entity:** National Implementing Entity

**Implementing Entity:** Profonanpe

**Executing Entities:** HELVETAS Swiss intercooperation

**Amount of Financing Requested:** 5,465,145.00 (in U.S Dollars Equivalent)

**Project Formulation Grant Request (available to NIEs only):** Yes  No

**Amount of Requested financing for PFG:** 45,500.00 (in U.S Dollars Equivalent)

**Letter of Endorsement (LOE) signed:** Yes  No

*NOTE: LOEs should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this page: <https://www.adaptation-fund.org/apply-funding/designated-authorities>*

**Stage of Submission:**

- This concept has been submitted before
- This is the first submission ever of the concept proposal

In case of a resubmission, please indicate the last submission date: 8/8/2022

**Please note that concept note documents should not exceed 50 pages, including annexes.**

## Project Background and Context:

The mountain ecosystems in Peru are in both sides of the Andes Mountains (Figure 1) covering 48 million hectares distributed in 19 departments<sup>1</sup>, and they are part of the Hotspot of biodiversity Tropical Andes considered as the most biodiverse of the planet and that offers important ecosystem services such as the hydrological regulation (CEPF, 2021)<sup>2</sup>. The target ecosystems of this proposal are the ones that are located in the western slope of the mountain known as “Andes region” called “Andes ecosystems”. They cover an extension of 32.9 million hectares<sup>1</sup> and the Ministry of Environment in Peru (MINAM for its initials in Spanish) estimated an area of 316, 566. 49 hectares of damaged Andean ecosystems in 2020<sup>3</sup>, considering the negative tendency of the net primary productivity or the change in the plant cover<sup>4</sup>, although there is not a specific monitoring system for these ecosystems in Peru. In chart 1, a type of Andean ecosystem is shown, as well as its extension and damaged surface in 2020.

The protected natural areas (PNA) have an important role in ecosystem conservation and the adaptation to the climate change. There are approximately 2.3 million hectares of Andean ecosystems that are preserved under different categories of conservation (national, regional or private) recognized by the Peruvian government through the National Service of Protected Natural Areas (SERNANP for its initials in Spanish). Some of the national protected natural areas, from the north to the south of the country include: the Tabaconas-Namballe National Sanctuary, Huascarán National Park, Junin National Reserve, Nor Yauyos-Cochas Reserve, Ampay National Reserve, Aguada Blanca and Salinas National Reserve, and the Titicaca National Reserve. Species of fauna that indicate the state of preservation of these ecosystems are the spectacled bear (*Tremarctus ornatus*), the mountain tapir (*Tapirus pinchaque*), the Andean condor (*Vultur gryphus*) and the suri (*Rea pennata*). The Andean ecosystems are also a source of forest genetic resources (*Polylepis* o *Podocarpus*, for example) and a great agrobiodiversity represented by grains, legumes, roots and tubers, vegetables, herbs, and fruits (CIP, 2021)<sup>5</sup>.



Figure 1. Policy Scope Regions for Glaciers and Mountain Ecosystems.

Table 1. Andean ecosystems of Perú

Ecosystem	Area in 2018 (hectares)	PNA Areas in 2020 (hectares)	Degraded areas in 2020 (hectares)	Threats
Dry puna grassland	4,887,184.29	560,379.40	22,095.81	<ul style="list-style-type: none"> <li>• Agricultural expansion</li> <li>• Livestock overgrazing</li> </ul>
Wet puna grassland	11,981,918.13	517,838.03	111,356.91	
Jalca	1,340,320.57	177,392.62	14,182.11	
Bofedal	548,176.14	43,188.56	16,002.45	
Páramo	82,948.54	21,643.02	1,731.79	
Andean scrubland	10,304,035.93	232,718.67	85,136.22	

<sup>1</sup> Ministry of Environment, 2018. Map of Ecosystems of Perú (Ministerial Resolution 440-2018-MINAM).

<sup>2</sup> Critical Ecosystem Partnership Fund, 2021. Tropical Andes Biodiversity Hotspot: Ecosystem Profile Update 2021.

<sup>3</sup> <https://www.cepf.net/sites/default/files/tropical-andes-ecosystem-profile-2021-english.pdf>

<sup>4</sup> <https://geoservidor.minam.gob.pe/monitoreo-y-evaluacion/restauracion-de-areas-degradadas/>

<sup>5</sup> Ministry of Environment, 2019. National Map of Degraded Areas in Terrestrial Ecosystems: Descriptive Memory.

<https://geoservidor.minam.gob.pe/wp-content/uploads/2020/02/Mapa-Nacional-de-%c3%81reas-Degradadas-Terrestres.pdf>

<sup>5</sup> International Potato Center. 2021. The Andean and the food for the future.

Ecosystem	Area in 2018 (hectares)	PNA Areas in 2020 (hectares)	Degraded areas in 2020 (hectares)	Threats
High-Andean relict forest (Queñoal trees and others)	156,972.02	19,265.83	651.87	• Illegal extraction
Western slope montane relict forest	90,703.86	13,674.80	4,995.63	• Groundwater drainage (in wetlands)
Meso-Andean relict forest	24,964.55	18,838.72	54.63	• Infrastructure
Inter-Andean seasonally dry forest (Marañón, Mantaro, Pampas y Apurímac)	535,867.36	8,906.79	39,276.63	• Mining • Fire
Periglacial and Glacial Landscape	2,959,578.37	676,985.37	19,072.44	
<b>Total</b>	<b>32,912,669.76</b>	<b>2,290,831.81</b>	<b>314,546.49</b>	

Source: National Map of Ecosystems (MINAM; 2018)<sup>1</sup>; MINAM Map Server (2021)<sup>2</sup>; SERNANP (2020); MINAM (2021)<sup>6</sup>.

The importance of these Andean ecosystems in Peru is reflected on the provision of the hydrological regulation service: the Pacific slope gets the waters from the western side of the Andes mountains, and though it only concentrates 2.18% of the water volume of the country, it is the home of 65.98% of the population of the country (more than 16.3 million people) and it is the area where 80.4% of the national GDP is produced (INAIGEM, 2021)<sup>7</sup>. 80% of the river basins of the country are located in the Protected Natural Areas (PNA), and the protection of the main headwaters of the basins is an important task performed by the Peruvian government: In the country, at least 16 PNA provide water of good quality to 12 service provider companies (EPS for his initial in Spanish) who offer potable water to more than 4 million people, and about 61% of the hydroelectrical energy is produced with water coming from the PNA; for example, that situation occurs in Junin national reserve who supports the Mantaro interconnected system (Leon, 2007)<sup>8</sup>. In the ideal 2050 scenario of the prospective study of the biodiversity of Peru (DGDB-MINAM, 2020), the effective management of PNAs is a way of contributing in reducing the deterioration of the ecosystems.

Locally, people benefit from these ecosystems through economic activities (commercial productive chains, as well as crops and breeding for self-consumption) linked to forest products (wood and non-wood), agrobiodiversity, raising of Andean camelid animals and tourism. The local population are mainly organized in rural communities, formally recognized by the State<sup>9</sup>, of which 96.6% are in mountains ecosystems (INAIGEM, 2021)<sup>4</sup>, and are in the medium and high levels of poverty, according to the National Institute of Statistics and Informatics (INEI)<sup>10</sup>.

In the Americas, the climate change is affecting the biodiversity at genetic, species and ecosystem level and it will continue to do so, therefore it is important to broaden the monitoring systems to increase the knowledge about these trends (IPBES, 2018)<sup>11</sup> and get to know the limits of the adaptive capacity of the ecosystems and the socio-ecological systems in the mountains, especially under conditions of glacial retreat. On the other side, the regional climatic situation in South America shows the increase in the frequency of fires, especially in the south of Peru, as well as the reduction of the flow of the rivers due to the glacier loss (IPCC, 2021)<sup>12</sup>. The main challenges for the sustainable management of mountain ecosystems include land-use changes caused by intensive agriculture and mining, the growing threat of water scarcity due to glacial retreat (IPBES, 2021)

<sup>6</sup> Ministry of Environment. 2021. National Plan of Climate Change Adaptation of Peru: a supply for the update of the National Strategy before the Climate Change

<sup>7</sup> National Institute of Research on Glaciers and Mountain Ecosystem, 2021. Design of the National Policy of Glaciers and Mountain Ecosystem: <https://inaigem.gob.pe/web2/politicas-importancia/>

<sup>8</sup> León, F. 2007. The Contribution of the Natural Protected Areas to the National Economy. National Institute of Natural Resources. Lima, Lima

<sup>9</sup> Government of Perú. 1992. Law N° 24656. General Law of Rural Communities. Lima, Perú

<sup>10</sup> National Institute of Statistics and Informatics. 2021. Evolution of monetary poverty 2009-2020. Technical Report. [https://www.inei.gob.pe/media/MenuRecursivo/publicaciones\\_digitales/Est/pobreza2020/Pobreza2020.pdf](https://www.inei.gob.pe/media/MenuRecursivo/publicaciones_digitales/Est/pobreza2020/Pobreza2020.pdf)

<sup>11</sup> IPBES (2018): The IPBES regional assessment report on biodiversity and ecosystem services for the Americas. Rice, J., Seixas, C. S., Zaccagnini, M. E., Bedoya-Gaitán, M., and Valderrama N. (eds.). Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany. 656 pages.

<sup>12</sup> Arias, P.A. et al. 2021. Technical Summary. In Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. <https://www.ipcc.ch/report/ar6/wg1/#TS>

<sup>13</sup>, and the generation and strengthening of effective mechanisms of social participation and institutionalization of relevant local knowledge for adaptation (Dupuits, 2021)<sup>14</sup>. One of the main reasons of the vulnerability of mountain ecosystems to climate change is the richness in biodiversity and endemism in the Andes (Botero, 2015)<sup>15</sup>, with more risk of extinction in higher latitudes and on tops of the mountains (Herzog, S.K. et al, 2010<sup>16</sup>; Martínez, Jørgensen, P. M., & Tiessen, 2012<sup>17</sup>), where a vertical migration of the species is expected and it is imperative to preserve microclimate refuges to attenuate this tendency (Cuesta et al, 2017)<sup>18</sup>.

Concerns regarding the Andean ecosystems in Peru linked to the climate change include: (i) increased flow variability and significant reductions in watershed regulation capacity and water yield due to human intervention regardless of the hydrological conditions of the original biome in the case of páramo, bofedales and puna (Ochoa-Tocachi et al, 2016<sup>19</sup>; Planas-Clarke et al, 2020<sup>20</sup>; Cervantes et al, 2021<sup>21</sup>), (ii) the increase risk of disasters due to mass movements of mass caused by the deglaciation and the erosion that affects the hydraulic, hydroenergetic and potable water infrastructure (MINAM, 2021<sup>5</sup>; López Gonzales et al, 2020<sup>22</sup>), and the generation of natural sources of polluting effluents such as the Acid Rock Drainage due to loss glaciers (INAIGEM, 2021)<sup>6</sup>.

According to the National Plan of Adaptation to the Climate Change of Peru (MINAM, 2021)<sup>5</sup>, the climate scenarios for 2030 and 2050, show a higher increase of low and high temperatures in the Andes, and regarding the total rainfall show that for the horizon 2030, in the Andes, it is reduced up to 30% in the western, central and southern slope; however, the rest of the mountains shows an increase up to 30% and for the horizon 2050, part of the central and southern Andes register a higher reduction in the rainfall up to 45%. Figure 2 shows a percentage change of the maximum temperature (above) and minimum temperature (below) for 2030 (left) and 2050 (right), and in figure 3, the maps of variation of the total annual rainfall in 2030 (left) and 2050 (right).

<sup>13</sup> Pörtner, H.O. et al. 2021. IPBES-IPCC co-sponsored workshop report on biodiversity and climate change; IPBES and IPCC. DOI:10.5281/zenodo.4782538

<sup>14</sup> Dupuits É. 2021. Status of the policies about climate change and the adaptation strategies in the Andes: a multisectoral look from the mountains. Quito: CONDESAN-COSUDE.

<sup>15</sup> Uribe Botero, E. (2015). The climate change and its effects on biodiversity in Latin America. <https://www.cepal.org/es/publicaciones/39855-cambio-climatico-sus-efectos-la-biodiversidad-america-latina>

<sup>16</sup> Herzog, S.K., P.M. Jørgensen, R. Martínez Güingla, C. Martius, E.P. Anderson, D.G. Hole, T.H. Larsen, J.A. Marengo, D. Ruiz Carrascal, H. Tiessen (2010). Effects of the climate change on the biodiversity of the tropical Andes: the status of the scientific knowledge. Summary for decision makers and responsible for the formulation of public policies. Instituto Interamericano para la Investigación del Cambio Global (IAI), São José dos Campos, Brasil

<sup>17</sup> Martínez, R., Jørgensen, P. M., & Tiessen, H. (2012). Climate Change and biodiversity in the Tropical Andes. S. K. Herzog (Ed.). MacArthur Foundation.

<sup>18</sup> Cuesta, F., Muriel, P., Llambí, L. D., Halloy, S., Aguirre, N., Beck, S., ... & Gosling, W. D. (2017). Latitudinal and altitudinal patterns of plant community diversity on mountain summits across the tropical Andes. *Ecography*, 40(12), 1381-1394.

<sup>19</sup> Ochoa-Tocachi, B. F., Buytaert, W., De Bievre, B., Céleri, R., Crespo, P., Villacís, M., ... & Arias, S. (2016). Impacts of land use on the hydrological response of tropical Andean catchments. *Hydrological Processes*, 30(22), 4074-4089.

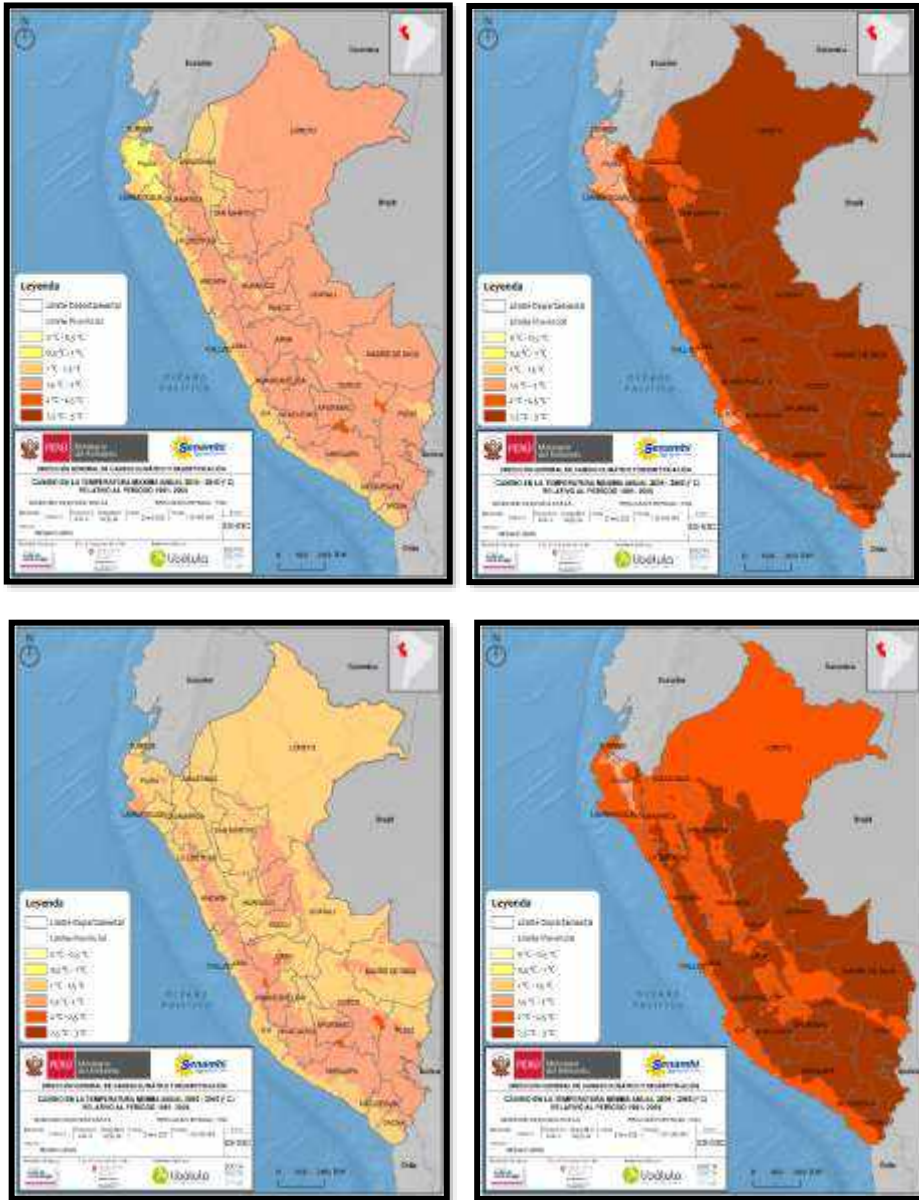
<sup>20</sup> Planas-Clarke, A.M., Chimner, R.A., Hribljan, J.A. et al. The effect of water table levels and short-term ditch restoration on mountain peatland carbon cycling in the Cordillera Blanca, Peru. *Wetlands Ecol Manage* 28, 51–69 (2020). <https://doi.org/10.1007/s11273-019-09694-z>

<sup>21</sup> Cervantes, R., Sánchez, J.M., Alegre, J., Rendon, E., Baiker, J.R., Locatelli, B., & Bonnesoeur, V. (2021). Contribution of the high-Andean ecosystems of the hydric regulation ecosystem service. *Ecología Aplicada*, 20(2).

<sup>22</sup> López Gonzales M, Hergoualc'h K, Angulo Núñez Ó, Baker T, Chimner R, del Águila Pasquel J, del Castillo Torres D, Freitas Alvarado L, Fuentealba Durand B, García Gonzales E et al. 2020. What do we know about Peruvian peatlands? Occasional Paper 210. Bogor, Indonesia: CIFOR

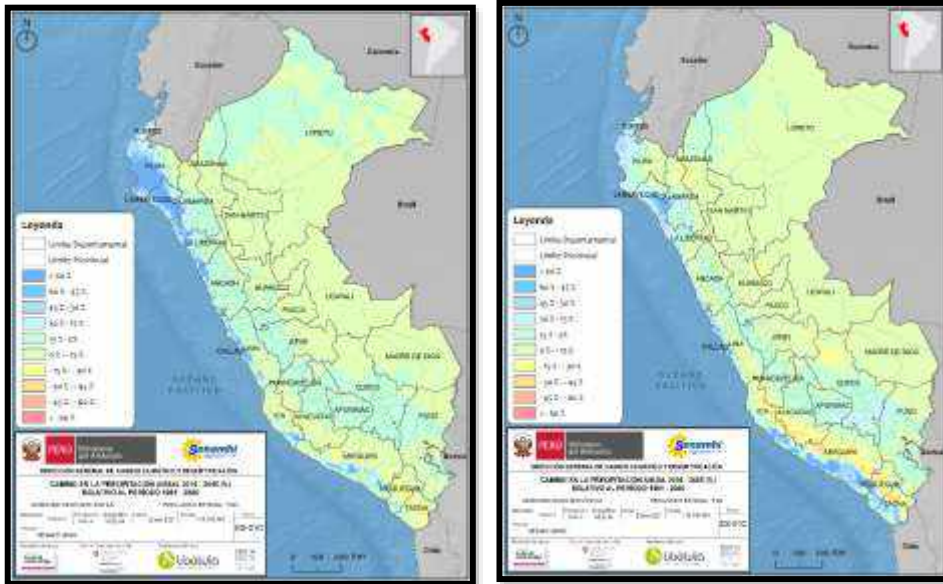


Figure 2. Percentage change of the maximum and minimum temperature for 2030 and 2050.



Source: National Plan of Climate Change Adaptation of Peru (MINAM; 2021)

**Figure 3.** Maps of total annual precipitation variation in Perú for 2030 and 2050.



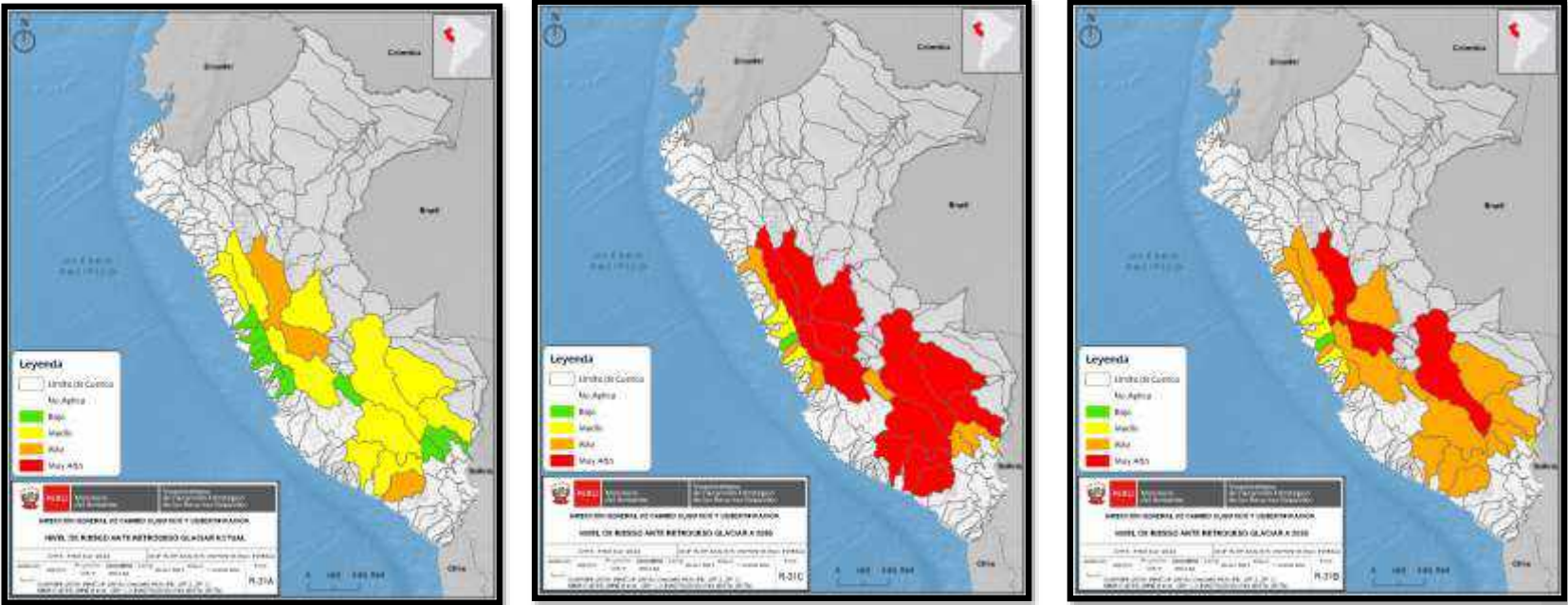
Source: National Plan of Climate Change Adaptation of Peru (MINAM; 2021)

Changes in climate averages and climate variability generate a series of hazards, of which Peru have focused on four: mass movements, floods, change in the aridity conditions and glacier retreat. This prioritization reflects the conceptual framework of the National Adaptation Plan (NAP)<sup>5</sup>, which is based on the risk management of the impact of climate change on the socioeconomic and ecological systems in five thematic areas: Water, Agriculture, Forests, Fishing and Aquaculture and Health.

These hazards were quantitatively characterized in the risk analysis considering the climatic scenarios developed by the National Service of Meteorology and Hydrology of Peru (SENAMHI by its initials in Spanish) under the RCP 8.5 emissions scenario and considering as a main climate agent the average total rainfall. An adaptation of this methodology proposed by the IPCC was used in its fifth report of evaluation (AR5) aligned with the Regulation of the Framework Law on Climate Change of Peru, considering 1981-2005 as a reference period and 2006-2065 as the future period. The correction of the systematic mistake was made to the results of the climate modelling of 12 km and 16 km, taking into consideration the data provided by Peruvian Interpolated Data of Senamhi's Climatological and Hydrological Observations (PISCO), and after that, an average of the three simulations was estimated getting the climate situations to 10 km for Peru.

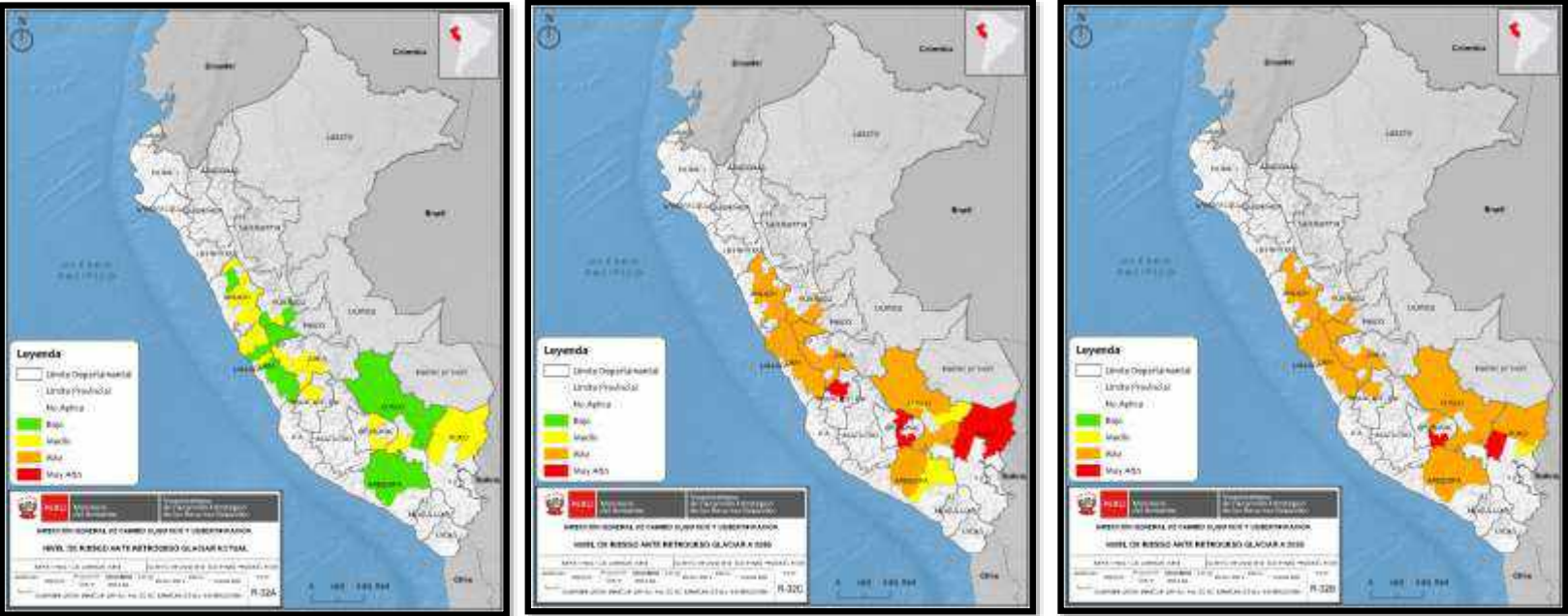
The results of this climate risk analysis for the thematic areas prioritized by the project (water, forests, and agriculture) and for the major hazards for the Andean ecosystems (mass movements, change in aridity conditions or glacier retreat) are shown in the Figures 4 to 7.

Figure 4. Probable trend in the level of risk for water availability, by glacial retreat and by basin: currently, 2030 and 2050.



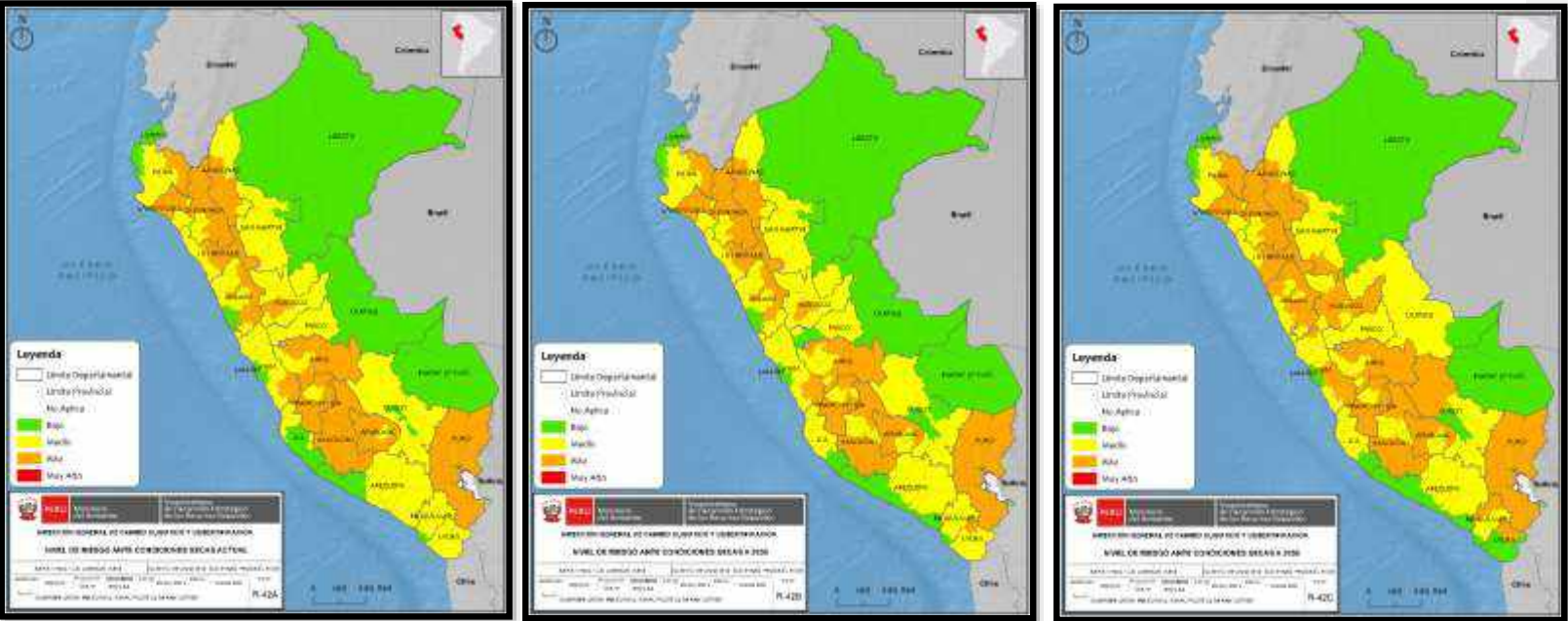
Source: National Plan of Climate Change Adaptation of Peru (MINAM; 2021)

Figur5. Probable trend in the level of risk to agriculture systems, by to glacial retreat and by department: currently, 2030 and 2050.



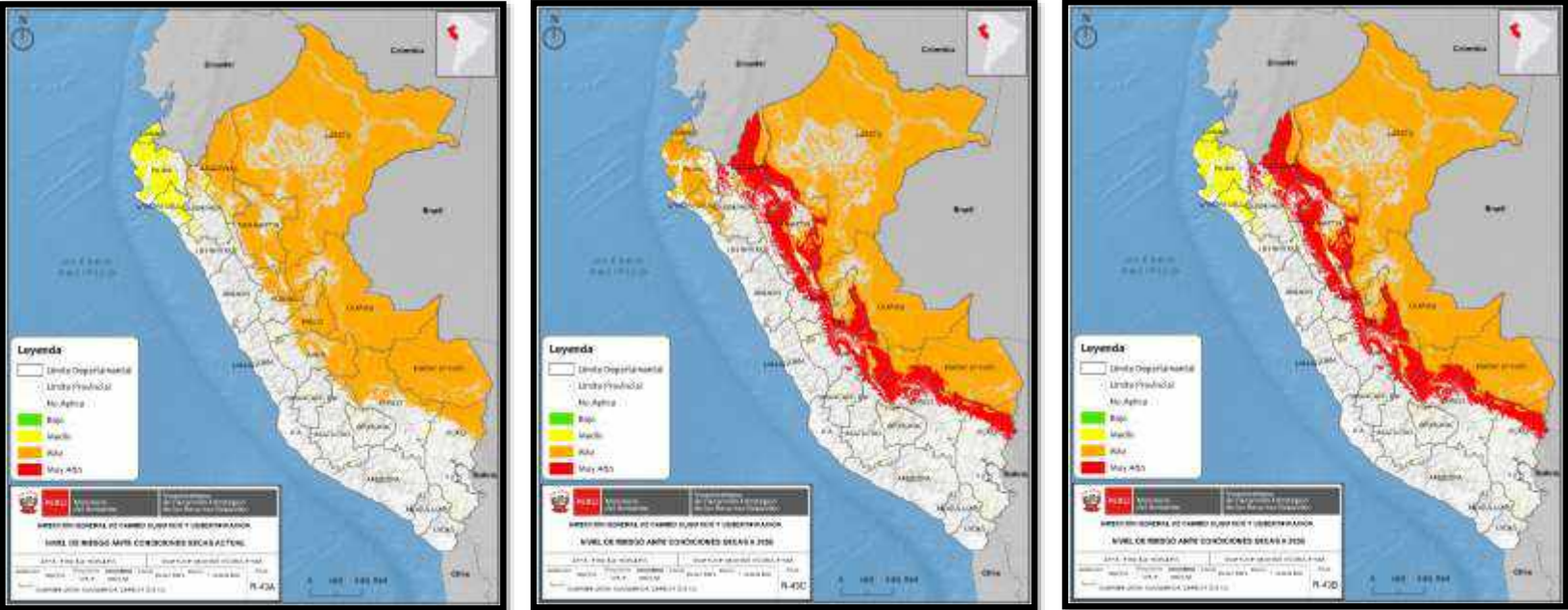
Source: National Plan of Climate Change Adaptation of Peru (MINAM; 2021)

Figure 6. Probable trend in the level of risk to agriculture systems, by change of aridity conditions and by department: currently, 2030 and 2050.



Source: National Plan of Climate Change Adaptation of Peru (MINAM; 2021)

Figura 7. Probable trend in the level of risk for forest ecosystems (seasonally dry and amazonian), by aridity conditions and by department: currently, 2030 and 2050.



Source: National Plan of Climate Change Adaptation of Peru (MINAM; 2021)

The analysis in the NAP doesn't specifically include Andean forests or other Andean ecosystems of interest for the project (paramo, wetlands and grasslands), only mountain forests of the western slope (Andean Amazonian), however; those located in the northern extreme of Peru are essential for the crops of agro-export in the coastal area of Piura and Lambayeque and they are of interest to the project.

In this scenario, the main people affected are the rural Andean communities and their productive systems (mainly rainfed agriculture and livestock grazing) that depend directly on changes in climate, which, together with environmental damage and land-use change (affecting the biophysical component on which they depend), increase the risk of food insecurity and the reduction of the current and potential economic livelihoods of vulnerable populations. For this reason, it is necessary to consider the local population as the main axis for the design of adaptation actions in Andean ecosystems.

The current condition of preservation of the Peruvian Andean ecosystems is the result of a long process of transformation of the landscape by occupation and productive use (agriculture, livestock, mining, fires) and by the biophysical and climate characteristics typical to these ecosystems (Postigo, 2019)<sup>23</sup>. The capacity of adaptation and resilience before the pressure and threats to these ecosystems depends on its integrity as well as the capacity of the local population to reduce the effects of the climate change (Vasquez Jara, et al., 2017)<sup>24</sup>. The Andean ecosystems offer contributions to the people especially those referred to the service of hydric regulation, and they will be affected by the variations on the climate: its dynamic, composition and distribution will change with the rise of the temperature which will have an effect on the use of soil (migration of crops to proper agroclimatic areas) and the priorities of conservation (migration of species to higher latitudes, changes in the phenology, prioritization of environmental services). Also, in the last decades, droughts have been registered more frequently and with more intensity, which would worsen the intensity of fires, though these ones directly depend on the bad agricultural practices that are implemented in the dry season of the Andes. Therefore, it is necessary not just improving the alert systems early, but also strengthen the local equipment and capacity for the early answer.

The NAP<sup>5</sup>, in agreement with the Framework Law on Climate Change, aims at anticipating and/or reducing the current risk and/or avoid the generation of future risks before the effects of the climate change, to reduce or avoid the potential damage, loss or alterations in the ecosystems, basin, territories, livelihoods, population, infrastructure, goods and services, as well as take advantage of the opportunities that offers the adaptation to the climate change for the sustainable development. In this way, the NAP has identified 92 regulations grouped in five thematic areas prioritized to focus on four specific problems.

The project will focus on two of these specific problems: low adaptive capacity of the population and high vulnerability of the ecosystems before the dangers associated with the climate change. To do that, the implementation of ten (10) of the identified measures will be supported in the thematic areas Water, Forests and Agriculture. Also, the generation of enabling conditions will be supported to continue with the implementation of the ten measures, especially those referred to the interinstitutional articulation and the financing. One of the financing options identified by the NAP is the submission of proposals to the Adaptation Fund, which will serve as a basis for mobilizing public and private resources for its implementation.

## Project Objectives:

The project will contribute to increase the adaptive capacity of the productive systems of the Andean rural communities and to reduce the vulnerability of the Peruvian Andean ecosystems (Andean forests, paramos and bofedales).

To achieve these objectives, three outcomes are considered:

- To map and monitor forests and other Andean ecosystems to support decision making at a national and sub national level (regional governments).
- To enhance resilience capacity of the Andean ecosystems in three conservation mosaics.
- To enhance resilience capacity of productive activities in Andean rural communities of three conservation mosaics.

<sup>23</sup> Postigo, J. 2019. Diagnosis of mountain ecosystems as a supply for the formulation of the national policy of glaciers and mountain ecosystems – Final Report. Andean Forests Programme

<sup>24</sup> Vásquez Jara, R., Tovar Narváez, A., Palma Pecho, A., Mercado Curi, W. y Gómez Moncada, H., (2017). Vulnerability of forests and other Andean ecosystems of Saywite-Choquequirao-Ampay to the climate change and the human-induced pressures. Lima: HELVETAS Swiss Intercooperation y el Consorcio para el Desarrollo Sostenible de la Ecorregión Andina (CONDESAN).

## Project Components and Financing:

Project Components	Expected Outcomes	Expected Concrete Outputs	Amount (US\$)
1. Development and implementation of monitoring tools for Andean ecosystems	1.1. Mapping and monitoring of forests and other andean ecosystems to support decision making at a national and subnational level	1.1.1. Monitoring system of the climate change impact on Andean forests implemented. 1.1.2. Monitoring system of degradation and deforestation of Andean forests implemented.	1,000,000.00
2. Implementation of best practices for landscape protection and restoration of Andean ecosystems in conservation mosaics.	2.1. Enhancing of the resilience capacity of Andean ecosystems in three prioritized conservation mosaics.	2.1.1. Rural communities Implement conservation and restoration practices in degraded areas inside and outside (buffer zones) of prioritized protected natural areas. 2.1.2. "Peru's Natural Heritage Initiative – Andes" approved and in implementation 2.1.3. Incorporation of the climate change adaptation and disaster risk reduction approach in planning instruments of three conservation mosaics of Andean ecosystems	1,850,000.00
3. Increasing resilience and sustainability of local productive systems in rural communities in Andean ecosystem landscapes.	3.1. Enhancing of the resilience capacity of productive activities in rural communities of the three prioritized conservation mosaics.	3.1.1. Rural communities with technical productive capacities to reduce vulnerability of value chain inside and outside (buffer zone) prioritized protected natural areas. 3.1.2. Design, evaluation, and implementation of adaptation measures of productive chains linked to the market.	1,750,000.00
Project Execution cost (up 9.5% of Total Project Cost)			437,000.00
Total Project Cost			5,037,000.00
Project Cycle Management Fee charged by the Implementing Entity (up 8,5% of Project Execution Cost + Total Project Cost)			428,145.00
<b>Amount of Financing Requested</b>			<b>5,465,145.00</b>

## Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	January 2024
Mid-term Review (if planned)	March 2026
Project/Programme Closing	December 2027
Terminal Evaluation	March 2028

Projected Duration: 4 years (48 months)



## PART II: PROJECT JUSTIFICATION

### A. Project components

The Andean ecosystems of Peru and the population who live there are highly vulnerable to climate change. In the northern extreme of the Peruvian Andes, there are no glaciers and there are only paramos and Andean forests that are providing hydrological regulation services to the coastal areas of the departments of Piura and Lambayeque, including irrigation projects for agroexport companies (Alban, 2017)<sup>25</sup>. In the central and southern Andes, 2,259 glaciers and 8,577 lakes were registered, distributed in ten departments, according to the National Inventory of Glaciers, elaborated in 2018 by the National Institute of Research on Glaciers and Ecosystems of Mountain (INAIGEM for its initials in Spanish), which will condition future water flows for agricultural, energy and population use. The central Andes and, specially, the southern Andes are significantly less humid than the northern Andes, and a long history of wildfire and increasing drought periods are reported. On the other side, according to the scenarios for the years 2030 and 2050 in the NAP, the local population (rural and with high levels of poverty) will see their productive systems mainly linked to agricultural and livestock activities affected.

The project intervention zone, three landscape mosaics of Andean ecosystems that include protected areas and their buffer zones, was identified based on the maps of probable risk level for the thematic areas of water, forest and agriculture of the NAP Peru. These maps are based on the climate risk scenarios at the national level, and if necessary, will be complemented in the final design stage of the project with climate scenarios developed at the subnational<sup>26</sup> level in the departments where the conservation mosaics of the proposed project are located.

The three conservation mosaics are located in the north, central and south of Perú (Figure 8, based on the map of Natural Protected Areas of Perú):

1. The first one in the north between the departments of Piura and Cajamarca and covers approximately 135,000 hectares of protected areas. The Tabaconas Namballe National Sanctuary (31,143.08 hectares) is the core area around which three private conservation areas have been established (ACP Chicuate Chinguelas, ACP Páramos y Bosques Montanos de San Miguel de Tabaconas and ACP Bosques Montanos y Páramos de Huaricancha) and two regional conservation areas (ACR Páramos y Bosques Montanos de Jaén y Tabaconas and ACR Bosques El Chaupe, Cunía y Chinchiquilla).
2. The second one in the central Andes between the departments of La Libertad, Ancash, Huanuco and Lima. It includes four protected areas: The Calipuy National Sanctuary (4,500 hectares), The Calipuy National Reserve (64,000 hectares), the Huascaran National Park (339,231.91 hectares), nucleus area of the Biosphere Reserve of the same name, and the Reserved Zone Cordillera Huayhuash (67,579.7 hectares).



Figure 8. Location of project interventions areas ecosystem in Perú

<sup>25</sup> Albán, L. 2017. The Fondo del Agua Quiroz Chira: a mechanism for the management for the Piura (Perú) ecosystem mountain. Andean Forest Programme and Nature and Culture International Perú. <https://www.bosquesandinos.org/wp-content/uploads/2017/02/FAQCH-FINAL-WEB.pdf>

<sup>26</sup> Regional Governments with regional strategies updated or in process of updating according to the Regulation of the Framework Law on Climate Change

3. The third one is in the south of Peru between the departments of Apurimac and Cuzco departments. It includes three protected areas: The Ampay National Sanctuary (3,181.76 hectares), the Choquequirao Regional Conservation Area (103,814.39 hectares) and the Machupicchu Historical Sanctuary (28,943.15 hectares).

The progress and achievements of the project will contribute to the fulfillment of the NAP Peru targets and will be reflected in the monitoring and evaluation system of Peru's NDC indicators. They are also expected to contribute to the national report of the new Post-2020 Global Biodiversity Framework. The climate change adaptation measures to be supported by the project are shown in Table 2. The full proposal document will show more detail of the project's contributions to the national targets set by the NDCs.

**Table 2.** Project contributions to the adaptation measures of the NAP Peru

Thematic Area	Adaptation measures	Indicator	National Target to 2030	Project
Water	Conservation and recovery of the natural infrastructure for the provision of hydrological ecosystem service in basins that are vulnerable to the climate change. (Water.24)	Area (ha) of conserved and recovered ecosystems that provide hydrological regulation and provisioning services, in watersheds vulnerable to climate change.	97,842.8	To be defined in the full project document
Forest	Implementation of ancestral practices in rural and native communities on the sustainable use of the goods and services of the ecosystems to adapt to the effects of the climate change (Forest.1)	Number of peasant and/or native communities implementing ancestral practices for the sustainable use of ecosystem goods and services to adapt to the effects of climate change.	150	To be defined in the full project proposal
	Restoration of the ecosystems within of the National System of Natural Protected Areas (Sinanpe for its initials in English) to maintain landscape connectivity and reduce the impacts of the climate change (Forest.2)	Number of hectares of Sinanpe's PNAs with forest under restoration process reduce the impacts of extreme climate events.	19,630	To be defined in the full project proposal
	Implementation of a national forest dynamics monitoring program to measure the impact of climate change and adapt to its effects (Forest.3)	% Implementation of a national forest dynamics monitoring program to measure the impact of climate change and adapt to its effects.	100%	To be defined in the full project document
	Implementation of sustainable practices for the conservation of ecosystems in watersheds of Protected Natural Areas vulnerable to extreme climate events (Forest.4)	Number of hectares of ecosystems in watersheds within the scope of the PNAs with sustainable conservation practices to reduce vulnerability to extreme climate events.	312,000	To be defined in the full project document
	Implementation of a surveillance and control system in Protected Natural Areas to reduce vulnerability to climatic and non-climatic effects. (Forest.5)	Number of hectares in PNAs that implement monitoring and control actions to reduce vulnerability to climate and non-climate impacts.	13,619,539.9	To be defined in the full project document
	Strengthening forest fire	% Decrease in the area of	50%	To be

Thematic Area	Adaptation measures	Indicator	National Target to 2030	Project
	risk management processes with a landscape approach in a context of climate change. (Forest:7)	vegetation cover impacted by forest fires in the context of climate change		defined in the full project document
Agriculture	Management of natural grasslands to ensure livestock feed and reduce their vulnerability to climate change (Agriculture.7)	Number of hectares of natural grasslands managed in areas vulnerable to climate change.	5,873,638	To be defined in the full project document
	Implementation of adaptive technological innovation services for climate change in agricultural value chains. (Agriculture.15)	Number of agricultural producers with technical assistance for technological innovation adaptive to climate change in agricultural value chains.	10,978	To be defined in the full project document
	Implementation of business strategies that incorporate risk and opportunity management in the face of climate change. (Agriculture.17)	Number of agricultural producers with business plans incorporating climate change risk and opportunity management in value chains.	32,248	To be defined in the full project document

Source: National Plan of Climate Change Adaptation of Peru (MINAM; 2021)

#### **Component 1. Development and implementation of monitoring tools in Andean ecosystems.**

aims to improve capacities of national state organizations for decision making on sustainable management of Andean ecosystems: (i) indicators will be identified and incorporated for monitoring the impact of climate change on the biodiversity and functionality of Andean forest ecosystems, as well as implementing long-term monitoring plots and elaborate their baselines in coordination with SERNANP and INAIGEM (BOS.3 ), and (ii) support the design and implementation of monitoring system of degradation and deforestation of Andean forests, the base for intervention of the National Forest Conservation Program of the Ministry of Environment (PNCB-MINAM)<sup>27</sup>. Both monitoring systems will be linked to the early warning systems for forest fires (SERFOR and MINAM) and drought (SENAMHI).

The activities planned under this component were initially supported by the Andean Forests Program (ANFOR) during its second phase (2019-2021). ANFOR supported SERNANP in the methodological and organizational design of the BOS.3 adaptation measure for Andean forests and supported the installation and evaluations of monitoring plots in the Ampay National Sanctuary (Apurimac) and the evaluation of monitoring plots in the Huascarán National Park. ANFOR also supported the PNCB in the preparation of a proposal for the design of the Andean forest mapping and monitoring system, which will serve as the basis for the implementation of activities under this component.

#### **Component 2. Implementation of best practices for the protection and restoration of Andean ecosystem landscapes in three conservation mosaics.**

aims to improve the resilience of Andean ecosystems through: (a) implementing conservation and restoration practices in degraded areas identified in the PNAs and their buffer zones, in coordination with the populations and organized groups with which SERNANP works for the effective management of the protected area, and promoting the participation of the corporate sector and impact investments, through mechanisms identified by the NAP Peru such as public works funded by income taxes ("obras por impuestos" in Spanish), public-private partnerships (Asociación Público Privada) or mechanisms of retribution for water ecosystem services<sup>28</sup> or impact investment in restoration; (b) incorporation of climate change adaptation and disaster risk reduction in the protected area planning instruments and district and/or provincial municipal development plans, in coordination with SERNANP, the Protected Area Management Committees and the District and/or Provincial Municipalities of the prioritized conservation mosaics;

<sup>27</sup> According to the PNCB-MINAM Intervention Strategy to 2030, the goal is to monitor 808,513.00 hectares distributed in 19 departments, of which 121,271 hectares are peasant community lands <http://www.bosques.gob.pe/archivo/Estrategia-de-Intervencion-al-2030.pdf>.

<sup>28</sup> such as the one promoted by the National Superintendence of Sanitation Services - SUNASS, in the Nor Yauyos Cochas Landscape Reserve in Lima or in the National Reserve of Salinas and Aguada Blanca in Arequipa

and (c) extension of the Natural Heritage Initiative of Peru<sup>29</sup> to natural protected areas in Andean ecosystems (nationally, regionally and privately administrated), currently being implemented for the Amazon biome, and seeking to achieve a sustainable National System of Natural Protected Areas (SINANPE) that allows biodiversity conservation, promotes development and improves the quality of life of the country's most vulnerable populations.

In the area of influence of the three selected mosaics, there are some precedents of successful experiences for the implementation of good ecosystem conservation and restoration practices which can be scaled up to other localities within the buffer zones of the same mosaics, and for which there is evidence of positive and proactive involvement of the communities. In the northern the "Fondo del Agua Quiroz-Chira"<sup>25,30</sup> experience lead by Nature and Culture International is working with communities, municipalities and irrigation boards to conserve and restore Andean moorlands and forests ([www.faqch.com](http://www.faqch.com)). In the central Andes, research is being carried out to identify the main factors for the restoration of wetlands (Planas et al, 2020)<sup>31</sup>. In the south, recent research on artificial wetlands shows their contribution to the provision of ecosystem services (Monge et al, 2022)<sup>32</sup> and forest ecosystem restoration experiences have been developed by ANFOR in coordination with SERFOR (for example, guidelines for the restoration - R.D.E. N° 083-2018-MINAGRI-SERFOR-DE, andean forest restoration pilot project in the rural community of Kiuñalla<sup>33</sup> and support in the elaboration of a public investment project profile for the restoration of 1000 hectares of Andean forests in Apurímac) and SUNASS<sup>34</sup> (project to support the consolidation of MERESE in the Mariño micro-watershed in Abancay, Apurímac).

**Component 3. Increasing resilience and sustainability of local productive systems in rural communities in landscapes of Andean ecosystems.** aims to increase the resilience of productive activities of the local population and organized groups in the three conservation mosaics: (a) development of productive technical capacities to reduce vulnerability of existing value chains linked to PNAs in the conservation mosaics (national, regional o private level), and (b) design, evaluate and implement adaptation measures for potential new production chains linked to sustainable and resilient markets.

Component 3 of the Project is based on the process led by SERNANP to involve the communities in the co-management of the protected areas in the conservation mosaics, in this case through the organization of the productive activities carried out by the communities, the signing of the so-called "conservation agreements" and subsequently the signing of a SEAP (Sustainable Economic Activities) contract. This encourages productive activities to reduce their impact and increase opportunities for biodiversity use. Thus, SERNANP not only promotes the signing of these agreements, but through the "Allies for Conservation" brand it hopes to contribute to improving the commercialization channels for bio-businesses developed in and around protected areas. In this context, the project, as indicated above, will provide detailed evaluations for gender-sensitive activities such as productive and restoration activities, which will serve as a basis to adequately design the intervention strategy and become part of the protocols to be implemented by SERNANP in relation to the promotion of bio-businesses and productive activities with the communities. It should be noted that for each of the project components, it is expected to include activities aligned with knowledge management as indicated in section G below.

The project components are aligned with the Adaptation Fund's strategic results framework, as shown in the following:

<sup>29</sup> <https://profonanpe.org.pe/proyectos/fondo-de-transicion-de-la-iniciativa-patrimonio-del-peru-para-las-areas-naturales-protegidas-del-bioma-amazonico-2/>

<sup>30</sup> Implementación de MERESE mediante el Fondo de agua Quiroz-Chira (Fonseca y Lahud, 2022). <https://libelula.com.pe/download/14106/>

<sup>31</sup> Planas-Clarke, A.M., Chimner, R.A., Hribljan, J.A. et al. The effect of water table levels and short-term ditch restoration on mountain peatland carbon cycling in the Cordillera Blanca, Peru. *Wetlands Ecol Manage* 28, 51–69 (2020). <https://doi.org/10.1007/s11273-019-09694-z>

<sup>32</sup> María J. Monge-Salazar, Carolina Tovar, José Cuadros-Adriazola, Jan R. Baiker, Daniel B. Montesinos-Tubée, Vivien Bonnesoeur, Javier Antiporta, Francisco Román-Dañobeytia, Beatriz Fuentealba, Boris F. Ochoa-Tocachi, Wouter Buytaert, Ecohydrology and ecosystem services of a natural and an artificial bogfederal wetland in the central Andes. *Science of The Total Environment*, Volume 838, Part 2 (2022). <https://doi.org/10.1016/j.scitotenv.2022.155968>

<sup>33</sup> <https://www.weadapt.org/knowledge-base/scd-climate-change-environment/local-organization-and-territorial-governance-in-andean-forest-management>

<sup>34</sup> Proyecto "Agua para Abancay y Comunidades, para siempre": <https://www.euroclima.org/proyectos-agua-2/proyecto-peru>

## **B. Economic, social and environmental benefits and mitigate of negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund**

Preliminary and in general terms, the proposed project is expected to have the social, economic and environmental benefits described below:

**Economic benefits:** The project will promote the participation of the local people (including youth, women and other vulnerable groups) in business models based on biodiversity and strengthen the resilience and sustainability of productive systems of the population, increasing the possibilities to sustain the local economy and the livelihoods of man and woman in the face of changing climate conditions in the Andean ecosystem. In all cases, the heads of the protected areas in the intervention sites implement actions to formalize (through "conservation agreements") the economic activities developed by the local population inside and outside the zones. This relationship will serve as a basis for strengthening the process of equitable benefit sharing in the economic activities supported and developed by the project. By involving local governments (District or Provincial Municipalities), it will strengthen the promotion of the rural economic development in the areas of intervention of the project.

**Environments benefits:** The environmental benefits of this project will be reflected in the maintenance of the contribution of the Andean ecosystems to the livelihoods of people living inside and close to these ecosystems, promoting restauration and ecological recovery actions, which will result in an increase of the adaptative capacity of the ecosystems. A larger scale, the protection and restoration of the ecosystem service of hydrological regulation of protected areas such as the Huascarán National Park or the Ampay National Sanctuary will benefit cities such as Huaraz (Ancash) and Abancay (Apurímac). The other hand, the project expects to contribute to reducing the occurrence of forest fires in the three conservation mosaics, thereby also reducing biodiversity loss.

**Social benefits:** The project will strengthen the capacity of the people to reduce their vulnerability to the impacts of the climate change and will at the same time strengthen the participation of vulnerable groups (youth and women) in the decision-making on the use of the resources and services provided by the ecosystems. The project's actions will contribute to reducing social conflicts, reducing gender gaps and maintaining the environmental conditions that sustain the livelihoods of the communities.

Project activities are not expected to have any negative effects on the natural or social capital of the intervention sites. If necessary, detailed assessments will be carried out for the formulation of the full proposal to ensure consideration of the environmental, social and gender policies and principles of the Adaptation Fund.

It is important to mention that, as part of the development of the concept note, a prior consultation process was carried out aimed at the interested parties directly involved in the management of protected areas in the prioritized conservation mosaics (See Annex 1 for a list of people interviewed). Based on that 48 rural villages and 23 peasant's communities were identified in the three conservation mosaics (see Annex 2 for details on these villages and communities), composed of rural families living in poverty and with subsistence economies mainly. The total population in these villages and communities is estimated at approximately 38,200 people based on information from population censuses and censuses of native and peasant communities (INEI, 2017). More detailed information regarding the consultative process is provided in section H of this concept note.

Although we do not yet have an exact number of beneficiaries defined by the proposed intervention, during this stage of the proposal, the consultation allowed to identify participatively the communities, population centres and groups directly related to the management of the area. It was remarked that the management of natural protected areas (dependent on SERNANP) mainly considers "hard" indicators of biodiversity conservation (species, surface area and eventually ecosystem services), so there is limited work done with the engagement of local populations around the protected area, specifically on climate change adaptation issues. On the other hand, in those conservation areas established by agreement of the peasant communities in their territories (private conservation areas), and in consultation with them by the Regional Government in state-owned territories (regional conservation areas), the management of the areas does involve them directly. As in natural protected areas, the management of private (communal) and regional conservation areas needs to strongly incorporate a climate change adaptation approach. In this context, the identification of the population directly involved in the project will be detailed in the full proposal and will serve as a reference for the

project baseline.

The Annex 3 presents the initial characterization of the three prioritized conservation mosaics, covering livelihoods, , gender and youth aspects, forms of organization, ecosystem management history, preferences, and history of conservation initiatives taking a climate change approach, as well as their perception regarding their own vulnerability to climate change and their disposition to the activities and results proposed for those components of the project directly related to the population. This information will serve as the basis for the design of the activities of components 2 and 3 in the full proposal.

### C. Cost-effectiveness

The adaptation measures proposed in the project (ecosystem monitoring, strengthening of capacities, restoration activities, mobilization of financial resources), are cost-effective long-term solutions to develop resilience in the communities and conserve the functionality of Andean ecosystems, which implies continuing to provide contributions from nature to the local populations mainly. There are evaluations of the positive impact of the adaptation measures which will be used as a reference for the design of the site-specific activities of components 2 and 3.

The research builds upon several years of extensive study by the Regional Initiative for Hydrological Monitoring of Andean Ecosystems (iMHEA) in different types of Andean ecosystems (paramo, jalca, puna) to implement best practices and better decisions, show that watersheds with less land use change or intensity of use for livestock provide a better ecosystem service of water regulation (Ochoa-Tocachi B.F et al, 2016)<sup>35</sup>. The iMHEA network ([www.imhea.org](http://www.imhea.org)) has hydrological monitoring sites in northern (Piura), central (Huaraz) and southern (Abancay) Peru. Recommendations derived from a review of the status of forestry impacts on water and soils in the Andes include (Bonnesoeur V., Locatelli B., Ochoa-Tocachi B.F., 2019)<sup>36</sup>: (i) to optimize hydrological services, forest landscape restoration initiatives should prioritize soils without vegetative cover, with compacted soils, and with soils in which organic matter has been depleted; (ii) local authorities and population should understand the advantages, disadvantages, and specify what is expected from afforestation (water or timber); (iii) decision makers sometimes assume that afforestation is key to watershed conservation or restoration, but the reality is that native Andean grasslands (paramo, jalca, puna) in good conditions provide excellent hydrological services; (iv) it is urgent to protect forests from degradation and deforestation, especially cloud forests, not only for their rich biodiversity but also for their contribution to hydrological and soil regulation; (v) landscape restoration and green infrastructure projects should invest in monitoring, and their results should be used in decision-making processes, and to guide and support the design, implementation and evaluation of conservation and afforestation projects. The high Andean ecosystems constitute a continuum of wet puna grasslands, wetlands and Polylepis forests. In an evaluation carried out in Apurímac between 3,900 and 4,635 masl (Cervantes et al, 2022)<sup>37</sup>, the results show that the humid puna grasslands regulate 80%, the wetlands 17% and the Polylepis forest 3%, so the planning of protection, restoration and management activities should be approached from a landscape perspective.

An additional reference to be used for the design of activities is an evaluation of the cost-effectiveness of high Andean ecosystem management in water regulation compared to other regulation alternatives, such as the construction of rustic micro-dams, concrete dams and payment of the opportunity cost of the families living in the Mariño watershed (Cervantes, 2022)<sup>38</sup>. The cost-effectiveness threshold was estimated at \$0.05/m<sup>3</sup> of water, while the incremental cost-effectiveness ratio of the strategies evaluated were: i) ecosystem restoration through a public investment project (\$0.088/m<sup>3</sup>), ii) construction of rustic micro-dams (\$0.47/m<sup>3</sup>), iii) construction of a concrete dam (\$0.18/m<sup>3</sup>) and iv) payment of the opportunity cost (\$0.01/m<sup>3</sup>). Furthermore, Quispe et al (2022)<sup>39</sup> in the same study area in Abancay, evaluated the contribution of agroecology to food security and against climate change in

<sup>35</sup> Impacts of land use on the hydrological response of tropical Andean catchments. BF Ochoa-Tocachi, W Buytaert, B De Bievre, R Célieri, P Crespo, ... Hydrological Processes 30 (22), 4074-4089. <https://onlinelibrary.wiley.com/doi/pdf/10.1002/hyp.10980>

<sup>36</sup> Bonnesoeur, V., Locatelli, B., Ochoa-Tocachi, B.F. 2019. Impactos de la forestación en el agua y los suelos de los Andes: ¿Qué sabemos? Resumen de políticas. Lima, Peru: Forest Trends-Proyecto. <https://www.cifor.org/knowledge/publication/7147/>

<sup>37</sup> Ronal Cervantes, José Miguel Sánchez, Julio Alegre, Eric Rendón, Jan R. Baiker, Bruno Locatelli, Vivien Bonnesoeur. 2022. Contribution of high-andean ecosystems in providing the water regulation ecosystem. Vol. 20 Núm. 2 (2021). <https://doi.org/10.21704/rea.v20i2.1804>

<sup>38</sup> Ronal Cervantes, 2022. Costo efectividad del manejo de ecosistemas altoandinos en la regulación hídrica de la unidad hidrográfica de Rontoccocha, Abancay, Apurímac. <https://hdl.handle.net/20.500.12996/5180>

<sup>39</sup> Yésica Quispe Conde, Bruno Locatelli, Améline Vallet, Raúl Blas Sevillano. 2022. Agroecología para la seguridad alimentaria y frente al cambio climático en Perú. Economía Agraria y Recursos Naturales. Vol. 22.1. (2022). pp. 5-29. <https://polipapers.upv.es/index.php/EARN/article/view/14467/15117>

family farming. His results show that the application of agroecological practices improves food self-sufficiency and family income; it also reduces antagonisms or increases synergies between productivity and adaptation or mitigation. These results suggest that agroecology can help to simultaneously achieve the (often conflicting) objectives of Climate-Smart Agriculture.

Identifying the interests of the local population in the key ecosystem services for the project is the basis for achieving a high degree of ownership and commitment to continue supporting the protection, restoration and good land management (Hosftede, 2019). The experience of the Quiroz-Chira Water Fund in Piura (Albán, 2017)<sup>25</sup> demonstrates how local participation in the design of activities to protect and reduce pressures on ecosystems and technical assistance from the district municipality are good practices that can be replicated in other landscapes with similar issues. This is particularly important in the management of protected areas, where it is key to involve the local population and municipalities.

Vasquez et al (2017), in an assessment conducted in Apurímac about the andean ecosystem and population vulnerability, the following forest landscape management practices were identified as reducing vulnerability: protection of mammals, establishment of customary rules, honey bee production, restoration, protection of native forests, and reforestation. It also indicates that the capacities of local populations to cope with climate change vary from fair to poor, using for this analysis variables such as rights over natural resources, community capacity for economic diversification, community organizational capacity and presence of vulnerable groups. The Project will consider all these findings as a basis for the design of activities with the local population, in order to make its intervention more efficient and sustainable.

At the institutional level, the involvement of national-level sectorial governmental organizations with responsibilities in the implementation of the National Adaptation Plan will also contribute to the efficiency of the project: PNCB-MINAM, SERFOR and SERNANP, the three together in outcome 1, and SERNANP leading outcome 2 and 3. The involvement of the three institutions is key from a landscape approach and considering their complementary roles inside and outside the protected areas.

The project intervention will generate direct impact on: (i) at least 1.7 million hectares of Andean ecosystems in protected areas through a financial strategy to close the gap for the management of protected areas and incorporating the climate change adaptation approach, (ii) will contribute to monitoring the impact of climate change and deforestation on the slightly more than 270,000 hectares of Andean relict forests (and up to 800,000 hectares in accordance with the PNCB-MINAM goals for 2030), (iii) will strengthen the capacities of the local population to develop productive activities around and within the conservation areas identified in the prioritized conservation mosaics (total population estimated at approximately 38,200 people, direct beneficiaries to be defined during the elaboration of the full proposal), and (iv) will facilitate the start of the intervention of the National Forest Conservation Program in Andean relict forests through the design and implementation of the degradation mapping and monitoring system for this type of ecosystem.

It is also important to mention that some research carried out in the Apurímac region, that have managed to identify and make visible ancestral knowledge and differentiated participation of women and men in the communities around biodiversity, use of wild species, agroforestry practices and soil and water management. and conservation, recovery and protection of forests, fire prevention, family livelihoods, economic activities, among others (Mathez-Stiefel et al, 2016; Kometter and Huasquiche 2017; Kometter, 2018). Women play a fundamental role in the production of seedlings, construction of q'ochas (artificial wetlands), livestock, firewood collection, seed handling, planting, post-harvest handling and sale; while men are responsible for the transfer of seedlings, tools and supplies, soil management, house construction, tool making, harvesting and product transfer (ANFOR, 2019c and 2021; Mathez-Stiefel, 2016). Initially, it can be assumed that the situation is similar in the central and northern areas, so the gender analysis to be carried out at the beginning of project execution will be an opportunity to guide and better define the intervention strategy, as well as to unify information on this subject in the protected areas of the country.

#### **D. Consistency with national or sub-national strategies.**

The national normative framework to which the project is linked to is the following:

- *National Policy of the Environment*, approved by Supreme Decree 023-2021-MINAM.
- *Framework Law on Climate Change (Law 30754)* and its regulations approved by Supreme

- Decree 013-2019-MINAM.
- *National Strategy of Climate Change* approved by Supreme Decree 011-2015-MINAM, and currently in updating process<sup>40</sup>.
- *National Plan of Climate Change Adaptation of Peru*, approved by Ministerial Resolution 096-2021-MINAM.
- The proposal of *National Policy of Glaciers and Mountain Ecosystems*<sup>41</sup>.
- *Action Plan in Gender and Climate Change – PAGCC Peru*<sup>42</sup>.
- *Regional Strategies of Climate Change*.
- *Law of Mechanisms of Retribution Ecosystems Services (Law 30215)*, its regulations approved by Supreme Decree 009-2016-MINAM, and Amendment of the Regulations approved by Supreme Decree No. Supreme Decree 033-2021-MINAM.
- *General Dispositions for the multisectoral and decentralized management of the wetlands*, approved by Supreme Decree 006-2021-MINAM.
- *Intervention Strategies for 2030 of the National Program of Forest Conservation*, approved by Resolution of Executive Coordination 026-2020-MINAM/VMDERN/PNCB.

At Andean regional level, the project is consistent with the *Andean Initiative of Mountains*<sup>43</sup> of which Peru is the Regional Coordinator Pro-Tempore currently, and with Declaration of Madrid worldwide (COP25) signed by Peru in the framework of the *Initiative 20x20*<sup>44</sup>.

## E. Relevant national technical standards and complies with the Environmental and Social Policy of the Adaptation Fund

The project is in line with the cross-cutting (gender, intercultural and intergenerational) and human rights approaches established by NAP Peru in accordance with the Regulations of the Framework Law on Climate Change of Peru, as well with the principles and approaches established by the National Policy on Gender Equality and Law No. 28983, and by the Law on Equal Opportunities for Women and Men. Interventions in the conservation mosaics will respect the regulatory framework established by SERNANP for the development of activities in protected areas and their buffer zones, as well as regulations established by SERFOR for areas outside of protected areas, especially for restoration activities.

The project does not include any environmental or social risks and will generate benefits in both these dimensions by promoting monitoring and resilience to climate change in Andean ecosystems, as well as the sustainability of livelihoods and productive chains with a gender focus, without involving risks such as the displacement of vulnerable populations inside and outside protected areas. For the management of the selected conservation mosaics, and especially of conservation areas, both SERNANP and the local organizations with which it works have established mechanisms for effective participation and involvement of the local population, local governments, and rural communities. In these, they coordinate their actions for protection, restoration and sustainable management of resources.

On the other hand, in the three selected mosaics there is a history of successful local experiences in the implementation of good ecosystem conservation practices, with evidence of positive and proactive involvement of the communities, which can be replicated within and among the mosaics.

During the elaboration of the full proposal, HELVETAS Swiss Intercooperation will carry out a much more detailed consultation at the local level to identify the population directly involved in the activities of components 2 and 3, which are site-specific and require a high level of detail for selection, such as the identification of conservation and restoration practices of degraded areas most appropriate for the biophysical conditions of each mosaic and the preferences of the communities themselves (prioritization of ecosystem services); as well as the selection of high potential productive chains to focus on strengthening the technical productive capacities of vulnerable groups, for sustainability and

<sup>40</sup> <https://www.gob.pe/institucion/minam/campa%C3%B1as/3453-estrategia-nacional-ante-el-cambio-climatico-al-2050>

<sup>41</sup> <https://inaigem.gob.pe/web2/politicas/>

<sup>42</sup> [https://cdn.www.gob.pe/uploads/document/file/374076/PLAN-G%C3%A9nero-y-CC-16-de-JunioMINAM\\_MIMP.pdf](https://cdn.www.gob.pe/uploads/document/file/374076/PLAN-G%C3%A9nero-y-CC-16-de-JunioMINAM_MIMP.pdf)

<sup>43</sup> The Andean Initiative of Mountains is a platform integrated by the countries who share the Andes Chains of Mountains: Argentina, Bolivia, Colombia, Chile, Ecuador, Peru and Venezuela, and that, of their own accord, aim at strengthening the regional dialogue to promote and take action in order to preserve and encourage the sustainable development of the Andean mountains. <https://iam-andes.org/>

<sup>44</sup> Initiative 20x20 is a country-led effort that aims to change the dynamics of land degradation in Latin America and the Caribbean. <https://initiative20x20.org/>

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resilience with high market acceptance.

## F. Other funding sources

From the consultations with SERNANP and MINAM, the following initiatives have been identified within the areas of intervention of the project. In general terms, the projects identified involve SERNANP and PROFONANPE, and considering that both will be part of the project steering committee, it is ensured that duplication of actions between all projects is avoided.

From the consultations carried out with SERNANP and MINAM, there is only one project currently under implementation that overlaps territorially with the concept note: the "Natural Heritage of Peru - Amazon" project, and as described below, this project does not plan to incorporate or develop actions on climate change adaptation. Additionally, there are two (2) initiatives in the design stage, which are expected to be completed in 2023 or 2024. In both cases, SERNANP or PROFONANPE are involved, and considering that both will be part of the project steering committee, it is ensured that duplication of actions among all projects is avoided: all interventions in natural protected areas must be reported to SERNANP, which ensures that the projects duplicate activities, and contribute in a complementary manner to cover the protected area's management gaps. The projects or initiatives identified in the intervention zone of this proposal are listed below

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Project	Geographical Overlap	Status	Implications
Project "Patrimonio Natural del Perú – Amazonía" <sup>45</sup>	Tabaconas Namballe National Sanctuary	In execution: finances the update of the Tabaconas Namballe SN Master Plan. The intervention of this initiative in this protected area does not consider promoting actions to adapt to climate change.	This initiative aims to consolidate the effective management of protected areas in the Amazon biome by generating enabling conditions for such management (2019-2029) and ensuring their financial sustainability in perpetuity. Component 2 seeks to extend this initiative to the protected areas of the Andean ecosystems of the western slopes of the Andes. The initiative is led by SERNANP and promoted by PROFONANPE, thus ensuring the synergy and complementarity of the activities foreseen by output 2.1.2 of the project.
Project "Improvement of the Biodiversity Conservation Service of Huascarán National Park" (Unique code N° 2323856 - Public Investment Project) <sup>46</sup>	Huascarán National Park	According to the records of the Peruvian National Public Investment System, this project is only at the profile level, requiring public or private investment for the elaboration of the complete project. The financing commitment was transferred from the national level to the Regional	During the formulation of the technical dossier, communication and exchange of information will be ensured to promote complementarity of activities. Considering that the project will be implemented within a natural protected area, SERNANP will be consulted for its elaboration and will participate in its execution. In this context, synergy and complementarity between the activities of the two projects is ensured, as long as the full proposal of the public investment project is elaborated.

<sup>45</sup> <https://profonanpe.org.pe/proyectos/fondo-de-transicion-de-la-iniciativa-patrimonio-del-peru-para-las-areas-naturales-protegidas-del-bioma-amazonico-2/>

<sup>46</sup> <https://ofis.mef.gob.pe/invierte/consultapublica/consultainversiones>

Project	Geographical Overlap	Status	Implications
		Government of Ancash. To date, the GORE has not committed funding for the elaboration of the complete project and there is no established date for this.	
Project "Resilient Puna: Ecosystem-based Adaptation for Sustainable High Andean Communities and Landscapes in Peru" <sup>47</sup>	Protected areas of the Mosaico Sur	Concept Note approved by the Green Climate Fund (2021) and full proposal under development (2022-2023).	The objective of the project is to design and implement a financial mechanism to implement nature-based solutions and strengthen productive chains in high Andean ecosystems in Apurimac, Cusco, Puno and Arequipa.

There are projects in Colombia, Ecuador, Peru and Bolivia that aim to contribute to the adaptation of high Andean ecosystems, the populations living in them and their livelihoods. Among these projects we can mention the "Andean Forests Regional Programme" (2014-2021), the "Andes Resilient to Climate Change" project (Phase 1: 2020-2024), the Adaptation to Climate Change Impacts on Andean Water Resources - AICCA (2017 - to date) and "The Mountain Ecosystems-based Adaptation -EbA" program, being the basis of this proposal, the lessons learned, results and pending challenges of the "Andean Forests Regional Programme".

These projects are implemented by Helvetas Swiss Intercooperation, CONDESAN and the Mountain Institute, and there is a relationship of collaboration and coordination between HELVETAS and CONDESAN in the framework of these projects, and between the three organisations in the framework of the Technical Group on Mountains of the National Commission on Biological Diversity (CONADIB), led by the National Institute for Research on Glaciers and Mountain Ecosystems (INAIGEM). In this context, meetings for the exchange of lessons learned and experiences will be promoted as a basis for the final design of the proposal and its implementation. This type of exchange has been foreseen by the project, within the knowledge management elements and activities to be developed in each of its components.

This concept note is based on the previous experience of the Regional Andean Forest Program and uses as a reference several projects that have been developed in the Andean ecosystems of Peru, which are described below.

Project Title	Period of execution	Implementing Entity (in Perú)	Intervention site	overlapping or complementarity
<u>Multiplying environmental and carbon benefits in high Andean ecosystems (ECOANDES)</u>	<u>2013-2018</u>	<u>CONDESAN</u>	<u>Ayabaca, Piura</u>	<u>Not overlapping Thematic Complementarity</u>
<u>Andean Forests Regional Programme (ANFOR / Bosques Andinos)</u>	<u>2014-2021</u>	<u>HELVETAS Swiss Intercooperation</u>	<u>Abancay, Apurimac</u>	<u>Partial overlapping Thematic Complementarity</u>
<u>Scaling Up Mountain Ecosystem-based Adaptation: Building Evidence, Replicating Success, and Informing Policy (Mountain EBA Perú)</u>	<u>2017-2020</u>	<u>The Mountain Institute – IUCN</u>	<u>Cañete, Lima</u>	<u>Not overlapping Thematic Complementarity</u>

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<sup>47</sup> <https://www.greenclimate.fund/document/resilient-puna-nature-based-climate-solutions-sustainable-high-andean-communities-and>

<a href="#">Natural Infrastructure for Water Security in Peru (NIWS)</a>	<a href="#">2017-2022</a>	<a href="#">Forest Trends, CONDESAN, SPDA</a>	<a href="#">Piura, Lima, Arequipa, Cusco</a>	<a href="#">Not overlapping Thematic Complementarity</a>
<a href="#">Adaptation to Climate Change Impacts on Andean Water Resources (AICCA)</a>	<a href="#">2017-2022</a>	<a href="#">CONDESAN</a>	<a href="#">Piura, Ancash, Cajamarca</a>	<a href="#">Not overlapping Thematic Complementarity</a>
<a href="#">Adaptation at Altitude: taking action in the mountains</a>	<a href="#">2020-2023</a>	<a href="#">CONDESAN</a>	<a href="#">Support the iMHEA Network (Lima)</a>	<a href="#">Not overlapping Thematic Complementarity</a>
<a href="#">Andes Resilient to Climate Change (Andes Resilientes)</a>	<a href="#">2020-2024</a>	<a href="#">HELVETAS Swiss Intercooperation</a>	<a href="#">Cusco, Puno</a>	<a href="#">Not overlapping Thematic Complementarity</a>

[It is important to mention that for the design of the complete proposal and its implementation, the lessons learned and the best practices promoted by these projects will be taken into account. In this context, during the design phase, SERNANP will lead interviews with the coordinators and/or specialists of these projects. During the implementation phase, exchanges of experiences will be promoted within the framework of the knowledge management activities to be developed in each component, and a digital repository will be promoted on the SERNANP website with the documents generated by these projects, and as a reference for future actions.](#)

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[In addition, this project has considered establishing a Steering Committee made up of SERNANP, PROFONANPE, MINAM and Helvetas Swiss Intercooperation \(as executing entity, it periodically reports the progress of the project\). The main function of this committee is to learn about the progress of project implementation. Based on this information, SERNANP and PROFONANPE can identify overlap or complementarity with other initiatives or public investment projects to be developed in any of the three prioritized mosaics.](#)

## G. Knowledge management

The project will support the implementation of the Climate Change Adaptation Measures established in the NAP of Peru. In this context, knowledge management is proposed as a cross-cutting working approach, and resources from each of the components will be allocated for knowledge management activities. The full proposal will include the corresponding budgetary details, and it is planned to formulate a Knowledge Management Strategy at the beginning of the project that incorporates the following elements:

- Identification of knowledge gaps (identification of good practices and evidence) to facilitate the implementation of activities in the three components of the project.
- Analysis of capacity building needs of local populations, local government officials and protected area managers and specialists, especially to achieve the expected result of component 3 "Increased resilience of productive activities in rural communities in three prioritized conservation mosaics".
- Promote discussion on knowledge management in participatory spaces such as management committees and regional platforms, where the participation of managers, academia and local population should be ensured. This ensures that the actions to be designed and implemented have the consensus of the strategic stakeholders in the territory.
- Systematization of processes and results, through guidelines established at the beginning of the project, to facilitate their dissemination.
- Dissemination of information through the web portals of PROFONANPE, MINAM, SERNANP, INAIGEM and PNCB-MINAM, taking into consideration the strategic communication actions established by the NAP of Peru.
- Dissemination of knowledge through appropriate communication channels to each type of target audience identified by the project: local population, municipal authorities, and the general public. Likewise, the dissemination of the project's experiences in global knowledge management web portals on climate change or mountain ecosystems such as WeADAPT or The Mountain Partnership, and through the COPs on Climate Change and Biodiversity is also planned.
- Linkage to the project's monitoring and evaluation system and to the institutional knowledge management strategy of the project counterparts (especially SERNANP), PROFONANPE and HELVETAS Swiss Intercooperation.

In order to include this element with a comprehensive approach, the Project planning will include the following set of activities is proposed:

- a) Specialized workshops to identify the specific capacity building needs and information gaps of the Project's stakeholders (regarding the Project components), during the first year of implementation stage.
- b) Capacity building activities, based on the stakeholders deep analysis and related to the Project's components.
- c) Systematization of experiences and key information generated by the Project.
- d) Design and implementation of communication guidelines, aligned to the NAP Perú and the knowledge management strategies of the Project's counterparties.
- e) Implementation of a monitoring and evaluation system, including indicators related to knowledge management outputs and a data base of knowledge management products.
- f) Mid-term and final workshops of strategic reflection with the participation of project implementors and main stakeholders (if needed), in order to identify lessons learnt, innovative elements, key knowledge management products, key messages to be transmitted, main outcomes and main impacts of the Project.

## **H. Consultative process and compliance with environmental and social Policy and Gender Policy of the Adaptation Fund.**

Due to the context of the three mosaics, the consultative process have been organized based on a "cascade approach", which implies three steps (two of which were already accomplished to elaborate this concept note): a) Deep interviews with protected area chief in order to primarily identify and characterize the main aspects of local stakeholders and populations; b) deep interview with local stakeholders of the three mosaics and community authorities of the southern mosaic<sup>48</sup> in order to triangulate information and accurate technical elements and; c) prioritization of populations and organizations of consultations with local population regarding components 2 and 3 of the project (to be done during the full proposal stage).

Several considerations were taken in account to propose the consultative process under those approach and stages. First, the geographic areas of the mosaics are wide, and located distant from each other, so the accessibility to them and the transportation among the protected areas implies having enough resources and time (as it's possible to observe in the Figure 8). So, to carry on detailed workshops and interviews with peasant communities and local organized groups was not possible in the concept note stage, specially considering that each mosaic encompasses many villages and communities (Annex 2). In addition, it was taken in account that, in Perú, a consultative process is considered a special kind of process that requires a proper dedication to be organized (preparation, announcement, transportation, facilitation, systematization, among others) and may rise expectations among the local population that is consulted. In that regard, it's suggested to manage the interaction through representors and key stakeholders first (for example: head of protected areas, supporting ONG), and then carry out workshops and interview with families or local organized groups, once there is a certain level of certainty in the realization of the process or project in consult. In order to properly prepare the third stage of the consultative process, an application form for Project Formulation Grant (PFG) is attached to this concept note.

As result of stages a) and b) of the consultative process, for the formulation of this concept note, HELVETAS Swiss Intercooperation in coordination with PROFONANPE and SERNANP conducted 19 interviews in July 2022 with the heads of protected areas, regional conservation area managers, specialists from local organizations that support the management of private conservation areas in the three prioritized conservation mosaics and with community leaders of the southern mosaic (see list of interviewed persons in Annex 1), in order to identify and characterize the population centers and rural communities linked to the conservation areas and that participate in their management, including an initial identification of vulnerable and marginalized groups, as population under poverty and exclusion conditions.

The following criteria were established for the preliminary characterization: (i) livelihood vulnerability,

<sup>48</sup> Only was possible to do interviews with community authorities in the southern mosaic, due to accessibility, which is relatively more feasible than in the northern and center mosaics.

(ii) absence of other interventions that address their vulnerability, and (iii) direct relationship with the area's resources. This characterization included information, specific to each conservation mosaic regarding livelihoods, vulnerability, organizational structures, and ecosystem management. An special emphasis was placed on regarding women's and youth's participation in livelihoods (for example: specific roles within farm and grazing activities, crops and livestock breeds more related to female activities, use of technology for irrigation and products transformation, participation in trade activities, etc.). In addition, female and youth participation and level of representation into the community's social and politic dynamics was characterized, as well as the existence of organized groups. In particular, the consultation process allowed to have a preliminary identification of communities's background about sustainable management initiatives, as well as their preferences about potential climate change adaptation practices and value chains.

Due to the peasant communities and the population dedicated to agriculture are the most vulnerable to the effects of climate change, the project contemplates their direct involvement in activities aimed to increase their livelihood and natural environment adaptive capacity (specifically, outputs 2.1.1 *Peasant communities Implement conservation and restoration practices of degraded areas inside and outside (buffer zones) of prioritized natural protected areas* and 3.1.1 - *Peasant communities with productive technical capacities to reduce vulnerability of value chains*). For this reason, the consultation process had a special emphasis on exploring their disposition and preferences regarding these outputs. The information in this regard is detailed in Annex 03 and is summarized in the table 3.

**Table 3. Summary of preliminary consultant process about the local economic activities**

Aspect	Mosaic North	Mosaic Center	Mosaic South
<b>Perception livelihood's vulnerability</b>	<ul style="list-style-type: none"> <li>• Susceptibility of coffee crops to attack by pests and diseases, due to increased temperatures.</li> <li>• Increasing incidence of forest fires.</li> <li>• Decreased productivity of rocoto and granadilla due to frost.</li> </ul>	<ul style="list-style-type: none"> <li>• Affectation in the water supply due to a change in the rainfall regime.</li> <li>• Deterioration of access roads due to irregular precipitation patterns.</li> <li>• Increased incidence of pests in potato crops due to increased temperatures.</li> <li>• Frost damage to cereal crops, barley, corn, potato and fruit trees. Alteration of water availability for cattle farming due to frost and irregular rainfall patterns.</li> </ul>	<ul style="list-style-type: none"> <li>• Uncertainty in productive decision-making due to changes in rainfall and temperature regimes.</li> <li>• Alteration of the agricultural calendar.</li> <li>• Affectation in the raising of cattle and small animals due to frost.</li> <li>• Increased incidence of pests in potato and corn crops due to increased temperatures.</li> <li>• Alteration of water availability for squash and corn crops.</li> </ul>
<b>Preferences regarding conservation and restoration practices (Output 2.1.1.)</b>	<p><b>Productive restoration:</b> Agroforestry systems for carbon capture, shade, and biodiversity recovery purposes. Territorial and livestock planning. Low-impact silvopastoral systems in páramos and montane forests</p> <p><b>Other complementary strategies:</b> compensation for carbon sequestration</p>	<p><b>Conservation:</b> Monitoring of natural and forest vegetation cover</p> <p><b>Ecological restoration:</b> Forest restoration with native species (quenoals), planting and harvesting water .</p> <p><b>Productive restoration:</b> Breeding of small animals (guinea pigs and birds) with efficient use of water, breeding of vicuñas as a soil conservation strategy, intensive and stabled livestock with genetic improvement, cultivation of flowers and strawberries in greenhouses, organic</p>	<p><b>Ecological restoration:</b> Protection of water resources in the highlands, planting and harvesting water</p> <p><b>Productive restoration:</b> Technified irrigation to increase water efficiency, agroforestry systems through the establishment of boundaries with fruit trees and native forest species.</p>

Aspect	Mosaic North	Mosaic Center	Mosaic South
		agriculture.  <b>Other complementary strategies:</b> Organizational strengthening, retribution mechanisms for water, carbon and biodiversity ecosystem services	
<b>Preferences regarding value chains resilient to climate change (Output 3.1.1.)</b>	<ul style="list-style-type: none"> <li>• Coffee</li> <li>• Cattle farming</li> <li>• Native high mountain fruit trees (tree tomato, aguaymanto, walnut, elderberry, wild papayas)</li> <li>• Guinea pig breeding</li> <li>• Beekeeping of native bees (meliponas)</li> <li>• Tare.</li> <li>• Production of handicrafts (emphasis on women).</li> </ul> <b>Other complementary strategies:</b> Promotion of sustainable brands of conservation areas.	<ul style="list-style-type: none"> <li>• Certified potato</li> <li>• Breeding of small animals (guinea pigs)</li> <li>• Tourism</li> </ul>	<ul style="list-style-type: none"> <li>• Guinea pig breeding</li> <li>• Fruit trees and vegetables in greenhouses</li> <li>• Tare</li> <li>• Avocado</li> <li>• Pisciculture</li> <li>• Coffee</li> <li>• Cocoa</li> <li>• Passion fruit</li> </ul> <b>Other complementary strategies:</b> Promotion of organic seals and "Allies for Conservation"

The information collected during this first step of consultation provides valuable insights for an efficient focalization during the next stage. Detailed consultations and local meetings will be held during the development of the full project document to better understand and prioritize the interests and needs of the organized groups of families (men, women and youth) identified, the farming communities and local authorities (including the review of regional climate change work agendas and/or strategies). Moreover, to better understand the relationship between local people's livelihoods, ecosystems, climate risks differentiated by user, the implications of gender in productive and socio-political life, power structures and decision-making spaces on the use and access to goods and services provided by ecosystems. All this will be done with the aim of refining the identification of intervention strategies and establishing site-specific activities with the local populations involved in components 2 and 3. Annex 3 presents the initial characterization of the three prioritized conservation mosaics, which forms the frame of reference for the design of the activities of components 2 and 3 and a further consultation process.

Based on the communities and rural villages identified, and the interest groups identified by the heads of the protected areas and other local stakeholders interviewed, a consultation process will be carried out through workshops and focused meetings in each of the mosaics and for each of the areas. During the consultation process, SERNANP's chiefs and specialists and the heads of the regional conservation areas will be involved. The workshops and meetings will be held in coordination with local organizations that support the management of the protected areas and the prioritized conservation mosaics. The consultation process will be carried out based on the Guidance Document for Implementing Entities on compliance with the Adaptation Fund's Gender Policy.

Likewise, during the development of the full proposal, consultations will be held with private sector actors involved in the development of extractive economic activities in the conservation mosaics and with private sector representatives interested in promoting impact investment. The consultations will provide further information on vulnerable groups in the prioritized conservation mosaics and opportunities for scaling up lessons learned from other projects.

If necessary, a detailed analysis of the environmental and social impacts of the project will be undertaken during development of the full proposal. A Gender Plan for project implementation will also be prepared, in line with the Adaptation Fund's environmental, social and gender policy, and the three

cross-cutting approaches (gender, intercultural and intergenerational) and human rights established by the NAP of Peru in accordance with the Regulations of the Framework Law on Climate Change of Peru, which also include the National Policy on Gender Equality and Law No. 28983, Law on Equal Opportunities between Women and Men, and the provisions of the Action Plan on Gender and Climate Change of Peru (PAGCC Peru).

## I. Justification for funding requested

The project will contribute to the implementation of the NAP Peru by supporting ten adaptation measures and contributing to the targets of its indicators in Andean ecosystems of Peru, considered the most vulnerable to climate change. In accordance with the recommendations of the NAP Peru, synergies between the measures of the three thematic areas addressed by the project (Water, Forest, Agriculture) will be promoted in the prioritized conservation mosaics to integrate all available resources in the most efficient way.

The project is structured in three components with three outcomes and seven outputs (see Project Components and Cost section). The first component (US\$ 1,000,000) will support SERNANP (MACC Forest.3) and MINAM's National Forest Conservation Program for the design and implementation of monitoring systems for forests and other Andean ecosystems. The second component (US\$ 1,850,000) will support restoration processes of Andean ecosystems in three conservation mosaics (Water.24, Forest.2, Forest.4), the institutional articulation for the sustainable management of Andean ecosystem landscapes with a risk management approach to climate change (Forest.1), and the closing of gaps in natural protected areas in Andean ecosystems through the extension of the Peruvian Natural Heritage Initiative to the Andes (Forest.5, Forest.7). Component 3 (US\$ 1,750,000) will strengthen capacities to reduce the vulnerability of current and potential local production systems and promote their access to green markets (Agriculture.7, Agriculture.15 and Agriculture.16).

Knowledge management activities will be included in each of the components and will be further detailed in the full proposal (see Section G above for a first list of elements).

## J. Outcome sustainability

The sustainability of the project's actions is guaranteed at the local level by the participation of the local population through the peasant communities, who are the owners of their territories and the main stakeholders interested in maintaining their livelihoods and productive chains, including their diversification (Outcome 3). Component 3 of the project is based on the process led by SERNANP to involve the communities in the co-management of the protected areas in the conservation mosaics, in this case through the organization of productive activities carried out by the communities, the signing of the so-called "conservation agreements" and subsequently the signing of a SEAP (Sustainable Economic Activities) contract. This encourages productive activities to reduce their impact and increase opportunities for biodiversity use. Thus, SERNANP not only promotes the signing of these agreements, but through the "allies for conservation" brand, it hopes to contribute to improving the commercialization channels for the bio-businesses developed in and around protected areas.

In this context, the participation of communities in the planning of activities in their territories will be guaranteed, ensuring adequate representation of women and vulnerable groups at all stages, including consultations for project formulation, in accordance with the Gender Policies of the Adaptation Fund and the cross-cutting approaches (gender, intercultural and intergenerational) of the NAP Peru. The assessments detailed for gender-sensitive activities, such as productive and restoration activities, will serve as a basis for the appropriate design of the intervention strategy. It will be recommended that they become part of the protocols to be implemented by SERNANP in relation to the promotion of bio-businesses and productive activities with the communities. Likewise, within the framework of SERNANP's relations with the communities, and for the implementation of the project, a Complaints and Grievance Mechanism (MAQR) will be implemented based on PROFONANPE's experience with projects with native communities in the Amazon<sup>49</sup>.

The project will promote a user-centered, iterative, and open to innovation approach for the development of adaptation measures in local productive systems. The annual project implementation

<sup>49</sup> <https://profonanpe.org.pe/wp-content/uploads/2020/11/Mecanismo-de-Atencion-de-Quejas.pdf>

plans will be designed in a participatory manner, articulating their activities to those planned by the communities and local municipalities in the project intervention area. Likewise, a reasonable duration is considered for project implementation, to guarantee sufficient time for the consolidation of processes.

Community participation in decision-making on land management and rural development with a focus on climate change and risk management will be strengthened in the protected area management committees. In these, communities, municipalities, civil society and the private sector participate and plan the sustainable management of the conservation areas and their buffer zones (Outcome 2). At the sub-national level, coordination and participation spaces for the management of water resources (where they exist) and the departmental territory will also contribute to the sustainability of the project's actions, incorporating climate change in their planning instruments (Outcome 2).

At the national level, the sectoral governmental organizations involved in the proposal are responsible for the implementation of Peru's National Climate Change Adaptation Plan. This guarantees the long-term sustainability of monitoring actions (Outcome 1) and the closing of gaps for protected areas in Andean ecosystems (Outcome 2). At the sub-national level (regional governments), the linkage of project activities with regional climate change agendas and/or strategies (where appropriate) will promote the incorporation of actions in support of the implementation of the NAP Peru in the programmatic and budgetary planning instruments of regional governments.

The project will equally promote participation of and collaboration with academia and research centers in mountain ecosystems in order to take advantage of previously generated tools and knowledge that can be used by the project (Outcome 1, Outcome 2, and Outcome 3). This articulation will at the same time allow the involvement of academia in the mobilization of financial resources to support and expand the monitoring of Andean ecosystems. On the other hand, the generation of scientific knowledge on the impact of the activities will increase the evidence for monitoring the implementation of public policies on climate change.

**K. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project.**

The project is not expected to generate any negative environmental or social impacts. However, even though site-specific activities have not been identified at this concept note, it is possible that some of them may represent a low risk, so the project will be preliminarily classified as Category B. Detailed studies will be carried out in the next phase of the project development process to ensure consideration of the Adaptation Fund's environmental, social and gender policies and principles.

At level of outputs the following table provides information of potential negative impacts.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>	X	The development of the final project document and the execution of activities under the proposed subprojects will ensure compliance with all relevant national legislation and international laws, therefore it will not imply a risk
<i>Access and Equity</i>	X	<b>Low risk</b> Project's component N° 2 and 3 involve the participation of peasant communities and intend to improve their access and provide sustainability to their use of natural resources. To avoid negative impacts over the equity conditions or increase possible current gaps, the process of design of the activities related to outputs 2.2.1., 3.1.1. and 3.1.2., will take into consideration the characterization of each one of the three mosaics and the final result of the consultative process, regarding the current use of resources and



Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		level of access of each group of population to sociopolitical and organization structures. That, to consider the most ideal mechanisms and strategies to maximize the sustainable and equal access of families to the benefits of ecosystem services and the sustainable use of natural resources (value chains, payment for ecosystem services, etc.), as well as avoid overcharges in women's and other vulnerable group's use of time
<i>Marginalized and Vulnerable Groups</i>	X	<b>Low risk</b> To achieve that properly, the design of activities and selection of practices and strategies, will take into consider the results of the consultative process and the Knowledge Management elements proposed, especially the identification of knowledge gaps and analysis of capacity building needs of local populations, local government officials and protected area managers and specialists. It will also be taken in consideration the preferences and priorities of stakeholders regarding sustainable practices and value chains. In addition, possible current gaps (regarding labor asignation, money access, social platform access, etc) among groups of gender, age or or any kind will be identified in order to avoid the project to intensify them, or eventually contribute to address them
<i>Human Rights</i>	X	All activities will respect and adhere to national legislation and international conventions on human rights
<i>Gender Equality and Women's Empowerment</i>	X	<b>Low risk</b> General guidelines for inclusive capacity building activities, technical assistances and other activities will be designed, including specific gender and youth considerations, based in the analysis of the level and patterns of participation into the organizations and sociopolitical dynamics, the preferences of each group about productive livelihoods, practices and value chains, and the relation of each group with specific natural resources and ecosystem services. That, in order toto promote positive impacts, to reduce gender gaps and to avoid the exacerbation of current situations of gender inequity
<i>Core Labour Rights</i>	X	The proposed project will adhere to core labor laws and the rights of all parties. In order to avoid exploitation during field activities, the following will be settled and implemented: prohibition of hiring minors, analysis of labor implied during the implementation practices and the distribution among family members, constant coordination and monitoring with community authorities. Young people and children might be involved only in capacity building activities.
<i>Indigenous Peoples</i>	X	<b>Low risk</b> Nevertheless, is highly likely that the mayor part of rural communities and villages linked to the project identify themselves with the Andean culture (probably quechua speakers), so their set of values, norms, traditional knowledge and preferences will be taken into account in order to avoid negative impacts over them. Specially,

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		the selection of practices and supplies to plan conservation, restoration and value chains will be carried out in the frame of an open dialogue and in a participatory way, so traditional knowledge is reflected in the decision making.
<i>Involuntary Resettlement</i>	X	The outputs of the proposed project do not include involuntary resettlement.
<i>Protection of Natural Habitats</i>	X	<b>Low risk</b> The project is not expected to have a negative impact on natural habitats, including those that are legally protected or recognized as protected natural areas. However, a final evaluation of the areas involved in the project will be carried out in accordance with the AF's environmental and social policy to observe the minimum negative impact that will be inherent to the activities carried out.
<i>Conservation of Biological Diversity</i>	X	The interventions of the project are in protected areas and buffer zones and implementing with SERNANP according to the management plans of this areas. The project will promote the conservation of biological diversity and natural habitats, through the restoration and protection of the forest, therefore it does not imply any risk.
<i>Climate Change</i>	X	The proposed project will contribute to climate change adaptation actions at the country level. Furthermore, the proposed project is in no way intended to increase greenhouse gas emissions or contribute to drivers of climate change.
<i>Pollution Prevention and Resource Efficiency</i>	X	<b>Low risk</b> The project will promote good climate-smart agricultural and livestock practices based on the traditional knowledge of local populations. These practices prioritize the conservation of ecosystem services such as water regulation, erosion control and soil fertility. In general terms, the ecological footprint of project activities will be reduced as much as possible, considering the fragility and vulnerability of high Andean ecosystems.
<i>Public Health</i>	X	No risks are anticipated in terms of public health concerns, rather it is intended to improve livelihoods through climate-resilient practices and alternative income-generating activities.
<i>Physical and Cultural Heritage</i>	X	The project will strongly promote not only the preservation of the cultural heritage (ancestral knowledge) but also the physical heritage of the territory, as there are no plans to develop activities that promote land use change and it's no expected to threaten or generate any impacts on areas of archaeological value. In addition, the project activities will be aligned to the management plans of the protected areas, which have been considering the reduction of negative impacts over the natural and cultural heritage.
<i>Lands and Soil Conservation</i>	X	The proposed project is intended to conserve natural lands and soil through the protection of key ecosystems that are threatened by unsustainable practices.

Likewise, within the framework of SERNANP's relations with the communities, and for the implementation of

the project, a Complaints and Claims Attention Mechanism (MAQR) will be implemented based on PROFONANPE's experience in projects with native Amazonian communities (<https://profonanpe.org.pe/wp-content/uploads/2020/11/Mecanismo-de-Atencion-de-Quejas.pdf>)

## PART III: IMPLEMENTATION ARRANGEMENTS

### A. Demonstrate how the project/programme aligns with the Results Framework of the Adaptation Fund

Project Objective(s) <sup>1</sup>	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Increase the adaptive capacity of the productive systems of the Andean rural communities and to reduce the vulnerability of the Peruvian Andean ecosystems (Andean forests, paramos and bofedales)	Number of risk-exposed Andean communities protected through adaptation measures	<b>Outcome 6:</b> Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas.	<u>6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods</u>	1,750,000.00
Increase the adaptive capacity of the productive systems of the Andean rural communities and to reduce the vulnerability of the Peruvian Andean ecosystems (Andean forests, paramos and bofedales)	Number of hectares conserved and/or restored	<b>Outcome 5:</b> Increased ecosystem resilience in response to climate change and variability-induced stress	<u>5. Ecosystem services and natural resource assets maintained or improved under climate change and variability-induced stress</u>	2,850,000.00
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
Mapping and monitoring of forests and other Andean ecosystems to support decision making at a national and subnational level	Number of monitoring systems in operation	<b>Output 5:</b> Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	<u>5.1. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)</u>	1,000,000.00
Enhancing of the resilience capacity of Andean ecosystems in three prioritized conservation mosaics	Number of hectares conserved and/or restored.	<b>Output 5:</b> Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	<u>5.1. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)</u>	1,850,000.00

Enhancing of the resilience capacity of productive activities in rural communities of the three prioritized conservation mosaic	Number of local producers receiving technical assistant  Number of local producers with businesses in implementation	<u>Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability</u>	<u>6.1.1. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies</u>  <u>6.2.1. Type of income sources for households generated under climate change scenario</u>	1,750,000.00

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<sup>1</sup> The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

## PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

### A. Record of endorsement on behalf of the government<sup>2</sup>

*Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

Name: Milagros Sandoval Diaz Position: General Director of Climate Change and Desertification Ministry: Ministry of the Environment of Peru	Date: 01,09,2023
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### B. Implementing Entity certification

*Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (National Adaptation Plan and National Contributions) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

<sup>6</sup> Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

Name & Signature: Anton Willems Delanoy	
Implementing Entity Coordinator	
Date: (01, 09, 2023)	Date: (01, 09, 2023)
Project Contact Person: Claudia Godfrey Ruiz	
Tel. And Email: (511) 218 1097 cgodfrey@profonanpe.org.pe	



PERÚ

Ministerio  
del Ambiente

Viceministerio de  
Desarrollo Estratégico de  
los Recursos Naturales

Dirección General  
de Cambio Climático  
y Desertificación

"Decenio de la Igualdad de Oportunidades para mujeres y hombres"  
"Año del Fortalecimiento de la Soberanía Nacional"  
"Año del Bicentenario del Congreso de la República del Perú"

Lima, 08 de agosto de 2022

**LETTER N° 00101-2022-MINAM/VMDERN/DGCCD**

Merssrs.

**The Adaptation Fund Board**

c/o Adaptation Fund Board Secretariat

Email: Secretariat@adaptation-fund.org

Fax: 202 522 3240/5

**Subject** : Endorsement letter for the concept note "Building a program for the adaptation and resilience to climate change of the andean ecosystems and populations of Peru".

The Ministry of the Environment of Peru is the governing body of the National Climate Change Strategy of Peru and is the ministry in charge of informing the United Nations Framework Convention on Climate Change on the commitments of Nationally Determined Contributions (NDC). Within this framework, the concept note "Building a program for the adaptation and resilience to climate change of the andean ecosystems and populations of Peru" has been evaluated, to be presented to the Adaptation Fund. In this sense, the proposal contributes to increasing the adaptive capacity of the productive systems of rural Andean peasant communities and to reducing the vulnerability of the Peruvian Andean ecosystems (Andean forests, moors and wetlands).

In this vein, I am pleased to endorse the concept note mentioned above with support from the Adaptation Fund. If approved, we will ensure that the project is aligned to our climate change adaptation targets, and that is duly coordinated between the Ministry of Environment and Profonampe.

We appreciate your attention very much, and thank you for your kind consideration.

Sincerely yours,

**Milagros Sandoval Diaz**

Head of the General Directorate of Climate Change and Desertification

Ministry of the Environment

Designated Authority

web: <https://ecodoc.minam.gob.pe/verifica/view> e ingresando la siguiente clave: **4dff6a**

File Number: 2022043179





## Project Formulation Grant (PFG)

Submission Date: 01/09/2023

Adaptation Fund Project ID :  
 Country : Perú  
 Title of Project : Building a program for adaptation and resilience to climate change of Andean local communities and ecosystems in Peru  
 Type of IE (NIE/MIE) : National  
 Implementing Entity : Profonanpe  
 Executing Entity/ies : HELVETAS Swiss Intercooperation

### A. Project Preparation Timeframe

Start date of PFG	<b>March 1<sup>st</sup> 2023</b>
Completion date of PFG	<b>July 31<sup>th</sup> 2023</b>

### B. Proposed Project Preparation Activities (\$)


Describe the PFG activities and justifications:

List of Proposed Project Preparation Activities	Output of the PFG Activities	USD Amount
Activities design: - Detailed logical framework - Detailed budget - Detailed environmental and social assessment	<ul style="list-style-type: none"> <li>Logical Framework and Budget</li> <li>Environmental and Social Assessment Report</li> </ul>	8,000.00
Consultative process planning: - Consultation general methodology (data collection and systematization) - Prioritization of local communities by conservation mosaic - Planning and implementation of field work. - Preparation of the general work plan	<ul style="list-style-type: none"> <li>Consultative process plan</li> </ul>	5,000.00
Consultative process: - Data collection on the field - Systematization - Report preparation	<ul style="list-style-type: none"> <li>Consultative process report by conservation mosaic</li> </ul>	22,500.00  - Salaries: 15,000 (2 specialist, by 3 months)  - Fieldwork expenses (flight

List of Proposed Project Preparation Activities	Output of the PFG Activities	USD Amount
		<i>tickets, local transportation, food, lodging, meals and workshop materials): 7500 (2500 per mosaic)</i>
Integration of results to full proposal document	• Consultative process full report	4,000.00
Final drafting of full proposal	• Full proposal	6,000.00
<b>Total Project Formulation Grant</b>		<b>45,500 USD</b>

### C. Implementing Entity

This request has been prepared in accordance with the Adaptation Fund Board's procedures and meets the Adaptation Fund's criteria for project identification and formulation

Implementing Entity Coordinator, IE Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Anton Willems		01/09/2023	Claudia Godfrey	(511) 218 1097	cgodfrey@profonanpe.org.pe

ANNEX 1. List of people interviewed in the preliminary consultation for the design of the concept note.

Geographic Area	Name	Gender	Institution and position	Data collection tools
Northern mosaic	Carolina Guevara Molina	Female	SERNANP Chief of Santuario Nacional Tabaconas Namballe	<ul style="list-style-type: none"> <li>• on-line format</li> <li>• interview</li> </ul>
	Auner Medina Rafael	Male	Naturaleza y Cultura Internacional (NCI) Perú Chief of North Andes Mosaic	<ul style="list-style-type: none"> <li>• on-line format</li> <li>• interview</li> </ul>
	Katty Carrillo Távara Elio	Female	Local managers of Piura and Cajamarca conservation areas supported by NCI Peru: <ul style="list-style-type: none"> <li>• Regional Conservation Area (ACR) "Bosques El Chaupe, Bosques El Chaupe, Cunía y Chinchiquilla"</li> <li>• Regional Conservation Area (ACR) "Páramos y Bosques Montanos de Jaén y Tabaconas"</li> <li>• Private Conservation Area (ACP) "Bosques Montanos y Páramo Huaricancha"</li> <li>• Private Conservation Area (ACP) "Páramos y Bosques Montanos San Miguel de Tabaconas"</li> <li>• Private Conservation Area (ACP) "Bosques Montanos y Páramos Chicuate - Chingelas"</li> </ul>	
	Ivan Nuñez Cortez	Male		
Adán Campos Flores	Male			
Center mosaic	William Martínez	Male	SERNANP Chief of Parque Nacional Huascarán and Zona Reservada Cordillera Huayhuash	<ul style="list-style-type: none"> <li>• interview</li> </ul>
	Laura Lucía Huamán Negreiros	Female	SERNANP Specialist of Parque Nacional Huascarán	<ul style="list-style-type: none"> <li>• on-line format</li> <li>• interview</li> </ul>
	Edson Ramirez	Male	SERNANP Specialist of Parque Nacional Huascarán	
	Fredy Abraham Abanto Terrones	Male	SERNANP Chief of Reserva Nacional de Calipuy	
	Elbert Zavaleta Zavaleta	Male	SERNANP Chief of Santuario Nacional de Calipuy	<ul style="list-style-type: none"> <li>• on-line format</li> <li>• interview</li> </ul>
	Vidal Rondan Ramirez	Male	Instituto de Montañas Led, Alliance with mountain organizations of Ancash	
Southern mosaic	Jaime José Valenzuela Trujillo	Male	SERNANP Chief of Santuario Nacional Ampay	<ul style="list-style-type: none"> <li>• on-line format</li> <li>• interview</li> </ul>
	Cirilo Zevallos	Male	Santuario Nacional Ampay Peasant Community Huayllabamba	<ul style="list-style-type: none"> <li>• interview with community leaders</li> </ul>
	Florentino García	Male	Santuario Nacional Ampay Peasant Community Chupapata	
	Zacarías Huamán	Male	Santuario Nacional Ampay Peasant Community Chupapata	
	Freddy Huamán	Male	Santuario Nacional Ampay Peasant Community Juan Velasco Alvarado	
	Jessica Morón Alvarez	Female	SERNANP Specialist of Santuario Histórico Machupicchu	<ul style="list-style-type: none"> <li>• on-line format</li> <li>• interview</li> </ul>
	Freddy Espinoza	Male	Santuario Histórico Machupicchu Peasant Community Piscacucho	<ul style="list-style-type: none"> <li>• interview with community leaders</li> </ul>
	Juan Achahuanco	Male	Santuario Histórico Machupicchu Peasant Community Piscacucho	
	Edwin Mansilla	Male	Gobierno Regional de Cusco Chief of Regional Conservation Area "Choquequirao"	<ul style="list-style-type: none"> <li>• interview</li> </ul>

**ANNEX 2.** Rural towns and peasant communities identified in the consultation for the preparation of the concept note.

Mosaic	Protected Natural Area	District, Province, Region	Rural towns and/or Peasant Communities identified in area of influence of PNA	Estimated population (INEI)**
Northen	<b>Santuario Nacional Tabaconas Namballe</b>	Departamento de Cajamarca, Provincia de San Ignacio, Distritos Namballe y Tabaconas  Departamento de Piura, Provincia de Huancabamba, Distritos Carmen de la Frontera y Huancabamba	Rural town: Pueblo Libre*, Ihuamaca*, Miraflores*, Cabeza (400), Cataluco (500), Tayapampa (268), Comenderos Alto (400)  Peasant Community Segunda y Cajas*: rural towns Machete (30), Habaspite (300), el Carmen (500)  Peasant Community San Miguel de Tabaconas*	1568
	<b>ACR "Bosques El Chaupe, Cunía y Chinchiquilla"</b>	Departamento de Cajamarca, Provincias de San Ignacio, Distritos de Chirinos, La Coipa, Namballe, San Ignacio y Tabaconas.	Rural towns: La Cruz (50), Chalanmache y Palambe (250); El Triunfo (70), Agua Azul (160), Pachapiriana (800); El Progreso (280), El Edén (90), Valle La Primavera (200), Pampas del Inca (500), Monte de los Olivos (65) y El Valor (90)	2555
	<b>ACR "Páramos y Bosques Montanos de Jaén y Tabaconas"</b>	Departamento de Cajamarca, Provincias de San Ignacio y Jaen, Distritos de Tabaconas, Chontalí, San José del Alto y Sallique	Rural towns: Rumipite (880), Laurel (170) y Estrella Divina (150); El Corazón (600) y Nueva Esperanza (200); Chinchiquilla (420), El Progreso (280), San Francisco (200), Tunal (120), Ihuamaca (1320), El Chaupe (120), Miraflores (320), El Sauce (50); Pueblo Libre (350), Corazón de la Naranja (280), Cesará (800) y Monterrey (180)	6120
	<b>ACP "Bosques Montanos y Páramos Chicuate - Chingelas"</b>	Departamento de Piura, Provincia de Huancabamba, Distrito del Carmen de la Frontrea	Peasant Community Segunda y Cajas	3935
	<b>ACP "Páramos y Bosques Montanos San Miguel de Tabaconas"</b>	Departamento de Cajamarca, Provincia de San Ignacio, Distrito de Tabaconas	Peasant Community San Miguel de Tabaconas	2688
	<b>ACP "Bosques Montanos y Páramo Huaricancha"</b>	Departamento de Piura, Provincia de Huancabamba, Distrito de Sondor	Peasant Community Huaricancha	4604
	Center	<b>Santuario Nacional Calipuy</b>	Departamento de La Libertad, Provincia y Distrito de Santiago de Chuco	Rural towns: Chagabal (100), Monchugo (400), Cachubamba (30), Cusipampa (300), Quiguir (80), El Zaile (150), Collayguida Baja (120), el Molle (80), Calipuy (420), Llacamate (20)
<b>Reserva Nacional Calipuy</b>				
<b>Parque Nacional Huascarán</b>		Departamento de Ancash, Provincias de Yungay, Bolognesi, Huari y Huaraz, Distritos de Mancos,	Peasant Community: Unidos Venceremos (274), Atusparia (914), Catac (2743), Aquia (1208), Acopalca (813), José Martín Ríos Sotero (460), Cahuide (137) y Ancash (1985)	8534

Mosaic	Protected Natural Area	District, Province, Region	Rural towns and/or Peasant Communities identified in area of influence of PNA	Estimated population (INEI)**
		Aquia, Chavín de Huantar, Huari y Huaraz		
	<b>Zona Reservada Cordillera Huayhuash</b>	Departamento de Áncash, Provincia de Bolognesi, Distritos de Pacclón y Huasta Departamento de Huánuco, Provincia de Lauricocha, Distritos de San Miguel de Cauri, Jesús y Queropalca Departamento de Lima, Provincias de Cajatambo y Oyón, Distritos de Copa, Cajatambo y Oyón	Peasant Community in Ancash: Pacllón (453), Pocpa (117) y Llamac (359) Peasant Community in Huánuco: San Miguel de Cauri (416), Jesús (1376) y Queropalca (782) Peasant Community in Lima: Huayllapa (100), Quichas (350) y Uramasa (50)	4003
<b>Southern</b>	<b>Santuario Nacional Ampay</b>	Departamento de Apurímac, Provincia de Abancay, Distrito de Tamburco	Rural towns: Humaccata (100), Sahuanay (120), Ccorhuani (78). Peasant Community: Chupapata (11), Juan Velazco Alvarado (481) y Huayllabamba (203)	993
	<b>Santuario Histórico de Machupicchu</b>	Departamento de Cusco, Provincia de Urumbamba, Distritos de Ollantaytambo y Machupicchu	Rural towns: Torontoy (7) y Piscacucho (150)	157
	<b>ACP Choquequirao</b>	Departamento de Cusco, Provincias de Anta y La Convención, Distritos de Anta y Santa Teresa	Rural towns: Sacsara (8), Yanama (280) y Mollepata (1100)	1388

\* The population of these rural towns and peasant communities are considered in the ACR or ACP around the PNA

\*\* INEI: National Directory of Town Centers (2017) and Census of Native and Peasant Communities (2017)

### ANNEX 3. Preliminary characterization of the prioritized conservation mosaics.

#### **Northern Mosaic**

##### **a) Livelihoods, gender, and vulnerability aspects**

The prioritized populations in the Northern Mosaic develop a wide range of livelihoods, including coffee cultivation and extensive cattle ranching in the buffer zone and within the Santuario Nacional Tabaconas Namballe (SNTN), respectively. In the zones of influence of the regional conservation areas and private conservation areas, the population grows grains and tubers such as beans, corn, wheat, and potatoes, although in recent years there has been an increase in export crops such as coffee, passion fruit, sugar cane, and avocado. It is also common for families to raise small animals (guinea pigs, chickens) and some trout production initiatives have been reported.

##### **• Women's participation in livelihoods**

Mosaic specialists report that women's participation in productive activities is active, especially in tasks such as the production of plants in nurseries and the transformation process of products, such as drying coffee. They also play a leading role in livestock production, as they are responsible for the rotation of livestock in the fields, as well as the milking process and the production of milk transformation products (cheese). In the sugarcane production chain, women participate in both the cultivation and processing of sugarcane to obtain panela. In addition, they are known for weaving saddlebags and quilts. However, despite their participation in various stages of the production chains, it is noted that women are not usually considered in the negotiation and trade stages, since the key actors involved in these stages are not well-disposed toward them.

Women are also mainly responsible for household chores, food preparation, laundry, childcare, and health care.

##### **• Livelihood vulnerability**

In terms of vulnerability, although there are no specific studies, those who participated in the collection of primary information agree that they have observed a greater susceptibility of the coffee crop to pest and disease attacks, because of the increase in temperature. This has led to the population's need to expand the coffee agricultural frontier to higher altitudes, with a consequent change in land use to areas around 1800 m.s.n.m and a higher incidence of fires, which conflicts with the conservation objectives of the protected areas.

Other crops that are affected by the change in climate patterns are rocoto and granadilla, whose production is reduced by factors such as frost.

##### **b) Identification of potential climate change adaptation practices and value chains**

Based on the consultation process, a set of practices and alternatives of interest to the main key stakeholders of the project proposal have been prioritized to promote adaptation to climate change of the populations that make up the target audience in this mosaic:

- Compensation for carbon footprint mitigation, using wood from previously installed agroforestry systems.
- Production of handicrafts with women cooperative members.
- Sustainable cattle ranching through livestock management and the installation of silvopasture systems in moorlands and montane forests.
- Agroforestry systems in coffee plantations (horizontal scaling in the mosaic of previous initiatives in the territory).
- Promotion of sustainable branding of conservation areas.

These key actors also point out the importance of working in parallel on organizational strengthening to empower community management capacity and the dissemination of the productive conservation approach. The consultation process has identified the following as the main potential value chains to be promoted in this mosaic:

- Coffee
- Cattle ranching
- Native high mountain fruit trees (tree tomatoes, aguaymanto, walnut, elderberry, wild papayas).
- Guinea pig breeding
- Apiculture of native bees (melipona).
- Tara.

##### **c) Organizational structures, women and youth participation**

In the SNTN's area of influence, the main social organizations that group the population are the coffee cooperatives; while around the area of influence of the ACP and ACR are the peasant patrols, water administration boards, conservation associations, agrarian cooperatives, conservation committees, among others.

It is noted that women's participation in these organizations is growing, although they remain inhibited by cultural patterns and do not participate under equitable conditions. For example, the board of the SNTN management committee has a third of women's participation, which is nevertheless higher than the patterns of women's participation that were present 12 or 14 years ago. However, there is an artisan association presided over by a woman and composed of most women.

With respect to the participation of the youth population, there is a high participation of young men in community surveillance activities (more than 80%); however, there is a lack of access to capacity building opportunities, which is a cause of migration to urban areas in search of employment opportunities. To address this situation, NCI is leading an engagement initiative called "forest rangers of the future".

#### **d) Ecosystem management, threats, and track record of conservation initiatives under a climate change approach**

One of the main threats to conservation in the mosaic is the advance of the agricultural and livestock frontier, in addition to the effects of climate change on the availability of water in the lagoons (the size of the water bodies has varied significantly, even in areas where there is no human pressure). In addition, the death of tree cover due to water deficit has been observed.

The main anthropogenic causes of this problem are due to irregular land tenure, the migration of coffee crops and extensive cattle ranching areas from lower to higher elevations, poor agricultural practices (burns), and the lack of opportunities for capacity building in sustainable agriculture and cattle ranching.

To address these threats, SERNANP is carrying out activities such as participatory management, reforestation and restoration, protected area signage, and conservation agreements as part of the implementation of its Master Plan (2022 - 2026), which includes climate change as a cross-cutting component but does not include monitoring indicators related to this factor. It should also be noted that the SNTN is part of Peru's Natural Heritage initiative, which carries out delimitation and monitoring activities, in addition to strengthening management committees, but does not include the promotion of measures for sustainable production or adaptation to climate change.

Other management initiatives operating in the territory include a project to implement a water MERESE in a micro-watershed (ACR Chaupe Chinchiquilla) that will be implemented by Pronatura and NCI. NCI is in the process of formulating project initiatives to recover the ecosystem services of soil erosion control in the RCAs, sustainable tara production, improved water supply, post-harvest coffee improvement, and cooperation agreements with the communities. It is also noted that the coffee cooperatives promote the improvement of quality standards and the implementation of agroforestry systems with coffee, as a measure for productive improvement and adaptation.

### **Center Mosaic**

#### **a) Livelihoods, gender, and vulnerability aspects**

The most widespread livelihood in the central mosaic is extensive cattle ranching. Other agricultural activities include the cultivation of tubers and grains such as potatoes, barley, wheat, lentils, flax and chocho. In the middle zones, there are also areas with fruit crops and eucalyptus plantations. To a lesser extent, there are sheep, pigs and goats, as well as small animals such as guinea pigs and chickens. Within the Huascarán National Park and Cordillera Huayhuash Reserved Zone, some families also raise vicuñas and engage in tourism activities.

- **Women's participation in livelihoods**

Women play an important role in grazing cattle and goats, as well as in the production and sale of dairy products. They also participate in agricultural activities (especially at harvest time) and are known for their dedication to weaving, handicrafts, and caring for the home and family.

- **Livelihood vulnerability**

Livelihoods in the mosaic are mainly affected by the change in rainfall patterns, which affects water supply (there are wetlands with natural and anthropogenic deterioration), especially in sectors where irrigation

systems have not been installed. In addition, irregular rainfall patterns (more intense rains in shorter periods of time) cause landslides and deterioration of access roads.

Although there are no specific studies, key stakeholders report having observed an increase in the incidence of pests in crops such as potatoes and frost damage, especially in cereal, barley, corn, potato, and fruit crops (the latter in the middle zones).

Cattle ranching and crops are also affected by frost and heavy rains, which affect the water balance in puquios, pastures and grasslands, as well as water.

#### **b) Identification of potential climate change adaptation practices and value chains**

A set of alternatives have been identified to promote adaptation to climate change of the populations that make up the target audience of the project proposal in this mosaic:

- Reforestation with native species (queñoales).
- Sowing and harvesting water
- Water management for raising small animals.
- Monitoring of natural vegetation and forest cover.
- Vicuña breeding as a soil conservation strategy.
- Genetic improvement of livestock
- Intensive and stabled livestock raising
- Breeding of small animals such as guinea pigs and poultry
- Greenhouse cultivation of flowers and strawberries
- Organic agriculture
- Organizational strengthening
- Promotion of mechanisms for the retribution of water, carbon and biodiversity ecosystem services with mining, hydroelectric and tourism companies.

The main potential value chains to be promoted in this mosaic are as follows:

- Certified potatoes
- Breeding of small animals (guinea pigs),
- Artichoke

#### **c) Organizational structures, women and youth participation**

The most relevant organizations for protected area management in this mosaic include the Water and Sanitation Administration Boards (JAAS) and irrigation committees, as well as pasture user committees in the case of Huascarán National Park. Other important forms of organization are the peasant communities and their boards of directors, mothers' and milk glass clubs, peasant communities, sports clubs, peasant patrols, producer associations and vigilance committees, and pasture user committees.

For the entire mosaic, the key stakeholders who participated in the consultation process point out the poor development of gender equity conditions. However, it is recognized that women's participation in the main organizations has been increasing in recent years, especially among the younger generations and in the participatory activities of the mosaic's protected areas, with women park rangers and specialists, for example. There is also a group of women artisans in the Calipuy National Sanctuary's area of influence.

In terms of youth participation, there is a tendency for young people to migrate to study and work, but many young people are involved in productive activities, community organizations (including leadership positions) and community vigilance committees. In the case of Huascarán National Park, there is a youth involvement initiative through the "Hinchas de la Conservación" program in which young volunteers participate in talks and workshops in person and virtually. In the Calipuy National Reserve's area of influence, there has been a return of young people due to the pandemic, which in turn is causing a problem of increased demand for land for agricultural activities.

#### **d) Ecosystem management, threats, and track record of conservation initiatives under a climate change approach**

The main threats to ecosystem conservation in the mosaic include forest fires, the advance of the agricultural frontier, the advance of urban areas and/or human settlements, soil or water contamination, extractive activities, wildlife hunting, and changes in climate patterns that affect ecosystem stability.

In the case of Calipuy National Sanctuary, it is reported that 70% of the area is currently well conserved and



has good participatory management, which limits the advance of threats to the area; however, the remaining 30% is illegally occupied, with problems such as the expansion of the agricultural frontier and the practice of extractive activities, water exploitation, burning, and fires.

The Calipuy National Reserve's zone of influence, on the other hand, has seen an increase in agricultural and housing areas in recent years due to the migratory process exacerbated by the pandemic, which has generated the need for land for housing and crops, generating permanent occupation pressure, a situation that affects the interests of the protected area, especially in the peripheral rings of the buffer zone that are farther away from the reserve. In addition, the impact of the economic crisis is causing the population to return to old practices, such as guanaco and Andean bear hunting.

A similar situation is occurring in the surrounding areas of Huascarán National Park, where migration and population growth have resulted in an increase in the agricultural frontier and demand for basic services (water, electricity, etc.), and the population within the park and surrounding areas is affecting pristine areas of the protected natural areas due to cattle grazing, overgrazing, and increased forest fires. Tourism in the area has also had a negative impact on wildlife.

In response to these pressures, the main actions taken to manage the protected areas are participatory management, reforestation and restoration, research, signage, and conservation agreements, within the framework of the implementation of master plans, which are pending updating in the case of Calipuy National Reserve and are in the process of being updated in the case of Calipuy National Sanctuary and Huascarán National Park.

In Huascarán National Park, there are other sustainable management initiatives by mining companies (environmental compensation and community oversight) and the Regional Government of Ancash under the works-for-taxes mechanism with Antamina. In the Huascarán National Park's area of influence, the Mountain Institute promotes regenerative cattle ranching and agroecology under a holistic approach that includes soil recovery, livestock rotation, pasture rest, restoration for biodiversity recovery, revegetation of natural pastures, and social management.

## **Southern Mosaic**

### **a) Livelihoods, gender, and vulnerability aspects**

The livelihoods of the people in the southern mosaic depend on the location of the communities and population centers in the mosaic itself. In the area of influence of Ampay National Sanctuary (Apurímac), the population is dedicated to subsistence agriculture and cattle ranching, growing vegetables, flowers, and fruit in the lower areas; tuber and grain crops such as potatoes, olluco, corn, alfalfa, beans, peas, and cereals in the middle areas; and raising cattle in the higher areas. Small animals such as guinea pigs, chickens, pigs and horses are also frequently raised. People frequently migrate in search of employment opportunities in sectors such as construction and informal mining.

In the area of influence of Machupicchu Historic Sanctuary and Choquequirao Regional Conservation Area, on the other hand, the population is more involved in commercial activities related to tourism (food sales, tour guides). In some of the towns in the Machupicchu Historic Sanctuary's area of influence, the population also practices agricultural activities, with crops such as potatoes, corn, beans, fruit, vegetables, squash, wheat, peas, avocado, and tara, the latter two under conservation agreements. There is also small-scale raising of small animals such as chickens, guinea pigs, and cattle. In area of influence of the Choquequirao Regional Conservation Area, the population grows coffee, cacao, fruit (passion fruit, papaya, banana, avocado), as well as poultry and sheep in the higher areas, on a low scale.

#### **• Women's participation in livelihoods**

During the collection of primary information, the specialists noted that women's participation in agricultural livelihoods is increasing, with a preponderant role in irrigation and significant participation in activities such as land preparation, sowing, weeding, fertilization, and livestock activities.

Community leaders in the area report that women play a leading role in activities related to family welfare, such as food preparation, vegetable planting, raising small animals and participating in the Ayni. They also frequently sell traditional food products such as chicha, typical dishes, and candy.

#### **• Livelihood vulnerability**

Key stakeholders (specialists and community leaders) in the Ampay National Sanctuary's area of influence report that there are noticeable changes in the seasonality of precipitation (delayed rainfall from September to

December) and temperatures, which alters the agricultural calendar and causes uncertainty when making production decisions, as well as water stress in agricultural production due to decreased water flow, which has even led to conflicts between communities. Another climatic factor that causes vulnerability is the higher incidence of cold spells at altitudes above 3,000 meters above sea level, which affects the raising of livestock and small animals. In addition to these problems, there is a higher incidence of corn and potato diseases, the high cost of agricultural inputs (fertilizers), and rain damage to access roads (increased transportation costs and loss of production).

In the Machupicchu Historic Sanctuary's area of influence, key stakeholders report that there is still no water stress due to water shortages; however, they have begun to observe that higher temperatures are forcing families to irrigate more frequently (by gravity). Also, there has been some damage to crops, especially from pests and diseases, due to changes in temperature and rainfall. Community leaders report that, for example, for several years they have been forced to abandon pumpkin cultivation. This problem is compounded by the rising prices of fertilizers, pesticides, and seeds, as well as the alteration of the agricultural calendar and work schedules during the daily workday due to higher temperatures in the mornings around midday.

In the ACR's Choquequirao area of influence, changes in temperature and precipitation patterns are forcing the population to migrate to higher altitudes in search of areas suitable for growing coffee and cocoa, and there is an increase in the incidence of pests in these crops.

#### **b) Identification of potential climate change adaptation practices and value chains**

The consultation process has made it possible to identify a set of climate change adaptation practices that key stakeholders have identified as priorities to be promoted among the populations that make up the target audience of the project proposal in this mosaic:

- Protection of upland water resources.
- Planting and harvesting water
- Technified irrigation
- Agroforestry systems through the establishment of borders with fruit trees (avocado, citrus and tara, depending on the sector) and native forest species in the highlands (queñuas, aliso).
- Productive restoration.
- Promotion of organic seals and "Allies for Conservation".

As main potential value chains to be promoted in this mosaic are identified:

- Guinea pig breeding.
- Fruit trees and vegetables in greenhouses.
- Tara
- Avocado
- Fish farming
- Coffee
- Cocoa
- Passion fruit

#### **c) Organizational structures, women and youth participation**

The main community organizations involved in managing the protected area in Ampay National Sanctuary's area of influence are the Administrative Service and Sanitation Boards (JASS) and the Irrigation Committees, as well as the Community Boards of Directors. The population is also organized into associations to market agricultural products.

In the area of influence of Machupicchu Historic Sanctuary and ACR Choquequirao, there are also agricultural cooperatives and producer associations. In addition, the population is organized into community boards of directors, water user boards, and JAAS. There is a Committee of Women Vendors and Artisans linked to the Machupicchu Historic Sanctuary and made up mostly of women.

Key stakeholders report that women's participation in these organizations is growing but has not reached parity, and that there are currently no initiatives that have worked on women's empowerment. Currently, women are involved through their participation in assemblies, with some notable cases of women leaders in productive associations (flower production in the Ampay National Sanctuary area and a committee of women vendors in the Machupicchu Historic Sanctuary) and women who hold positions as treasurers on the boards of directors (one notable case is that of a vice president of the community board of directors in the Ampay National Sanctuary).

Regarding youth participation in productive and communal activities, key stakeholders comment on the historical trend of youth migration to other regions in search of employment opportunities in extractive activities. However, it is noted that, because of the pandemic, many young people have returned to their places of origin and there is greater involvement in productive and community activities, many of them professionals and technicians, who are assuming the role of their parents in decision-making positions.

**d) Ecosystem management, threats, and track record of conservation initiatives under a climate change approach**

Forest fires, the advance of the agricultural and livestock frontier, and the advance of urban and/or rural areas for housing are the main threats facing Ampay National Sanctuary, Machupicchu Historic Sanctuary, and ACR Choquequirao. One of the main root causes of this problem in the first two is the population explosion and unplanned increase in housing areas, especially due to the return of the population during the pandemic, which increases pressure on the natural resources of the buffer zone and protected areas, with greater fragmentation in land distribution, higher incidence of slash and burns, and poor agricultural practices. On the other hand, neither area has support from the municipalities for urban planning and oversight of housing construction parameters that are compatible with the protected area and its buffer zone.

In addition to these problems, water stress in the SNA's area of influence is driving the population to change from agriculture to cattle ranching, abandoning properties in the lowlands and moving to the highlands, which generates deforestation, soil compaction, and affects water stability.

To address these threats, the management of each protected area has implemented different strategies:

- In the area of influence of Ampay National Sanctuary, both SERNANP and other key stakeholders such as MINAM and local NGOs have been implementing and promoting conservation agreements, certification of agricultural activity through participatory guarantee systems, implementation of sustainable production projects (flowers), and there is some history of implementing sustainable practices such as agroforestry systems, productive restoration with native species, exclusion of livestock, and protection of water sources. In addition, SERNANP organizes awareness talks on restoration and reforestation in schools and JAAS and has implemented two ecological restoration points inside the Sanctuary (an experience that faces monitoring limitations due to lack of funds).
- In the Machupicchu Historic Sanctuary's area of influence, SERNANP, together with the local population and other key stakeholders such as Peru Rail, has a history of avocado and small animal breeding projects as a strategy for adapting to climate change. The district municipality of Machupicchu, the Regional Government, and the National Agricultural Health Service (SENASA) are also supporting capacity building in this area. In the Sanctuary area, a reforestation program with native species (200 hectares) was recently implemented with the participation of the area's management committee, but it has been affected by budget cuts and is currently at risk of losing progress due to the need for irrigation. SERNANP is also working on participatory forest fire prevention management.
- In the ACR Choquequirao's area of influence, a public investment project is in the process of closing, which has focused on identifying biodiversity (flora and fauna inventory) in the area, based on the results of which the implementation of an interpretation center in the Santa Teresa district is planned. Other initiatives for the sustainability of the area include those promoted by the management committee, with whom training has been coordinated for the recognition and preservation of the area's resources and awareness of ecosystem conservation. In addition, CARE Peru led a project to promote intensive agricultural technology packages, which prioritized the passion fruit production chain.

It should be noted that the Ampay National Sanctuary recently updated its Master Plan (2022 - 2026) and both the Machupicchu Historic Sanctuary and ACR Choquequirao are currently updating their master plans. All the specialists in charge of these areas have agreed that these management instruments only address climate change in a cross-cutting manner (through talks), even though it is recognized that this factor has a strong influence on the main threats to these protected areas, such as land use change and forest fires.